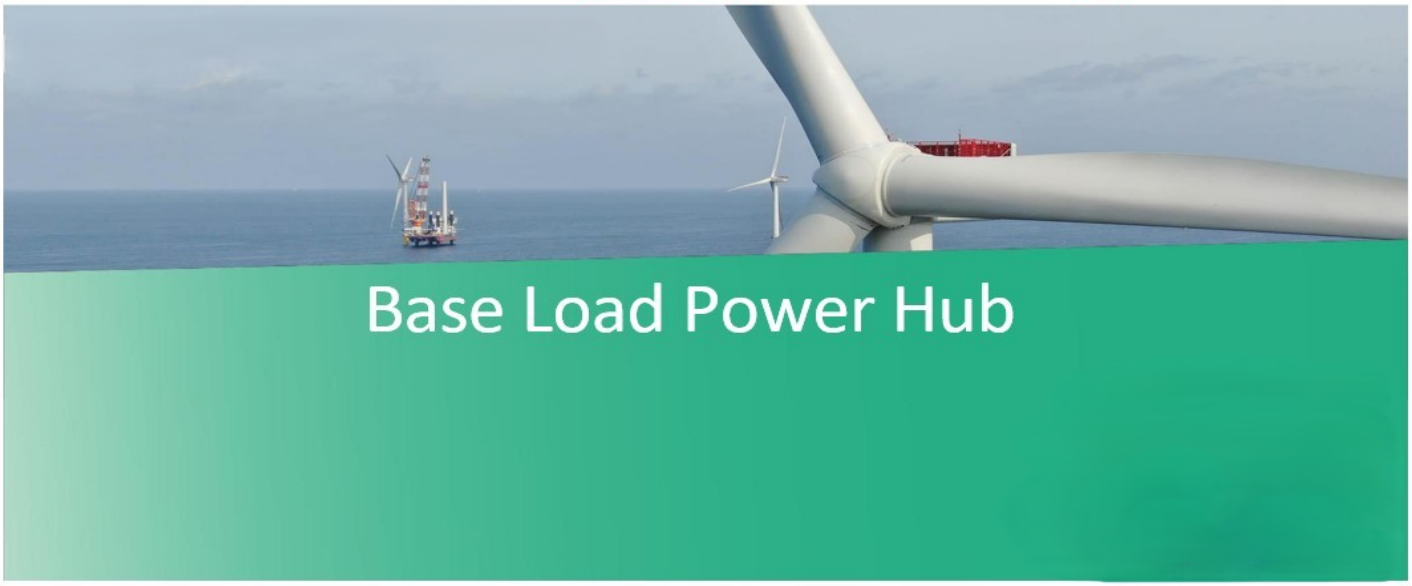
CROSSWIND

ROSETTI MARINO

PROVERLIS

PROJECT **123A90 - HOLLANDSE KUST NOORD WIND PARK**
BLPH Project



MECHANICAL COMPLETION DOSSIER (ONSHORE)

SYSTEM	70 Safety and Facility Systems
SUBSYSTEM	70-10 F&G Devices FZ-01 (Fuel Cell Area)

CROSSWIND	123A90 - HOLLANDSE KUST NOORD WIND PARK BLPH Project MECHANICAL COMPLETION DOSSIER INDEX	ROSETTI MARINO

Sub System N°:	70-10	Tick as appropriate	ONSHORE	O
Description:	F&G Devices FZ-01 (Fuel Cell Area)		OFFSHORE	NA

1.	***READY FOR COMMISSIONING CERTIFICATE*** *Ready For Commissioning Certificate (RFC)*	O
2.	***CONSOLIDATED PUNCH LISTS*** *Cleared and Residual Items*	O
3.	***SYSTEM/SUB-SYSTEM LIMIT DRAWINGS*** *Mark-up drawings showing the limits of the relevant System/Sub-System*	O
4.	***MECHANICAL COMPLETION STATUS INDEX – BUILDING DISCIPLINE*** *Building Sub-System Status Index (Print out) and Check/Test sheets*	NA
5.	***MECHANICAL COMPLETION STATUS INDEX – ELECTRICAL DISCIPLINE*** *Electrical Sub-System Status Index (Print out) and Check/Test Sheets* *Hazardous Area Equipment Detailed Inspection*	O
6.	***MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE*** *Instrumental Sub-System Status Index (Print out) and Check/Test Sheets*	O
7.	***MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE*** *Mechanical SubSystem Status Index (Print out) and Check/Test Sheets*	NA
8.	***MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE*** *Telecommunication Sub-System Status Index (Print out) and Check/Test Sheets*	NA
9.	***MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE*** *HVAC Sub-System Status Index (Print out) and Check/Test Sheets*	NA
10.	***MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE*** *Piping Sub-System Status Index and Check/Test Sheets*	NA
11.	***MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE*** *Safety Sub-System Status Index (Print out) and Check/Test Sheets*	NA
12.	***FAT / VENDOR REPORTS*** *Fat reports issued by vendors and/or vendor reports*	NA
13.	***MECHANICAL COMPLETION CHANGES / MARK-UPS*** *A copy of the changes initiated during the Mechanical Completion process pertaining to the relevant Sub-System will be incorporated in this section*	NA

Note: Under the generic terminology “Building” are also covered the following disciplines: **Structural, Painting**

Under the generic terminology “Instrumental” is also covered the following discipline: **Fire & Gas**

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Commissioning (RFC) Certificate

COMPLETE	●	PARTIAL	

Revision:	1		Issued on:	2025-01-16	
System:	70	/	Safety and Facility Systems		
SubSystem:	70-10	/	F&G Devices FZ-01 (Fuel Cell Area)		

1	COMPANY has, at its option and if required, reviewed the mechanical completion associated with the above-named system/sub-system of the SCOPE and observed that such functional sub-system has been brought into readiness for commencement of the associated pre-commissioning and commissioning activities, but for the outstanding punch list items, if any, attached and referred in this Certificate.
2	Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.
3	Mechanical Completion Status Index attached (per Discipline) Punch List report attached (Outstanding and Cleared)

PUNCH LIST	PENDING POINTS	
Note: All Category "A" Items must be cleared prior to issue a Ready For Commissioning (RFC) Certificate	A	B
	'0	59

REMARKS:

	CONTRACTOR Construction Manager	**CONTRACTOR** Commissioning Manager	**COMPANY** Construction Lead (if required)	**COMPANY** Commissioning Lead (if required)
Name	Sofia Marchetti	Anthony Iveson	CPY NOT PRESENT	CPY NOT PRESENT
Date	2025-01-18	2025-01-18	2025-01-18	2025-01-18
Signature	PROVERLIS Digitaly signed by Sofia Marchetti 2025-01-18T09:58:19.656Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-01-18T08:17:38.076Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2025-01-18T12:13:53.072Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2025-01-18T12:13:59.324Z

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & process: MC

Instrumental	70-10 F&G Devices FZ-01 (Fuel Cell Area)

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
950-FDZ-01102	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10001502	CJX43	100	2025-01-13	RFC 1
950-FDZ-01103	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10000971	CJX43	100	2024-12-05	RFC 1
950-MFA-01102	FZ-01 MFA Activation	ONSHORE	C10001543	CJX00	100	2024-12-24	RFC 1
950-MFA-01103	FZ-01 MFA Activation	ONSHORE	C10001054	CJX00	100	2024-12-05	RFC 1
950-XZ-01102	FZ-01 Sounder Activation	ONSHORE	C10001556	CJX00	100	2024-12-27	RFC 1
C-950-FDZ-01101/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000202	CJX10	100	2024-12-24	RFC 1
C-950-FDZ-01102/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000203	CJX10	100	2025-01-13	RFC 1
C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000204	CJX10	100	2024-12-05	RFC 1
C-950-FDZ-01104/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000205	CJX10	100	2025-01-13	RFC 1
C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000264	CJX10	100	2024-12-24	RFC 1
C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000265	CJX10	100	2024-12-27	RFC 1
C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000266	CJX10	100	2024-12-24	RFC 1
C-950-MFA-01101/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000294	CJX10	100	2024-12-23	RFC 1
C-950-MFA-01102/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000295	CJX10	100	2024-12-24	RFC 1
C-950-MFA-01103/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000296	CJX10	100	2024-12-05	RFC 1
C-950-XL-01101/950-JE-01104	BEACON / MARSHALLING PCS	ONSHORE	C10000322	CJX10	100	2024-12-12	RFC 1
C-950-XL-01102/950-JE-01104	BEACON / MARSHALLING PCS	ONSHORE	C10000323	CJX10	100	2024-12-13	RFC 1
C-950-XZ-01101/950-JE-01104	SOUNDER / MARSHALLING PCS	ONSHORE	C10000320	CJX10	100	2024-12-11	RFC 1
C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	ONSHORE	C10000321	CJX10	100	2024-12-27	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & process: MC

ATEX	70-10 F&G Devices FZ-01 (Fuel Cell Area)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10000969	CJX01	100	2024-12-24	RFC 1
950-FDZ-01104	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10001503	CJX01	100	2025-01-16	RFC 1
950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10001512	CJX01	100	2024-12-30	RFC 1
950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10001513	CJX01	100	2024-12-30	RFC 1
950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	ONSHORE	C10001514	CJX01	100	2024-12-30	RFC 1
950-MFA-01101	FZ-01 MFA Activation	ONSHORE	C10001052	CJX01	100	2024-12-24	RFC 1
950-XL-01101	FZ-01 Gas Beacon Activation	ONSHORE	C10001102	CJX01	100	2024-12-12	RFC 1
950-XL-01102	FZ-01 Fire Beacon Activation	ONSHORE	C10001103	CJX01	100	2024-12-13	RFC 1
950-XZ-01101	FZ-01 Sounder Activation	ONSHORE	C10001128	CJX01	100	2024-12-11	RFC 1

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001364	A	C-950-FDZ-011 03/950-JE-0110 1	Missing the entry thread seal, between the cable gland and the adaptor. side C-950-FDZ-01103	.		APolo 2024-12-05	2025-01-16	Gtangianu 2025-01-16	2025-01-16
C30002121	A	C-950-MFA-011 01/950-JE-0110 3	inside the jb the inner sheath of the cable does not properly exit from the cable gland.See attached photo.	.		Lmussi 2024-12-23	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002133	A	C-950-FDZ-011 01/950-JE-0110 1	thermoshrink of shield is damaged	.		AAndreani 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002152	A	C-950-GDZ-011 03/950-JE-0110 2	inside the instrument the inner sheath of the cable does not properly exit from the cable gland. Cable gland to be done again.	.		Lmussi 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002158	A	C-950-GDZ-011 01/950-JE-0110 2	Inside the instrument the inner sheath of the cable does not properly exit from the cable gland.See attached photo.	.		Lmussi 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002163	A	950-XZ-01102 C10001556	Earthing is not connected. See attached photo.	.		Gtangianu 2024-12-27	2025-01-15	Gtangianu 2025-01-15	2025-01-15
C30002176	A	C-950-GDZ-011 02/950-JE-0110 2	Missing earth cable on cable tray.	.		Lmussi 2024-12-27	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30001355	B	C-950-FDZ-011 03/950-JE-0110 1	Missing cable tag SS . side C-950-FDZ-01103 / 950-JE-01101	.		APolo 2024-12-05	2025-01-13	Ecarotenuto 2025-01-13	2025-01-13
C30001356	B	C-950-FDZ-011 03/950-JE-0110 1	Wrong cores identification tag. cabinet side stru. C-950-FDZ-01103 / JB 950-JE-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-05			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001357	B	950-FDZ-01103 C10000971	The tag tie is made of plastic. To be replaced in AISI	.		APolo 2024-12-05			
C30001358	B	950-FDZ-01103 C10000971	Missing the earth connection on the instrument.	.		APolo 2024-12-05	2025-01-02	Ecarotenuto 2025-01-02	2025-01-02
C30001359	B	C-950-FDZ-011 03/950-JE-0110 1	the plug installed is not conforms to specification. to be replace with Nickel Plated Brass, (see 123A90-DDL-IN-HD-40079_Rev.02 sh. 25) side	.		APolo 2024-12-05	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30001360	B	950-FDZ-01103 C10000971	Missing the separation system between different materials. (between steel "support" and carbon steel "structure).	.		APolo 2024-12-05			
C30001361	B	950-FDZ-01103 C10000971	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-05			
C30001362	B	C-950-MFA-011 03/950-JE-0110 3	Missing cable tag SS. side stru. C-950-MFA-01103 / JB 950-JE-01103	.		APolo 2024-12-05			
C30001363	B	C-950-MFA-011 03/950-JE-0110 3	Missing cores identification tag. side C-950-MFA-01103 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-05			
C30001365	B	950-MFA-01103 C10001054	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-05			
C30001366	B	950-MFA-01103 C10001054	Missing the separation system between different materials. (between steel "support" and carbon steel "structure).	.		APolo 2024-12-05			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001375	B	950-MFA-01103 C10001054	installation is not conforms to instrument installation details. (see 123A90-DDL-IN-DD-40017_ sh. 28) .	.		APolo 2024-12-05	2024-12-27	Ecarotenuto 2024-12-27	2024-12-27
C30001620	B	C-950-XZ-01101 /950-JE-01104 C10000320	Missing cable tag SS . side instrument.	.		APolo 2024-12-10	2024-12-28	Ecarotenuto 2024-12-28	2024-12-28
C30001621	B	C-950-XZ-01101 /950-JE-01104 C10000320	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-10			
C30001770	B	C-950-XL-01101 /950-JE-01104 C10000322	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12			
C30001772	B	C-950-XL-01101 /950-JE-01104 C10000322	Missing cable tag SS side C-950-XL-01101	.		APolo 2024-12-12			
C30001775	B	C-950-XL-01101 /950-JE-01104 C10000322	Missing core identification tag. shield side C-950-XL-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12			
C30001807	B	C-950-XL-01102 /950-JE-01104 C10000323	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-13			
C30001808	B	C-950-XL-01102 /950-JE-01104 C10000323	Missing cable tag SS side C-950-XL-01102	.		APolo 2024-12-13	2024-12-28	Ecarotenuto 2024-12-28	2024-12-28
C30001809	B	C-950-XL-01102 /950-JE-01104 C10000323	Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-13			

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PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002119	B	C-950-MFA-011 01/950-JE-0110 3	SS cable tag is missing on JB and instrument side	.		Lmussi 2024-12-23			
C30002120	B	C-950-MFA-011 01/950-JE-0110 3	Core identification tag is missing on instrument side	.		Lmussi 2024-12-23			
C30002131	B	C-950-FDZ-011 01/950-JE-0110 1	missing SS cable tag	.		AAndreani 2024-12-24			
C30002132	B	C-950-FDZ-011 01/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2024-12-24			
C30002148	B	C-950-GDZ-011 03/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-24			
C30002149	B	C-950-GDZ-011 03/950-JE-0110 2	On instrument side, cable is entering the instrument cable gland downwards while it should be upwards.	.		Lmussi 2024-12-24			
C30002150	B	C-950-GDZ-011 03/950-JE-0110 2	SS cable tag is missing on JB side.	.		Lmussi 2024-12-24			
C30002151	B	C-950-GDZ-011 03/950-JE-0110 2	On both JB and instrument sides, core identification tags are missing for all wires.	.		Lmussi 2024-12-24			
C30002153	B	C-950-GDZ-011 01/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-24			

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PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002154	B	C-950-GDZ-011 01/950-JE-0110 2	On instrument side cable is entering the instrument cable gland downwards while it should be upwards.	.		Lmussi 2024-12-24			
C30002156	B	C-950-GDZ-011 01/950-JE-0110 2	On both JB and instrument side, SS cable tag is missing.	.		Lmussi 2024-12-24			
C30002157	B	C-950-GDZ-011 01/950-JE-0110 2	On JB side, core identification tag is missing for all wires.	.		Lmussi 2024-12-24			
C30002159	B	950-MFA-01102 C10001543	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2024-12-24			
C30002160	B	C-950-MFA-011 02/950-JE-0110 3	Core tag is missing for cable on instrument side	.		AAndreani 2024-12-24			
C30002161	B	C-950-MFA-011 02/950-JE-0110 3	missing SS cable tag on JB side	.		AAndreani 2024-12-24			
C30002164	B	C-950-XZ-01102 /950-JE-01104 C10000321	Bending radius is not within the specified limits.See attached photo.	.		Gtangianu 2024-12-27			
C30002165	B	C-950-XZ-01102 /950-JE-01104 C10000321	Missing core identification tags on terminals inside the (950-XZ-01102)- See attached photo..	.		Gtangianu 2024-12-27			
C30002166	B	C-950-XZ-01102 /950-JE-01104 C10000321	Tag plate not installed. See attached photo.	.		Gtangianu 2024-12-27			

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002167	B	C-950-XZ-01102 /950-JE-01104 C10000321	Identification tag wire is wrong inside the (950-JE-01104) . See attached photo.	.		Gtangianu 2024-12-27			
C30002168	B	C-950-XZ-01102 /950-JE-01104 C10000321	Missing SS cable tag side the (950-JE-01104).See attached photo.	.		Gtangianu 2024-12-27			
C30002173	B	C-950-GDZ-011 02/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-27			
C30002174	B	C-950-GDZ-011 02/950-JE-0110 2	SS cable tag is missing on both instrument and JB side.	.		Lmussi 2024-12-27			
C30002175	B	C-950-GDZ-011 02/950-JE-0110 2	On JB side, core identification tags are missing for all wires. On instrument side, core identification tag is missing for shield wire.	.		Lmussi 2024-12-27			
C30002177	B	C-950-GDZ-011 02/950-JE-0110 2	Cable is entering the Light cable gland downwards while it should be upwards.	.		Lmussi 2024-12-27			
C30002699	B	C-950-FDZ-011 02/950-JE-0110 1	missing SS cable tag on JB side	.		AAndreani 2025-01-13			
C30002700	B	C-950-FDZ-011 02/950-JE-0110 1	cable not supported outside cabletray	.		AAndreani 2025-01-13			
C30002701	B	C-950-FDZ-011 04/950-JE-0110 1	missing SS cable tag on both JB and instrument side	.		AAndreani 2025-01-13			

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002702	B	C-950-FDZ-011 04/950-JE-0110 1	cable not supported outside cabletray, see attached foto	.		AAndreani 2025-01-13			
C30002703	B	C-950-FDZ-011 04/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2025-01-13			
C30002704	B	C-950-FDZ-011 02/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2025-01-13			
C30002705	B	950-FDZ-01102 C10001502	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2025-01-13			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002140	A	950-FDZ-01101 C10000969	internal earth screw is wrong, it can't be tightened on the cable	.		AAndreani 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002220	A	950-GDZ-01101 C10001512	Instrument earth connetcion is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002221	A	950-GDZ-01102 C10001513	Instrument earthing wire is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002223	A	950-GDZ-01103 C10001514	Instrument earthing wire is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002225	A	950-GDZ-01103 C10001514	Ultrasonic sensor is missing.	.		Lmussi 2024-12-30	2025-01-07	Ecarotenuto 2025-01-07	2025-01-07
C30001619	B	950-XZ-01101 C10001128	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-10			
C30001755	B	950-XL-01101 C10001102	Missing traffolyte tag side instrument	.		APolo 2024-12-12	2024-12-30	Ecarotenuto 2024-12-30	2024-12-30
C30001759	B	950-XL-01101 C10001102	Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12			
C30001764	B	950-XL-01101 C10001102	The protection cage of the instrument is damaged (it is not fixed)	.		APolo 2024-12-12			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001766	B	950-XL-01101 C10001102	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-12			
C30001810	B	950-XL-01102 C10001103	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-13			
C30001811	B	950-XL-01102 C10001103	Missing traffolyte tag side instrument	.		APolo 2024-12-13	2024-12-30	Ecarotenuto 2024-12-30	2024-12-30
C30002139	B	950-FDZ-01101 C10000969	missing sunshade of the instrument as per drawing 123A90-DDL-IN-DD-40017	.		AAndreani 2024-12-24			
C30002141	B	950-FDZ-01101 C10000969	missing one screw of enclosure	.		AAndreani 2024-12-24			
C30002142	B	950-FDZ-01101 C10000969	tag tie is made in plastic instead of AISI	.		AAndreani 2024-12-24			
C30002144	B	950-FDZ-01101 C10000969	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2024-12-24			
C30002219	B	950-GDZ-01101 C10001512	ATEX certified plug is missing (plastic plug is present insted).	.		Lmussi 2024-12-30			
C30002222	B	950-GDZ-01102 C10001513	ATEX plug is missing (instead, plastic plug is present).	.		Lmussi 2024-12-30			

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PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002224	B	950-GDZ-01103 C10001514	ATEX certified plug is missing (instead, a plastic plug is present).	.		Lmussi 2024-12-30			
C30002226	B	950-GDZ-01103 C10001514	SS instrument tag is present but not fixed.	.		Lmussi 2024-12-30			
C30002957	B	950-FDZ-01104 C10001503	The tag plate SS is not fix ploperly. Need to be change the plastic ties.	.		Gtangianu 2025-01-16			

Section 2 CONSOLIDATED PUNCH LISTS

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PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001364	A	C-950-FDZ-011 03/950-JE-0110 1	Missing the entry thread seal, between the cable gland and the adaptor. side C-950-FDZ-01103	.		APolo 2024-12-05	2025-01-16	Gtangianu 2025-01-16	2025-01-16
C30002121	A	C-950-MFA-011 01/950-JE-0110 3	inside the jb the inner sheath of the cable does not properly exit from the cable gland.See attached photo.	.		Lmussi 2024-12-23	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002133	A	C-950-FDZ-011 01/950-JE-0110 1	thermoshrink of shield is damaged	.		AAndreani 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002152	A	C-950-GDZ-011 03/950-JE-0110 2	inside the instrument the inner sheath of the cable does not properly exit from the cable gland. Cable gland to be done again.	.		Lmussi 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002158	A	C-950-GDZ-011 01/950-JE-0110 2	Inside the instrument the inner sheath of the cable does not properly exit from the cable gland.See attached photo.	.		Lmussi 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002163	A	950-XZ-01102 C10001556	Earthing is not connected. See attached photo.	.		Gtangianu 2024-12-27	2025-01-15	Gtangianu 2025-01-15	2025-01-15
C30002176	A	C-950-GDZ-011 02/950-JE-0110 2	Missing earth cable on cable tray.	.		Lmussi 2024-12-27	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30001355	B	C-950-FDZ-011 03/950-JE-0110 1	Missing cable tag SS . side C-950-FDZ-01103 / 950-JE-01101	.		APolo 2024-12-05	2025-01-13	Ecarotenuto 2025-01-13	2025-01-13
C30001356	B	C-950-FDZ-011 03/950-JE-0110 1	Wrong cores identification tag. cabinet side stru. C-950-FDZ-01103 / JB 950-JE-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-05	2025-02-22	APolo 2025-02-22	2025-02-22

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001357	B	950-FDZ-01103 C10000971	The tag tie is made of plastic. To be replaced in AISI	.		APolo 2024-12-05	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30001358	B	950-FDZ-01103 C10000971	Missing the earth connection on the instrument.	.		APolo 2024-12-05	2025-01-02	Ecarotenuto 2025-01-02	2025-01-02
C30001359	B	C-950-FDZ-01103/950-JE-01101	the plug installed is not conforms to specification. to be replace with Nickel Plated Brass, (see 123A90-DDL-IN-HD-40079_Rev.02 sh. 25) side	.		APolo 2024-12-05	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30001360	B	950-FDZ-01103 C10000971	Missing the separation system between different materials. (between steel "support" and carbon steel "structure).	.		APolo 2024-12-05	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30001361	B	950-FDZ-01103 C10000971	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-05	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30001362	B	C-950-MFA-01103/950-JE-01103	Missing cable tag SS. side stru. C-950-MFA-01103 / JB 950-JE-01103	.		APolo 2024-12-05	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30001363	B	C-950-MFA-01103/950-JE-01103	Missing cores identification tag. side C-950-MFA-01103 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-05	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30001365	B	950-MFA-01103 C10001054	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-05	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30001366	B	950-MFA-01103 C10001054	Missing the separation system between different materials. (between steel "support" and carbon steel "structure).	.		APolo 2024-12-05	2025-01-21	AAndreani 2025-01-21	2025-01-21

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems

SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001375	B	950-MFA-01103 C10001054	installation is not conforms to instrument installation details. (see 123A90-DDL-IN-DD-40017_ sh. 28) .	.		APolo 2024-12-05	2024-12-27	Ecarotenuto 2024-12-27	2024-12-27
C30001620	B	C-950-XZ-01101 /950-JE-01104 C10000320	Missing cable tag SS . side instrument.	.		APolo 2024-12-10	2024-12-28	Ecarotenuto 2024-12-28	2024-12-28
C30001621	B	C-950-XZ-01101 /950-JE-01104 C10000320	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-10	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30001770	B	C-950-XL-01101 /950-JE-01104 C10000322	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30001772	B	C-950-XL-01101 /950-JE-01104 C10000322	Missing cable tag SS side C-950-XL-01101	.		APolo 2024-12-12	2025-01-22	APolo 2025-01-22	2025-01-22
C30001775	B	C-950-XL-01101 /950-JE-01104 C10000322	Missing core identification tag. shield side C-950-XL-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30001807	B	C-950-XL-01102 /950-JE-01104 C10000323	Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-13	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30001808	B	C-950-XL-01102 /950-JE-01104 C10000323	Missing cable tag SS side C-950-XL-01102	.		APolo 2024-12-13	2024-12-28	Ecarotenuto 2024-12-28	2024-12-28
C30001809	B	C-950-XL-01102 /950-JE-01104 C10000323	Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-13	2025-04-08	Gtangianu 2025-04-08	2025-04-08

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002119	B	C-950-MFA-011 01/950-JE-0110 3	SS cable tag is missing on JB and instrument side	.		Lmussi 2024-12-23	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002120	B	C-950-MFA-011 01/950-JE-0110 3	Core identification tag is missing on instrument side	.		Lmussi 2024-12-23	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002131	B	C-950-FDZ-011 01/950-JE-0110 1	missing SS cable tag	.		AAndreani 2024-12-24	2025-02-26	AAndreani 2025-02-26	2025-02-26
C30002132	B	C-950-FDZ-011 01/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2024-12-24	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30002148	B	C-950-GDZ-011 03/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-24	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002149	B	C-950-GDZ-011 03/950-JE-0110 2	On instrument side, cable is entering the instrument cable gland downwards while it should be upwards.	.		Lmussi 2024-12-24	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002150	B	C-950-GDZ-011 03/950-JE-0110 2	SS cable tag is missing on JB side.	.		Lmussi 2024-12-24	2025-02-22	JKrizanic 2025-02-22	2025-02-22
C30002151	B	C-950-GDZ-011 03/950-JE-0110 2	On both JB and instrument sides, core identification tags are missing for all wires.	.		Lmussi 2024-12-24	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30002153	B	C-950-GDZ-011 01/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-24	2025-01-31	AAndreani 2025-01-31	2025-01-31

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002154	B	C-950-GDZ-011 01/950-JE-0110 2	On instrument side cable is entering the instrument cable gland downwards while it should be upwards.	.		Lmussi 2024-12-24	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002156	B	C-950-GDZ-011 01/950-JE-0110 2	On both JB and instrument side, SS cable tag is missing.	.		Lmussi 2024-12-24	2025-02-22	JKrizanic 2025-02-22	2025-02-22
C30002157	B	C-950-GDZ-011 01/950-JE-0110 2	On JB side, core identification tag is missing for all wires.	.		Lmussi 2024-12-24	2025-02-20	JKrizanic 2025-02-20	2025-02-20
C30002159	B	950-MFA-01102 C10001543	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2024-12-24	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30002160	B	C-950-MFA-011 02/950-JE-0110 3	Core tag is missing for cable on instrument side	.		AAndreani 2024-12-24	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002161	B	C-950-MFA-011 02/950-JE-0110 3	missing SS cable tag on JB side	.		AAndreani 2024-12-24	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002164	B	C-950-XZ-01102 /950-JE-01104 C10000321	Bending radius is not within the specified limits.See attached photo.	.		Gtangianu 2024-12-27	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002165	B	C-950-XZ-01102 /950-JE-01104 C10000321	Missing core identification tags on terminals inside the (950-XZ-01102)- See attached photo..	.		Gtangianu 2024-12-27	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30002166	B	C-950-XZ-01102 /950-JE-01104 C10000321	Tag plate not installed. See attached photo.	.		Gtangianu 2024-12-27	2025-01-30	AAndreani 2025-01-30	2025-01-30

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002167	B	C-950-XZ-01102 /950-JE-01104 C10000321	Identification tag wire is wrong inside the (950-JE-01104) . See attached photo.	.		Gtangianu 2024-12-27	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30002168	B	C-950-XZ-01102 /950-JE-01104 C10000321	Missing SS cable tag side the (950-JE-01104).See attached photo.	.		Gtangianu 2024-12-27	2025-02-26	Gtangianu 2025-02-26	2025-02-26
C30002173	B	C-950-GDZ-011 02/950-JE-0110 2	MCT is missing.	.		Lmussi 2024-12-27	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002174	B	C-950-GDZ-011 02/950-JE-0110 2	SS cable tag is missing on both instrument and JB side.	.		Lmussi 2024-12-27	2025-02-22	JKrizanic 2025-02-22	2025-02-22
C30002175	B	C-950-GDZ-011 02/950-JE-0110 2	On JB side, core identification tags are missing for all wires. On instrument side, core identification tag is missing for shield wire.	.		Lmussi 2024-12-27	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30002177	B	C-950-GDZ-011 02/950-JE-0110 2	Cable is entering the Light cable gland downwards while it should be upwards.	.		Lmussi 2024-12-27	2025-02-25	APolo 2025-02-25	2025-02-25
C30002699	B	C-950-FDZ-011 02/950-JE-0110 1	missing SS cable tag on JB side	.		AAndreani 2025-01-13	2025-02-22	JKrizanic 2025-02-22	2025-02-22
C30002700	B	C-950-FDZ-011 02/950-JE-0110 1	cable not supported outside cabletray	.		AAndreani 2025-01-13	2025-03-01	AAndreani 2025-03-01	2025-03-01
C30002701	B	C-950-FDZ-011 04/950-JE-0110 1	missing SS cable tag on both JB and instrument side	.		AAndreani 2025-01-13	2025-02-27	AAndreani 2025-02-27	2025-02-27

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PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002702	B	C-950-FDZ-011 04/950-JE-0110 1	cable not supported outside cabletray, see attached foto	.		AAndreani 2025-01-13	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002703	B	C-950-FDZ-011 04/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2025-01-13	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30002704	B	C-950-FDZ-011 02/950-JE-0110 1	Core tag is missing for cable on both JB and instrument side	.		AAndreani 2025-01-13	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30002705	B	950-FDZ-01102 C10001502	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2025-01-13	2025-03-07	Gtangianu 2025-03-07	2025-03-07

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PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002140	A	950-FDZ-01101 C10000969	internal earth screw is wrong, it can't be tightened on the cable	.		AAndreani 2024-12-24	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002220	A	950-GDZ-01101 C10001512	Instrument earth connetcion is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002221	A	950-GDZ-01102 C10001513	Instrument earthing wire is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002223	A	950-GDZ-01103 C10001514	Instrument earthing wire is missing.	.		Lmussi 2024-12-30	2025-01-13	Gtangianu 2025-01-13	2025-01-13
C30002225	A	950-GDZ-01103 C10001514	Ultrasonic sensor is missing.	.		Lmussi 2024-12-30	2025-01-07	Ecarotenuto 2025-01-07	2025-01-07
C30001619	B	950-XZ-01101 C10001128	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-10	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30001755	B	950-XL-01101 C10001102	Missing traffolyte tag side instrument	.		APolo 2024-12-12	2024-12-30	Ecarotenuto 2024-12-30	2024-12-30
C30001759	B	950-XL-01101 C10001102	Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2024-12-12	2025-04-08	Gtangianu 2025-04-08	2025-04-08
C30001764	B	950-XL-01101 C10001102	The protection cage of the instrument is damaged (it is not fixed)	.		APolo 2024-12-12	2025-02-08	GBertuccelli 2025-02-08	2025-02-08

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 70 Safety and Facility Systems
SUBSYSTEM 70-10 F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001766	B	950-XL-01101 C10001102	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-12	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30001810	B	950-XL-01102 C10001103	the support is not well secured against vibration. another bracket needs to be added.	.		APolo 2024-12-13	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30001811	B	950-XL-01102 C10001103	Missing traffolyte tag side instrument	.		APolo 2024-12-13	2024-12-30	Ecarotenuto 2024-12-30	2024-12-30
C30002139	B	950-FDZ-01101 C10000969	missing sunshade of the instrument as per drawing 123A90-DDL-IN-DD-40017	.		AAndreani 2024-12-24	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002141	B	950-FDZ-01101 C10000969	missing one screw of enclosure	.		AAndreani 2024-12-24	2025-01-21	AAndreani 2025-01-21	2025-01-21
C30002142	B	950-FDZ-01101 C10000969	tag tie is made in plastic instead of AISI	.		AAndreani 2024-12-24	2025-01-29	AAndreani 2025-01-29	2025-01-29
C30002144	B	950-FDZ-01101 C10000969	The support is not well secured against vibration. Another support needs to be added	.		AAndreani 2024-12-24	2025-03-07	Gtangianu 2025-03-07	2025-03-07
C30002219	B	950-GDZ-01101 C10001512	ATEX certified plug is missing (plastic plug is present insted).	.		Lmussi 2024-12-30	2025-01-31	AAndreani 2025-01-31	2025-01-31
C30002222	B	950-GDZ-01102 C10001513	ATEX plug is missing (instead, plastic plug is present).	.		Lmussi 2024-12-30	2025-01-31	AAndreani 2025-01-31	2025-01-31

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	70	Safety and Facility Systems
SUBSYSTEM	70-10	F&G Devices FZ-01 (Fuel Cell Area)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002224	B	950-GDZ-01103 C10001514	ATEX certified plug is missing (instead, a plastic plug is present).	.		Lmussi 2024-12-30	2025-01-31	AAndreani 2025-01-31	2025-01-31
C30002226	B	950-GDZ-01103 C10001514	SS instrument tag is present but not fixed.	.		Lmussi 2024-12-30	2025-01-29	AAndreani 2025-01-29	2025-01-29
C30002957	B	950-FDZ-01104 C10001503	The tag plate SS is not fix ploperly. Need to be change the plastic ties.	.		Gtangianu 2025-01-16	2025-01-31	GBertuccelli 2025-01-31	2025-01-31

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002703

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000205	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01104/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Core tag is missing for cable on both JB and instrument side

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

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3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002704

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000203	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01102/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Core tag is missing for cable on both JB and instrument side

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002705

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001502	1.4 Discipline	Instrumental
1.2 Item	950-FDZ-01102	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

The support is not well secured against vibration. Another support needs to be added

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002957

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001503	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01104	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

The tag plate SS is not fix ploperly. Need to be change the plastic ties.

Name: Giovanni Tangianu

Date: 2025-01-16

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-16
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Gabriele Bertuccelli

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001770

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000322	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01101/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-12
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


2/C-950-XZ-01101/950-JE-01104/SH
SH/C-950-XZ-01101/950-JE-01104/SH
3/950-XZ-01102/1
4/950-XZ-01102/2
Sh/950-XZ-01102/Sh
5/C-950-XL-01101/950-JE-01104/1
6/C-950-XL-01101/950-JE-01104/3
SH/C-950-XL-01101/950-JE-01104/SH
7/C-950-XL-01102/950-JE-01104/1
SH/C-950-XL-01102/950-JE-01104/SH
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ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001772

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000322	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01101/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cable tag SS side C-950-XL-01101

Name: Alessio Polo

Date: 2024-12-12

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001775

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000322	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01101/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing core identification tag. shield side C-950-XL-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-12
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001807

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000323	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01102/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-13
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


2/C-950-XZ-01101/950-JE-01104/SH
SH/C-950-XZ-01101/950-JE-01104/SH
3/950-XZ-01102/1
4/950-XZ-01102/2
Sh/950-XZ-01102/Sh
5/C-950-XL-01101/950-JE-01104/1
6/C-950-XL-01101/950-JE-01104/3
SH/C-950-XL-01101/950-JE-01104/SH
7/C-950-XL-01102/950-JE-01104/1
SH/C-950-XL-01102/950-JE-01104/SH
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ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001808

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000323	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01102/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cable tag SS side C-950-XL-01102

Name: Alessio Polo

Date: 2024-12-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-12-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


WARNING
950 XL

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001809

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000323	1.4 Discipline	Instrumental
1.2 Item	C-950-XL-01102/950-JE-01104	BEACON / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-13
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001810

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001103	1.4 Discipline	ATEX
1.2 Item	950-XL-01102	FZ-01 Fire Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001811

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001103	1.4 Discipline	ATEX
1.2 Item	950-XL-01102	FZ-01 Fire Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing traffolyte tag side instrument

Name: Alessio Polo

Date: 2024-12-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002119

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000294	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01101/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

SS cable tag is missing on JB and instrument side

Name: Luca Mussi

Date: 2024-12-23

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-23
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

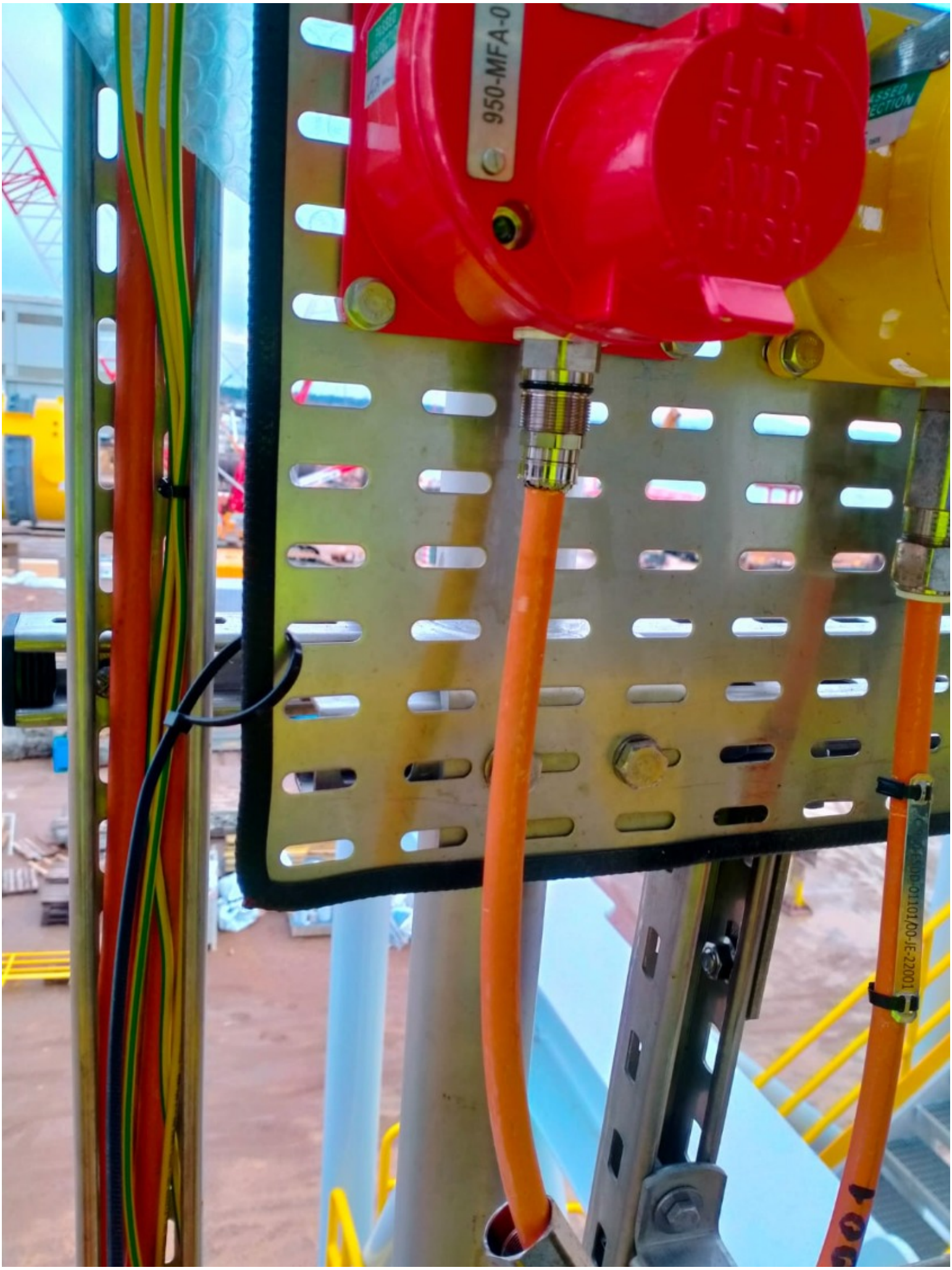
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-MFA-0
LIFT
FIRE
AND
PUSH



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002120

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000294	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01101/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Core identification tag is missing on instrument side

Name: Luca Mussi

Date: 2024-12-23

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-23
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

950-ESDD-0

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002121

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000294	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01101/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

inside the jb the inner sheath of the cable does not properly exit from the cable gland.See attached photo.

Name: Luca Mussi

Date: 2024-12-23

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-23
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-13

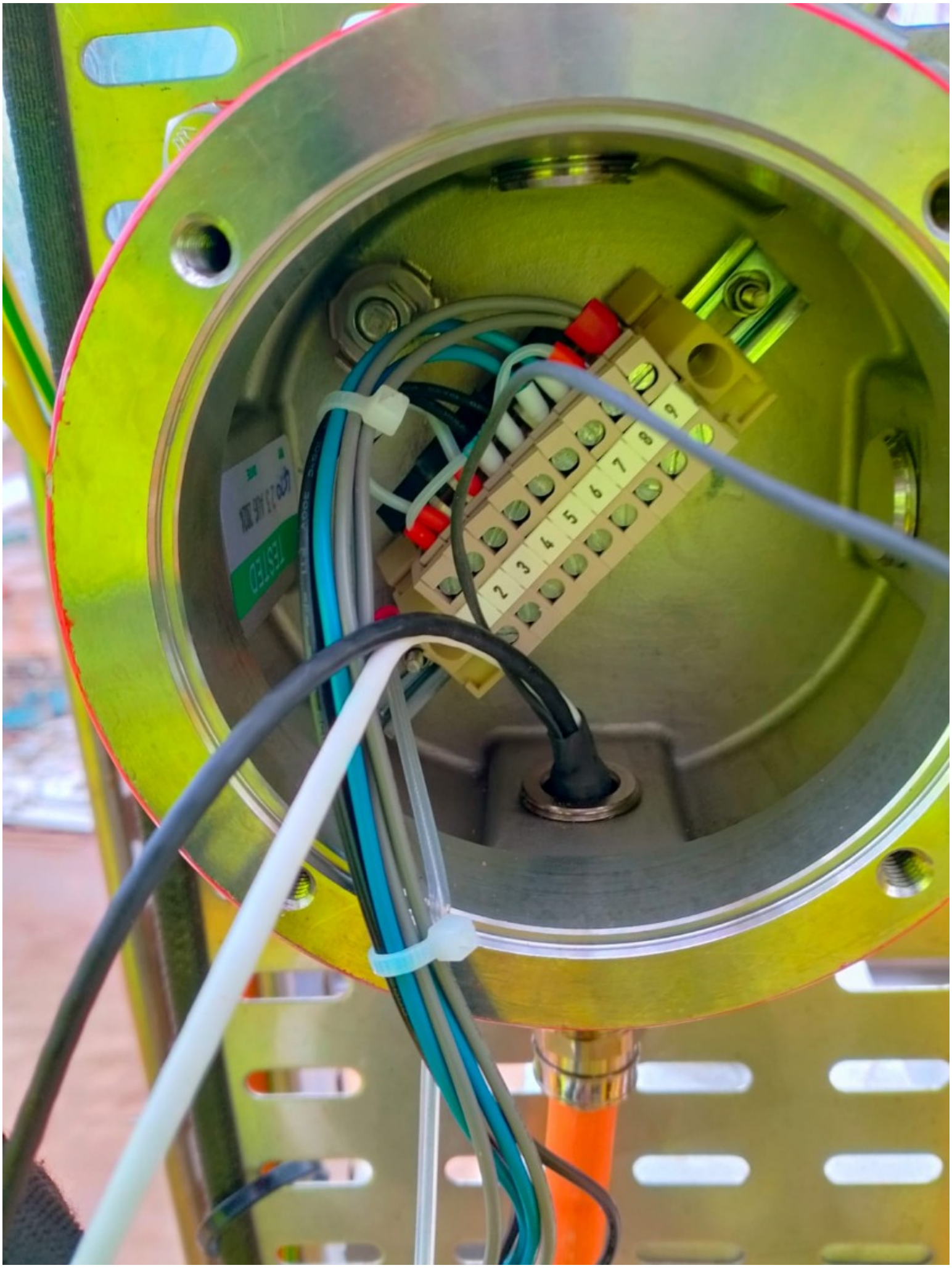
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


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ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002131

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000202	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01101/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing SS cable tag

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002132

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000202	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01101/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Core tag is missing for cable on both JB and instrument side

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002133

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000202	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01101/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

thermoshrink of shield is damaged

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002139

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000969	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing sunshade of the instrument as per drawing 123A90-DDL-IN-DD-40017

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002140

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000969	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

internal earth screw is wrong, it can't be tightened on the cable

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002141

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000969	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing one screw of enclosure

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002142

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000969	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

tag tie is made in plastic instead of AISI

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-29

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002144

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000969	1.4 Discipline	ATEX
1.2 Item	950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

The support is not well secured against vibration. Another support needs to be added

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002148

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000266	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

MCT is missing.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002149

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000266	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On instrument side, cable is entering the instrument cable gland downwards while it should be upwards.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Nitto

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002150

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000266	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

SS cable tag is missing on JB side.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-22

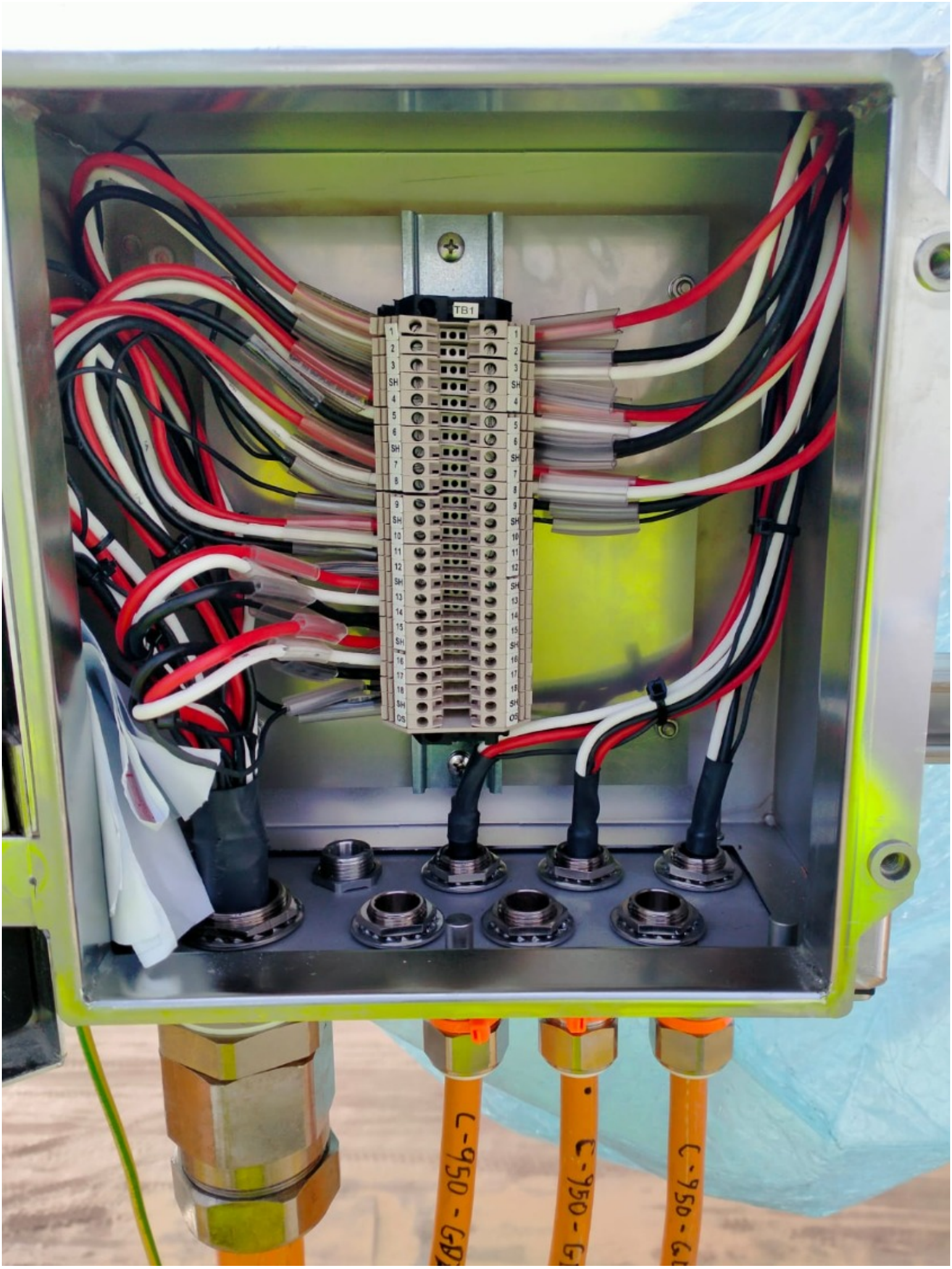
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


TB1
C-950-GD
C-950-G
C-950-G

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002151

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000266	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On both JB and instrument sides, core identification tags are missing for all wires.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-08

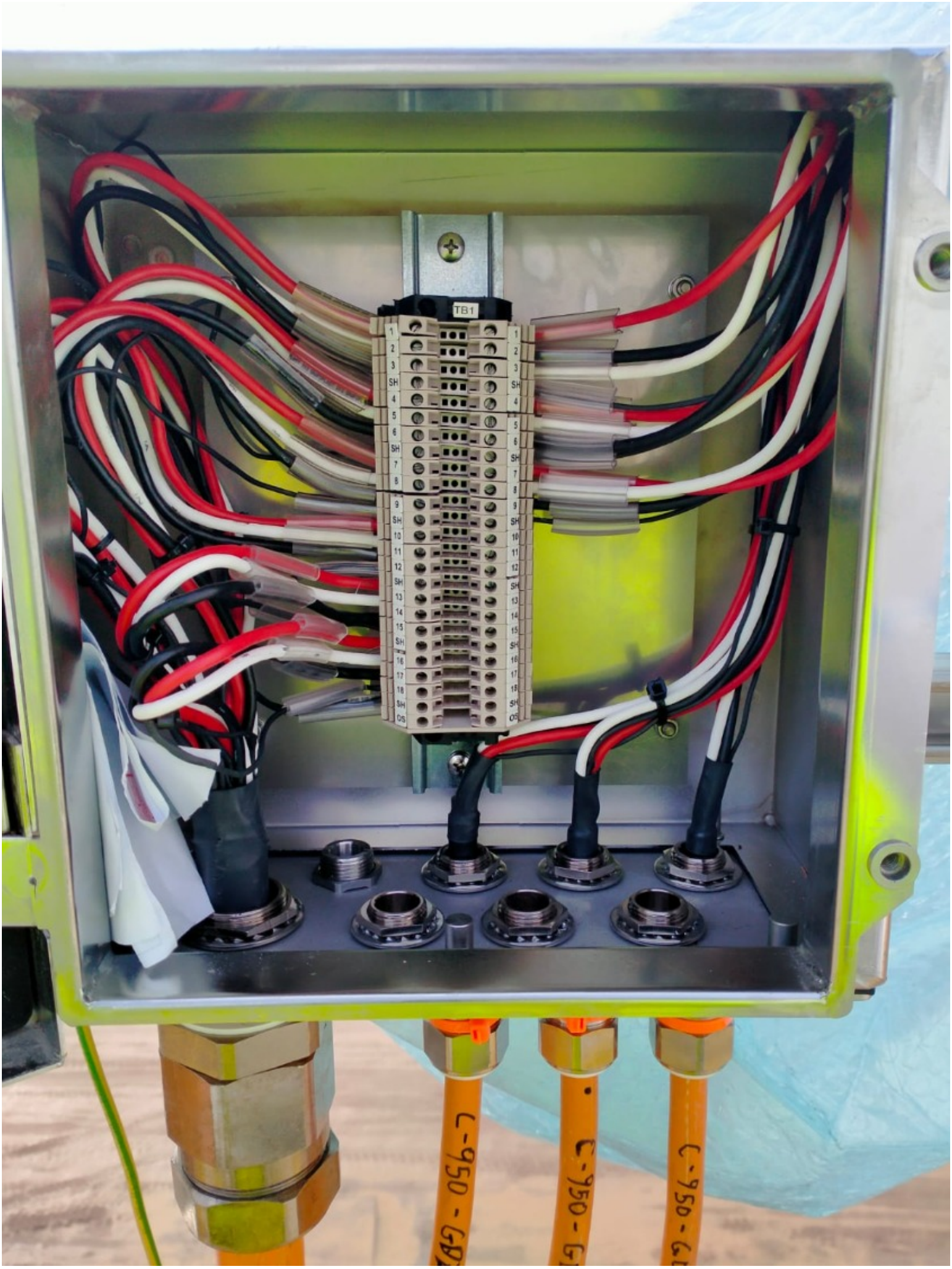
Signature:

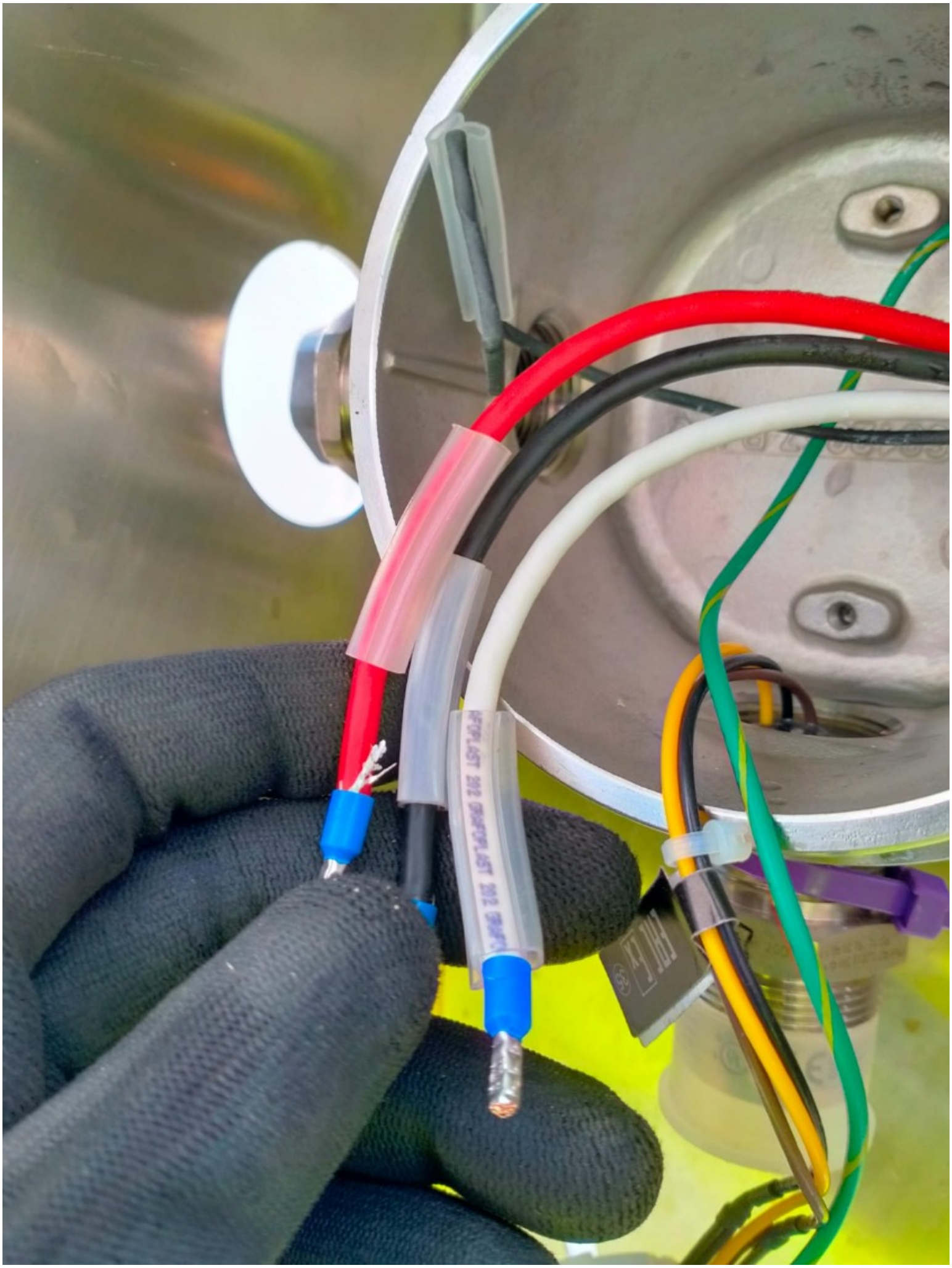
6- CLEARANCE APPROVAL

Name:

Date:

Signature:


TB1
C-950-GD
C-950-G
C-950-G



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002152

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000266	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

inside the instrument the inner sheath of the cable does not properly exit from the cable gland. Cable gland to be done again.

Name: Luca Mussi
Date: 2024-12-24
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

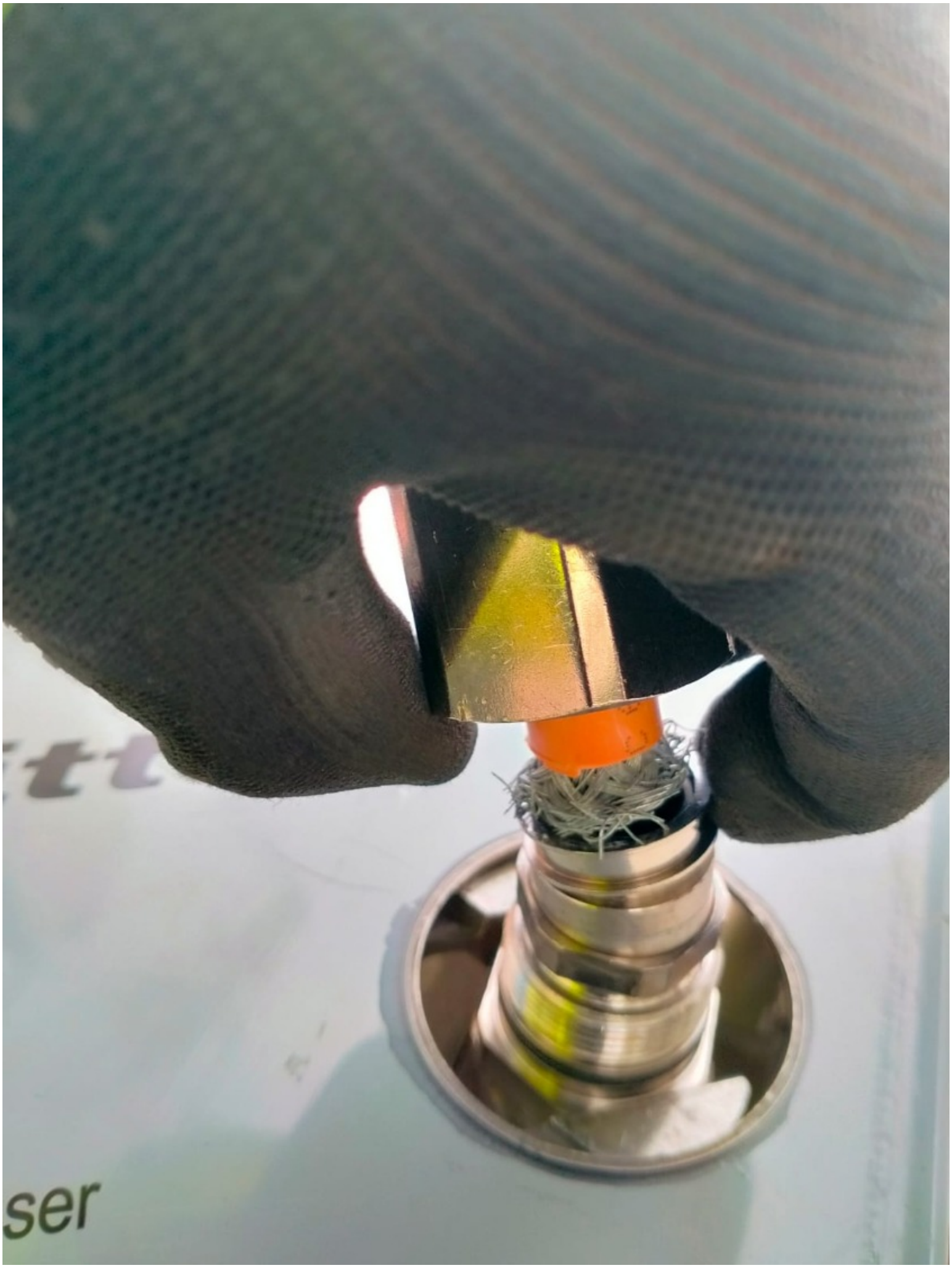
Done .

Name: Giovanni Tangianu
Date: 2025-01-13
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:





ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002153

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000264	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

MCT is missing.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002154

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000264	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On instrument side cable is entering the instrument cable gland downwards while it should be upwards.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002156

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000264	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On both JB and instrument side, SS cable tag is missing.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-22

Signature:

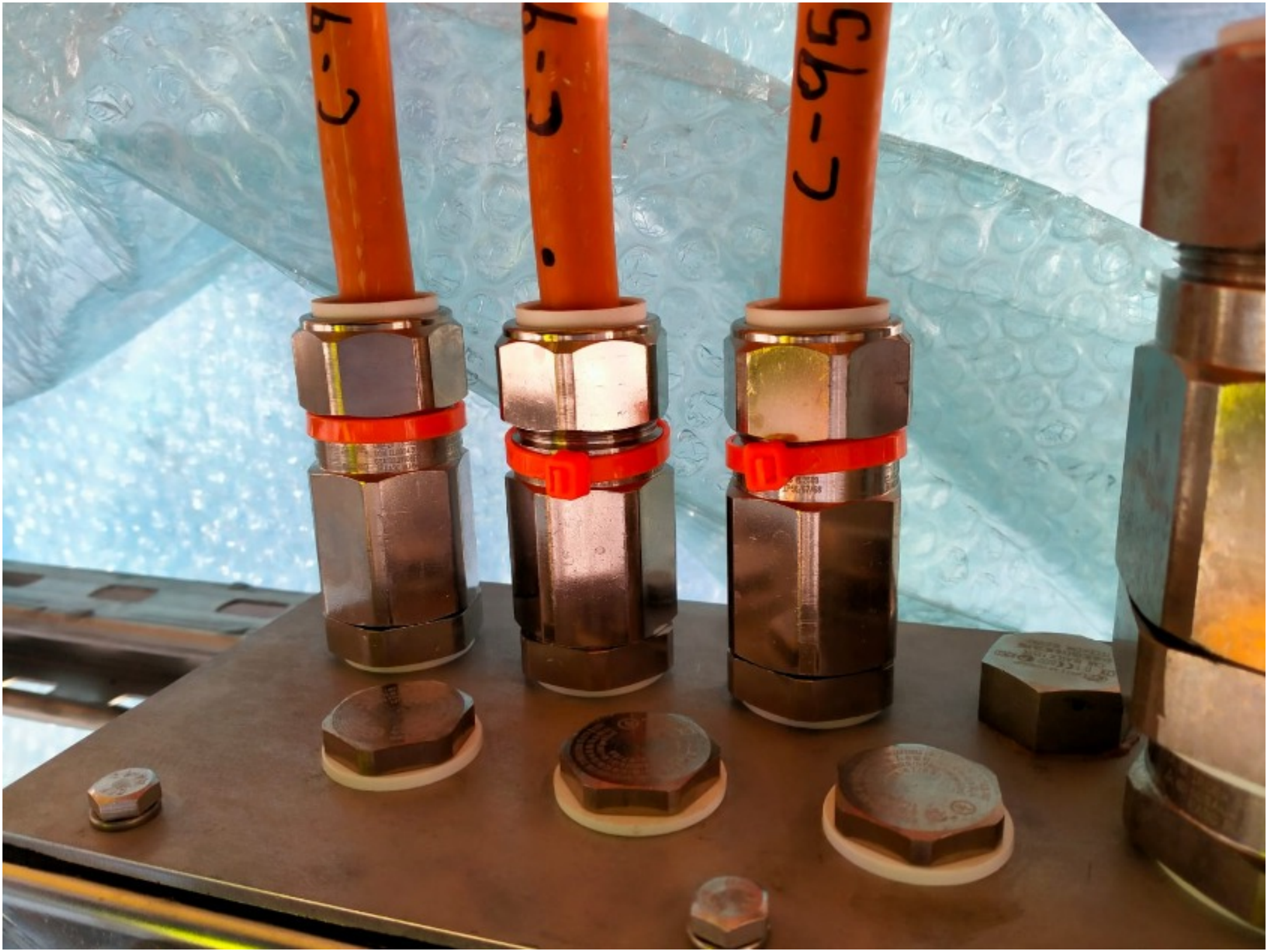
6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Nitto



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002157

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000264	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On JB side, core identification tag is missing for all wires.

Name: Luca Mussi

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002158

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000264	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Inside the instrument the inner sheath of the cable does not properly exit from the cable gland.See attached photo.

Name: Luca Mussi
Date: 2024-12-24
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-01-13
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002159

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001543	1.4 Discipline	Instrumental
1.2 Item	950-MFA-01102	FZ-01 MFA Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

The support is not well secured against vibration. Another support needs to be added

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002160

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000295	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01102/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Core tag is missing for cable on instrument side

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002161

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000295	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01102/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing SS cable tag on JB side

Name: Andrea Andreani

Date: 2024-12-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2024-12-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002163

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001556	1.4 Discipline	Instrumental
1.2 Item	950-XZ-01102	FZ-01 Sounder Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Earthing is not connected. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Connected.

Name: Giovanni Tangianu

Date: 2025-01-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-MFA-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002164

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000321	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Bending radius is not within the specified limits.See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-MFA-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002165

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000321	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing core identification tags on terminals inside the (950-XZ-01102)- See attached photo..

Name: Giovanni Tangianu
Date: 2024-12-27
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

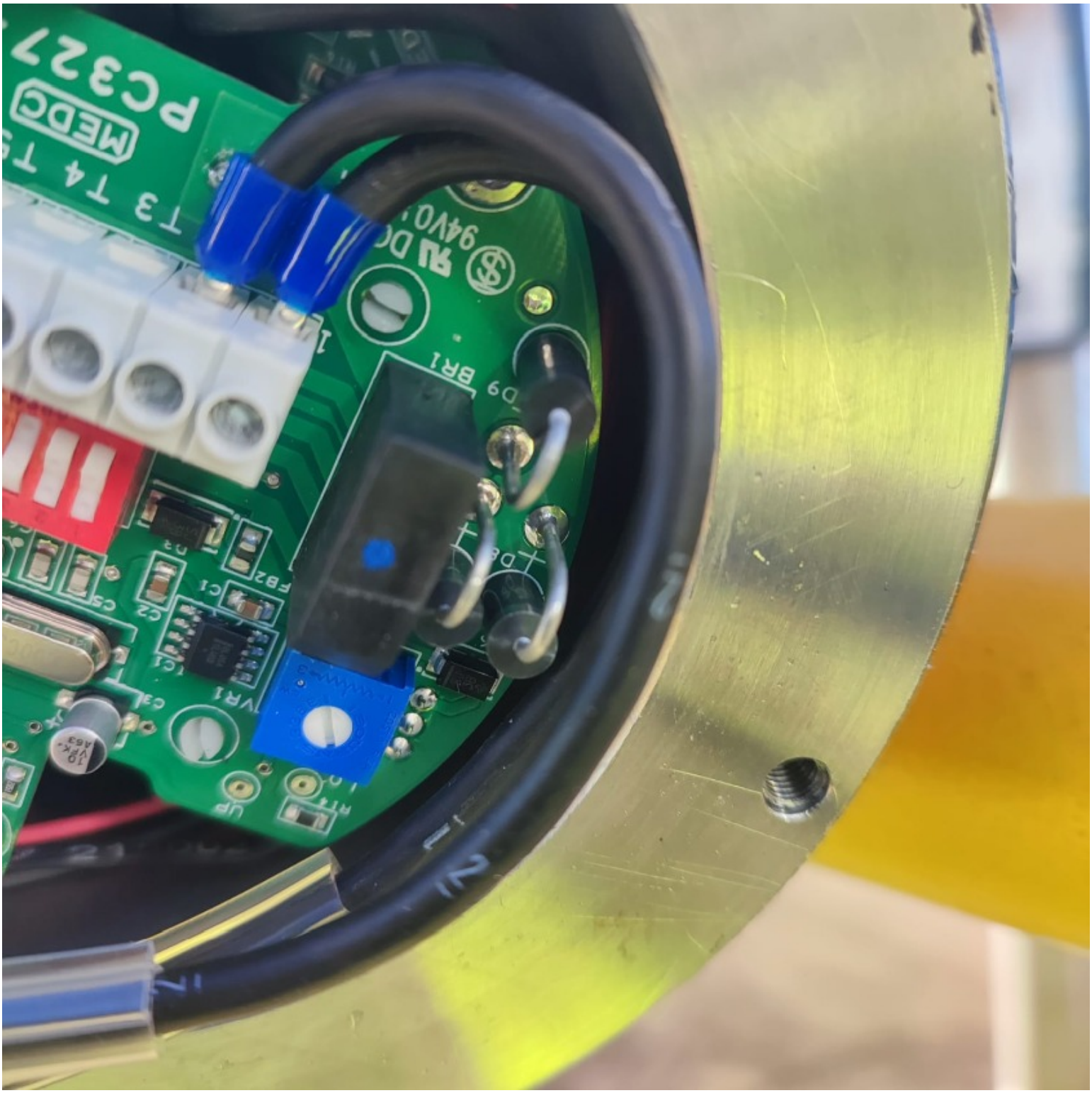
5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


MEDC
T3 T4 T5
94V0
BR1
VR1

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002166

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000321	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Tag plate not installed. See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-MFA-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002167

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000321	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Identification tag wire is wrong inside the (950-JE-01104) . See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-08

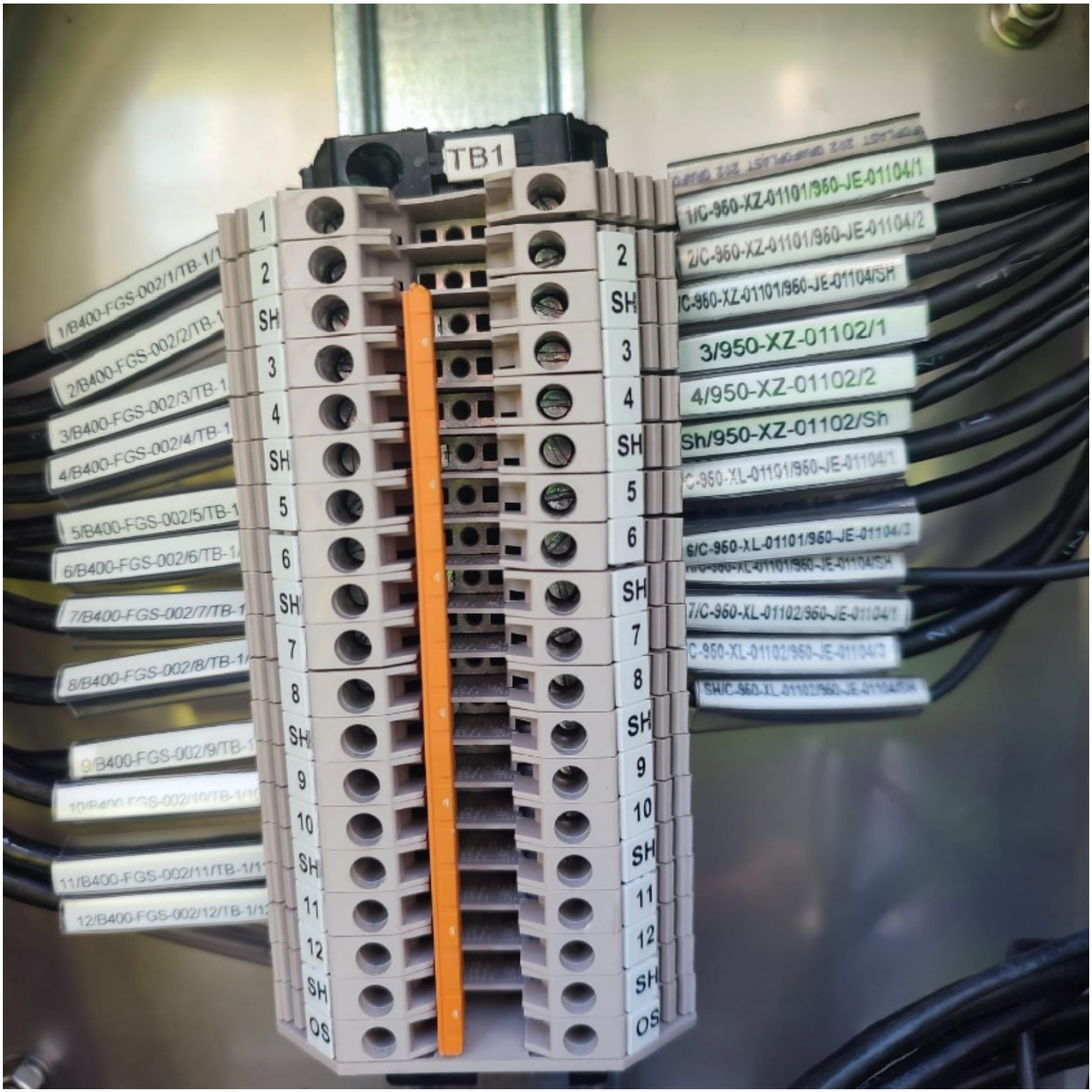
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


TB1
1/B400-FGS-002/1/TB-1/1
2/B400-FGS-002/2/TB-1
3/B400-FGS-002/3/TB-1
4/B400-FGS-002/4/TB-1
5/B400-FGS-002/5/TB-1
6/B400-FGS-002/6/TB-1
7/B400-FGS-002/7/TB-1
8/B400-FGS-002/8/TB-1
9/B400-FGS-002/9/TB-1
11/B400-FGS-002/11/TB-1/1
12/B400-FGS-002/12/TB-1/1
1/C-950-XZ-01101/960-JE-01104/1
2/C-950-XZ-01101/960-JE-01104/2
3/950-XZ-01102/1
4/950-XZ-01102/2
Sh/950-XZ-01102/Sh
6/C-950-XL-01101/960-JE-01104/3
7/C-960-XL-01102/960-JE-01104/1
1 2 SH 3 4 SH 5 6 SH 7 8 SH 9 10 SH 11 12 SH OS
2 SH 3 4 SH 5 6 SH 7 8 SH 9 10 SH 11 12 SH OS

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002168

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000321	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing SS cable tag side the (950-JE-01104).See attached photo.

Name: Giovanni Tangianu

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-26

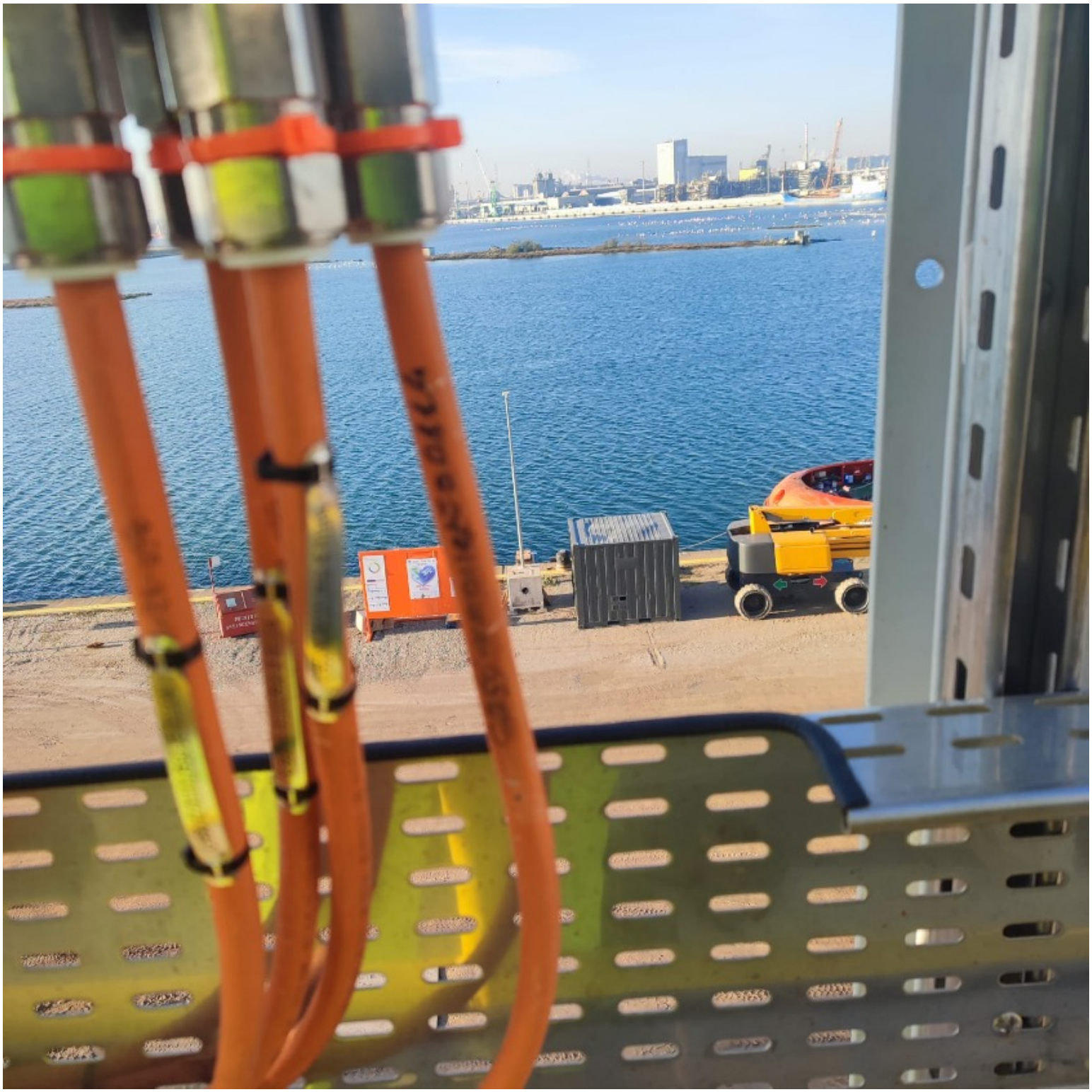
Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002173

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000265	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

MCT is missing.

Name: Luca Mussi

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

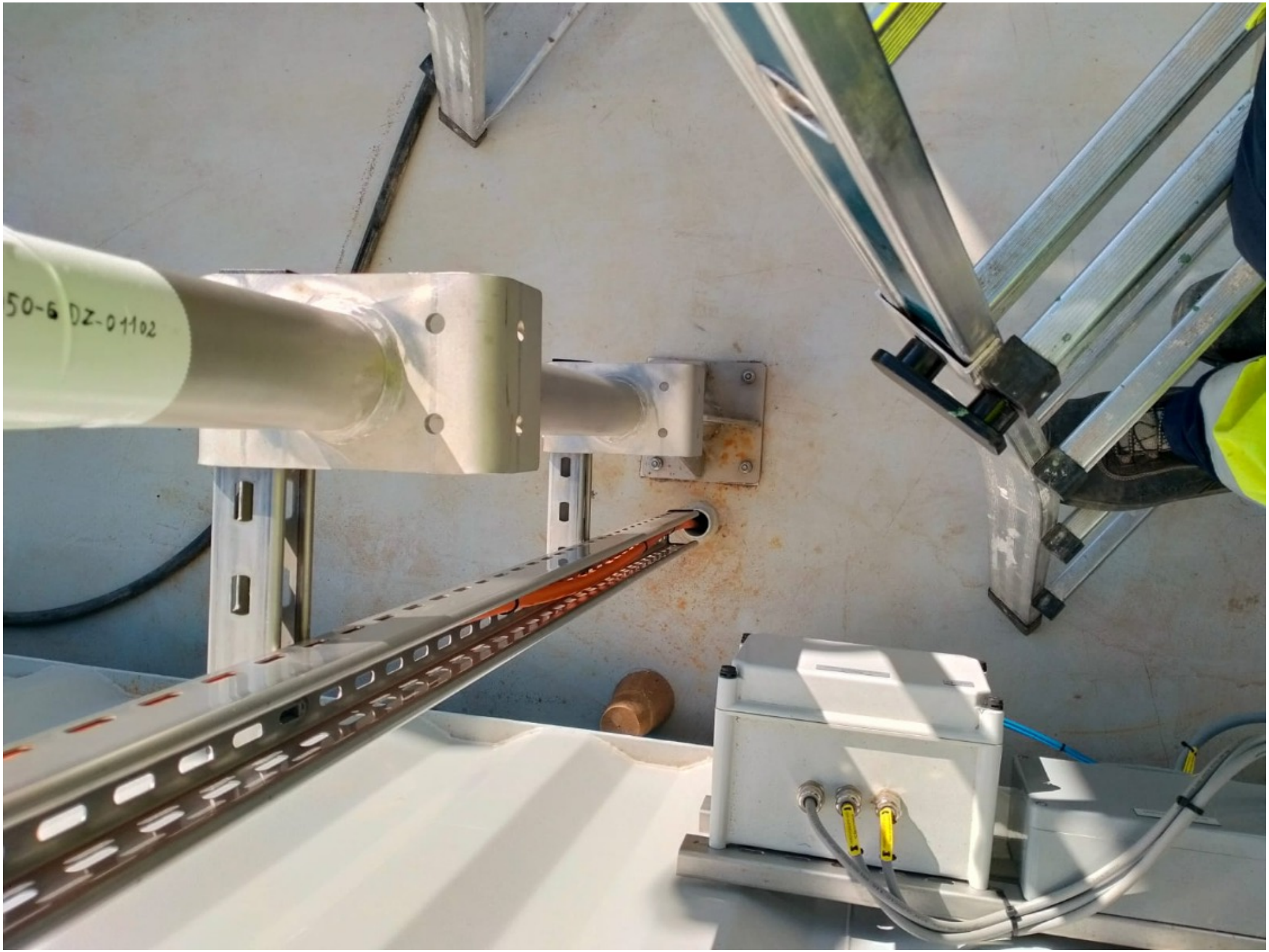
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


50-6 DZ-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002174

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000265	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

SS cable tag is missing on both instrument and JB side.

Name: Luca Mussi

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-22

Signature:

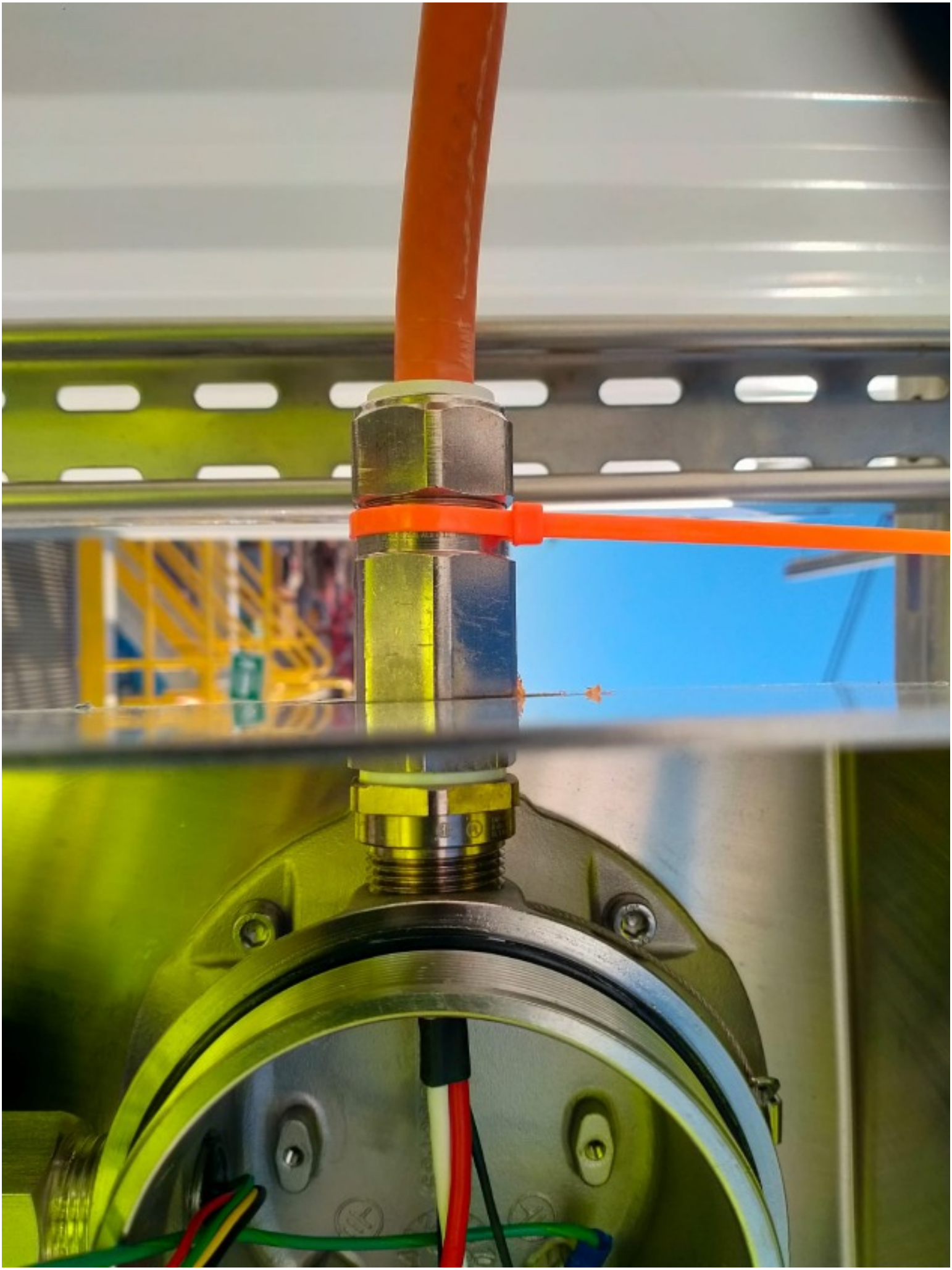
6- CLEARANCE APPROVAL

Name:

Date:

Signature:


C-950-GDZ-011D1/950-JE-0102
C-950-GDZ-011D2/950-JE-0202
C-950-GDZ-011D3/950-JE-0302



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002175

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000265	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

On JB side, core identification tags are missing for all wires.

On instrument side, core identification tag is missing for shield wire.

Name: Luca Mussi

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-08

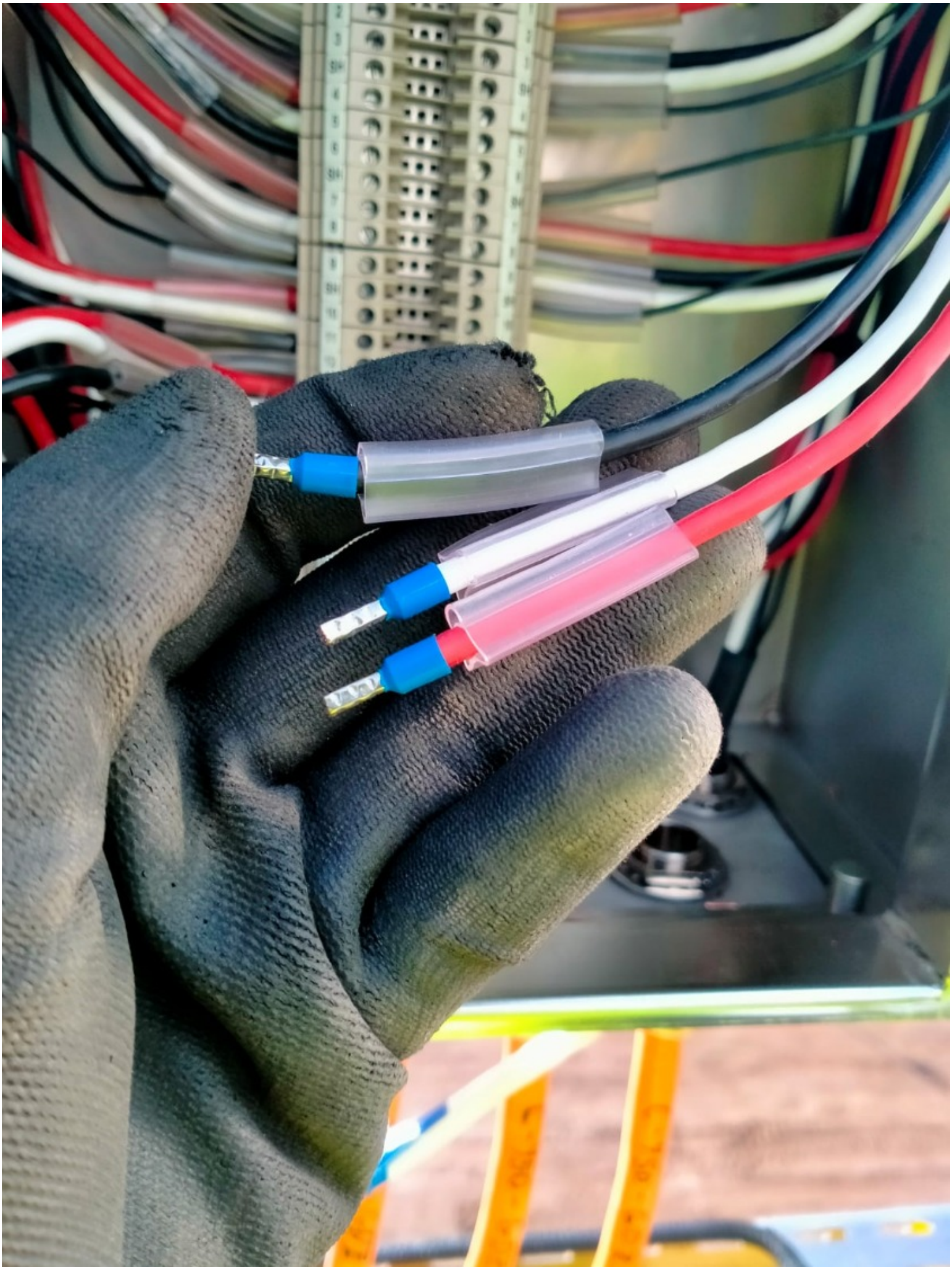
Signature:

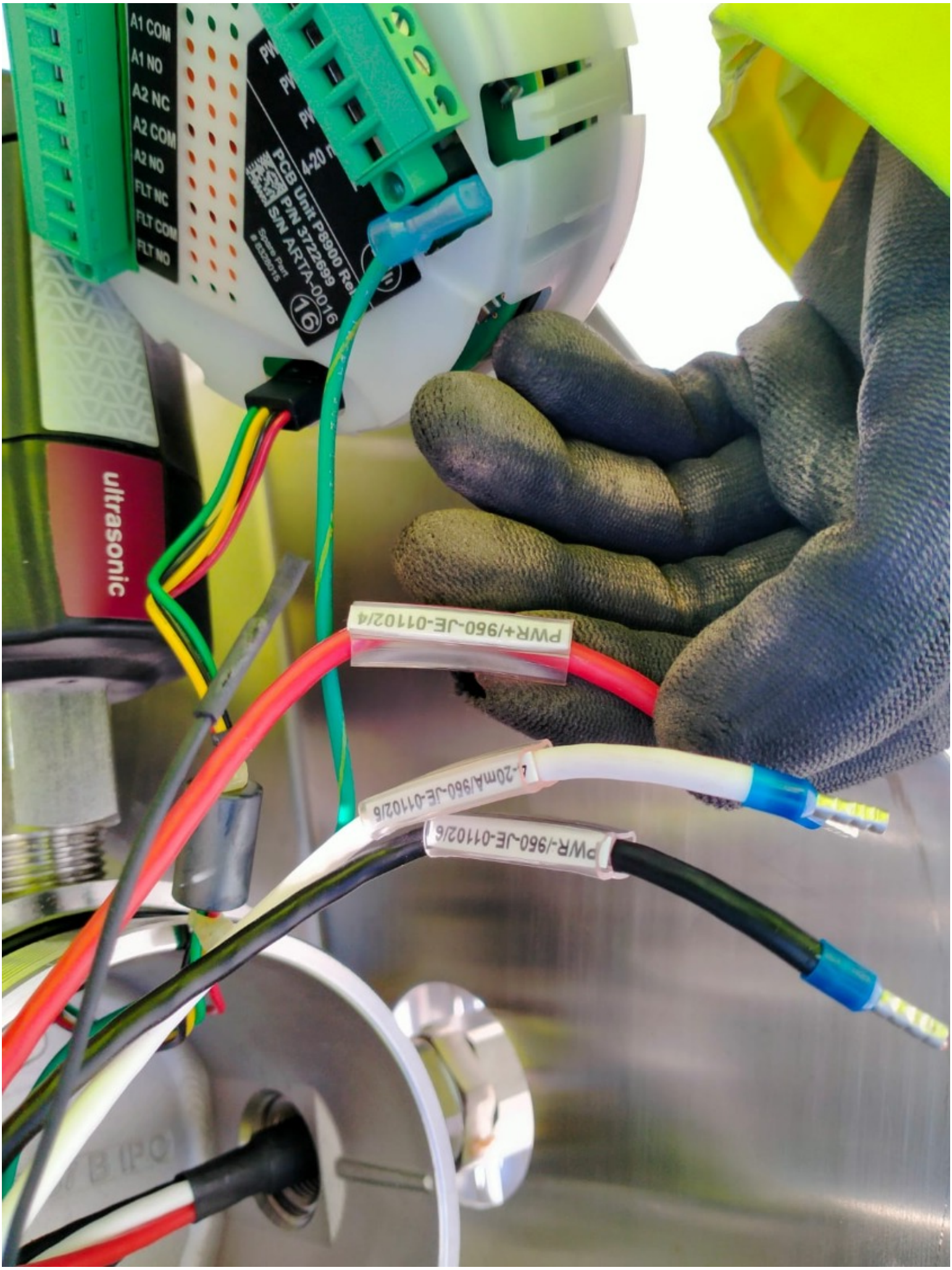
6- CLEARANCE APPROVAL

Name:

Date:

Signature:




A1 COM
A1 NO
A2 NC
A2 COM
A2 NO
FLT NC
FLT COM
FLT NO
PCB Unit P8900 Re
P/N 3722699
S/N ARTA-0016
ultrasonic
PWR+/960-JE-01102/4
-20mA/960-JE-01102/5
PWR-/960-JE-01102/6

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001355

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000204	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cable tag SS . side C-950-FDZ-01103 / 950-JE-01101

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

done

Name: Eleonora Carotenuto

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

M25
950-F

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001356

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000204	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Wrong cores identification tag. cabinet side stru. C-950-FDZ-01103 / JB 950-JE-01101 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

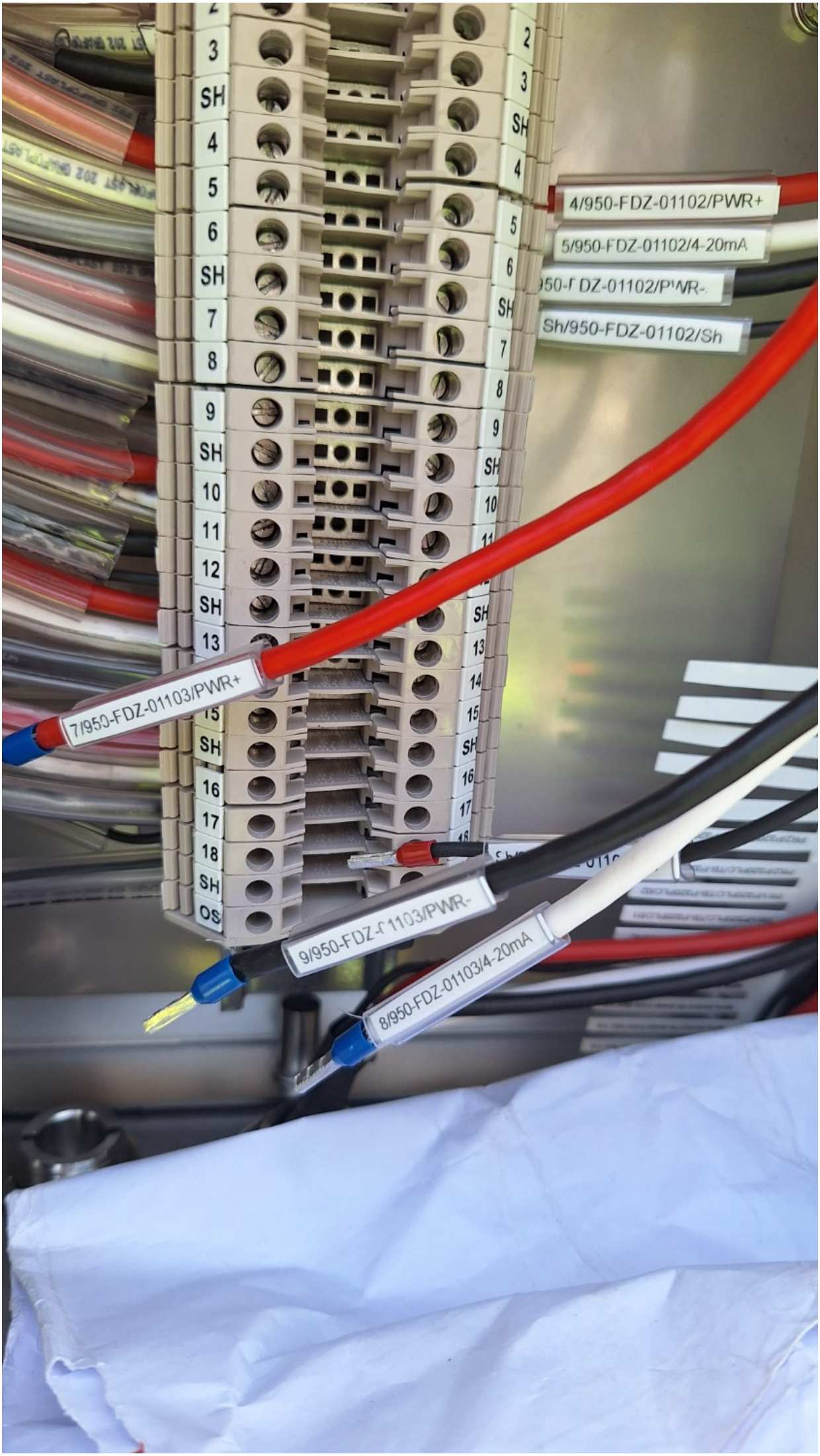
DONE

Name: Alessio Polo
Date: 2025-02-22
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:




4/950-FDZ-01102/PWR+
5/950-FDZ-01102/4-20mA
Sh/950-FDZ-01102/Sh
7/950-FDZ-01103/PWR+
9/950-FDZ-01103/PWR-
8/950-FDZ-01103/4-20mA

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001357

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000971	1.4 Discipline	Instrumental
1.2 Item	950-FDZ-01103		Flame Detector - FZ-01 Fuel Cell PK Area
1.3 Subsystem	70-10		F&G Devices FZ-01 (Fuel Cell Area)

2 - OBSERVATION

The tag tie is made of plastic. To be replaced in AISI

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-FDZ-01103
ENERGIZED

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001358

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000971	1.4 Discipline	Instrumental
1.2 Item	950-FDZ-01103		Flame Detector - FZ-01 Fuel Cell PK Area
1.3 Subsystem	70-10		F&G Devices FZ-01 (Fuel Cell Area)

2 - OBSERVATION

Missing the earth connection on the instrument.

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

FlameSpec-UV-IR
UV-IR Detector
FGD

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001359

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000204	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the plug installed is not conforms to specification. to be replace with Nickel Plated Brass, (see 123A90-DDL-IN-HD-40079_Rev.02 sh. 25) side C-950-FDZ-01103.

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto
Date: 2025-01-16
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001360

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000971	1.4 Discipline	Instrumental
1.2 Item	950-FDZ-01103		Flame Detector - FZ-01 Fuel Cell PK Area
1.3 Subsystem	70-10		F&G Devices FZ-01 (Fuel Cell Area)

2 - OBSERVATION

Missing the separation system between different materials. (between steel "support" and carbon steel "structure).

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-01-21
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001361

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000971	1.4 Discipline	Instrumental
1.2 Item	950-FDZ-01103	Flame Detector - FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001362

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000296	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01103/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cable tag SS. side stru. C-950-MFA-01103 / JB 950-JE-01103

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-21

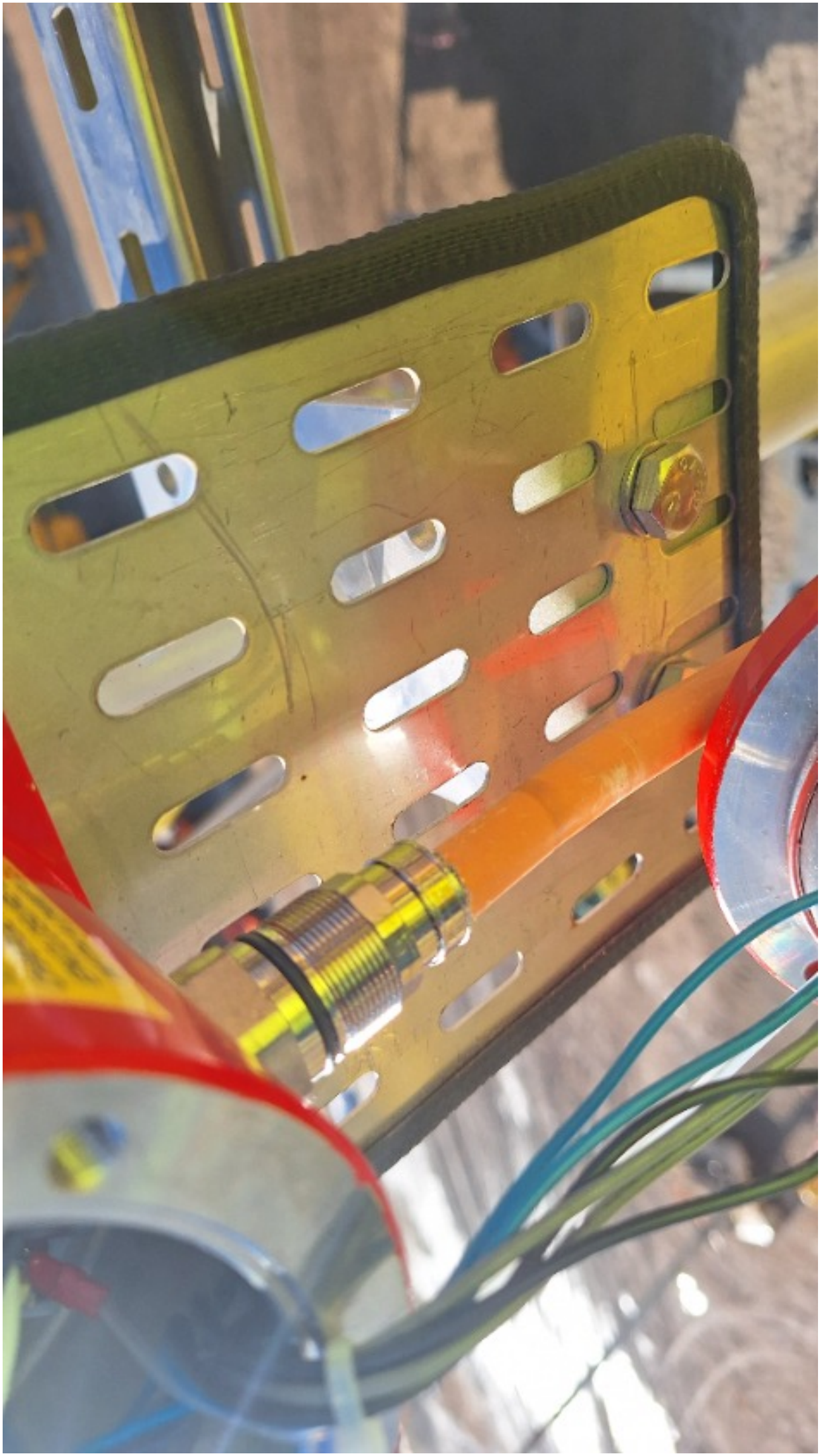
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001363

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000296	1.4 Discipline	Instrumental
1.2 Item	C-950-MFA-01103/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cores identification tag. side C-950-MFA-01103 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

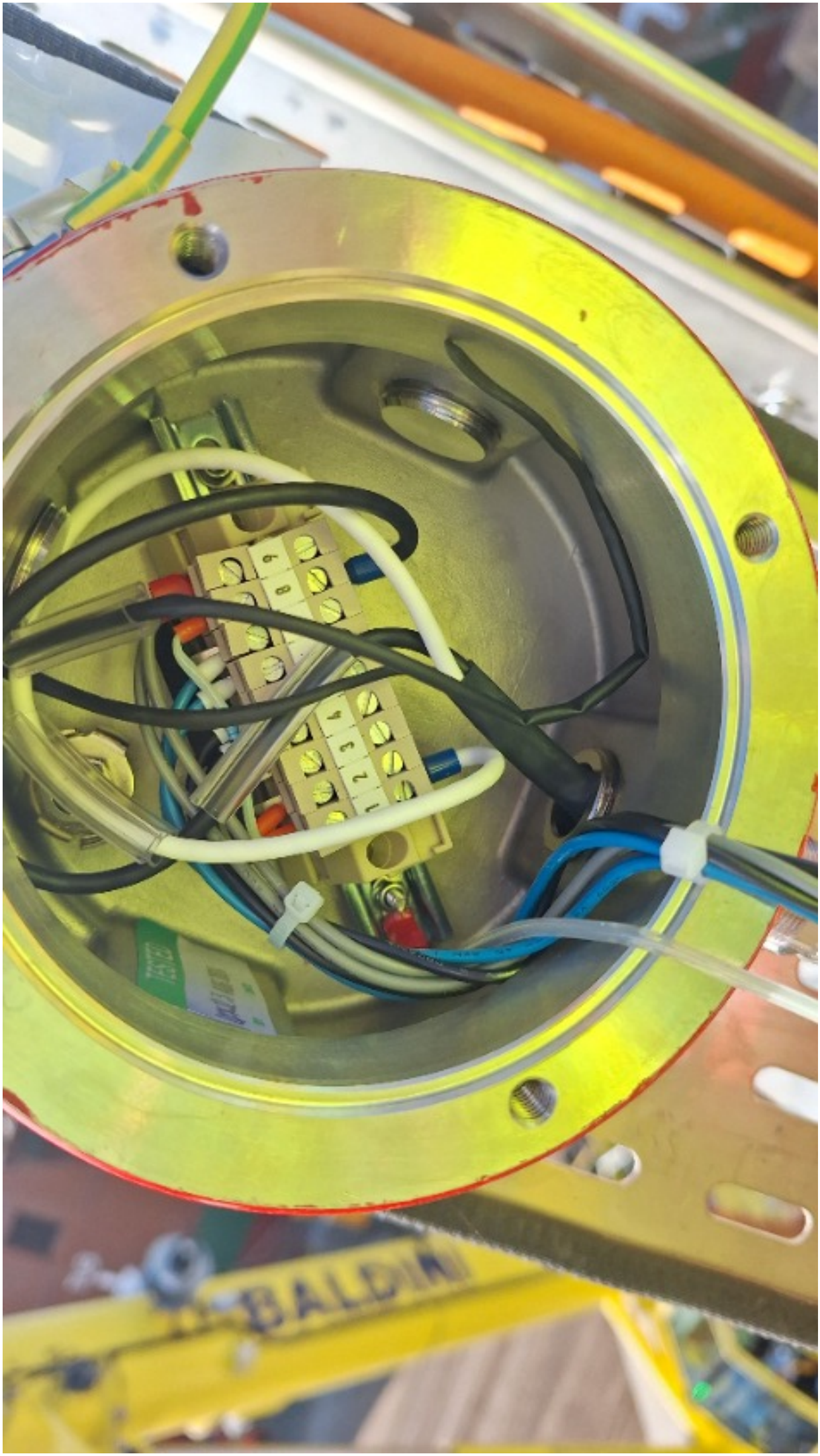
5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-02-21
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


BALDINI

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001364

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000204	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing the entry thread seal, between the cable gland and the adaptor. side C-950-FDZ-01103

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-16

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

M25
950-F

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001365

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001054	1.4 Discipline	Instrumental
1.2 Item	950-MFA-01103	FZ-01 MFA Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

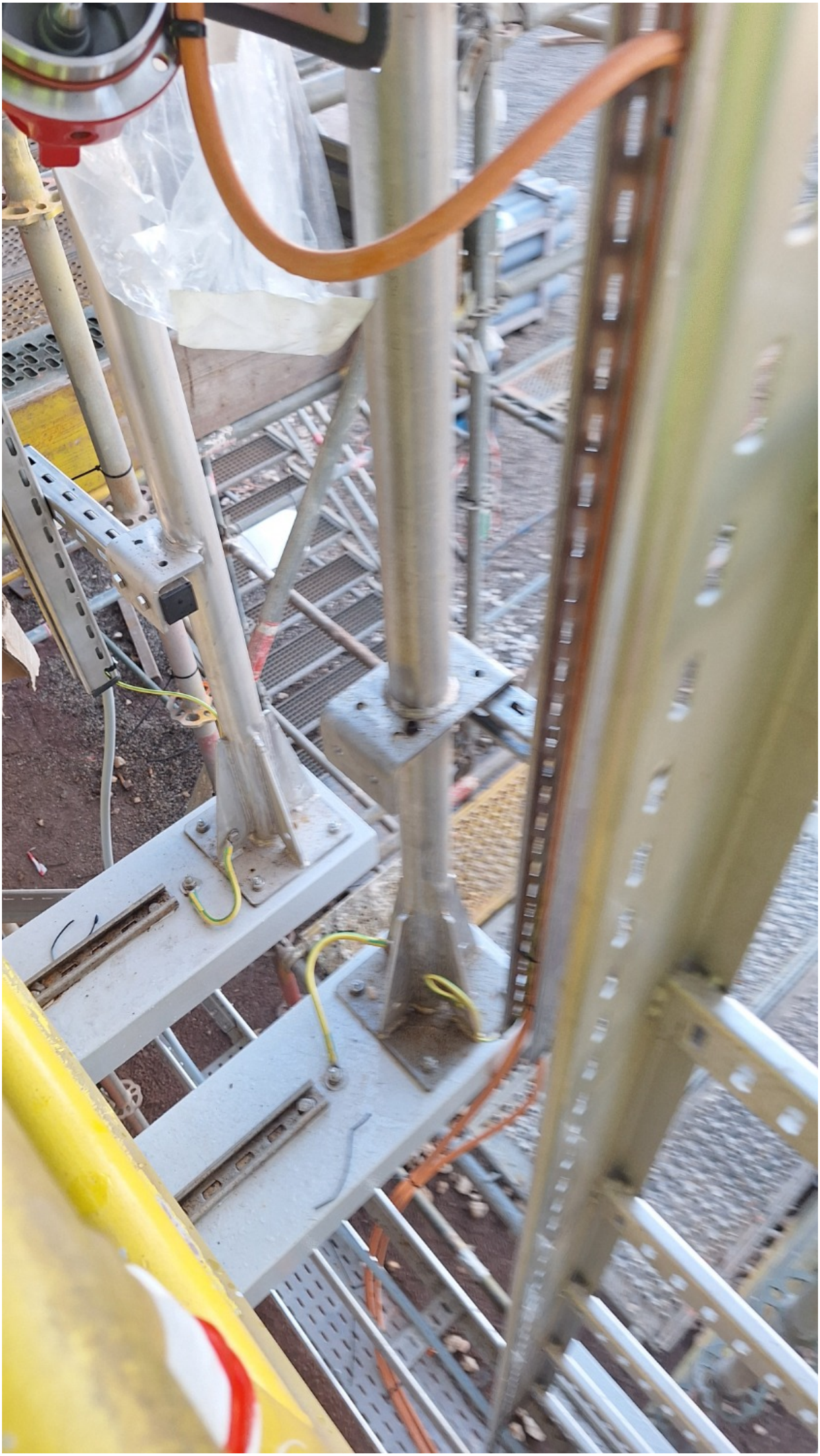
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001366

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001054	1.4 Discipline	Instrumental
1.2 Item	950-MFA-01103	FZ-01 MFA Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing the separation system between different materials. (between steel "support" and carbon steel "structure).

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-01-21
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001375

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001054	1.4 Discipline	Instrumental
1.2 Item	950-MFA-01103	FZ-01 MFA Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

installation is not conforms to instrument installation details. (see 123A90-DDL-IN-DD-40017_ sh. 28) .

Name: Alessio Polo
Date: 2024-12-05
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-05
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

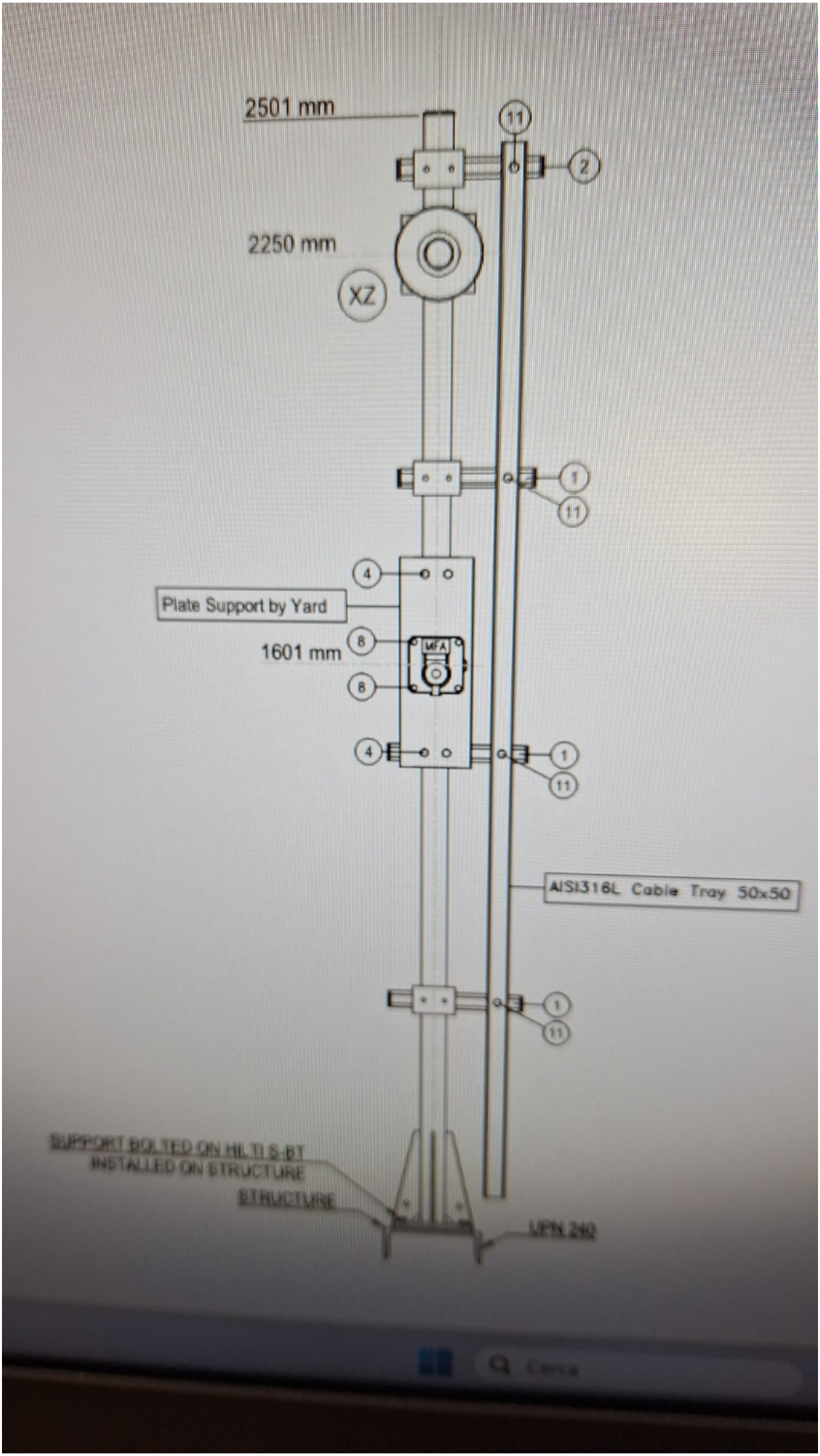
5 - CLEARANCE CHECK

RLMU DONE

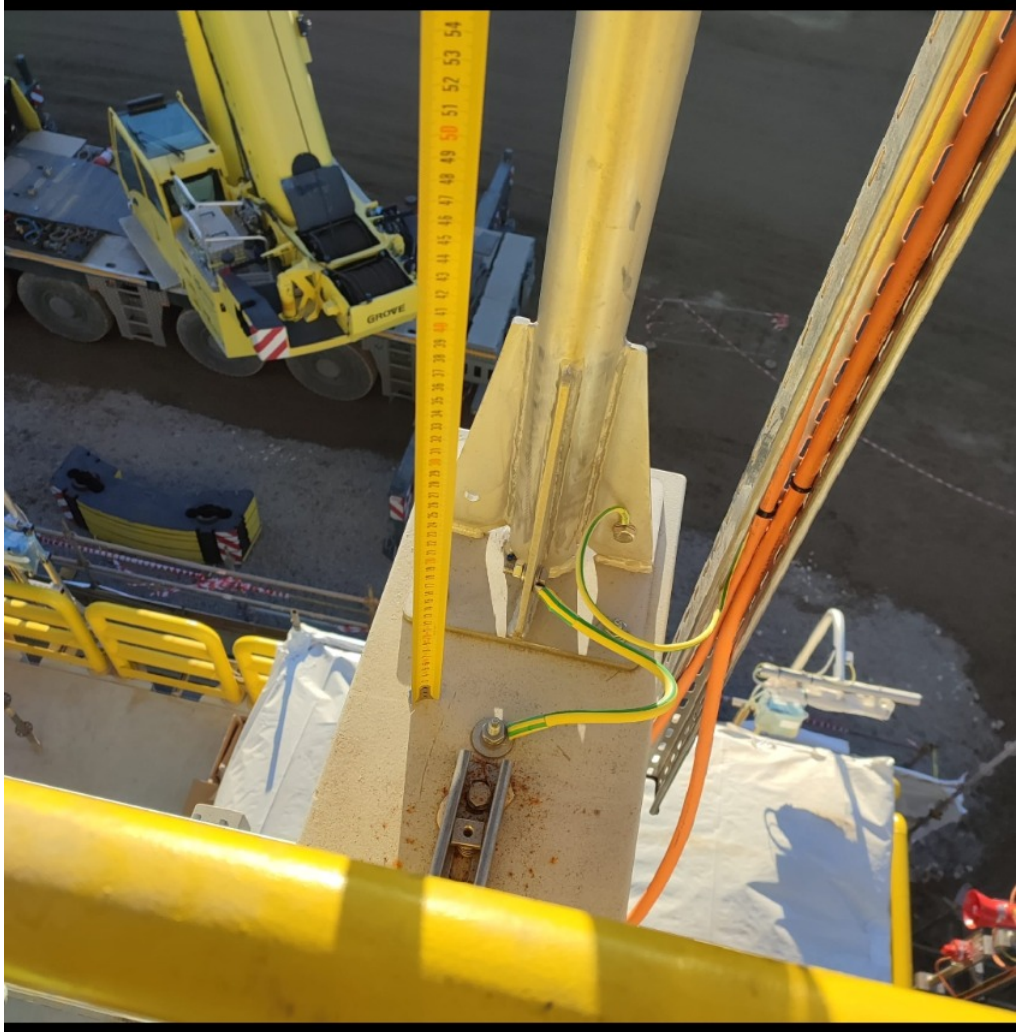
Name: Eleonora Carotenuto
Date: 2024-12-27
Signature:

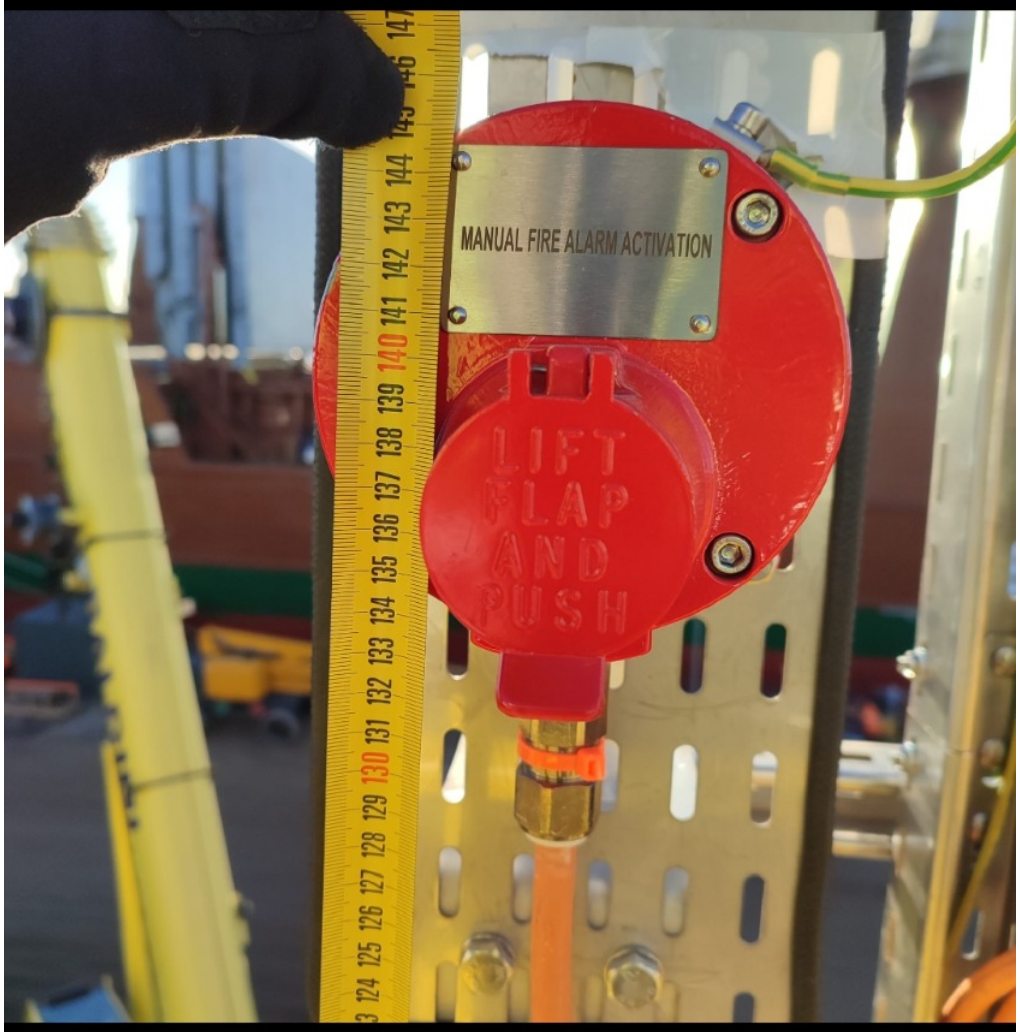
6- CLEARANCE APPROVAL

Name:
Date:
Signature:


2501 mm
11
2
2250 mm
XZ
1
11
4
Plate Support by Yard
8
1601 mm
MFA
8
4
1
11
AISI316L Cable Tray 50x50
1
11
SUPPORT BOLTED ON HILTI S-BT
INSTALLED ON STRUCTURE
STRUCTURE
UPN 240




GROVE


MANUAL FIRE ALARM ACTIVATION
LIFT FLAP AND PUSH

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001619

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001128	1.4 Discipline	ATEX
1.2 Item	950-XZ-01101	FZ-01 Sounder Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed..

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:





ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001620

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000320	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01101/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing cable tag SS . side instrument.

Name: Alessio Polo

Date: 2024-12-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-12-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001621

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000320	1.4 Discipline	Instrumental
1.2 Item	C-950-XZ-01101/950-JE-01104	SOUNDER / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Wrong cores identification tag. J.B. side 950-JE-01104 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-10
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

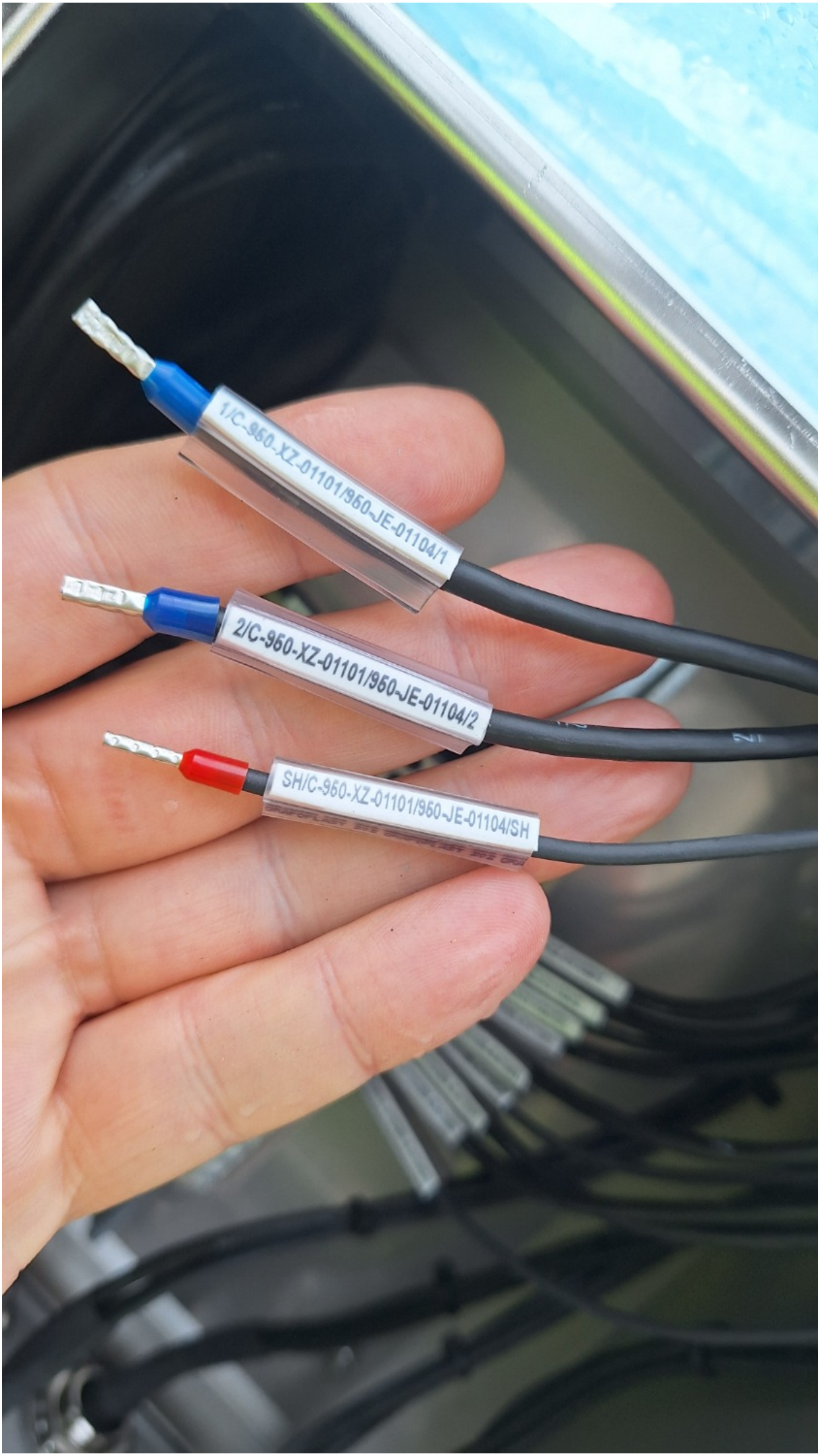
5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


1/C-960-XZ-01101/960-JE-01104/1
2/C-960-XZ-01101/960-JE-01104/2
SH/C-960-XZ-01101/960-JE-01104/SH

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001755

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001102	1.4 Discipline	ATEX
1.2 Item	950-XL-01101	FZ-01 Gas Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing traffolyte tag side instrument

Name: Alessio Polo

Date: 2024-12-12

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001759

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001102	1.4 Discipline	ATEX
1.2 Item	950-XL-01101	FZ-01 Gas Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing core identification tag. shield . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2024-12-12
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-04-08
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001764

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001102	1.4 Discipline	ATEX
1.2 Item	950-XL-01101	FZ-01 Gas Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

The protection cage of the instrument is damaged (it is not fixed)

Name: Alessio Polo

Date: 2024-12-12

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Gabriele Bertuccelli

Date: 2025-02-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001766

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001102	1.4 Discipline	ATEX
1.2 Item	950-XL-01101	FZ-01 Gas Beacon Activation	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

the support is not well secured against vibration. another bracket needs to be added.

Name: Alessio Polo

Date: 2024-12-12

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-12-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installation carried out as per typical 123A90-DDL-EL-DD-20091 and 123A90-DDL-IN-DD-40017 drawing. Eng states that no additional support is needed.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002176

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000265	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Missing earth cable on cable tray.

Name: Luca Mussi

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-13

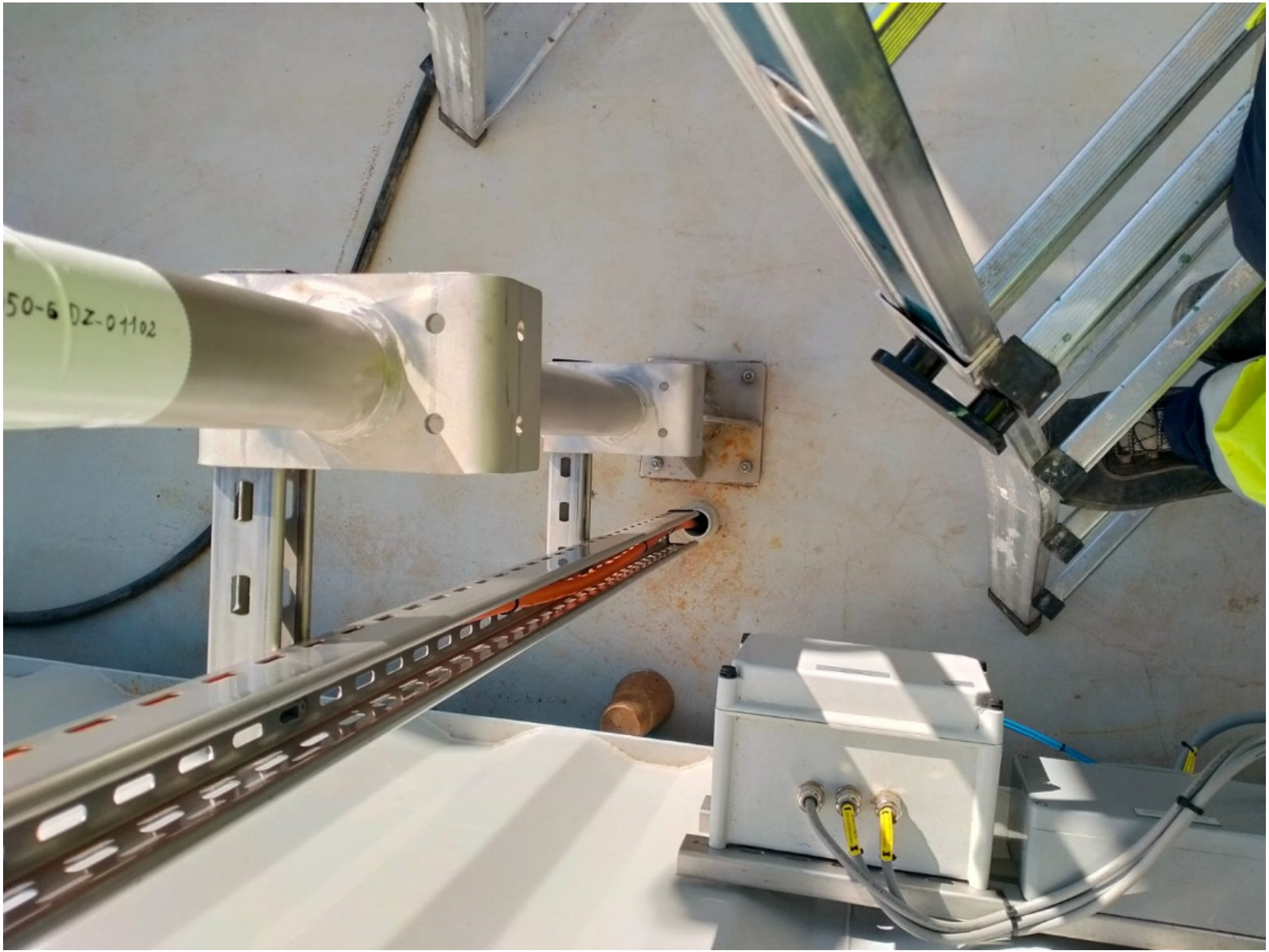
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


50-6 DZ-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002177

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000265	1.4 Discipline	Instrumental
1.2 Item	C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Cable is entering the Light cable gland downwards while it should be upwards.

Name: Luca Mussi

Date: 2024-12-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002219

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001512	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

ATEX certified plug is missing (plastic plug is present insted).

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


2 Laser

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002220

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001512	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Instrument earth connetcion is missing.

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Dräger
OK
ultrasonic

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002221

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001513	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Instrument earthing wire is missing.

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

www.draeger-mo.com
FC4537343
OK
ultrasonic
950-GDZ-01102
HYDROGEN ULTRASONIC LEAK DETECTOR

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002222

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001513	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

ATEX plug is missing (instead, plastic plug is present).

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

www.draeger-mo.com
FC4537343
OK
ultrasonic
950-GDZ-01102
HYDROGEN ULTRASONIC LEAK DETECTOR

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002223

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001514	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Instrument earthing wire is missing.

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-01-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002224

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001514	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

ATEX certified plug is missing (instead, a plastic plug is present).

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


litto

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002225

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001514	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

Ultrasonic sensor is missing.

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Point not applicable

Name: Eleonora Carotenuto

Date: 2025-01-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Nitto

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002226

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001514	1.4 Discipline	ATEX
1.2 Item	950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

SS instrument tag is present but not fixed.

Name: Luca Mussi

Date: 2024-12-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2024-12-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-29

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-GDZ-01103
HYDROGEN POINT DETECTOR

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002699

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000203	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01102/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing SS cable tag on JB side

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002700

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000203	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01102/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

cable not supported outside cabletray

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002701

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000205	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01104/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

missing SS cable tag on both JB and instrument side

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002702

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000205	1.4 Discipline	Instrumental
1.2 Item	C-950-FDZ-01104/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	
1.3 Subsystem	70-10	F&G Devices FZ-01 (Fuel Cell Area)	

2 - OBSERVATION

cable not supported outside cabletray, see attached foto

Name: Andrea Andreani

Date: 2025-01-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-01-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-01-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

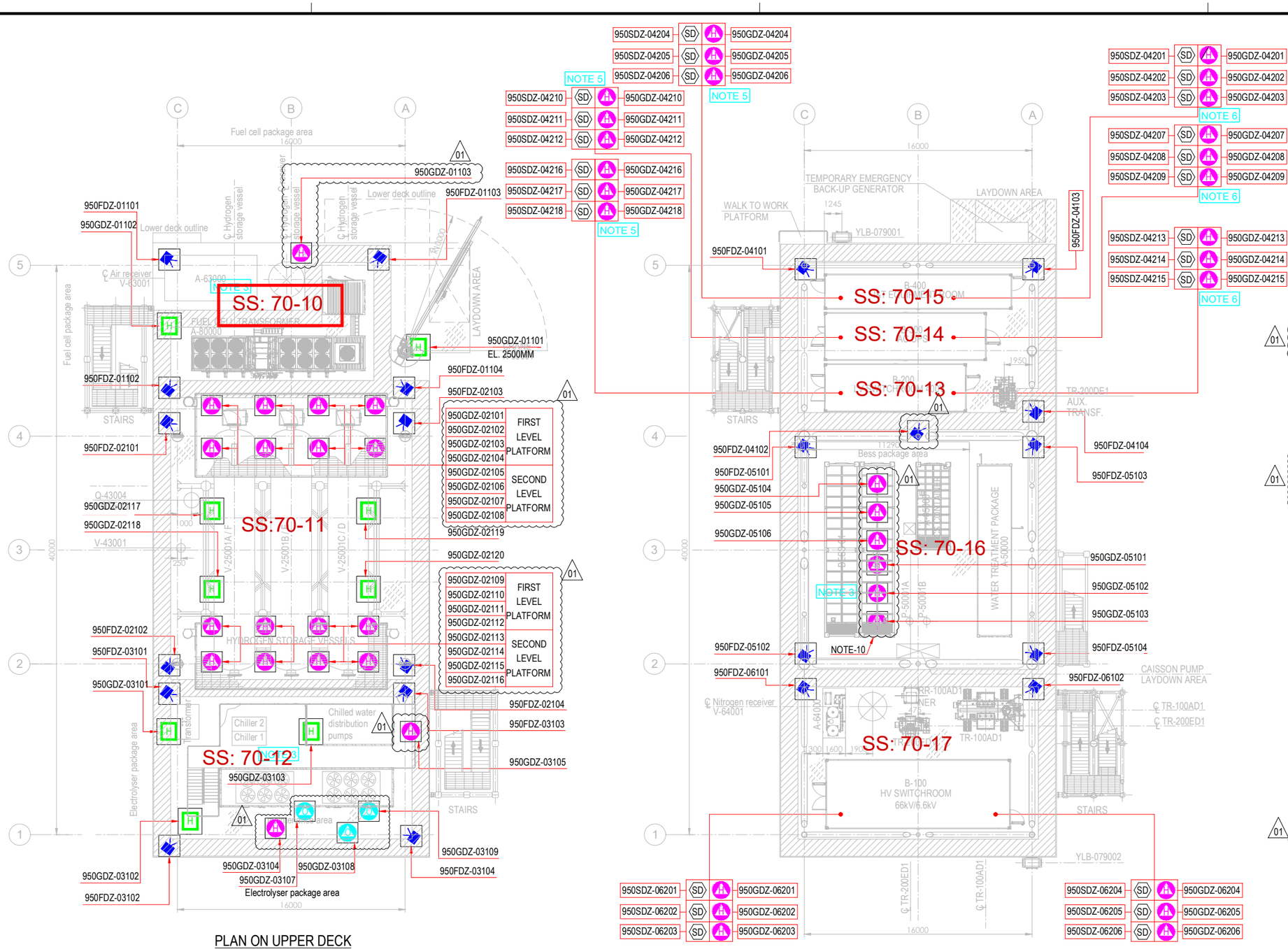
Signature:


950-XL-02101
950-MFA-02101
BALDINI
Tel. 0546.686315

Section 3 SYSTEM,SUB-SYSTEM LIMIT DRAWINGS

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 00



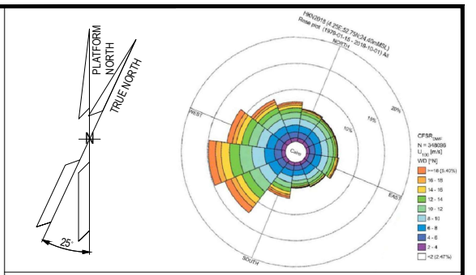
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS.
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS

ELEVATION

FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 10/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30027 Rev.01

Section 4 MECHANICAL COMPLETION STATUS INDEX - BUILDING DISCIPLINE

NOT APPLICABLE

Section 5 MECHANICAL COMPLETION STATUS INDEX - ELECTRICAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & process: MC & discipline : Y

ATEX	70-10 F&G Devices FZ-01 (Fuel Cell Area)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
950-FDZ-01101	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10000969	CJX01	100	2024-12-24	RFC 1
950-FDZ-01104	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10001503	CJX01	100	2025-01-16	RFC 1
950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10001512	CJX01	100	2024-12-30	RFC 1
950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10001513	CJX01	100	2024-12-30	RFC 1
950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	ONSHORE	C10001514	CJX01	100	2024-12-30	RFC 1
950-MFA-01101	FZ-01 MFA Activation	ONSHORE	C10001052	CJX01	100	2024-12-24	RFC 1
950-XL-01101	FZ-01 Gas Beacon Activation	ONSHORE	C10001102	CJX01	100	2024-12-12	RFC 1
950-XL-01102	FZ-01 Fire Beacon Activation	ONSHORE	C10001103	CJX01	100	2024-12-13	RFC 1
950-XZ-01101	FZ-01 Sounder Activation	ONSHORE	C10001128	CJX01	100	2024-12-11	RFC 1

ITEM	Tag	950-FDZ-01101	: Flame Detector - FZ-01 Fuel Cell PK Area	Dwg	123A90-DDL-SAF-DL-30027		
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD		
TASK	code	C10000969	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01

Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		606531			
Manufacturer	Fire and Gas Detection Technologies			**Model**		FlameSpec FLS-UV-IR-AS11			
Cert No.	ICQC 19 ATEX 0424X			**Equipment Ambient Temp.**		-55°C to +75°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T5	**IP Rating**	IP66/68

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	PL	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	PL	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		NA	
	Physical check	x	PL	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	PL	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-FDZ-01101	: Flame Detector - FZ-01 Fuel Cell PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10000969		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	PL	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-FDZ-01101	: Flame Detector - FZ-01 Fuel Cell PK Area		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10000969	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

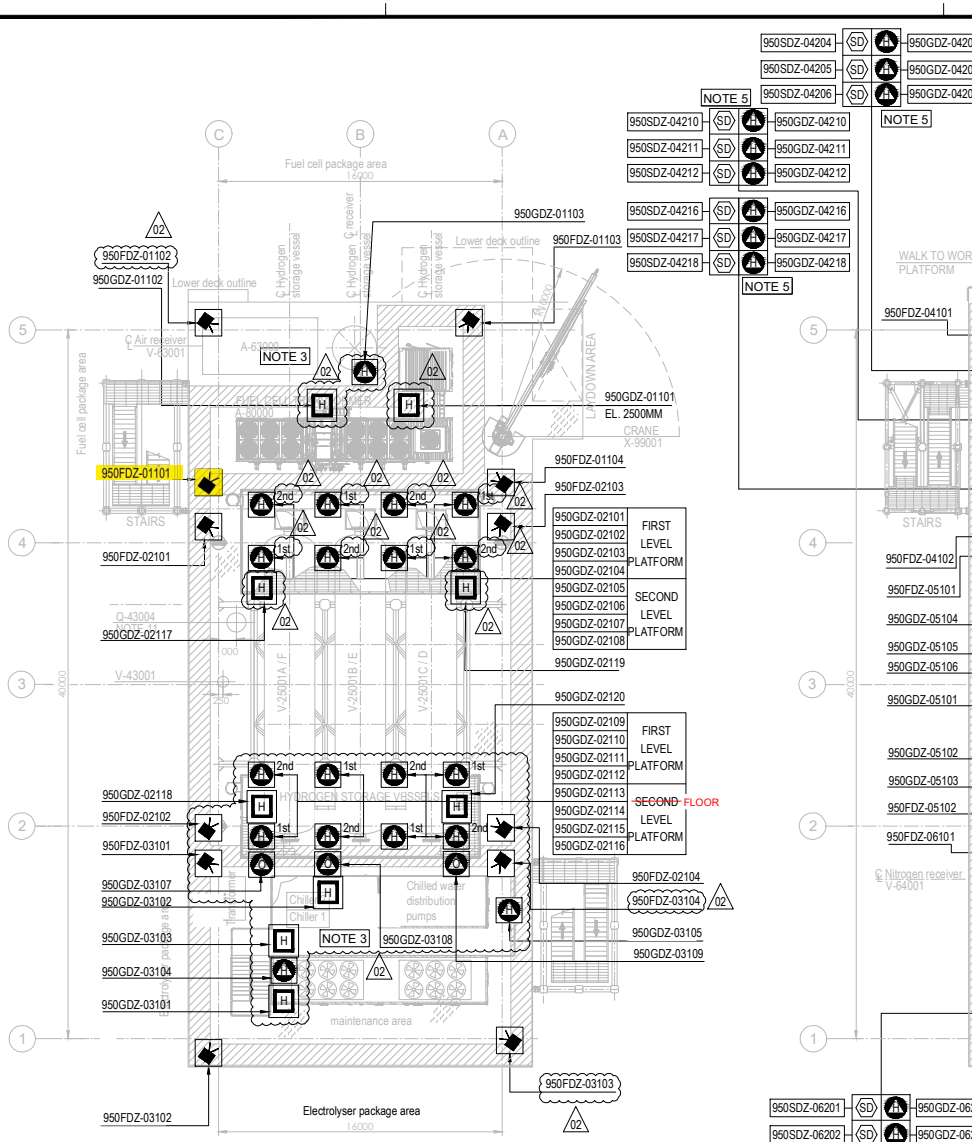
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Andrea Andreani	
Date	2024-12-11	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:13:45.444Z	PROVERLIS Digitaly signed by Andrea Andreani 2024-12-24T09:13:10.387Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



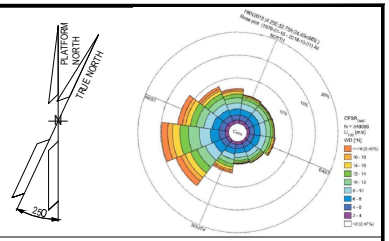
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

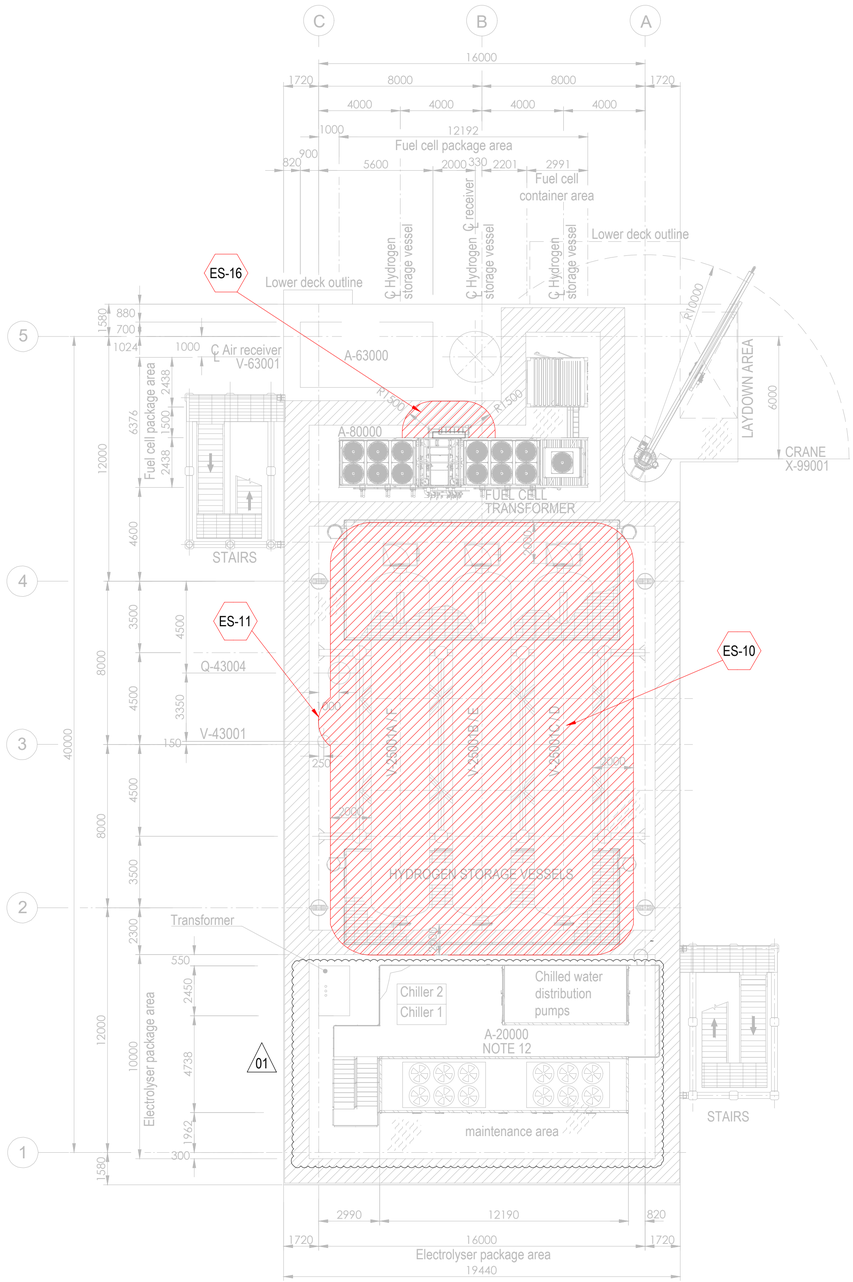
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

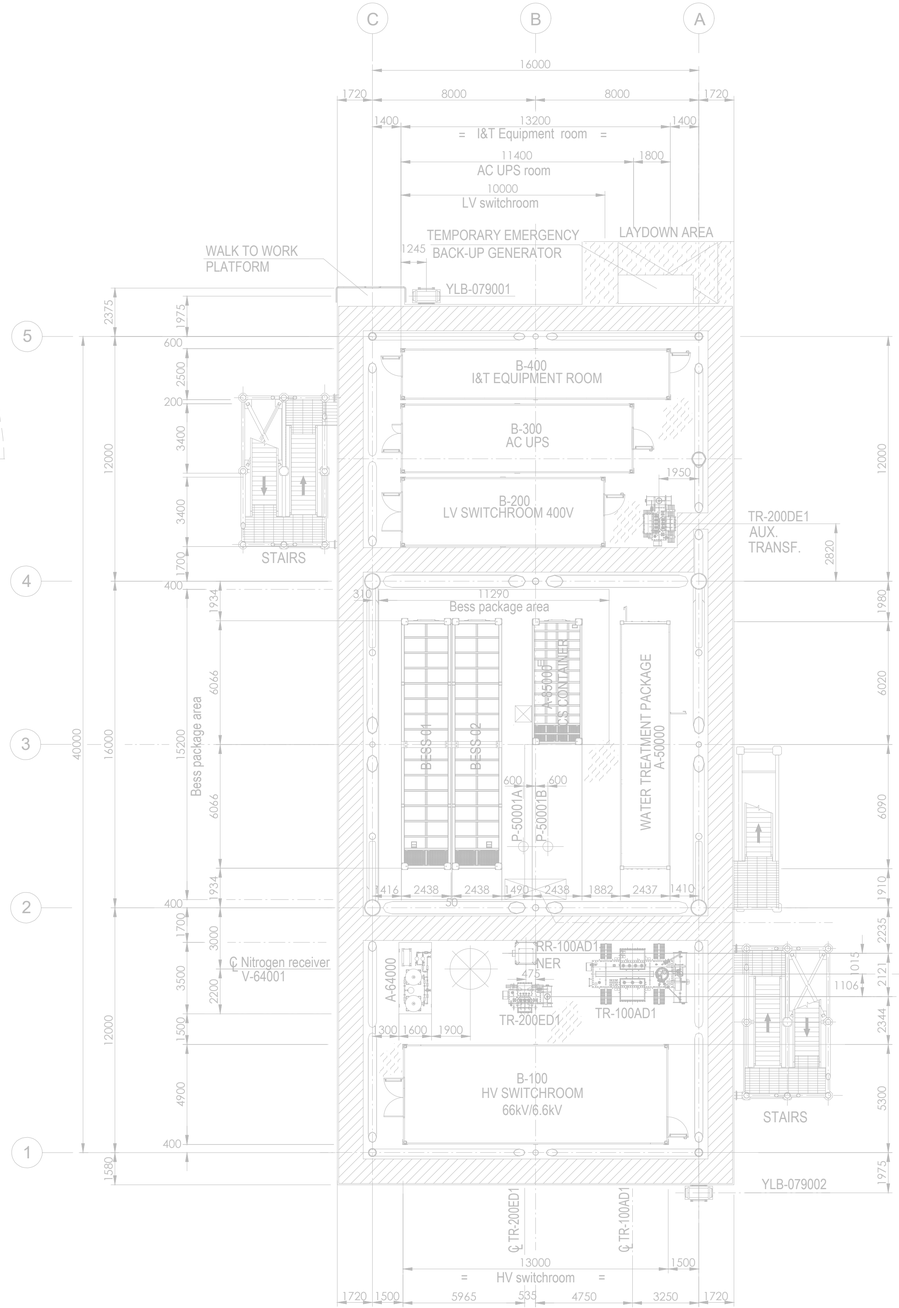
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



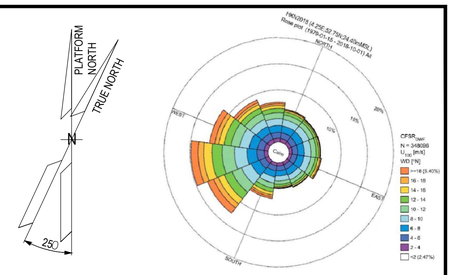
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

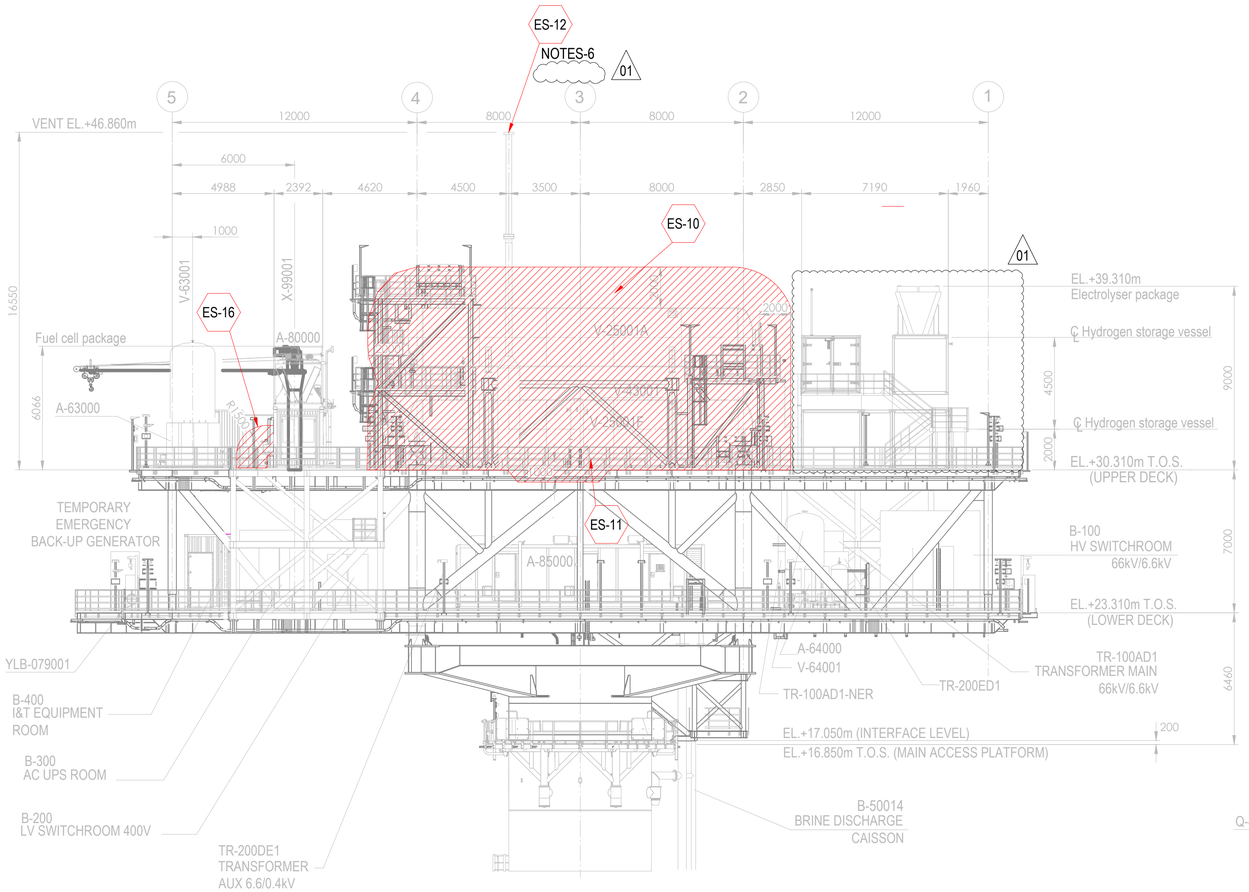
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

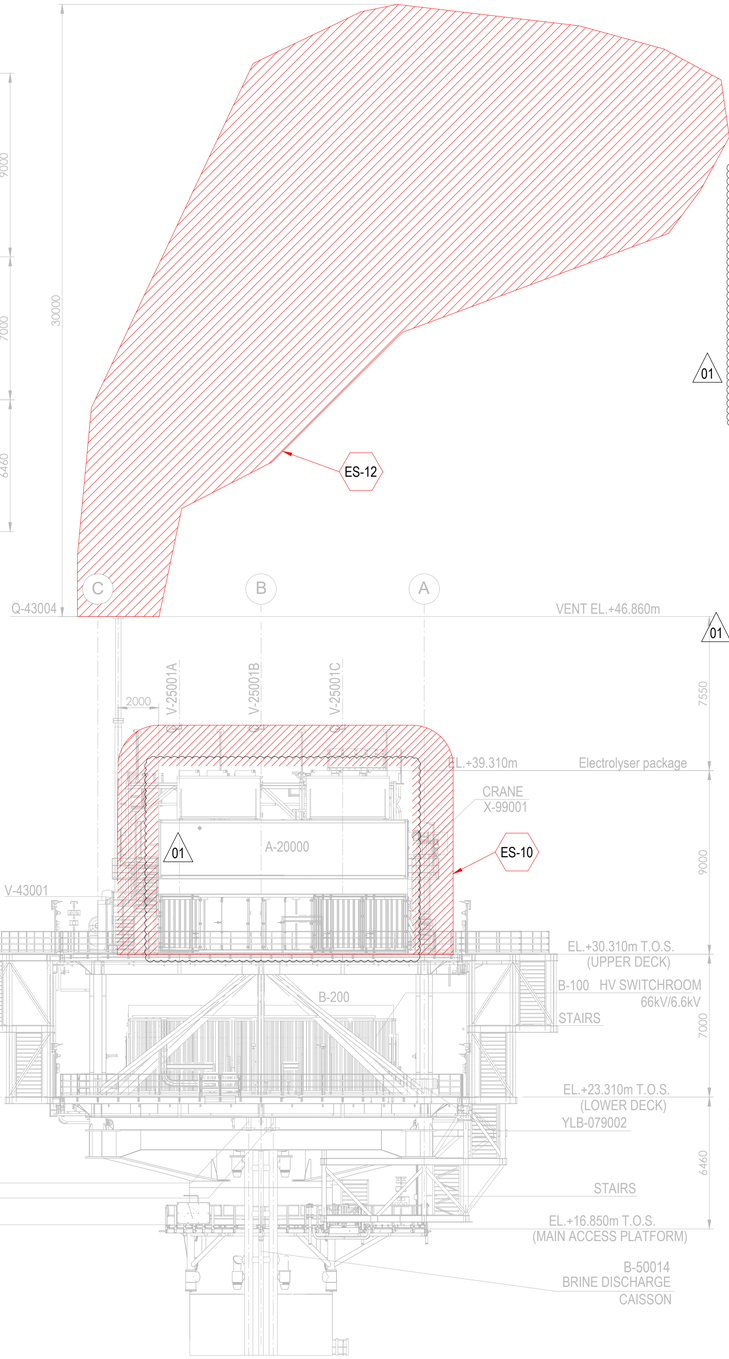
File Name : 123A90-DDL-SAF-DL-30022 Rev.01

DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



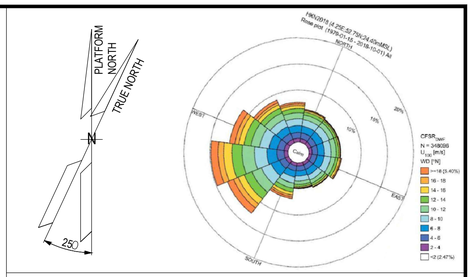
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

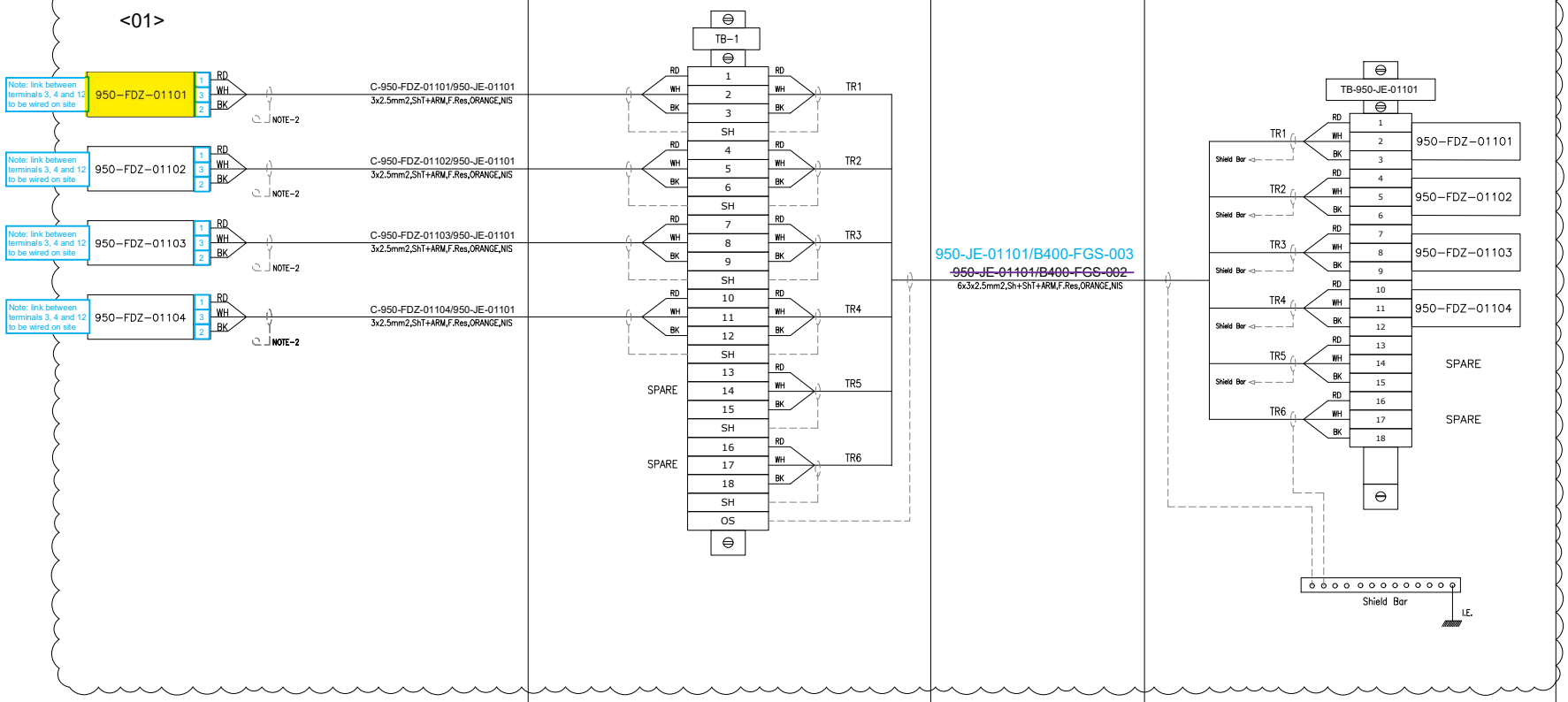
A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01101	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

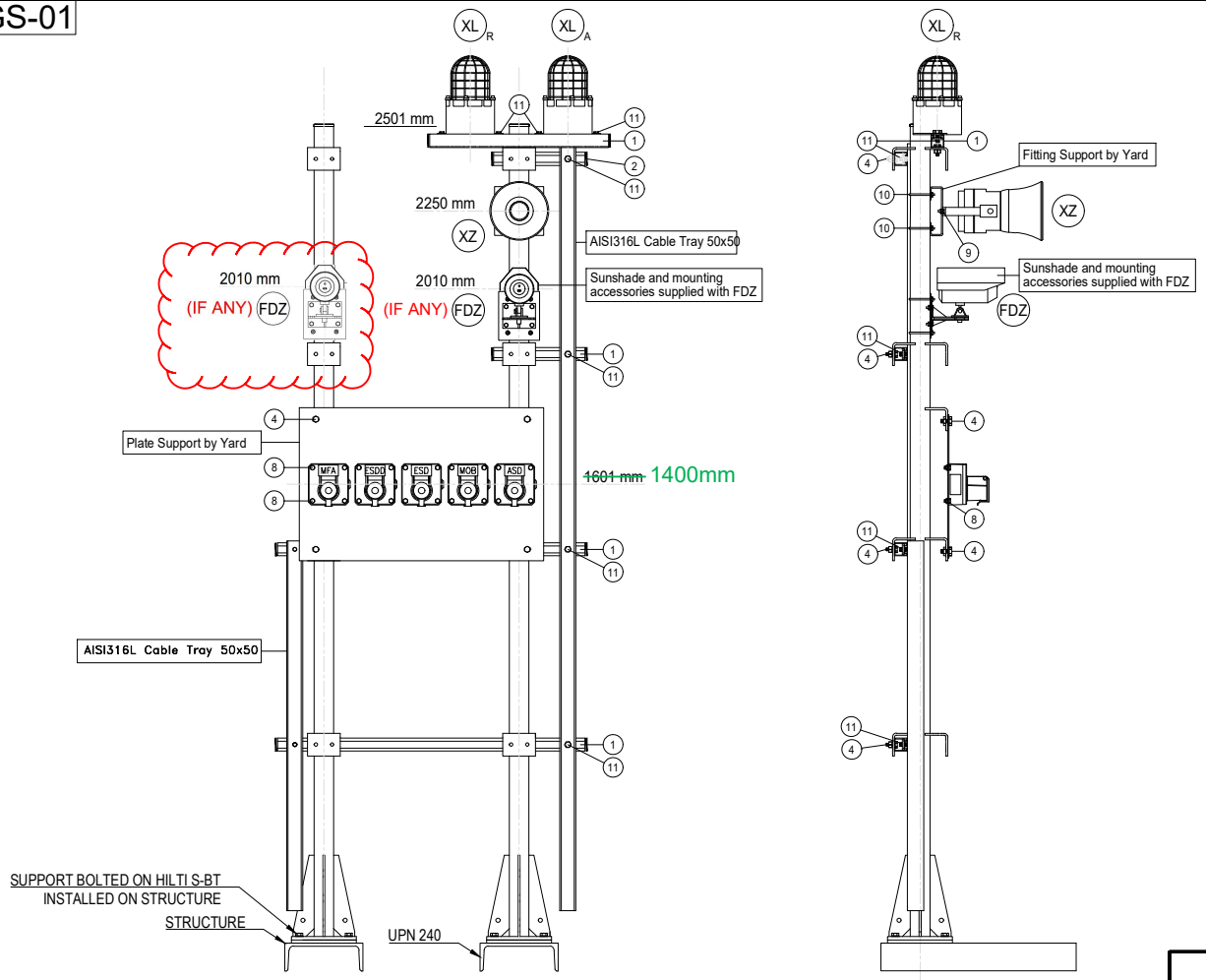
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 030	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

FGS-01



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	6m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	18
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	20
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	10

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-01101
	XL_R	BEACON - RED	950-XL-01102
	FDZ	FLAME DETECTOR	950-FDZ-01101 & 950-FDZ-02101
	XZ	SOUNDER	950-XZ-01101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-01101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-01101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-01101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-01101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01101
2	XL_A	BEACON - AMBER	950-XL-06101
	XL_R	BEACON - RED	950-XL-06102
	~~FDZ~~	~~FLAME DETECTOR~~	~~950-FDZ-06104~~
	XZ	SOUNDER	950-XZ-06101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-06101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-06101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-06101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-06101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-06101

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DD-40017

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

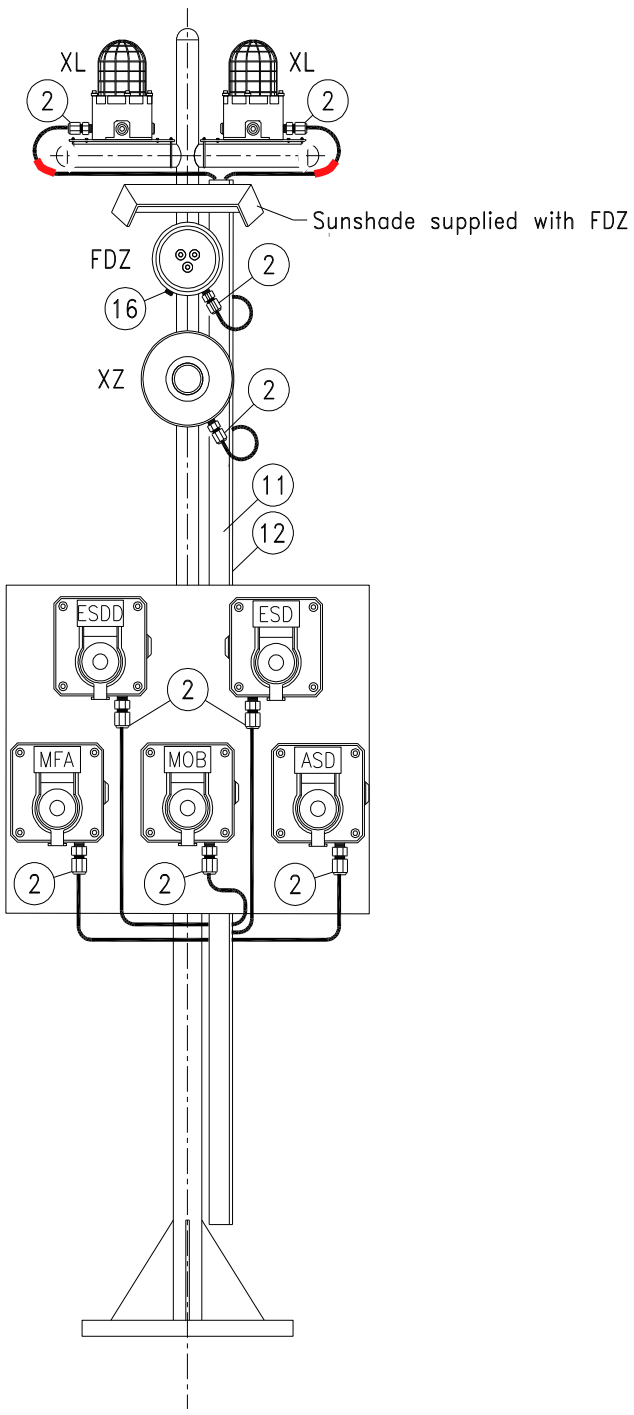
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 020	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-XL-04101 (AMBER)
	950-XL-04102 (RED)
	~~950-FDZ-04101~~
	950-XZ-04101
	950-ESDD-04101
	950-ESD-04101
	950-MFA-04101
	950-MOB-04101
	950-ASD-04101
2	950-XL-06101 (AMBER)
	950-XL-06102 (RED)
	~~950-FDZ-06101~~
	950-XZ-06101
	950-ESD-06101
	950-MFA-06101
	950-MOB-06101
	950-ASD-06101
3	950-XL-01101 950-XL-01102 950-FDZ-01101 950-FDZ-02101 950-XZ-01101 950-ESDD-01101 950-ESD-01101 950-MOB-01101 950-ASD-01101 950-MFA-01101

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	9

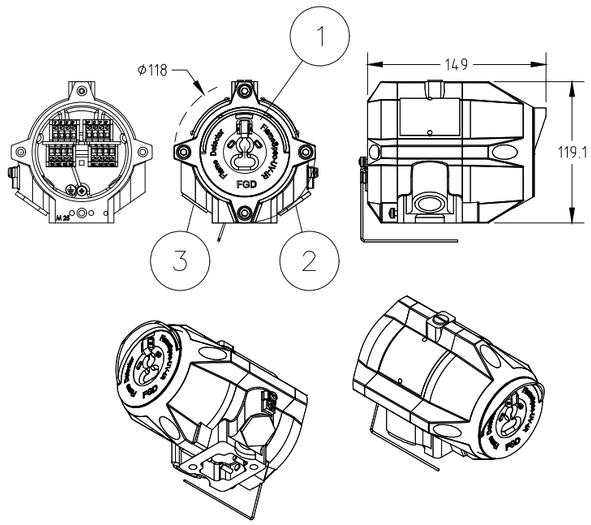
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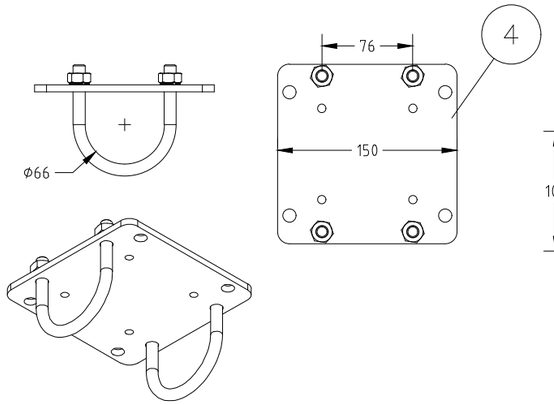
FLAME DETECTOR / 2" PIPE MOUNTING

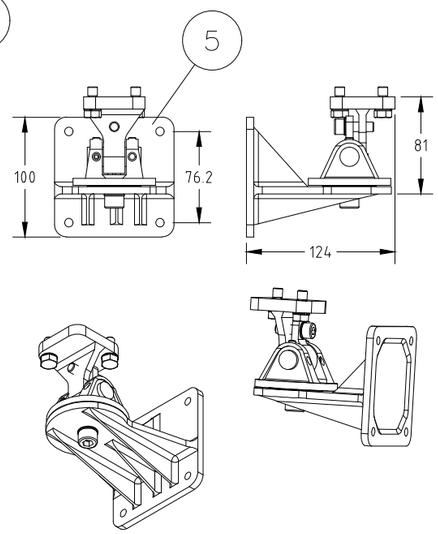
ITEM	DESCRIPTIONS	NR
1	Flame Detector, FGD FlameSpec FLS-UV-IR-AS11	1
2	Reducer M25 - M20 Ex d AISI 316	1
3	Stop Plug M25 Ex d AISI 316	1
4	2 inch Mounting Kit, FGD F107X0050.00	1
5	Tilt Assy, FGD F110X0090.00	1
6	Weather Shield, FGD F107X0240.00	1
7	Stainless Steel Name Plate	
8		
9		
10		

INSTALLATION QUANTITY

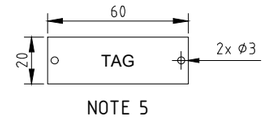
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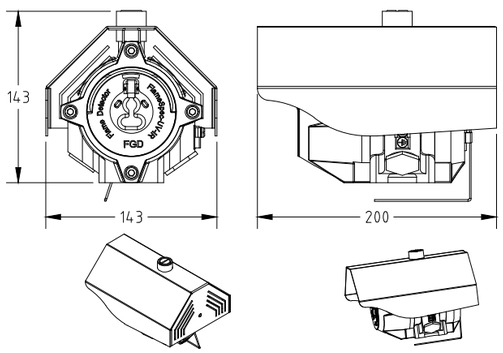


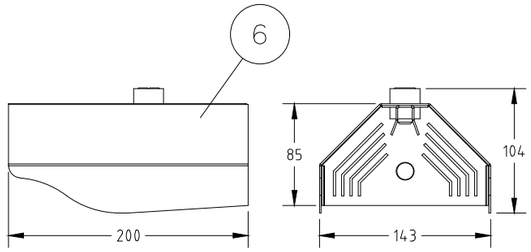
7 STAINLESS STEEL NAME PLATE DETAILS

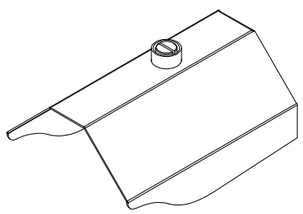


NOTE 5

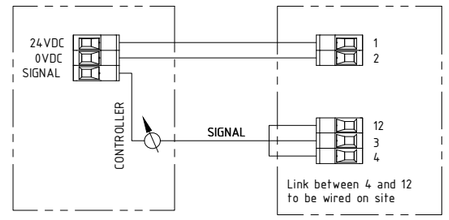
GA WEATHER SHIELD AND DETECTOR



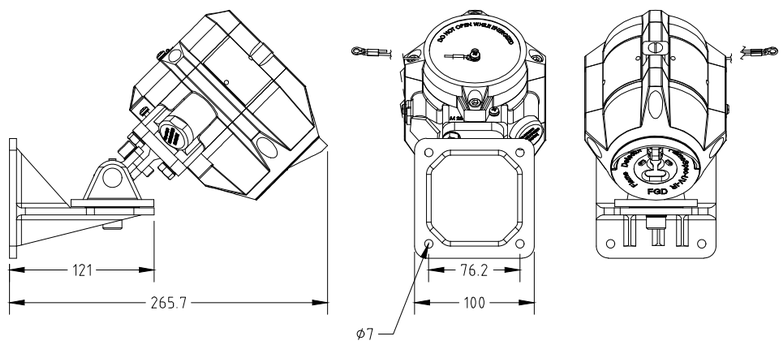




CONTROL CABINET — DETECTOR



INSTALLATION SCHEME



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR / 2" PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-FDZ-01101
2	950-FDZ-01102
3	950-FDZ-01103
4	950-FDZ-01104
5	950-FDZ-02101
6	950-FDZ-02102
7	950-FDZ-02103
8	950-FDZ-02104
9	950-FDZ-03101
10	950-FDZ-03102
11	950-FDZ-03103
12	950-FDZ-03104
13	950-FDZ-04101
14	950-FDZ-04102
15	950-FDZ-04103
16	950-FDZ-04104
17	950-FDZ-05101
18	950-FDZ-05102
19	950-FDZ-05103
20	950-FDZ-05104
21	950-FDZ-06101
22	950-FDZ-06103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 014 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR

POS.	TAG NUMBER	SERVICE
1	950-FDZ-01101	FZ-01 FUEL CELL PK AREA
2	950-FDZ-01102	FZ-01 FUEL CELL PK AREA
3	950-FDZ-01103	FZ-01 FUEL CELL PK AREA
4	950-FDZ-01104	FZ-01 FUEL CELL PK AREA
5	950-FDZ-02101	FZ-02 H2 STORAGE VESSELS AREA
6	950-FDZ-02102	FZ-02 H2 STORAGE VESSELS AREA
7	950-FDZ-02103	FZ-02 H2 STORAGE VESSELS AREA
8	950-FDZ-02104	FZ-02 H2 STORAGE VESSELS AREA
9	950-FDZ-03101	FZ-03 ELECTROLYZER PK AREA
10	950-FDZ-03102	FZ-03 ELECTROLYZER PK AREA
11	950-FDZ-03103	FZ-03 ELECTROLYZER PK AREA
12	950-FDZ-03104	FZ-03 ELECTROLYZER PK AREA
13	950-FDZ-04101	FZ-04 B-400/B-300/B-200 AREA
14	950-FDZ-04102	FZ-04 B-400/B-300/B-200 AREA
15	950-FDZ-04103	FZ-04 B-400/B-300/B-200 AREA
16	950-FDZ-04104	FZ-04 B-400/B-300/B-200 AREA
17	950-FDZ-05101	FZ-05 BESS AREA
18	950-FDZ-05102	FZ-05 BESS AREA
19	950-FDZ-05103	FZ-05 BESS AREA
20	950-FDZ-05104	FZ-05 BESS AREA
21	950-FDZ-06101	FZ-06 B-100 AREA
22	950-FDZ-06103	FZ-06 B-100 AREA

File: 1724000821-IN-DS-00004-02.xlsx
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FlameSpec
UV-IR
UV-IR Flame Detector



The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 ft^2 (0.1m^2) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)	Avrg Resp.Time (s)
N-Heptane	1 x 1 ft.	Extreme	98 (30)	2.0
N-Heptane	1 x 1 ft.	High	75 (23)	1.7
N-Heptane	1 x 1 ft.	Medium	49 (15)	1.0
N-Heptane	1 x 1 ft.	Low	16 (5)	1.0
Gasoline	2 x 2 ft.	Extreme	197 (60)	3.3
Gasoline	1 x 1 ft.	Extreme	98 (30)	1.8
Gasoline	1 x 1 ft.	Medium	49 (15)	1.3
Methane	32-in Plume	Extreme	59 (18)	1.4
Methane	32-in Plume	Medium	30 (9)	0.9
LPG	32-in Plume	Extreme	75 (23)	1.2
LPG	32-in Plume	High	56 (17)	1.6
LPG	32-in Plume	Medium	33 (10)	1.2
LPG	32-in Plume	Low	13 (4)	1.2
Diesel	1 x 1 ft.	Extreme	75 (23)	2.6
Diesel	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Extreme	75 (23)	3.3
JP5	1 x 1 ft.	High	56 (17)	1.8
JP5	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Low	16 (5)	1.2
Kerosene	1 x 1 ft.	Extreme	75 (23)	1.8
Kerosene	1 x 1 ft.	Medium	36 (11)	0.9
Methanol	1 x 1 ft.	Extreme	52 (16)	0.8
Methanol	1 x 1 ft.	High	43 (13)	3.2
Methanol	1 x 1 ft.	Medium	30 (9)	1.3
Methanol	1 x 1 ft.	Low	10 (3)	2.7
Ethanol	1 x 1 ft.	Extreme	62 (19)	4.1
Ethanol	1 x 1 ft.	Medium	31 (9.5)	2.9
Isopropanol	1 x 1 ft.	Extreme	75 (23)	2.2
Isopropanol	1 x 1 ft.	Medium	36 (11)	0.8
Polypropylene	1 x 1 ft.	Extreme	49 (15)	1.4
Polypropylene	1 x 1 ft.	Medium	23 (7)	0.9
Hydrogen	32-in Plume	Extreme	66 (20)	6.4
Hydrogen	32-in Plume	Medium	33 (10)	1.0
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	59 (18)	3.2
Syngas (30%CH_4:70%H_2)	32-in Plume	Medium	33 (10)	1.2

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric arc	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Arc welding	10.0 (3.0)	No Alarm	10.0 (3.0)	No Alarm
Radiation heater, 2000W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Halogen lamp (500W) non-shielded	7.0 (2.0)	No Alarm	7.0 (2.0)	No Alarm
Halogen lamp (1000W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Exhausts	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Projector led	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Solenoid bell	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
soldering iron	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric Drill	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

FIRE DETECTION	**Detection time and distance**	5ms for fast burst of explosion 1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m) < 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of view (IR detection)	90° Horizontal, 80° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	14-17 AWG (2.5–1.0 mm²)
OUTPUTS	**Relays**	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
MECHANICAL SPECIFICATIONS	**Size**	5.51 x 3.54 × 3.54" (140×90×90mm)
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	**Temperature Range**	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	Up to 99% (RH), non-condensing
	Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	**ATEX**	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C
	IECEx, INMETRO & PESO	Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx/Ex db IIC T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	EAC CU TR	1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C 1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)

ACCESSORIES	**Tilt mount, model FLS-TMO-S01**	**High vibration mounting bracket, model FLS-MIL-S01**
	Weather cover, model FLS-WCO-S01	**Flame simulator, model FLS-FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S01**
	Duct mount with window, model FLS-DMW-S01	**Duct mount for airshield, model FLS-DMX-S01**
WARRANTY	**5 years**	

FIRE & GAS DETECTION TECHNOLOGIES INC.

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Specifications subject to change without notice.

FlameSpec

FLS-FSIM

Flame Simulator Family



The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

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Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

Flame Simulator Family

	Simulator Kits Part Nos	FLS-FSIM-IR3-KIT	FLS-FSIM-IR3-H2-KIT	FLS-FSIM-UV-IR-KIT
	Detector type	FLS-IR3[1] FLS-IR3-HD[1]	FLS-IR3-H2 FLS-IR3-H2-HD	FLS-UV-IR FLS-UV-IR-HD
OPERATION DISTANCES	**Detector Sensitivity**	ft. m	ft. m	ft. m
	Extreme	30 9.0	30 9.0	42.5 13.0
	High	20 6.0	20 6.0	26 8.0
	Medium	10 3.0	10 3.0	20 6.0
	Low	3.3[2] 1.0[2]	3.3[2] 1.0[2]	6.6 2.0
ELECTRICAL SPECIFICATIONS	**Operating Voltage nominal, V**	3.7	3.7	3.7
	Number of activations between charging	~1000	~1000	~50
	Battery Capacity, mAh	>3000	>3000	>3000
	Charging time, hours	up to 3	up to 3	up to 3
	Indication	3 Color LED (Green, Yellow, Red)		
	All Simulator Models			
MECHANICAL SPECIFICATIONS	**Size**	3.9 x 3.9 x 7.8" (100 x 100 x 200mm)		
	Weight	3.96 lbs. (1.8 kg)		
	Simulator Enclosure Material	Painted Aluminum LM25		
ENVIRONMENTAL SPECIFICATIONS	**Ingress Protection**	IP65 (NEMA 4X)		
	Humidity	up to 99% (RH), non-condensing		
	Operating temperature	Min: −4°F (−20°C) Max: +122°F (+50°C)		
APPROVALS	**Explosion proof**	ATEX Ex II 2 G Ex db ib op is IIC T6 Gb Ex II 2 D Ex tb ib op is IIIC T85°C Db -20°C<Ta<+50°C		
ACCESSORIES included in kits	**Carrying Case**	FLS-FSIM-CASE		
	Carrying Strap	FLS-FSIM-STRAP		
	Cover Tool	FLS-FSIM-TOOL		
	Allen Key	FLS-FSIM-ALLEN		
	Battery Charger	FLS-FSIM-CHRGR		
WARRANTY	**3 Years**			

[1]not CO2L variant
[2]with collimator removed

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Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
77-HS-009A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11407	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-009B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11408	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-010A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11409	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-010B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11410	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-011A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11411	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-011B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11412	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-012A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11413	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-012B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11414	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-013A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11415	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-013B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11416	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-014A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11417	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-014B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11418	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-015A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11419	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-015B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11420	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-016A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11421	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-016B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11422	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
80-PSV-001	Hyrogen storage to A-80000 Package discharge	LOWER DECK	1724000518	Technical Srl	Technical Srl	291496	320-K10-5L	Zone 2	Declaration of Conformity by Technical Srl	1724000518-IN-DA-00003 / 1724000518-IN-DS-00004	II 2G Ex h IIC T6..T1 Gb	-	N/A	False	N/A	False	HAZARDOUS-AREA_3 HAZARDOUS-AREA_2 HAZARDOUS-AREA_5 HAZARDOUS-AREA_6
80-PT-002	Hyrogen storage to A-80000 Package	LOWER DECK	1724000979	Terranova Srl	Terranova Srl	SE240657	SST76-H-7-K-2-0-2-1-4 + MAN2-R6		TI17ATEX304X	1724000979-IN-DA-00003 / 1724000979-IN-DS-00004	ATEX Ex II 1/2G Ex db IIC / IIB, T6/T5, Ga/Gb or ATEX Ex II 1/2G Ex ia IIC T6/T5/T4 Ga/Gb	-	N/A	False	N/A	True	HAZARDOUS-AREA_6
80-XV-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N/A	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	False	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-XY-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-ZSH-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-ZSL-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
950-ASD-01101	FZ-01 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/1	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-03101	FZ-03 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/2	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-04101	FZ-04 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/3	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-06101	FZ-06 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/4	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-07101	FZ-07 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/5	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-01101	FZ-01 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/11	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-03101	FZ-03 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/12	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-04101	FZ-04 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/13	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-06101	FZ-06 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/14	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-07101	FZ-07 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/15	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-01101	FZ-01 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/16	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-03101	FZ-03 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/17	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-04101	FZ-04 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/18	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-06101	FZ-06 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/19	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-07101	FZ-07 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/20	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01101	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01102	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01103	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01104	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02101	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02102	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02103	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02104	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03101	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03102	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03103	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

International Center for Quality Certification - ICQC Ltd.
63-19, Skolas street, Jurmala, LV-2016, Latvia
Phone: +371 27168371 E-mail: office@icqc.lv Web: www.icqc.lv
SIA „International Center for Quality Certification - ICQC"
Reģ. Nr.LV40103539825
Skolasiela 63-19, Jūrmala, LV-2016, Latvija

EU Notified Body
No. 2549

LATAK-S1-499

(1) EU-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres – Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **ICQC 19 ATEX 0424 X** **Issue: 1**

(4) Equipment: **FlameSpec Detector types: FLS-IR3-ASXX, FLS-IR3-H2-ASXX, FLS-UV-IR-ASXX, FLS-UV-IR-F-ASXX**

(5) Manufacturer: **Fire & Gas Detection Technologies, Inc**

(6) Address: **4222 E. La Palma Ave, Anaheim, CA 92807, USA**

(7) This equipment and any acceptable variation, also documents which are specified in the schedule to this certificate.

(8) The certification body ICQC, Notified body No. 2549 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in confidential report no **424/2019/07/ATEX**

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and the construction of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture and supply of this equipment. These are not covered by the certificate

(12) The marking of the equipment or protective system shall include the following:

II 2 G Ex db IIC T5 Gb or II 2 G Ex db eb IIC T5 Gb and II 2D Ex tb IIIC T95 °C Db -55°C<Ta<75°C

II 2 G Ex db IIC T4 Gb or II 2 G Ex db eb IIC T4 Gb and II 2D Ex tb IIIC T105 °C Db -55°C<Ta<85°C

Director of Certification: Sergey Kovalev

International Center for Quality Certification • Notified Body 2549 • JŪRMALA, LATVIJA

Date of issue: 11 March, 2020
Jurmala, Latvia

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(13) **SCHEDULE**

(14) **to EU-TYPE EXAMINATION CERTIFICATE: ICQC 19 ATEX 0424 X** **Issue: 1**

(15) **Description of Equipment:**

FlameSpec Detector types: FLS-IR3-ASXX (DWG F120B0010), FLS-IR3-H2-ASXX (DWG F150B0010), FLS-UV-IR-ASXX (DWG F110B0010) and FLS-UV-IR-F-ASXX (DWG F160B0010) are infrared and UV/IR flame detectors, which provide fast response, high performance and reliable detection of all types of hydrocarbon and hydrogen fires (visible and non-visible).

The flame detector consists of electronic compartment in type of protection flameproof enclosure "d" and terminal compartment which meets the requirements of types of protection increased safety "e" and flameproof enclosure "d" with a two openings 3/4" NPT or M25 for cable glands.

The cable entry devices (cable glands) shall be certified with a appropriated type of protection. Unused entries shall be closed with certified blanking elements. Installing and use of cable gland and blanking elements shall be in compliance with EN 60079-14 current edition.

The detector is intended for use as part of a complex system and can be installed indoor or outdoor. The detector has a window heater, which automatically turns on by the ambient temperature below 5°C.

There are following features available in the flame detectors:

- Alarm Relay
- Fault Relay
- 4-20 mA and HART Output
- RS-485
- Data/Event logger
- Built-in-Test (BIT)

Technical characteristics:

Parameters	**Value**
Supply voltage	18 ... 32 V DC
Current Consumption	Standby: 100 mA Maximum: 200 mA all systems in operation (including window heater)
Alarm Relay, SPST, Normally open and normally closed	2A at 30 VDC
Fault Relay, SPST, Normally open	
Degree of protection	IP66 / IP68
Ambient temperature range	-55°C to +75°C or -55°C to +85°C

Routine tests:

Routine tests according to cl. 7.1 of EN 60079-7 shall be conducted for Exe terminal compartment with a test voltage of 500 V

Routine tests according to cl. 16 of EN 60079-1 shall be conducted for Exd electronic compartment with a test pressure of 1,36 MPa

(16) **Descriptive Documents:**

User Guide Release Number: F110V0010– FlameSpec-IR3; F120V0010 –FlameSpec-UV-IR; F150V0010– FlameSpec-IR3-H2; F160V0010 – FlameSpec-UV-IR-F

The drawings are listed in Evaluation report No: 424/2019/07/ATEX

Certificate History

Issue/Date	**Evaluation report**	**Comment**
Issue 0 from 21.01.2019	424/2019/07/ATEX	The release of the prime certificate.
Issue 1 from 11.03.2020	424/2019/07/ATEX	Manufacturer address change. Product design unchanged.

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(17) **Specific conditions of use:**
17.1 The Exd electronic compartment of flame detector has flamepaths which differ from those in IEC 60079-1. Repairs shall be conducted only by FG Detection Technologies LTD.

(18) **Essential Health and Safety Requirements:**
Met by compliance with the standards mentioned in clause (9).

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres Directive 94/9/EC**

(1) # EC-TYPE EXAMINATION CERTIFICATE

(3) Number of the EC type examination certificate: **INERIS 14ATEX0029X**

(4) Equipment or protective system:

FITTING UNITS TYPE RE**** or RE******* or PL**** or NP*** or EM*** or ELF***

(5) Manufacturer: **RIBCO**

(6) Address: Via dei Mille, 12
20061 Carugate (MI)-ITALY

(7) This equipment or protective system and any other acceptable alternative of this one are described in the annex of this certificate and the descriptive documents quoted in this annex.

(8) INERIS, notified body and identified under number 0080, in accordance with article 9 of Council Directive 94/9/EC of the 23rd March 1994, and accredited by COFRAC under number 5-0045 for certification of products and services (scope of accreditation available on the website www.cofrac.fr) certifies that this equipment or protective system fulfils the Essential of Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, described in annex II of the Directive.

The examinations and the tests are consigned in report No 028198/14.

(9) The respect of the Essential Health and Safety Requirements is ensured by:

- conformity with:

EN 60079-0	:	2012/A11	:2013
EN 60079-1	:	2007	
EN 60079-7	:	2007	
EN 60079-31	:	2009	

- specific solutions adopted by the manufacturer to meet the Essential Health and Safety Requirements described in the descriptive documents.

Parc Technologique Alata BP 2 F-60550 Verneuil-en-Halatte
tél + 33(0)3 44 55 66 77 **fax** + 33(0)3 44 55 66 99 **internet** www.ineris.fr

Institut national de l'environnement industriel et des risques
Etablissement public à caractère industriel et commercial - RCS Senlis B 381 984 921 - Siret 381 984 921 00019 - APE 7120B

(10) Sign X, when it is placed following the Number of the EC type examination certificate, indicates that this equipment and protective system is subjected to the special conditions for safe use, mentioned in the annex of this certificate.

(11) This EC type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system, these are not covered by this certificate.

(12) The marking of the equipment or the protective system will have to contain:

Ex I M2 Ex II 2 GD

Verneuil-en-Halatte, 2014.06.26

ATMOSPHERES EXPLOSIVES ORGANISME NOTIFIE INERIS NOTIFIED BODY EXPLOSIVE ATMOSPHERES

The Chief Executive Officer of INERIS
By delegation
T. HOUEIX
Ex Certification Officer

(13) # ANNEX

(14) EC TYPE EXAMINATION CERTIFICATE N°INERIS 14ATEX0029X

(15) DESCRIPTION OF THE EQUIPMENT OR THE PROTECTIVE SYSTEM

This series of fitting units is composed by adapters, plugs, nipples and 90°bends can be made in EN AW-6060, CW614N (OT58), AISI 316L or ASTM A105.

It gets the degree of protection IP66 according to the EN 60529 standard.

PARAMETERS RELATING TO THE SAFETY

Size of threaded joints:

Taper threading	:	NPT	:	3/8" NPT up to 3" NPT.
Cylindrical threading	:	ISO-262 and ISO965-1/2/3	:	M16 x 1.5 mm up to M90 x 1.5 mm.

Operating temperature:

-40°C to +100°C with EPDM O-ring;

-60°C to +180°C with silicone O-ring.

MARKING

Marking has to be readable and indelible; it has to include the following indications:

a) Marking for units without aluminum

RIBCO
20061 Carugate (MI)-ITALY
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
INERIS 14ATEX0029X
(Year of construction)
Ⓔx I M2 Ⓔx II 2 GD
Ex d I Mb
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db IP66

On the small equipments, the marking can be reduced:

RIBCO-I
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
(Year of construction)
INERIS 14ATEX0029X
Ⓔx I M2 Ⓔx II 2 GD
Ex d/e/tb
IP66

Marking may be carried out in the language of the country of use.

The protective system or equipment has also to carry the marking normally stipulated by its construction standards.

b) Marking for units in aluminum

RIBCO
20061 Carugate (MI)-ITALY
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
INERIS 14ATEX0029X
(Year of construction)
Ⓔx II 2 GD
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db IP66

On the small equipments, the marking can be reduced:

RIBCO-I
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
(Year of construction)
INERIS 14ATEX0029X
Ⓔx II 2 GD
Ex d/e/tb
IP66

Marking may be carried out in the language of the country of use.

The protective system or equipment has also to carry the marking normally stipulated by its construction standards.

ROUTINE EXAMINATIONS AND TESTS

None.

(16) DESCRIPTIVE DOCUMENTS

The descriptive document quoted hereafter constitutes the technical documentation of the equipment, subject of this certificate.

- Certification File DC-FIT-00 Rev.0 (12 items) signed on 2014.03.10

(17) SPECIAL CONDITIONS FOR SAFE USE

Operating temperature of the fitting units:

-40°C to +100°C with EPDM O-ring;

-60°C to +180°C with silicone O-ring.

(18) ESSENTIAL SAFETY AND HEALTH REQUIREMENTS

The respect of the Essential Health and Safety Requirements is ensured by:

- Conformity to the standards quoted in clause (9).
- All provisions adopted by the manufacturer and defined in the descriptive documents.

TÜV SÜD ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

(1) # EU-Type Examination Certificate

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

TPS 19 ATEX 105708 0001 X Rev. 00

(4) Equipment or Protective System: Stopping plugs - Type: BHL M25, BHL 3/4NPT

(5) Manufacturer: Shenzhen Zhongli Hardware Products Co., Ltd.

(6) Address: Building 1, Hehe Science and technology Park, Daxing Community, Fucheng Street, Longhua District, 518109 Shenzhen, PEOPLE'S REPUBLIC OF CHINA

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) TÜV SÜD Product Service GmbH, Notified Body no. 0123, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports with no. 64.105.19.01091.01

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	**EN 60079-1:2014**
EN 60079-7:2015+A1:2018	**EN 60079-31:2014**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2GD Ex db IIC Gb Ex eb IIC Gb
Ex tb IIIC Db

Certification Body, München, 13.01.2020

Ing. Kristof De Gersem, MSc.

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 München • Germany

A4 / 07.17

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT
TÜV SÜD

(13) **Schedule**

(14) **EU-Type Examination Certificate no.**

TPS 19 ATEX 105708 0001 X Rev. 00

Product Service

Certificate History

Revision:	Description:	Report no.:	Issue Date:
Rev. 00	First issue of certificate.	64.105.19.01091.01	13.01.2020

(15) Description of equipment:

The stopping plugs comprise a cylindrical body with an external male thread along its length. BHL M25 has M thread and BHL 3/4NPT has NPT thread. The body material of them are SUS316L. BHL M25 with an "O" ring seal but BHL 3/4NPT without.

The stopping plugs are designed for use in explosive atmospheres classified as Gas Zone 1 and Zone 2 and as Dust Zone 21 and Zone 22.

The M and NPT thread forms are in explosion protection type "d", "e" and "t".

See the instruction manual for further details.

Model designation:

BHL M25, BHL 3/4NPT

Model difference:

Type	Metric	NPT
BHL M25	M25	-
BHL 3/4NPT	-	¾ NPT

Technical data:

Service temperature (Ts)	-60°C≤Ts≤180°C
Degree of protection by enclosure	IP64*, IP66**, IP68**

* IP64 is tested according to EN/IEC 60079-0.
** IPX6 and IPX8 are tested according to EN/IEC 60529; IPX8: 1m, 24h.

Warning label:

N/A

Installation instruction:

See installation instructions provided by the manufacturer and part of this certification.

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

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(13) **Schedule**

(14) **EU-Type Examination Certificate no.**

TPS 19 ATEX 105708 0001 X Rev. 00

Product Service

See also (17) Special conditions for safe use.

(16) Test report(s): 64.105.19.01091.01

Routine tests:

N/A

Document List:

File no.:	Description:	Pages:	Rev:	Date:
20191006M-01	BHL M25 drawing	1	A/0	2019-11-25
20191006F-01	BHL 3/4NPT drawing	1	A/0	2019-11-25
BC0601A	BHL M25 Instruction manual	1	00	2019-11-25
BC0601B	BHL 3/4NPT Instruction manual	1	00	2019-11-25

A copy of the full documentation is kept confidentially at TÜV SÜD.

(17) Special conditions for safe use:

1. The equipment shall be installed according to the instruction manual provided by manufacturer.
2. Service temperature: -60°C to 180°C.
3. To maintain the IP64 requirement according to EN/IEC 60079-0, BHL M25 and BHL 3/4NPT shall be made wrench tight. BHL M25 requires at least 5 threads engaged and shall be installed perpendicular to the mounting face and with a groove for sealing ring, ensuring that the sealing ring is evenly compressed against the mounting face. BHL 3/4NPT shall be made up wrench-tight and at least 3 ½ threads engaged.
4. To maintain the flameproof properties, BHL M25 shall be made wrench tight and requires at least 5 threads engaged. BHL 3/4NPT shall be made wrench tight and the threads length engaged shall be not less as the "L2" dimension according ANSI/ASME B1.20.1. When this cannot be realised at the final installation, the stopping plugs cannot be used for "Ex db" applications.

(18) Essential health and safety requirements:

Assured by compliance with standards set out in (9).

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

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72/137 TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT
TÜV SÜD

ITEM	Tag	950-MFA-01101	: FZ-01 MFA Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001052		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		225420465/20/1			
Manufacturer	Eaton MEDC			**Model**		SM87PBL			
Cert No.	Baseefa03ATEX0075X			**Equipment Ambient Temp.**		-55°C to +55°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex d	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T6	**IP Rating**	IP66/IP67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state “NA”. Comments are required for ‘Failure’ column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	OK	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	NA	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex “e” – Ex “n” – Ex “t”)	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	NA	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-MFA-01101	: FZ-01 MFA Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001052		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	NA	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	OK	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	OK	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	NA	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-MFA-01101	: FZ-01 MFA Activation		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001052	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

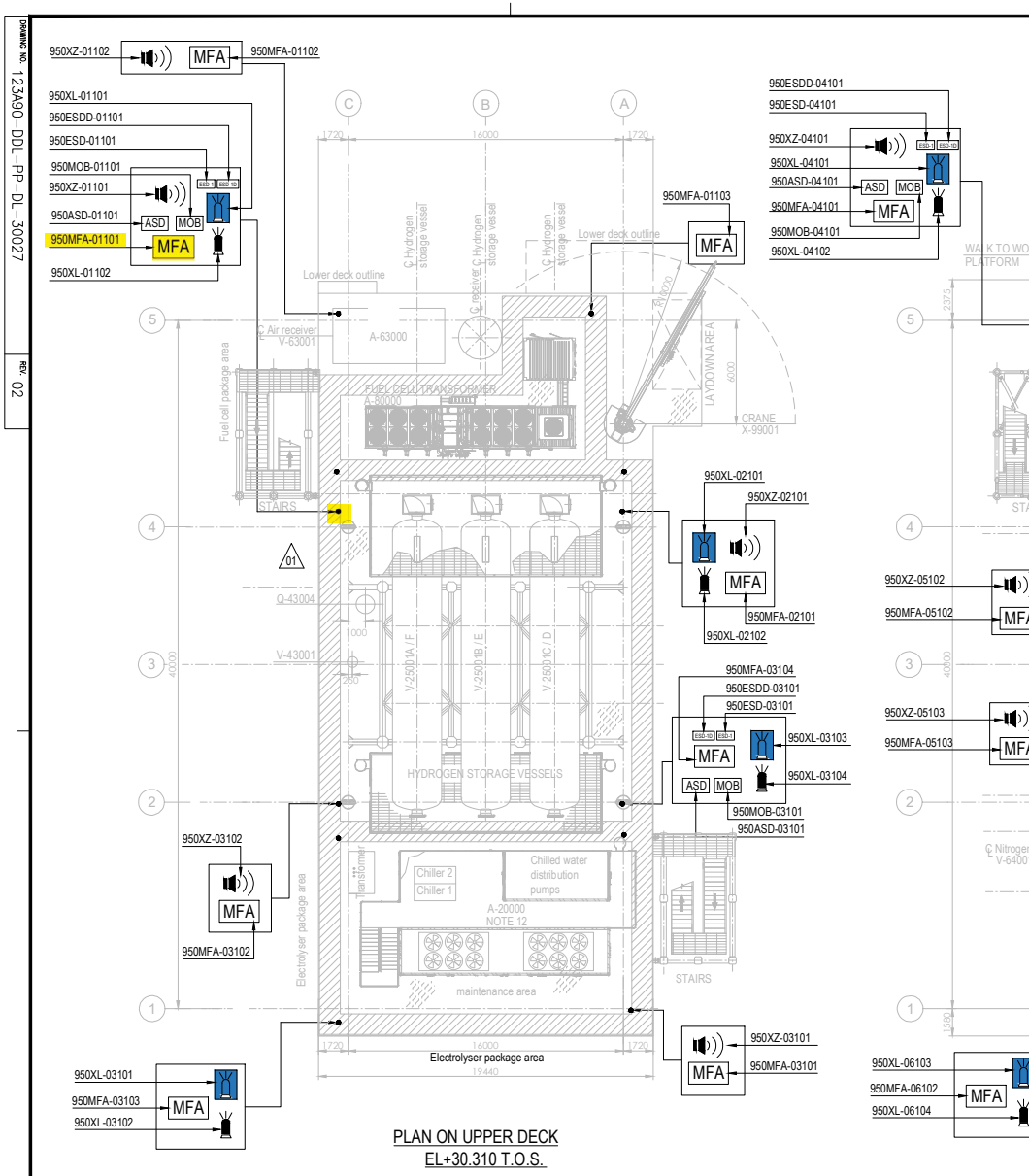
	BARRIER:	**Manufacturer:**	NA	**Model:**	NA	
		Authority:	NA	**Cert No:**	NA	**Type:** NA

Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

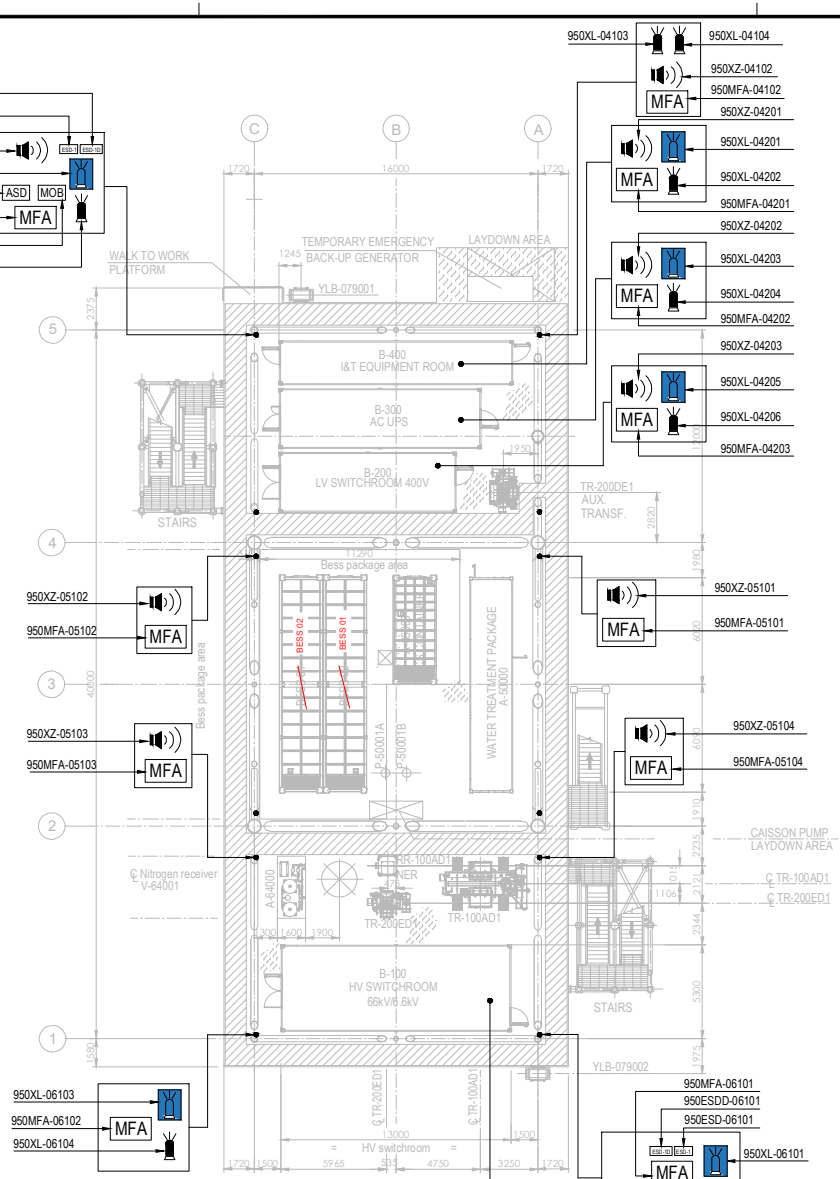
Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-11	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:14:02.320Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-24T13:42:04.117Z	

DRAWING NO. 123A90-DDL-PP-DL-30027 REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

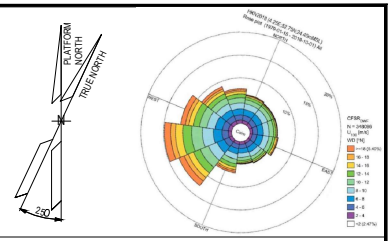


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

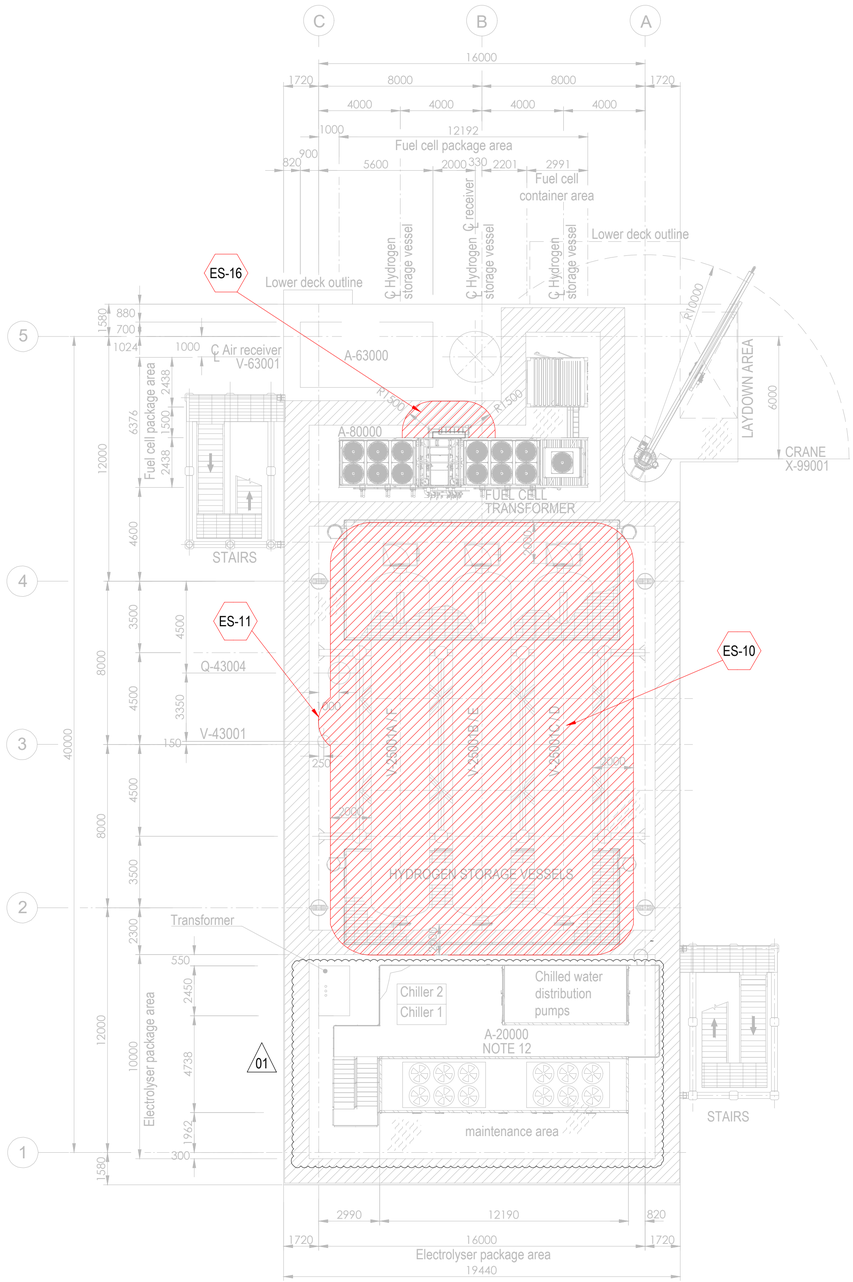
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

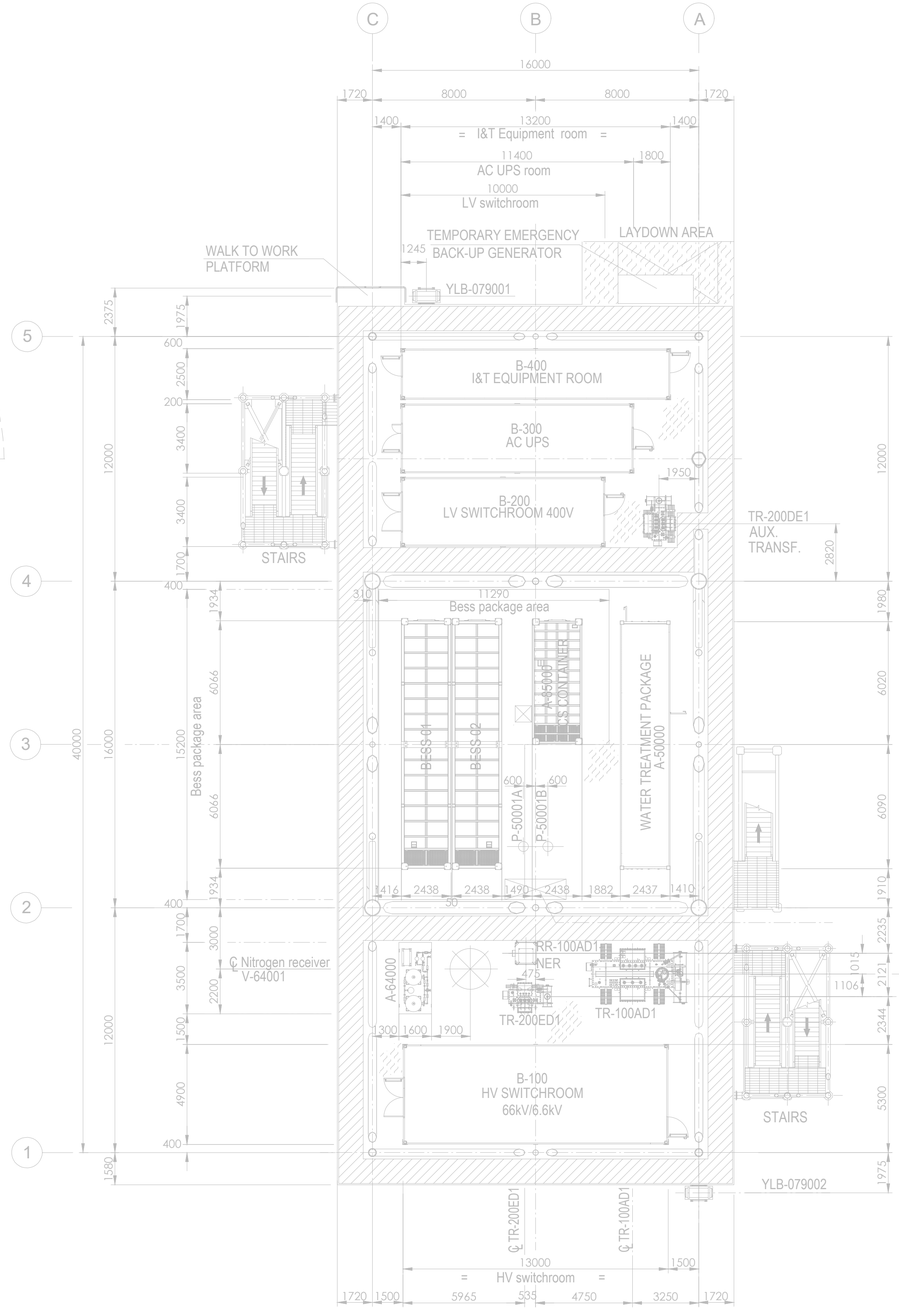
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



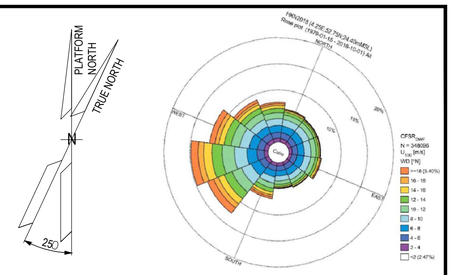
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

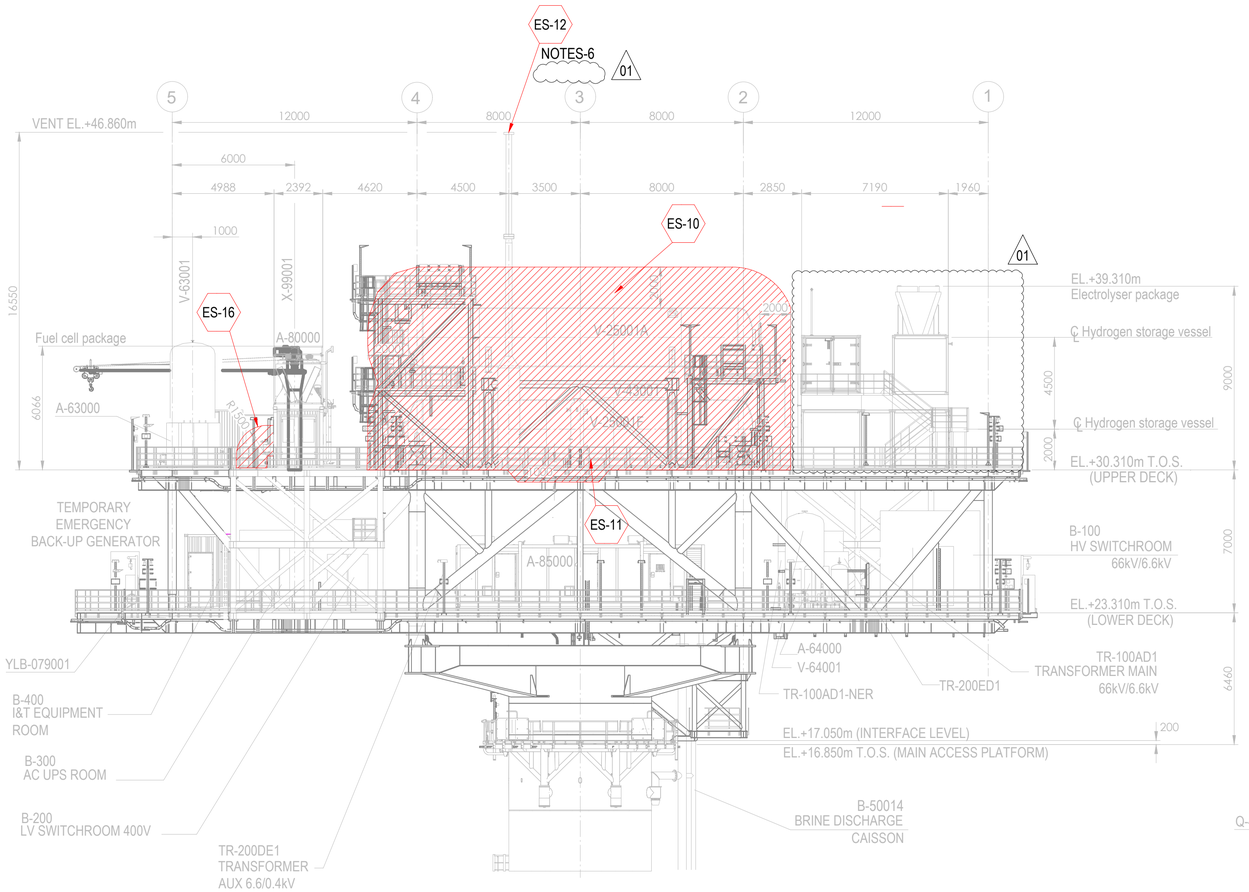
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

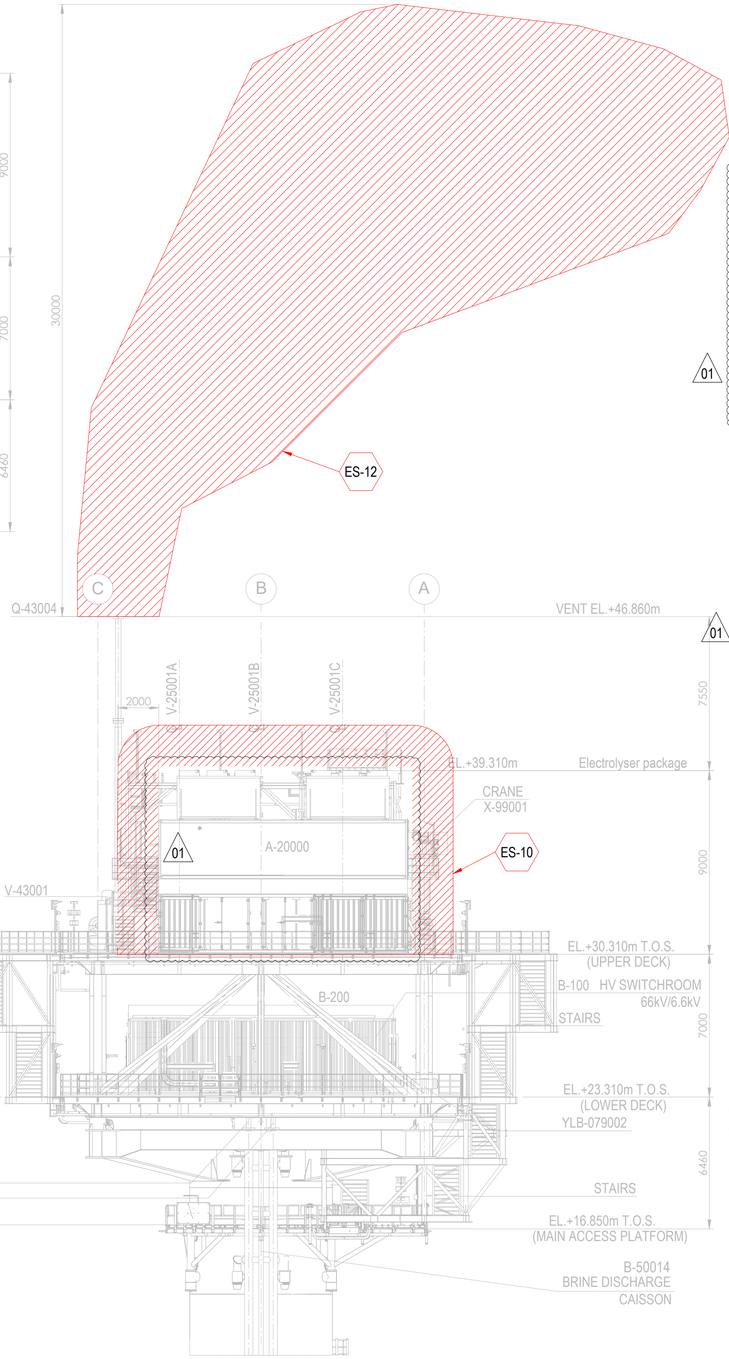
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



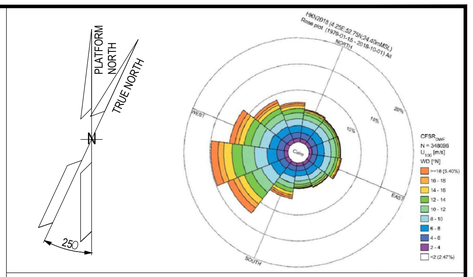
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1 WH, 8 BK) — C-950-MFA-01101/950-JE-01103 ~~C-950-MFA-01101/950-JE-01103~~ *1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-01102 (1 WH, 8 BK) — C-950-MFA-01102/950-JE-01103 ~~C-950-MFA-01102/950-JE-01103~~ *1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

950-MFA-01103 (1 WH, 8 BK) — C-950-MFA-01103/950-JE-01103 ~~C-950-MFA-01103/950-JE-01103~~ *1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS — NOTE-2

TB-1

WH/BK	1	WH/BK → PR1
	2	
	SH	
WH/BK	3	WH/BK → PR2
	4	
	SH	
WH/BK	5	WH/BK → PR3
	6	
	SH	
SPARE	7	WH/BK → PR4
	8	
	SH	
SPARE	9	WH/BK → PR5
	10	
	SH	
SPARE	11	WH/BK → PR6
	12	
	SH	
	OS	

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
*6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1 (Shield Bar)	WH/BK 1	950-MFA-01101
	2	
PR2 (Shield Bar)	WH/BK 3	950-MFA-01102
	4	
PR3 (Shield Bar)	WH/BK 5	950-MFA-01103
	6	
PR4 (Shield Bar)	WH/BK 7	SPARE
	8	
PR5 (Shield Bar)	WH/BK 9	SPARE
	10	
PR6 (Shield Bar)	WH/BK 11	SPARE
	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

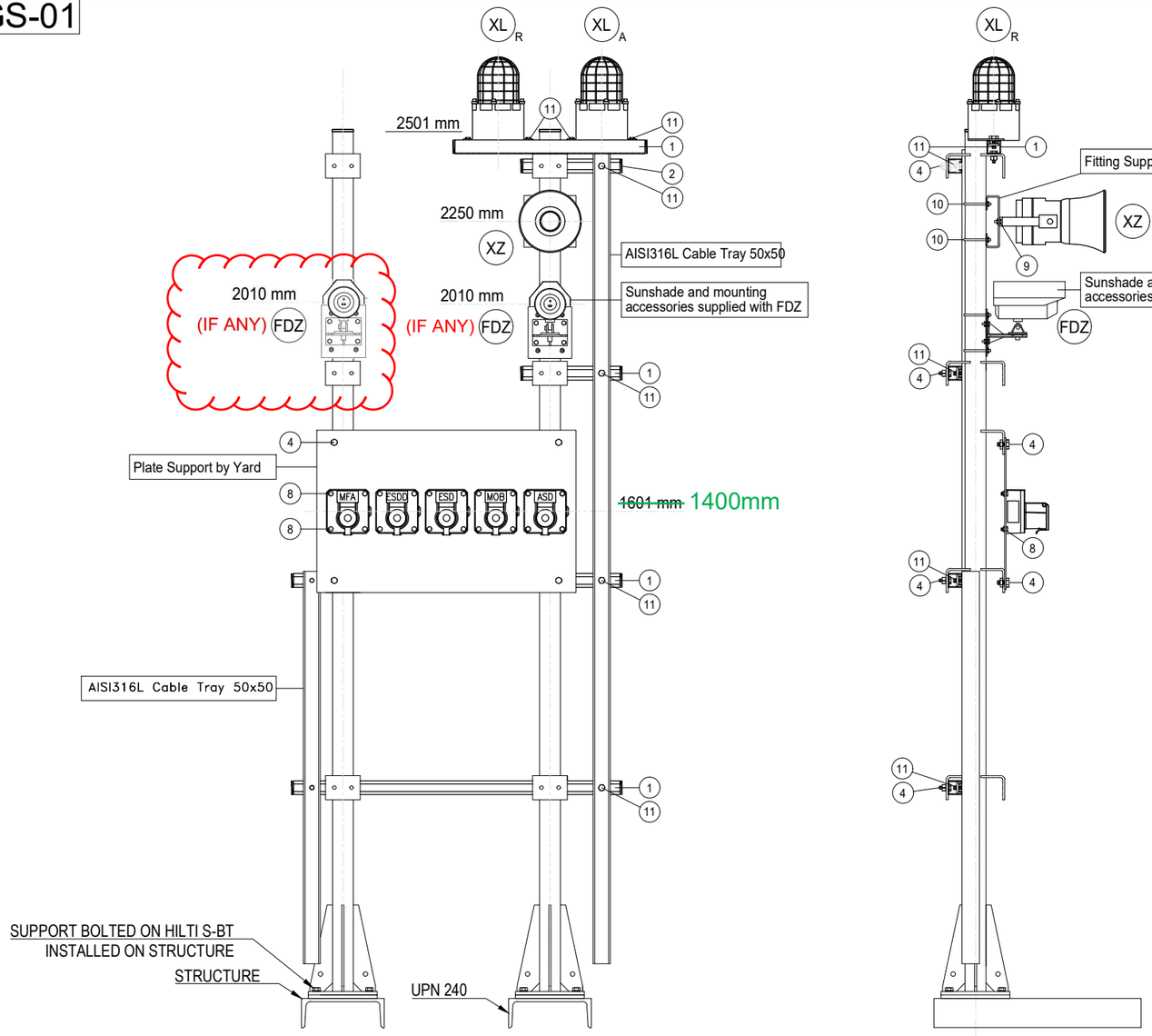
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 032	REV. 01

File Name : 123A90–DDL–IN–DG–40016_Rev.01

FGS-01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	6m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	18
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	20
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	10

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-01101
	XL_R	BEACON - RED	950-XL-01102
	FDZ	FLAME DETECTOR	950-FDZ-01101 & 950-FDZ-02101
	XZ	SOUNDER	950-XZ-01101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-01101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-01101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-01101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-01101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01101
2	XL_A	BEACON - AMBER	950-XL-06101
	XL_R	BEACON - RED	950-XL-06102
	~~FDZ~~	~~FLAME DETECTOR~~	~~950-FDZ-06104~~
	XZ	SOUNDER	950-XZ-06101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-06101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-06101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-06101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-06101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-06101

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

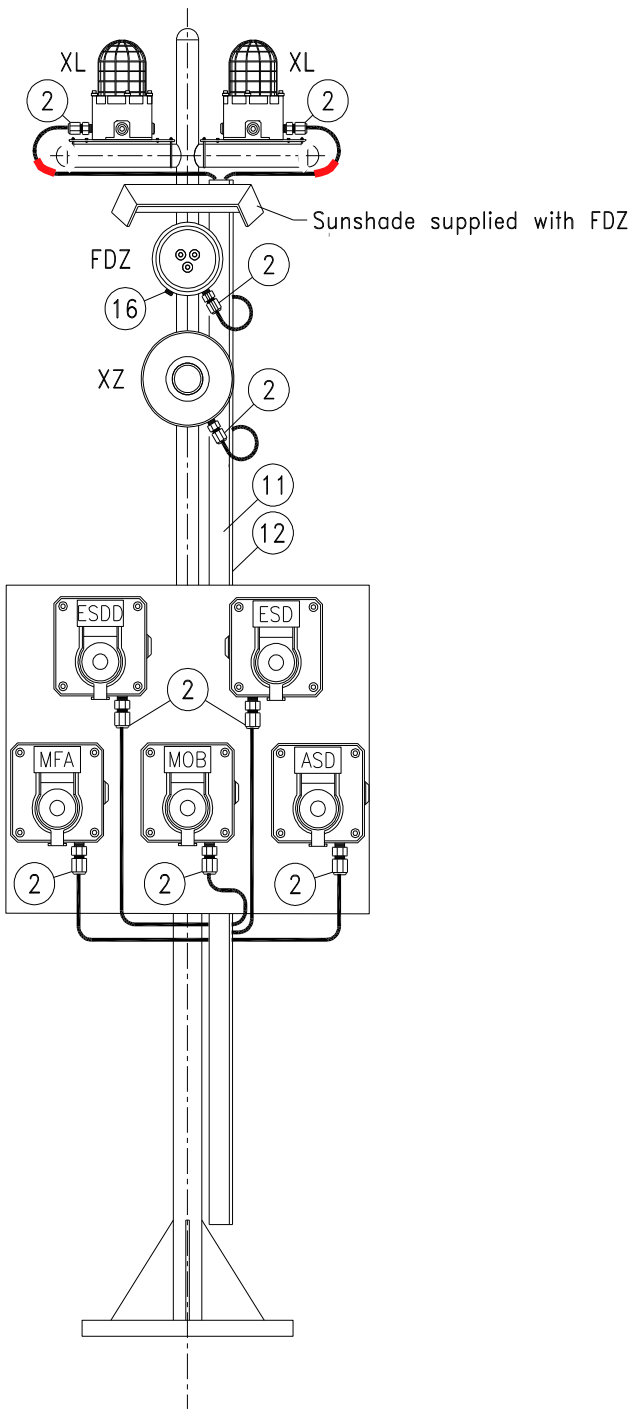
ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 020	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-XL-04101 (AMBER)
	950-XL-04102 (RED)
	~~950-FDZ-04101~~
	950-XZ-04101
	950-ESDD-04101
	950-ESD-04101
	950-MFA-04101
	950-MOB-04101
	950-ASD-04101
2	950-XL-06101 (AMBER)
	950-XL-06102 (RED)
	~~950-FDZ-06101~~
	950-XZ-06101
	950-ESDD-06101
	950-ESD-06101
	950-MFA-06101
	950-MOB-06101
	950-ASD-06101
3	950-XL-01101 950-XL-01102 950-FDZ-01101 950-FDZ-02101 950-XZ-01101 950-ESDD-01101 950-ESD-01101 950-MOB-01101 950-ASD-01101 950-MFA-01101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_F	12/12/24	C.Pilato

ROSETTI MARINO SpA

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	9

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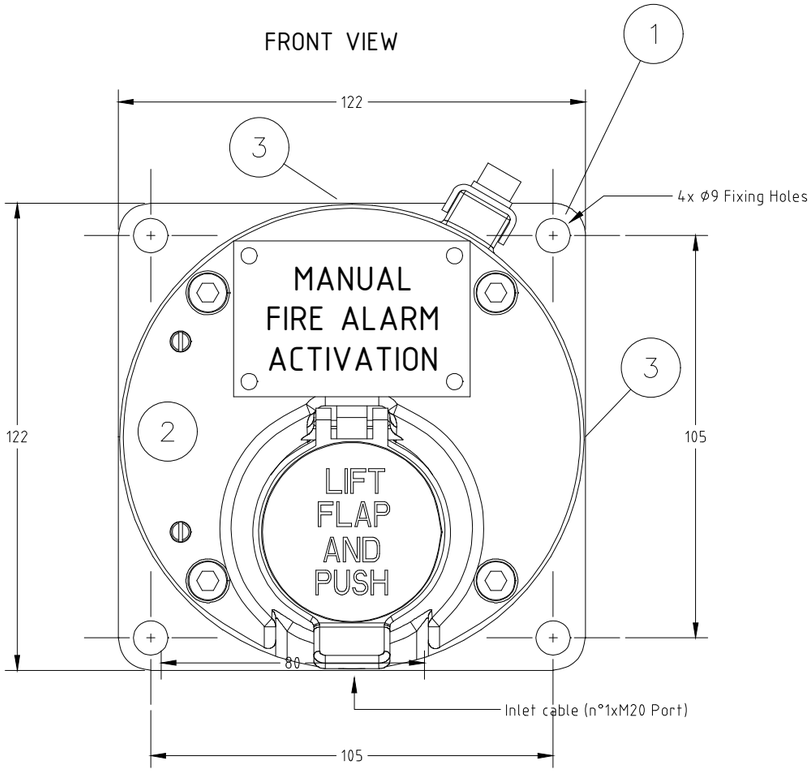
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

ITEM	DESCRIPTIONS	NR
1	Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ	1
2	Stainless Steel Name Plate	1
3	Stop Plug M20 Ex d AISI 316	2
4		
5		
6		
7		
8		
9		
10		

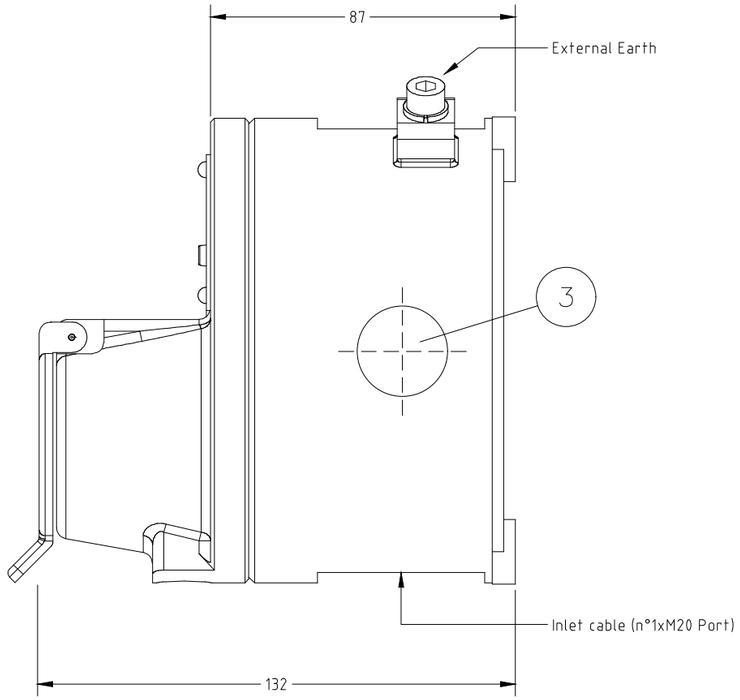
INSTALLATION QUANTITY

21

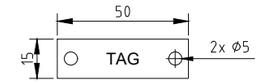
FRONT VIEW



SIDE VIEW



2 STAINLESS STEEL NAME PLATE DETAILS

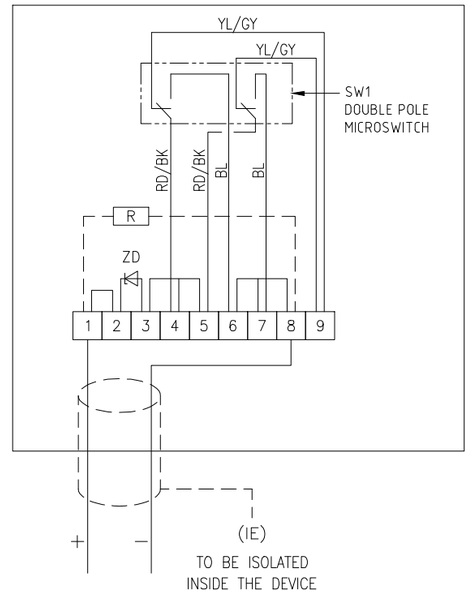


NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

POS.	TAG NUMBER
1	950-MFA-01101
2	950-MFA-01102
3	950-MFA-01103
4	950-MFA-02101
5	950-MFA-03101
6	950-MFA-03102
7	950-MFA-03103
8	950-MFA-03104
9	950-MFA-04101
10	950-MFA-04102
11	950-MFA-04201
12	950-MFA-04202
13	950-MFA-04203
14	950-MFA-05101
15	950-MFA-05102
16	950-MFA-05103
17	950-MFA-05104
18	950-MFA-06101
19	950-MFA-06102
20	950-MFA-06201
21	950-MFA-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL FIRE ALARM

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-MFA-01101	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
2	950-MFA-01102	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
3	950-MFA-01103	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
4	950-MFA-02101	FZ-02 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
5	950-MFA-03101	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
6	950-MFA-03102	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
7	950-MFA-03103	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
8	950-MFA-03104	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
9	950-MFA-04101	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
10	950-MFA-04102	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
11	950-MFA-04201	FZ-04 MFA ACTIVATION - B-400 INDOOR	MANUAL FIRE ALARM ACTIVATION
12	950-MFA-04202	FZ-04 MFA ACTIVATION - B-300 INDOOR	MANUAL FIRE ALARM ACTIVATION
13	950-MFA-04203	FZ-04 MFA ACTIVATION - B-200 INDOOR	MANUAL FIRE ALARM ACTIVATION
14	950-MFA-05101	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
15	950-MFA-05102	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
16	950-MFA-05103	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
17	950-MFA-05104	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
18	950-MFA-06101	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
19	950-MFA-06102	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
20	950-MFA-06201	FZ-06 MFA ACTIVATION - B-100 INDOOR	MANUAL FIRE ALARM ACTIVATION
21	950-MFA-07101	FZ-07 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION

File: 1724000821-IN-DS-00004-02.xlsx
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SM87BG & SM87PB manual call point range

Ex d, Ex ia, weatherproof



Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

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Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

Certifications

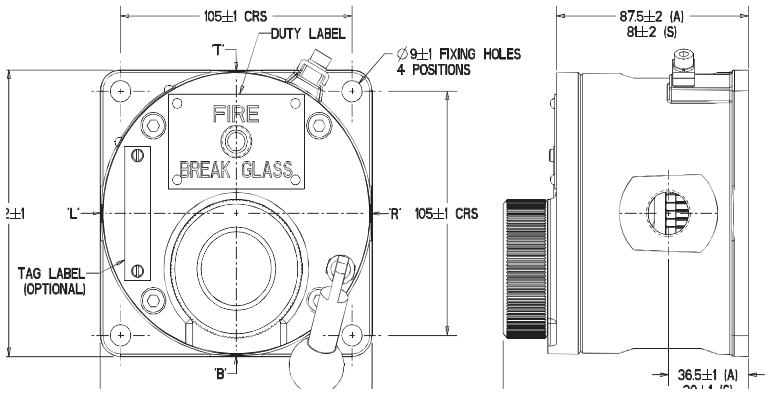
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
IECEx Ex d	Cert. no. IECEx BAS 09.0060 Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67
IECEx Ex ia	Cert. no. IECEx BAS 10.0033X Certified to: IEC60079-0, IEC60079-11, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
UL	Listing no. E186629 UL listed to Class 1, Div 1. Groups C & D. (SM87PBL)
ULC	Cert. no. 20091023-E320282 ULC certified for Class I, Zone 1 Groups C & D (SM87PBL)
CSA Explosion proof	Class 1, Div 1 & 2. Group D Ex d IIC T5/T6 Gb
CSA Intrinsically safe	Class 1, Div 1 & 2. Groups A-D
INMETRO Ex d	Ex db IIC T5/T6 Gb
Type Approvals	DNV (IEC 60945) (Stainless Steel SM87PB only)
SIL	SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453
CCC	Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C

Specifications

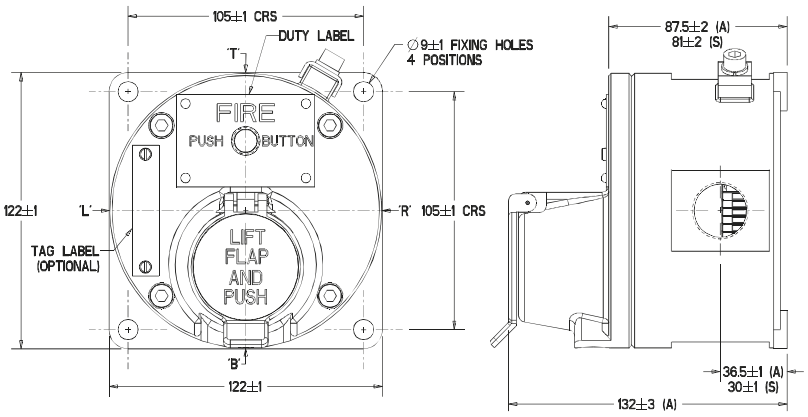
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy	
Finish	Paint finish as standard or to customer specification	
Voltage	Ex d 24V a.c./d.c. Ex ia 28V	
Rating	2A	
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)	
Optional indicator	A red high intensity LED can be fitted for alarm indication As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA	
Certified temp	Ex d* Ex ia* UL CSA Explosion proof - Class 1, Div 1 & 2. CSA - Ex d IIC CSA Intrinsically safe - Class 1, Div 1 & 2 *Note: includes ATEX, IECEx & INMETRO versions	–55°C to +70°C. –55°C to +60°C –20°C to +55°C (LED version only) –40°C to +70°C, –20°C to +55°C (LED version only) –50°C to +55°C –55°C to +70°C –50°C to +40°C
Weight	3·8 kg. steel (approx.) or 2.5 kg. alloy (approx)	
Ingress protection	IP66 & IP67. SM87PB IP68 (35m for 40 hours)	
Entries	Up to 4 x M20 or M25 ISO Ex d/Ex ia Up to 4 x ½" or ¾" NPT UL Stainless steel version comes with two entries as standard. Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side	
Terminals	Will accept up to 1·5mm² cable	
Resistor values	470R minimum (d.c. & I.S. units only)	

General arrangement drawing (all dimensions in mm)

Break glass



Push button



Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Unit	Model	Material	Certification	Entries	Duty label	Tag label	Options	Finish
SM87	PBL	S	D	1B1R	O	Y	HD	R

Material*

	Code
Stainless steel	S
Alloy	A

*UL version only available in alloy

Model*

	Code
Breakglass latching	BGL
Lift flap breakglass latching	LBGL
Push button latching key reset	PBL
Push button only momentary action	PBM

*UL and ULC versions only available in PBL model

Certification

	Code
Ex ia	I
Ex d	D
IECEx - Ex ia	IJ
IECEx - Ex d	DJ
UL	UL
ULC	UC
CSA - Intrinsically Safe	IC
CSA - Ex proof	DC
INMETRO - Ex d	DM
CCC	DQ

Entries

	Code
M20	1
M25	2
½" NPT	3
¾" NPT	4
Other	5
Position	
Top	*T
Bottom	*B
RHS	*R
LHS	*L

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

Duty label

	Code
Fire breakglass	1
Push button	2
Fire push button	3
ESDO abandon	4
Burning house logo	5
Fire/FEU	6†
Other	O*
None	N

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

Tag label

	Code
Required	Y*
Not required	N

*Please specify

Options

	Code
Not required	N
LED	A
Resistor series	G*
Resistor EOL	H*
Diode	D*
3 pole c/o switch	T
4 pole c/o switch	F

*Please specify

Finish

	Code
Red	R
Blue	B
Yellow	Y
Yellow/black stripes	X
Special	S*

*Please specify

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
950-JE-02104	FGS Digital Output JB	UPPER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-03101	FGS Analog JB	UPPER DECK	1724001299	Cortem Spa	Cortem Spa	24/87931	CTB453820S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	HAZARDOUS-AREA_1
950-JE-03102	FGS Analog JB	UPPER DECK	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-03103	FGS Digital Input JB	UPPER DECK	1724001299	Cortem Spa	Cortem Spa	24/87925	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-03104	FGS Digital Output JB	UPPER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04101	FGS Analog JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04102	FGS Digital Input JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87925	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04103	FGS Digital Output JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04201	FGS Analog JB	CONTAINER B-200 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04203	FGS Digital Output JB	CONTAINER B-200 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04204	FGS Analog JB	CONTAINER B-200 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87924	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04205	FGS Analog JB	CONTAINER B-300 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04207	FGS Digital Output JB	CONTAINER B-300 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87930	CTB303020S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-04208	FGS Analog JB	CONTAINER B-300 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87924	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-05101	FGS Analog JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87931	CTB453820S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-05102	FGS Digital Input JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87925	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-05103	FGS Digital Output JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-05104	FGS Digital Output JB	LOWER DECK	1724000448	PSC	E2S	-	D1xC3J21A1RS1FDC024GN1 AWR	Safe Area	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	1724000448-MAC-DA-00006	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	-	A-5000	True	N/A	True	
950-JE-06101	FGS Analog JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-06102	FGS Digital Input JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87925	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-06103	FGS Digital Output JB	LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-06201	FGS Analog JB	CONTAINER B-100 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87926	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-06203	FGS Digital Output JB	CONTAINER B-100 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-06204	FGS Analog JB	CONTAINER B-100 (LOWER DECK)	1724001299	Cortem Spa	Cortem Spa	24/87924	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-JE-07101	FGS Digital Output JB	BELOW LOWER DECK	1724001299	Cortem Spa	Cortem Spa	24/87927	CTB262616S1	Zone 1	CESI 03 ATEX 333	1724001299-IN-LIS-00005	Ex eb IIC T6 Gb	N/A	N/A	True	N/A	False	
950-MFA-01101	FZ-01 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/1	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-01102	FZ-01 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/2	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-01103	FZ-01 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/3	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-02101	FZ-02 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/4	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-03101	FZ-03 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/5	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-03102	FZ-03 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/6	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-03103	FZ-03 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/7	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-03104	FZ-03 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/8	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-04101	FZ-04 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/9	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-04102	FZ-04 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/10	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-04201	FZ-04 Manual fire alarm (MFA) B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Medc	225420465/20/11	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-04202	FZ-04 Manual fire alarm (MFA) B-300 AC UPS room	LOWER DECK	1724000821	Fores	Medc	225420465/20/12	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-04203	FZ-04 Manual fire alarm (MFA) B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/20/13	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-05101	FZ-05 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/14	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-05102	FZ-05 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/15	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-05103	FZ-05 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/16	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-05104	FZ-05 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/17	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-05201	FZ-05 Manual fire alarm (MFA) water treat. pkg	LOWER DECK	1724000448	PSC	E2S	-	STExCP8PTSPLAS2A1RN	Safe Area	DEMKO 15 ATEX 1589X	1724000448-MAC-DA-00005	II 2G Ex-d IIC T1	-	A-5000	True	N/A	True	
950-MFA-06101	FZ-06 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/18	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-06102	FZ-06 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/19	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-06201	FZ-06 Manual fire alarm (MFA) B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/20/20	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MFA-07101	FZ-07 Manual fire alarm (MFA)	LOWER DECK	1724000821	Fores	Medc	225420465/20/21	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MOB-01101	FZ-01 Man over board (MOB)	LOWER DECK	1724000821	Fores	Medc	225420465/30/6	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MOB-03101	FZ-03 Man over board (MOB)	LOWER DECK	1724000821	Fores	Medc	225420465/30/7	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MOB-04101	FZ-04 Man over board (MOB)	LOWER DECK	1724000821	Fores	Medc	225420465/30/8	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MOB-06101	FZ-06 Man over board (MOB)	LOWER DECK	1724000821	Fores	Medc	225420465/30/9	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-MOB-07101	FZ-07 Man over board (MOB)	LOWER DECK	1724000821	Fores	Medc	225420465/30/10	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-SDZ-04201	FZ-04 Smoke detect. in B-400 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4050816	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04202	FZ-04 Smoke detect. in B-400 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4050799	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04203	FZ-04 Smoke detect. in B-400 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4050827	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04204	FZ-04 Smoke detect. in B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Zettler	4051764	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04205	FZ-04 Smoke detect. in B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Zettler	4051760	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04206	FZ-04 Smoke detect. in B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Zettler	4051754	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04207	FZ-04 Smoke detect. in B-300 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4050834	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	

1 EU - TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa03ATEX0075X – Issue 21**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **SM87 Alarm Stations**

5 Manufacturer: **Eaton MEDC Limited**

6 Address: **Unit B, Sutton Parkway, Oddicroft Lane, Sutton-in-Ashfield, NG17 5FB United Kingdom**

7 This re-issued certificate extends EC Type Examination Certificate No. **Baseefa03ATEX0075** to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See certificate history.**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

Ⓔx II 2 GD Ex db IIC T* Gb Tamb -55°C to +°C Ex tb IIIC T**°C Db IP66/67 Tamb -55°C to +**°C**

SGS Fimko Oy Customer Reference No. **0676** Project File No. **22/0235**

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SGS Fimko Oy

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0075X – Issue 21**

15 Description of Product

The Range of SM87 Alarm Stations comprises a cylindrical enclosure a square base with an irregular shaped cover secured by 4 off screws of grade A4-70 or A4-80 stainless steel. The base and cover may be manufactured from either aluminium or stainless steel.

The cover is fitted with an actuator mechanism which may be operated by either a push button or break glass function dependant on the external actuator assembly.

The units may be supplied by the manufacturer in an assembly of up to five interconnected enclosures using cable bushings to EPS13ATEX1619U.

The range of Type SM87 Alarm Stations comprises:-

Type BGLD – A Breakglass unit with latching mechanism The interior of the enclosure comprises up to two micro-switches, mounted on the inside of the cover, and up to twelve rail mounted terminals fitted to the enclosure base, and rated up to 24V, 2A.

Type LBGLD - A Breakglass unit with protective lift flap and latching mechanism. The interior and rating as per the Type BGLD.

Type PBLD – A Push Button unit with latching mechanism. The interior and rating as per the Type BGLD.

Type PBMD – A Push button unit with momentary mechanism. The interior and rating as per the Type BGLD.

Type SM87 EOL Unit A – The interior comprises up to two micro-switches, mounted on the inside of the cover, and up to twelve rail mounted terminals fitted to the enclosure base with the addition of an end of line module rated 24V 0.5A.

Type SM87 Addressable Unit B –The interior comprises up to two micro-switches, mounted on the inside of the cover and a Servoteknikk addressable callpoint PCB, rated up to 24V 0.5A.

Type SM87 Addressable Unit G –The interior comprises up to two micro-switches, mounted on the inside of the cover and a Tyco addressable callpoint PCB, rated up to 24V 0.5A.

Type SM87 Addressable Unit F – The interior comprises up to two micro-switches, mounted on the inside of the cover and an Autronica addressable callpoint PCB, rated up to 24V 0.5A.

Type SM87 XP950 Module Unit – The interior comprises up to two micro-switches, mounted on the inside of the cover and an Apollo PCB, rated up to 24V 1.0A.

Type SM87 Addressable Unit H - The interior comprises a Hochiki addressable callpoint PCB and up to 7 terminals rated at up to 24V 0.2A.

Type SM87 Addressable Unit J - The interior comprises a Ziton addressable module, up to 5 terminals and 2 x 2.5W resistors rated at up to 24V 0.1A, 7W.

Type SM87PBD MCR-CUBE EOL Unit – an SM87 Alarm Station with switches mounted on the underside of the cover and an end of line (EOL) module and terminals mounted in the base, rated up to 24V, 0.5A.

Type SM87 Omron Relay Unit A – Type SM87 Alarm Station comprising an alternative interior which includes a relay callpoint, Omron Type SPDT G2R and up to 6 Weidmuller AKZ 1.5 terminals, rated up to 24V, 2A.

Type SM87 Addressable Unit C - SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable printed circuit board (PCB) mounted in the base, rated up to 28V, 0.5A

Type SM87 Addressable Module G – with switches mounted on the underside of the cover and an alternative addressable Tyco module mounted in the base, rated up to 24V, 0.02A.

Type SM87 Addressable Module I – with switches mounted on the underside of the cover and an alternative addressable Apollo module mounted in the base, rated up to 24V, 0.02A.

Type SM87 Addressable Module K – with switches mounted on the underside of the cover and an alternative addressable Tyco module mounted on the base, rated up to 24V, 0.1A.

The alarm stations are coded:-

Ex db IIC T6 Gb Tamb -55°C to +55°C

Ex tb IIIC T85°C Db IP66/67 Ta -55°C to +55°C

Or

Ex db IIC T5 Gb Tamb -55°C to +70°C

Ex tb IIIC T100°C Db IP66/67 Ta -55°C to +70°C

Cable entry holes are provided as specified on the certified drawings for the accommodation of flameproof cable entry devices, with or without the interposition of a flameproof thread adapter. Unused entries are to be fitted with suitable certified flameproof stopping plugs.

The cable entry devices, thread adapters and stopping plugs shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a Component) under an EC Type Examination Certificate to Directive 2014/34/EU.

When used in an explosive dust atmosphere the cable entry devices shall maintain the ingress protection of the enclosure.

16 Report Number

See certificate history.

17 Specific Conditions of Use

1. Potential electrostatic charging hazard – see instructions.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
562-774	1 - 2	F	08-08-23	ATEX Certification Detail SM87BGLD, SM87PBLD, SM87LBGLD & PBMD
562-778	1	B	08-08-23	SM87BG ATEX Certification Label
562-779	1	B	08-08-23	SM87PB ATEX Certification Label

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
562-775	1 & 2	E	12/12/19	SM87PBD SM87BGD ATEX OPTIONAL MODULE DETAILS
562-851		A	25.11.10	General Arrangement, SM87PBD MCR-CUBE EOL UNIT

20 Certificate History

Certificate No.	Date	Comments
Baseefa03ATEX0075	09 May 2006	The release of the prime certificate. The associated test and assessment against the requirements of EN 50014:1997 + Amendments 1 & 2, EN 50018:2000 + Amendment 1, EN 50281-1-1:1998 is documented in Test Report No. 02(C)0226.
Baseefa03ATEX0075/1	27 January 2004	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an addressable printed circuit board (PCB) mounted in the base. In this form the unit is designated a **SM87 ADDRESSABLE UNIT B** and is rated up to 24V, 0.5A with a revised Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.
Baseefa03ATEX0075/2	27 January 2004	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable printed circuit board (PCB) mounted in the base. In this form the unit is designated a **SM87 ADDRESSABLE UNIT F** and is rated up to 24V, 0.5A with a revised Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.
Baseefa03ATEX0075/3	29 January 2004	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable printed circuit board (PCB) mounted in the base. In this form the unit is designated a **SM87 ADDRESSABLE UNIT G** and is rated up to 24V, 0.5A with a revised Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.

Certificate No.	Date	Comments
Baseefa03ATEX0075/4	25 August 2005	To note change in type reference of the addressable callpoint. No report.
Baseefa03ATEX0075/5	14 October 2005	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative printed circuit board mounted in the base. In this form the unit is designated a **SM87 XP950 MODULE UNIT** and is rated up to 24V, 1A with a revised Temperature Classification of T85°C (Tamb = -55°C to +55°C). No report.
Baseefa03ATEX0075/6	05 December 2005	Alternative rating of 48V, 1A for the SM87 Alarm Stations, together with a change to the optional internal resistors. No report.
Baseefa03ATEX0075/7	14 September 2006	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and up to 12 rail mounted terminals and an end of line (EOL) device mounted in the base. In this form the unit is designated a **SM87PBD EOL UNIT A** and is rated up to 24V, 0.5A with a Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.
Baseefa03ATEX0075/8	10 October 2007	Optional addition of an indicator LED and window assembly to the cover of the push-button and break-glass units. Baseefa certification report 04(C)0562 refers.
Baseefa03ATEX0075/9	07 July 2008	To permit an optional transient voltage suppressor rated up to 5W. No report.
Baseefa03ATEX0075/10	07 January 2009	Alternative arrangement comprising an SM87 Alarm Station with an addressable callpoint mounted on the underside of the cover and an addressable printed circuit board (PCB) module and terminals mounted in the base. In this form the unit is designated a **SM87 ADDRESSABLE UNIT H** and is rated up to 24V, 0.02A with a Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.
Baseefa03ATEX0075/11	17 April 2009	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an addressable printed circuit board (PCB) module and terminals mounted in the base. In this form the unit is designated a **SM87 ADDRESSABLE UNIT J** and is rated up to 24V, 0.1A with a Temperature Classification of T85°C (Tamb = -55°C to +55°C) or T100°C (Tamb = -55°C to +70°C). No report.
Baseefa03ATEX0075/12	27 September 2010	To amalgamate the current design and previous variations into one revised set of drawings. No technical changes were carried out. SGS Baseefa certification report GB/BAS/ExTR09.0084/00 refers.

Certificate No.	Date	Comments
Baseefa03ATEX0075/13	23 December 2010	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an end of line (EOL) module and terminals mounted in the base. In this form the unit is designated a **SM87PBD MCR-CUBE EOL UNIT** and is rated up to 24V, 0.5A. No report.
Baseefa03ATEX0075/14	10 May 2012	Variation to the Type SM87 Alarm Station comprising an alternative interior which includes a relay callpoint, Omron Type SPDT G2R and up to 6 Weidmuller AKZ 1.5 terminals. In this form the unit is designated a **Type SM87 Omron Relay Unit A** and is rated up to 24V, 2A. No report.
Baseefa03ATEX0075/15	4 October 2013	To increase the number of resistors rated at up to 470Ω and 0.6W installed in the SM87 from 4 to a maximum of 6 without any increase in power dissipation. SGS Baseefa report GB/BAS/ExTR13.0225/00 refers.
Baseefa03ATEX0075/16	15 October 2013	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable printed circuit board (PCB) mounted in the base. In this form the unit is designated a **SM87 Addressable Unit C** and is rated up to 28V, 0.5A with a Temperature Classification of T85°C (Tamb -55°C to +55°C) or T100°C (Tamb -55°C to +70°C). SGS Baseefa certification report GB/BAS/ExTR13.0232/00 refers.
Baseefa03ATEX0075/17	20 January 2014	Increase in the maximum number of rail mounted terminals to thirteen. SGS Baseefa certification report GB/BAS/ExTR14.0022/00 refers.
Baseefa03ATEX0075/18	22 January 2015	Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable Tyco module mounted in the base. In this form the unit is designated a **SM87 Addressable Module G** and is rated up to 24V, 0.02A with a Temperature Classification of T85°C (Tamb -55°C to +55°C) or T100°C (Tamb -55°C to +70°C). Alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable Apollo module mounted in the base. In this form the unit is designated a **SM87 Addressable Module I** and is rated up to 24V, 0.02A with a Temperature Classification of T85°C (Tamb -55°C to +55°C) or T100°C (Tamb -55°C to +70°C). No report.
Baseefa03ATEX0075/19	23 June 2015	Addition of alternative terminal Type Weidmuller AKZ1.5 to the existing list of terminals; Weidmuller: AKZ4 — Max Number 12 Weidmuller: AKZ1.5 — Max Number 13 Weidmuller: AKZ2.5 — Max Number 13 Phoenix: MBK up to 2.5mm — Max Number 13 SGS Baseefa certification report GB/BAS/ExTR15.0189/00 refers.

Certificate No.	Date	Comments
Baseefa03ATEX0075/20	31 January 2020	To introduce an alternative arrangement comprising an SM87 Alarm Station with switches mounted on the underside of the cover and an alternative addressable Tyco module mounted on the base. In this form the unit is designated a **SM87 Addressable Module K** and is rated up to 24V, 0.1A with a temperature classification of T85°C (Tamb -55°C to +55°C) or T100°C (Tamb -55°C to +70°C). SGS Baseefa certification report 20(C)0064 refers.
Baseefa03ATEX0075X Issue 21	14 November 2023	To assess the SM87 Alarm Stations against EN IEC 60079-0:2018, EN 60079-1:2014 and EN 60079-31:2014. SGS Baseefa certification report GB/BAS/ExTR22.0113/00 refers.
For drawings applicable to each issue, see original of that issue.		

ITEM	Tag	950-XL-01101	: FZ-01 Gas Beacon Activation	Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD
TASK	code	C10001102	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		225420465/40/1			
Manufacturer	Eaton MEDC			**Model**		SM87LEDS			
Cert No.	Baseefa 03 ATEX 0222			**Equipment Ambient Temp.**		-55°C to +55°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex d	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T6	**IP Rating**	IP66/67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state “NA”. Comments are required for ‘Failure’ column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	PL	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	PL	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex “e” – Ex “n” – Ex “t”)	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-XL-01101	: FZ-01 Gas Beacon Activation		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001102	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	NA	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	PL	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-XL-01101	: FZ-01 Gas Beacon Activation		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001102	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type "nR" only)	x	NA	
71	Breathing operation is satisfactory (type "nR" only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for 'IS' Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

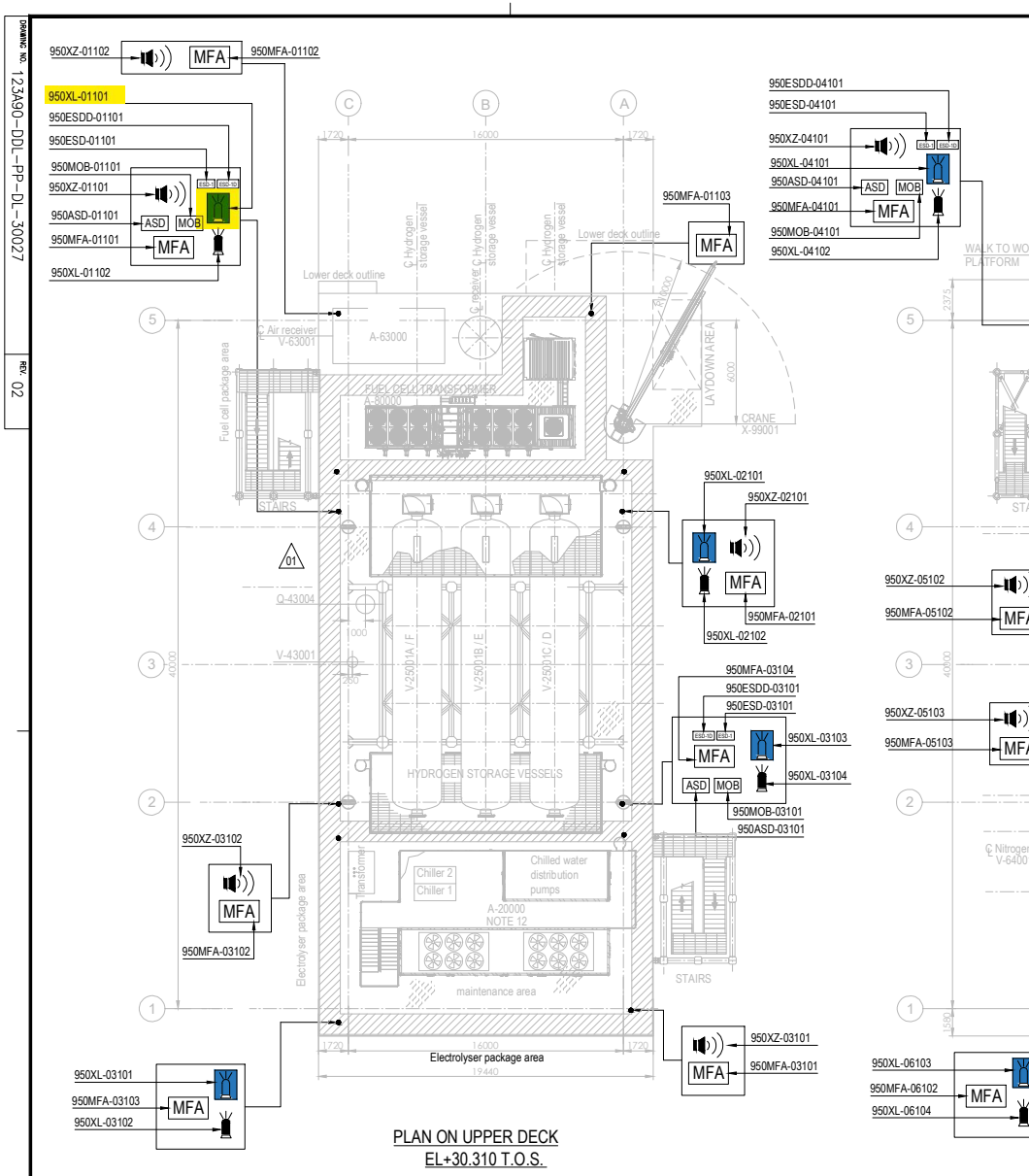
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-11	2024-12-12	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:14:40.230Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-12T17:38:58.048Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

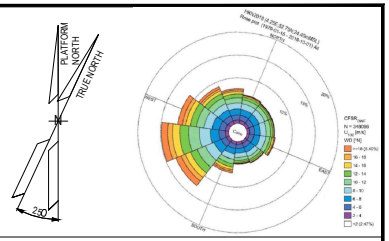
REV. 02



EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

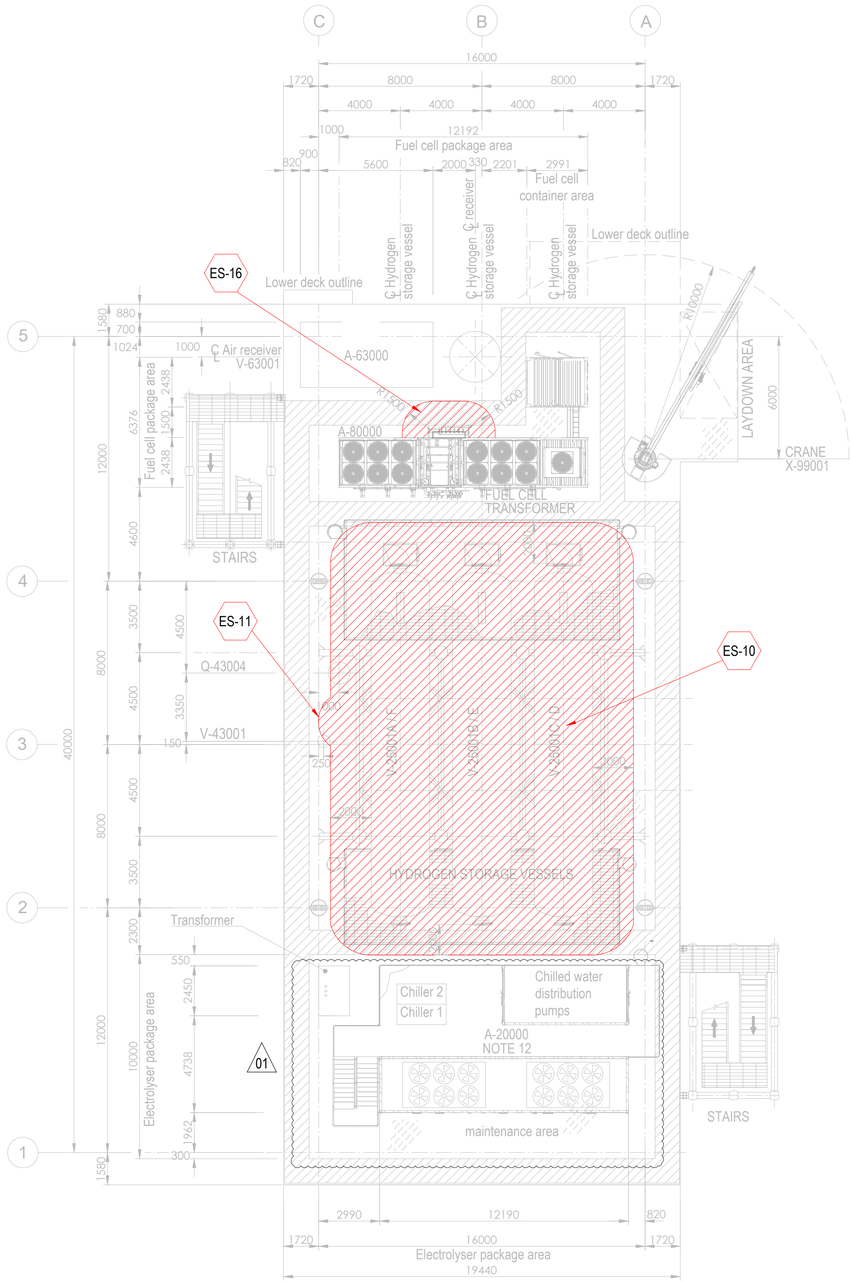
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

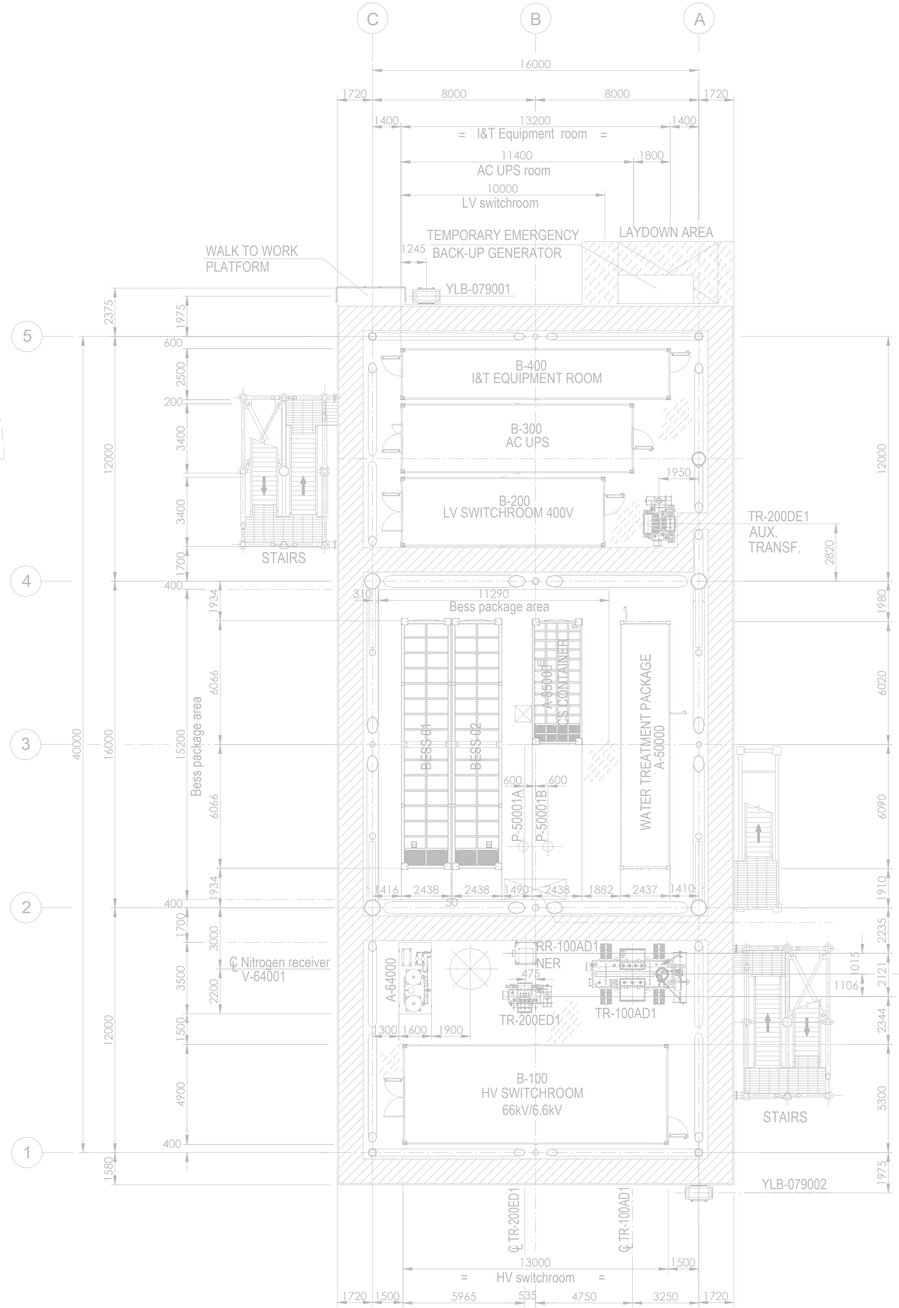
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



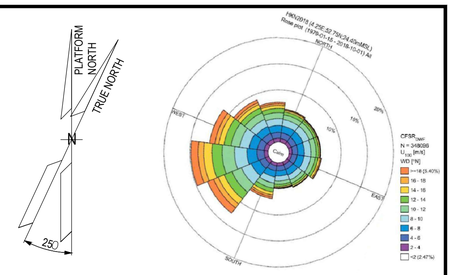
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

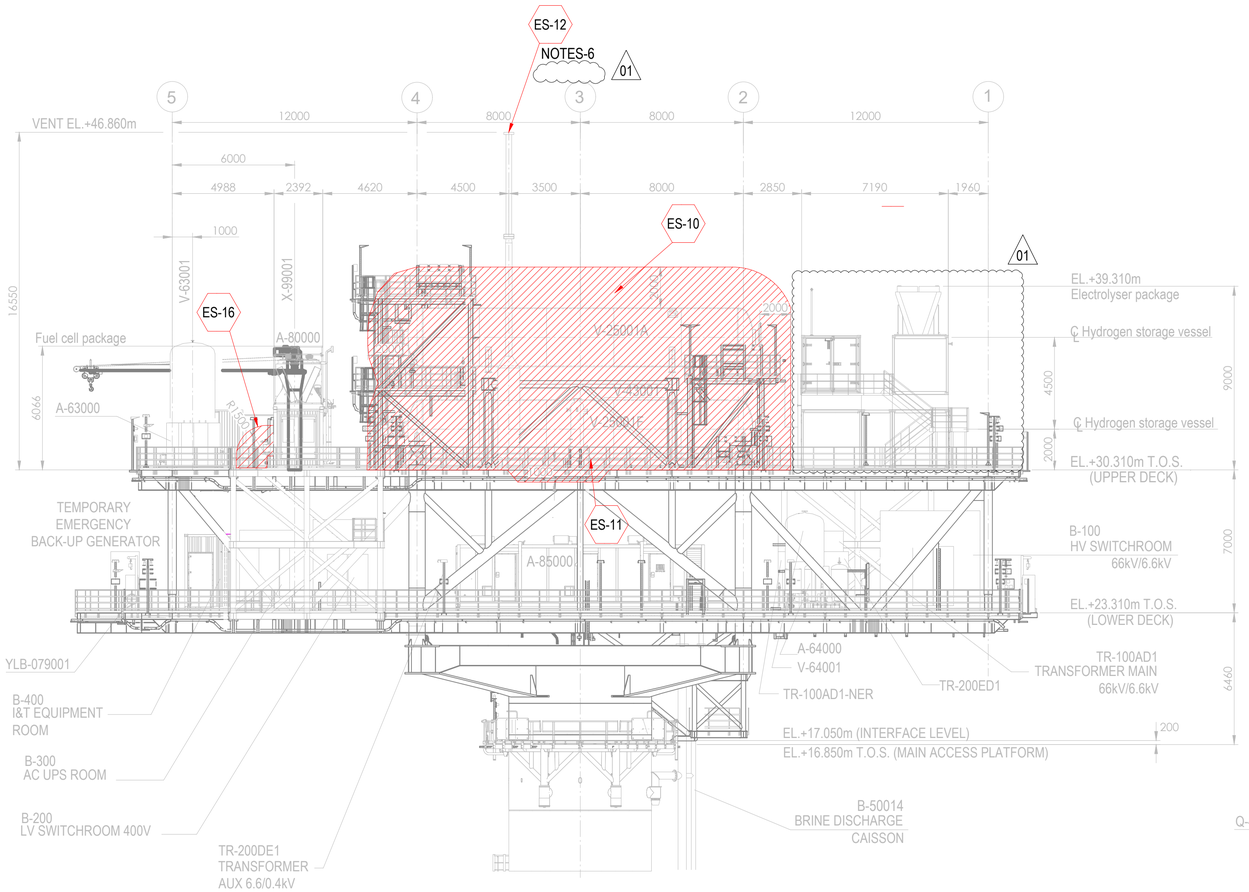
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

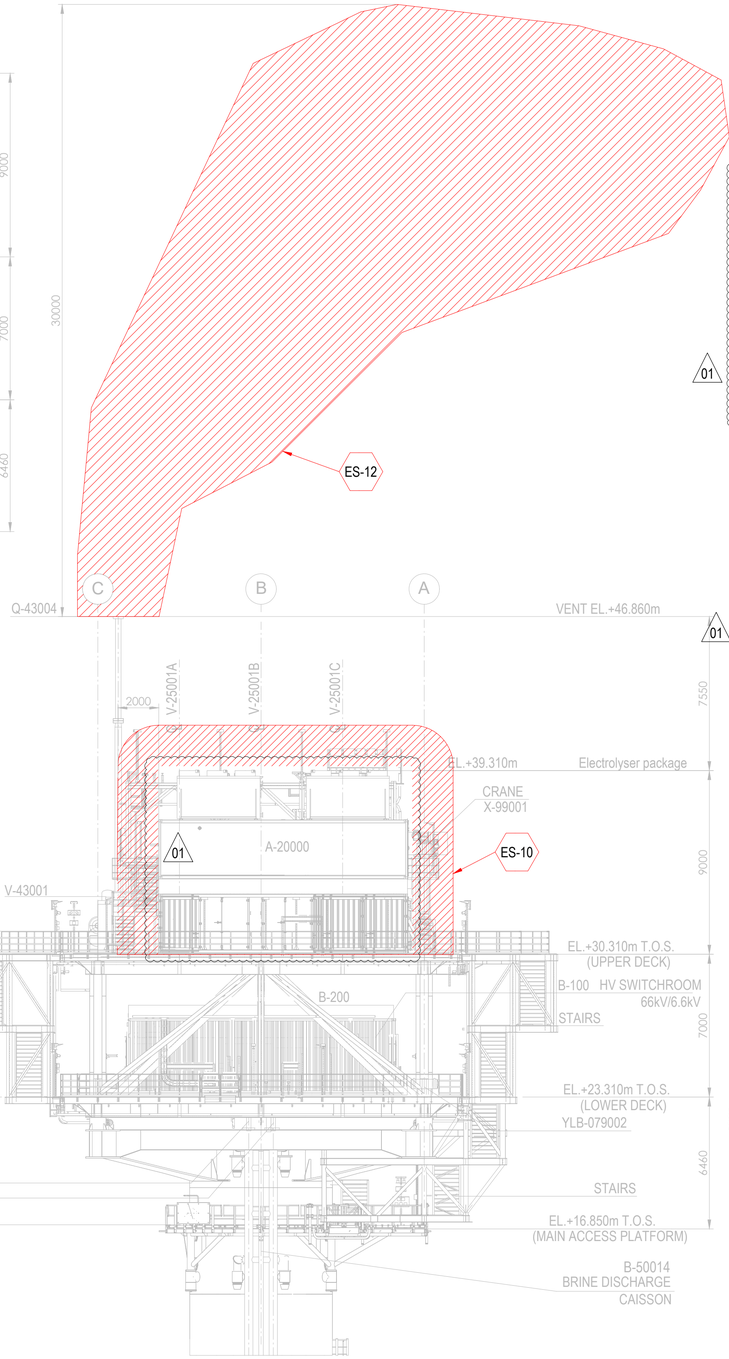
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



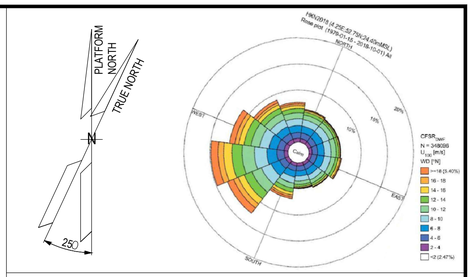
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

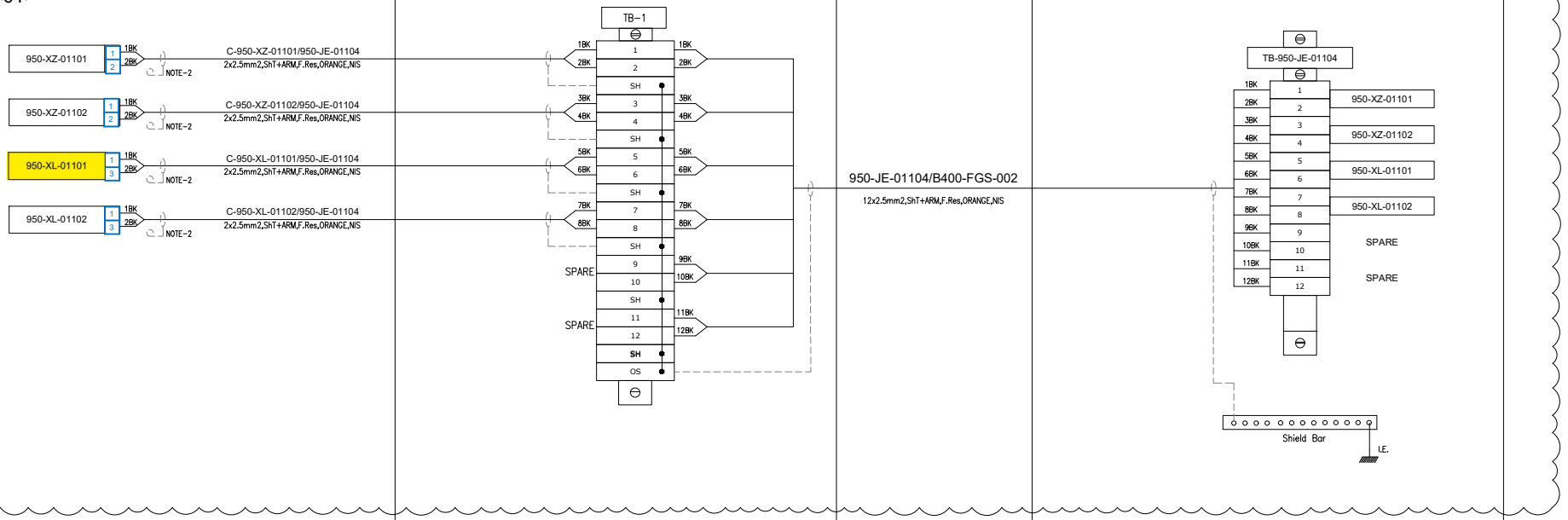
File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

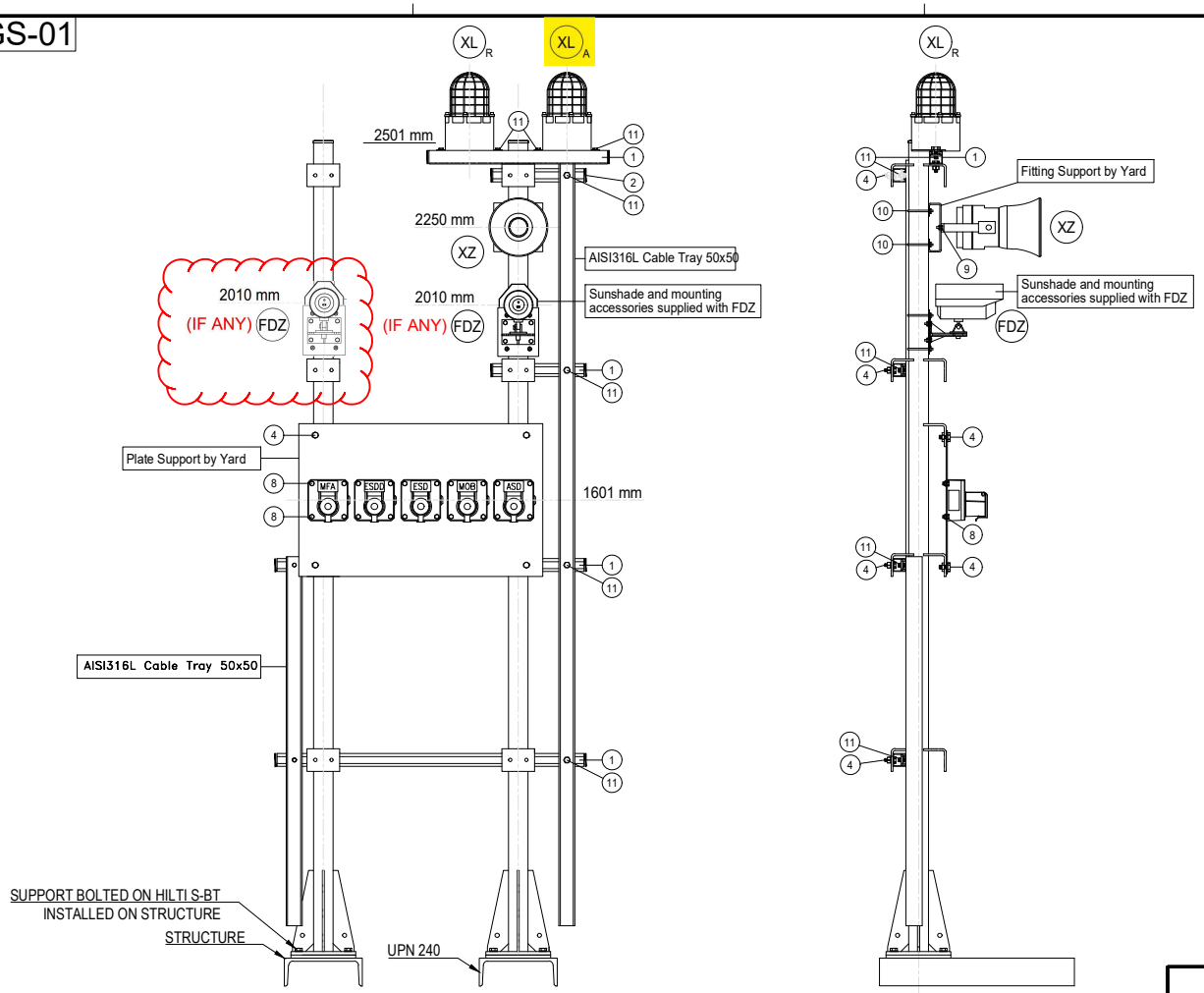
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

FGS-01



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	6m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	18
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	20
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M8 FOR U-CHANNEL 41X41 + BOLT M8x35 + WASHER M8	10

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-01101
	XL_R	BEACON - RED	950-XL-01102
	FDZ	FLAME DETECTOR	950-FDZ-01101 & 950-FDZ-02101
	XZ	SOUNDER	950-XZ-01101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-01101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-01101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-01101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-01101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01101
2	XL_A	BEACON - AMBER	950-XL-06101
	XL_R	BEACON - RED	950-XL-06102
	~~FDZ~~	~~FLAME DETECTOR~~	~~950-FDZ-06104~~
	XZ	SOUNDER	950-XZ-06101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-06101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-06101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-06101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-06101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-06101

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE | SCALE /

DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024

A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 020 | REV. 01

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_E	13/11/24	G.Randi

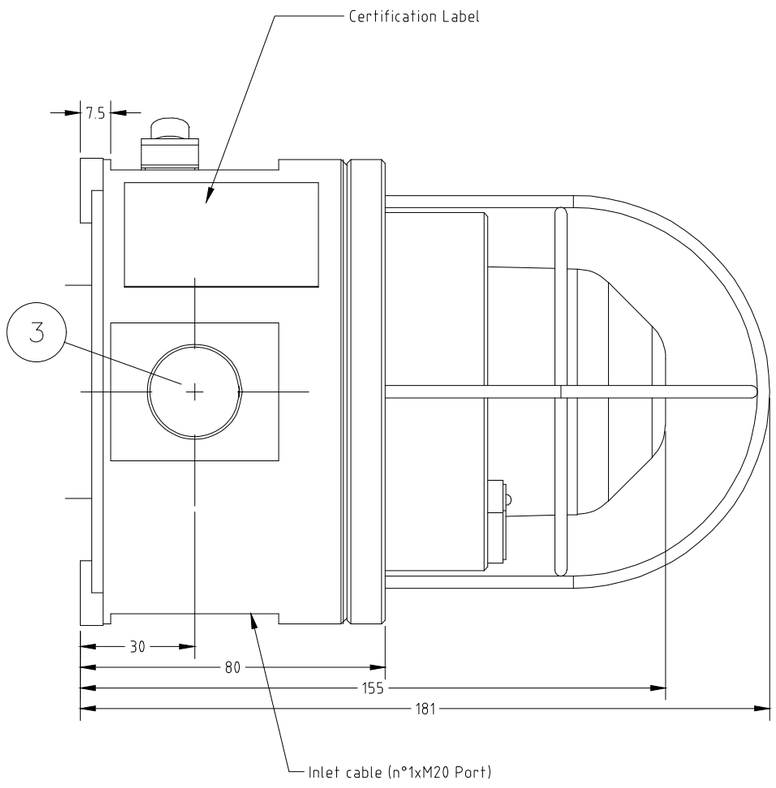
ROSETTI MARINO SpA

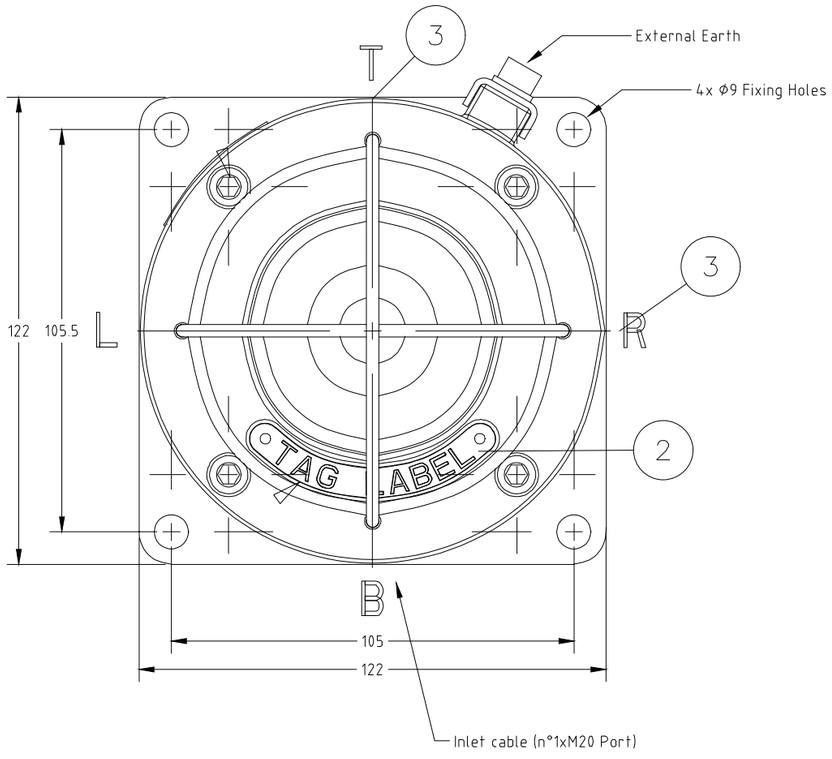
GAS FLASH BEACON (AMBER)

ITEM	DESCRIPTIONS	NR
1	Gas Flash Beacon (Amber), MEDC SM87LEDSB024AY1B1RYNRZZZ	1
2	Stainless Steel Name Plate	1
3	Stop Plug M20 Ex d AISI 316	2
4		
5		
6		
7		
8		
9		
10		

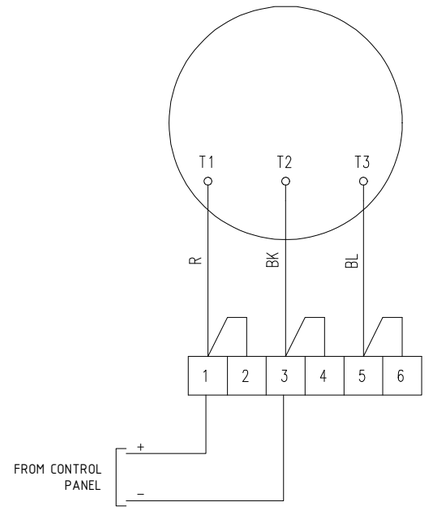
INSTALLATION
QUANTITY

13





WIRING



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
GAS FLASH BEACON (AMBER)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 019

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

GAS FLASH BEACON (AMBER) – TAG

POS.	TAG NUMBER
1	950-XL-01101
2	950-XL-02101
3	950-XL-03101
4	950-XL-03103
5	950-XL-04101
6	950-XL-04103
7	950-XL-04201
8	950-XL-04203
9	950-XL-04205
10	950-XL-06101
11	950-XL-06103
12	950-XL-06201
13	950-XL-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
GAS FLASH BEACON (AMBER) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 020

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

GAS FLASH BEACON (AMBER)

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-XL-01101	FZ-01 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
2	950-XL-02101	FZ-02 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
3	950-XL-03101	FZ-03 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
4	950-XL-03103	FZ-03 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
5	950-XL-04101	FZ-04 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
6	950-XL-04103	FZ-04 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
7	950-XL-04201	FZ-04 GAS BEACON ACT. - B-400 INDOOR	FLAMMABLE GAS ALARM
8	950-XL-04203	FZ-04 GAS BEACON ACT. - B-300 INDOOR	FLAMMABLE GAS ALARM
9	950-XL-04205	FZ-04 GAS BEACON ACT. - B-200 INDOOR	FLAMMABLE GAS ALARM
10	950-XL-06101	FZ-06 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
11	950-XL-06103	FZ-06 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM
12	950-XL-06201	FZ-06 GAS BEACON ACT. - B-100 INDOOR	FLAMMABLE GAS ALARM
13	950-XL-07101	FZ-07 GAS BEACON ACTIVATION	FLAMMABLE GAS ALARM

File: 1724000821-IN-DS-00004-02.xlsx
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SM87HXB 5 joule xenon and SM87LED high intensity LED beacon range

Ex d, weatherproof



Overview

These certified beacons have been designed for use in harsh environmental conditions. The stainless steel or marine grade alloy enclosures are suitable for use offshore or onshore, where lightweight combined with corrosion resistance and strength is required. Units can be painted to customer specification and fitted with identification labels.

LED version available, offering extended lifetimes.

Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

Features

- Zone 1 and Zone 2 use
- Ex d IIC T4/T5/T6
- ATEX approved, Ex II 2GD
- IECEx certified Gb, Db
- UL listed for USA and Canada
  - Class I, Div 1, Groups C & D
  - Class I, Zone 1, AExd IIB
- CSA certified
- CQST certified*
- INMETRO certified*
- SIL 2 certified
- CCOE certified
- IP66 and IP67
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Xenon or LED versions
- Various lens colours
- Optional lens guard
- Telephone or relay initiated

*Depending on version

ATEX IECEx cULus INMETRO CQST NAN YANG

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Oddicroft Lane
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Powering Business Worldwide

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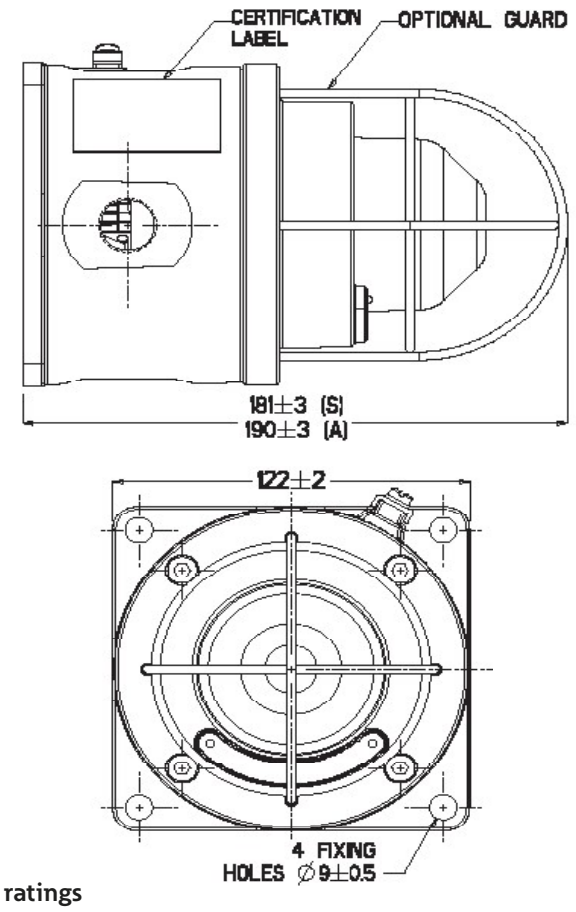
Certifications

ATEX Ex d	Cert. no. Baseefa 03ATEX0222 Certified to: EN60079-0, EN60079-1, EN60079-31 SM87HXB: Ex II 2GD, Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db SM87LED: Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55°C/ T70°C Db
IECEx Ex d	Cert. no. IECEx BAS 09.0059 Certified to: IEC60079-0, IEC60079-1, IEC60079-31 SM87HXB: Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db SM87LED: Ex d IIC T6 Gb, Ex tb IIIC T55°C/ T70°C Db
UL	Listing no. E187894 Class I, Div 1, Groups C & D Class I, Zones 1. (SM87HXB & SM87XBT only)
CSA	Cert no. 96406. (SM87HXB only) Certified to: C22.2 Nos 0, 0.4, 0.5, 9, 30-M1986, 94-M91, 137-M1981 Class I, Div 1. Group D
INMETRO Ex d	SM87HXB: Ex db IIC T5/T6 Gb, Ex tb IIIC T80°C/T95°C Db SM87LED: Ex db IIC T6 Gb, Ex tb IIIC T70°C Db
CQST Ex d	SM87HXB: Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db
SIL	SIL2 certification to IEC61508. Cert. No. 20151119-4786827453

Specifications

Material	SM87HXBS and SM87LEDS: Grade 316 ANC4B stainless steel SM87HXBA and SM87LEDA: LM25 TF marine grade alloy Lens: glass UL version available only in marine grade alloy
Finish	Epoxy paint finish as standard
Certified temp	SM87HXB: ATEX, IECEx, CQST, INMETRO -55°C to +70°C (T5) -55°C to +55°C (T6) UL -55°C to +70°C CSA -50°C to +40°C SM87LED: ATEX, IECEx, CQST, INMETRO -55°C to +55°C* (T6) * Operating temperature is -20°C to +55°C
Weight	SM87HXBS & SM87LEDS: 3.8kg each (approx) SM87HXBA & SM87LEDA: 2kg. each (approx)
Ingress protection	IP66 & IP67
Entries	Up to 4 x M20 / M25 ISO or 1/2" / 3/4" NPT
Terminals	SM87HXB SM87LED: Terminal suitable for 2.5mm2 cable
Relay initiate	Initiation by telephone ringing tone or low voltage control signals
Labels	Duty & tag labels optional

General arrangement drawing (all dimensions in mm)



Electrical ratings

	d.c.		a.c. 50/60Hz				
Voltage	24	48	110	120	220	240	254
Tube energy (Joules) SM87HXB	5	5	6	7	6	7	8
Current consumption SM87HXB	393	175	250	275	120	135	153
Current consumption SM87LED (mA)	165	85	N/A	N/A	N/A	N/A	N/A
Effective intensity (Cd)	29	29	32	39	32	39	44
Peak intensity (Cd)	22213	22213	25061	30187	25061	30187	34174

NOTE: The above figures (Cd) are for a clear lens @ 1Hz flash rate

Multiplying factor for coloured lenses

Red	Blue	Amber	Green	Yellow
0.15	0.12	0.51	0.49	0.36

The photometric data given above has been verified by BSI. Reports are available if required

LED light output - steady or flashing (customer selectable)

	Red	Blue	Amber	Green
Total LED output (candela)	192	64	64	17

LED/lens colour: red, blue, green, amber, yellow (not LED) or clear
Flash rate: 90fpm as standard, other flash rates available on request

Ordering requirements

Flash rate: 60fpm

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Model	Certification	Voltage	Lens/LED colour	Guard	Entries	Tag/duty	Options	Finish
SM87LEDS	B	024	A	Y	1B1R	Y	N	R

Model

Voltage	Code
Xenon (stainless steel)	SM87HXBS
Xenon (alloy)	SM87HXBA
LED Exd (stainless steel)	SM87LEDS
LED Exd (alloy)	SM87LEDA

Certification

Certification	Code
ATEX	B
IECEx	J
UL	UL†
CSA	C‡
Chinese(CQST)	Q
INMETRO	DM

† Only SM87HXBA is available UL certified
‡ Only SM87HXB

Voltage

Voltage	Code
24 V d.c.	024
48 V d.c.	048
110 V a.c. not LED	110
120 V a.c. not LED	120
220 V a.c. not LED	220
240 V a.c. not LED	240
254 V a.c. not LED	254

Lens/LED colour

Colour	Code
Clear	C
Red	R
Blue	B
Green	G
Amber	A
Yellow (not LED)	Y

Guard

Guard	Code
None	N
Yes	Y

Entries

Entries	Code
M20	1
M25	2
1/2" NPT	3
3/4" NPT	4
Top	*T
Bottom	*B
RHS	*R
LHS	*L

* Prefix position with entry size code
e.g. 1T1B=M20 Top and Bottom entries

Tag/duty

Label	Code
None	N
Yes	Y*

* Please specify wording (Note: 15 characters maximum)

Options

Options	Code
Telephone	T*‡
Relay	R*‡
EOL resistor	E*†
None	N

* Not available on UL versions
† Please specify
‡ For SM87LED please specify if steady or flashing is required

Finish

Colour	Code
Red	R
Blue	B
Yellow	Y
Yellow/ black stripe	X
Grey	G
White	W
Special	S*

*Please specify

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
337	02	950-ESD-07101	EMERGENCY SHUTDOWN ACTIVATION	FZ-07 ESD-1 PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/15	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
338	02	950-ESDD-01101	EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION	FZ-01 ESD-1D PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/16	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
339	02	950-ESDD-03101	EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION	FZ-03 ESD-1D PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/17	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
340	02	950-ESDD-04101	EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION	FZ-04 ESD-1D PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/18	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
341	02	950-ESDD-06101	EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION	FZ-06 ESD-1D PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/19	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
342	02	950-ESDD-07101	EMERGENCY SHUTDOWN DEPRESSURIZATION ACTIVATION	FZ-07 ESD-1D PUSH BUTTON ACTIVATION	MEDC	SM87PBL	225420465/30/20	II 2GD Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0075 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
343	02	950-XL-01101	FLAMMABLE GAS ALARM	FZ-01 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/1	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
344	02	950-XL-02101	FLAMMABLE GAS ALARM	FZ-02 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/2	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
345	02	950-XL-03101	FLAMMABLE GAS ALARM	FZ-03 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/3	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
346	02	950-XL-03103	FLAMMABLE GAS ALARM	FZ-03 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/4	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
347	02	950-XL-04101	FLAMMABLE GAS ALARM	FZ-04 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/5	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
348	02	950-XL-04103	FLAMMABLE GAS ALARM	FZ-04 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/6	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
349	02	950-XL-04201	FLAMMABLE GAS ALARM	FZ-04 GAS BEACON ACT. - B-400 INDOOR	MEDC	SM87LEDS	225420465/40/7	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
350	02	950-XL-04203	FLAMMABLE GAS ALARM	FZ-04 GAS BEACON ACT. - B-300 INDOOR	MEDC	SM87LEDS	225420465/40/8	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
351	02	950-XL-04205	FLAMMABLE GAS ALARM	FZ-04 GAS BEACON ACT. - B-200 INDOOR	MEDC	SM87LEDS	225420465/40/9	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
352	02	950-XL-06101	FLAMMABLE GAS ALARM	FZ-06 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/10	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
353	02	950-XL-06103	FLAMMABLE GAS ALARM	FZ-06 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/11	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
354	02	950-XL-06201	FLAMMABLE GAS ALARM	FZ-06 GAS BEACON ACT. - B-100 INDOOR	MEDC	SM87LEDS	225420465/40/12	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
355	02	950-XL-07101	FLAMMABLE GAS ALARM	FZ-07 GAS BEACON ACTIVATION	MEDC	SM87LEDS	225420465/40/13	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
356	02	950-XL-01102	FIRE FLASH BEACON	FZ-01 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/1	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
357	02	950-XL-02102	FIRE FLASH BEACON	FZ-02 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/2	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
358	02	950-XL-03102	FIRE FLASH BEACON	FZ-03 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/3	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
359	02	950-XL-03104	FIRE FLASH BEACON	FZ-03 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/4	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
360	02	950-XL-04102	FIRE FLASH BEACON	FZ-04 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/5	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
361	02	950-XL-04104	FIRE FLASH BEACON	FZ-04 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/6	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
362	02	950-XL-04202	FIRE FLASH BEACON	FZ-04 FIRE BEACON ACT. - B-400 INDOOR	MEDC	SM87LEDS	225420465/50/7	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
363	02	950-XL-04204	FIRE FLASH BEACON	FZ-04 FIRE BEACON ACT. - B-300 INDOOR	MEDC	SM87LEDS	225420465/50/8	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
364	02	950-XL-04206	FIRE FLASH BEACON	FZ-04 FIRE BEACON ACT. - B-200 INDOOR	MEDC	SM87LEDS	225420465/50/9	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE

1 # SUPPLEMENTRY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa03ATEX0222/6**

4 Equipment or Protective System: **SM87 Beacons**

5 Manufacturer: **Cooper MEDC Limited**

6 Address: **Colliery Road, Pinxton, Nottingham NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or a protective system designed and constructed in accordance with the specification set out in the Schedule of this certificate which incorporates and supersedes all previous issues of the said certificate.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR/09/0082/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN60079-0: 2009 **EN60079-1: 2007** **IEC60079-31: 2008**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This Supplementary EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD Ex d IIC T* (Ta -55°C to + **°C) Gb Ex tb IIIC T°C (Ta -55°C to + **°C) Db IP66/IP67**

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/1065**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

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Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa03ATEX222/6**

15 Description of Equipment or Protective System

The Type SM87 Beacons comprise a cylindrical enclosure on a square base and a cover provided with a glass dome to component enclosure Baseefa09ATEX0018U. The base and cover may be manufactured from either aluminium or stainless steel and the cover is secured by screws of grade A4-80 stainless steel. The base is provided with up to four threaded cable entries. The units may be joined together by the manufacturer's supplied coupling up to a maximum of 5 units.

The enclosure contains various internal arrangements to form the following:-

A filament lamp and terminals to form a **Type SM87 LU3** rated up to 240Vac, 10W, 25W or 40W.

A fluorescent lamp, a PCB and terminals to form a **Type SM87 LU1** rated up to 254Vac or 48Vdc, 5W or 10W.

A Xenon Lamp, a PCB and terminals to form a **Type SM87 HXB** rated up to 254Vac or 48Vdc, 11W.

A Xenon electronics unit PCB and terminals to form a **Type SM87 XBT/A** rated up to 254Vac or 48Vdc 11W. This unit is to drive the XTB/B unit described below.

A Xenon Lamp PCB and terminals to form a **Type SM87 XBT/B** powered from the unit above.

Four PCBs containing clusters of LEDs, a driver PCB and terminals to form a **Type SM87 LED** rated up to 48Vdc 4W (white) or 5.6W (blue).

The temperature classification and ambient temperature range for the beacons fitted with the specified lamps are indicated below.

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 LU3	10	T100°C	-55°C to + 70°C	30
		T85°C	-55°C to + 55°C	
		T70°C	-55°C to + 40°C	
	25	T130°C	-55°C to + 55°C	65
		T115°C	-55°C to + 40°C	
	40	T155°C	-55°C to + 55°C	110
		T140°C	-55°C to + 40°C	
SM87 LU1	5	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
	10	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
SM87 HXB	11	T95°C	-55°C to + 70°C	60
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 XBT/A	11	T70°C	-55°C to + 55°C	40
		T55°C	-55°C to + 40°C	

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 XBT/B	-	T110°C	-55°C to + 85°C	20
		T95°C	-55°C to + 70°C	
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 LED White	4	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	
SM87 LED Blue	5.6	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	

16 Report Number

Baseefa Certification Report GB/BAS/ExTR09.0082/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The drawings indicated below amalgamate the current design and previous variations, and supersede all previous issues.

Number	Sheet	Issue	Date	Description
562-749	1	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies
562-749	2	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies
562-749	3	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/7**
4	Equipment or Protective System:	**SM87 Beacons**
5	Manufacturer:	**Cooper MEDC Limited**
6	Address:	**Unit B, Sutton Parkway, Oddicroft Lane, Sutton-in-Ashfield, NG17 5FB**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0676**

Project File No. **15/0438**

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pp MDowney MDOWNEY
R S SINCLAIR
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222/7**

15 Description of the variation to the Equipment or Protective System

Variation 7.1

To permit an alternative type MBK 2.5 terminal, and minor drawings amendments.

Variation 7.2

To permit an increase in power of the blue and white LED versions to 7.2W.

The complete listing is indicated below.

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 LU3	10	T100°C	-55°C to + 70°C	30
		T85°C	-55°C to + 55°C	
		T70°C	-55°C to + 40°C	
	25	T130°C	-55°C to + 55°C	65
		T115°C	-55°C to + 40°C	
	40	T155°C	-55°C to + 55°C	110
		T140°C	-55°C to + 40°C	
SM87 LU1	5	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
	10	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
SM87 HXB	11	T95°C	-55°C to + 70°C	60
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 XBT/A	11	T70°C	-55°C to + 55°C	40
		T55°C	-55°C to + 40°C	
SM87 XBT/B	-	T110°C	-55°C to + 85°C	20
		T95°C	-55°C to + 70°C	
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 LED Red/green/amber	4	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	
SM87 LED White/Blue	7.2	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	

16 Report Number

GB/BAS/ExTR15.0176/00.

17 Specific Conditions of Use

None.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
562-749	1-3 inc.	B	03.06.15	General Assembly SM87 – ATEX Certification

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	EC - Type Examination Certificate Number:	**Baseefa03ATEX0222**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC LIMITED**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd. Notified body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **03(C)0265**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amendments 1 & 2 **EN 50018: 2000 + Amendment 1** **EN 50281-1-1: 1998**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD EEx d IIC T* (see schedule)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa (2001) Ltd. Customer Reference No. **0676**

Project File No. **03/0265**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222**

15 Description of Equipment or Protective System

The Type SM87 Beacons each comprise a cylindrical enclosure on a square base with a domed glass cover secured by 4 off M6 x 12mm long socket head cap screws of grade A4-80 stainless steel. The base and cover ring may be manufactured from either aluminium or stainless steel.

The interior of the units may contain one of the following lamp types and the associated control gear, each with different designations and thermal characteristics as shown below :-

TYPE SM87 ---	Lamp Type	Voltage (V)	Watts (W)	Temperature Classification T* (T_{amb}= -55°C to + °C)			
				+40°C	+55°C	+70°C	+85°C
LU3	Filament	240 ac	48	T135°C	T200°C	N/A	
LU1	Fluorescent	254 ac	10	T100°C	T135°C	N/A	
		240 ac		T85°C	T100°C		
		110/120 ac	5				
		12, 24, 48 dc			T85°C		
HXB	Xenon	110, 240, 254 ac	11	T85°C	T135°C	T135°C	N/A
		12, 24, 30, 48 dc					
XBT/A	Xenon (Electronics unit)	110, 240, 254 ac	11*	T85°C	T135°C	N/A	
		12, 24, 30, 48 dc					
XBT/B	Xenon (Lamp unit)	N/A		N/A			T135°C
LED	LED	24, 48 dc	4	T85°C	T135°C	N/A	
	LED (Blue)		5.6				

* Note XBT units A & B are intended to be used together in pairs and are rated accordingly

The enclosure is provided with internal and external earth connection facilities.

Up to 4 cable entry holes threaded M20 to M25 (or NPT & Pg equivalents) are provided for the accommodation of suitable BASEEFA certified flameproof IIC cable entry devices, with or without the interposition of a suitable BASEEFA certified flameproof IIC thread adapter. Unused entries are to be fitted with suitable BASEEFA certified flameproof IIC stopping plugs.

Suitable flameproof IIC cable entry devices, thread adapters and stopping plugs certified as Equipment (not a Component) under an EC Type Examination Certificate to Directive 94/9/EC may also be used in the manner specified above.

If the unit is intended for use in a dust atmosphere these devices must be sealed in accordance with the relevant codes of practice to ensure a dust tight seal.

In addition, these units may be supplied by the manufacturer in an assembly of up to five interconnected enclosures.

16 Report Number

Baseefa Certification Report No. 03(C)0265

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	A	26-03-03	General Arrangement, SM87 Beacons
562-130	A	28-02-03	Enclosure, Earth & Seal Detail
562-128	A	25-03-03	Cover, Machining Detail, Stainless Steel
562-129	A	25-03-03	Enclosure & Cover Detail, Aluminium
562-127	A	25-03-03	Enclosure, Machining Detail, Stainless Steel
562-132	A	26-03-03	Circuit Diagram, SM87 HXB 240V, High Power
562-133	A	26-03-03	Circuit Diagram, SM87 HXB 240V
562-134	A	23-03-03	Circuit Diagram, SM87 HXB 110/120V
562-135	A	27-03-03	Circuit Diagram, SM87 HXB 254V
562-136	A	27-03-03	Circuit Diagram, SM87 HXB 24V
562-137	A	26-03-03	Circuit Diagram, SM87 HXB 48V
562-138	A	26-03-03	Circuit Diagram, Relay/Telephone Interface
562-139	A	26-03-03	Circuit Diagram, SM87 Fluorescent 12, 24 & 48V
562-140	A	26-03-03	Circuit Diagram, SM87 LED 24V
562-141	A	26-03-03	Circuit Diagram, SM87 LED 48V
562-142	A	26-03-03	Circuit Diagram, SM87 LED (Blue) 24 & 48V
562-143	A	26-03-03	Circuit Diagram, SM87 HXB 12V
562-144	A	26-03-03	Circuit Diagram, SM87 HXB 30V

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/1**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **05/0662**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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pp R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

Increased dimensional tolerance for the wellglass cover.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	B	06-10-05	General Arrangement, SM87 Beacons

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/2**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/0040**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa
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e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

pp R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/2

15 Description of the variation to the Equipment or Protective System

Variation 2.1

Increase in the maximum dissipated wattage of the LUI fluorescent fitting rated at 110V to 120V from 5W to 10W

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	C	11-01-07	General Arrangement, SM87 Beacons
562-573	A	11-01-07	AC Fluorescent Ballast Circuit Diagram

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/3**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/0351**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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pp R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/3

15 Description of the variation to the Equipment or Protective System

Variation 3.1

Increase in the depth of label fixing holes.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-129	B	24-04-07	Enclosure/Cover Details

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**See Schedule**
4	Equipment or protective system:	**See Schedule**
5	Manufacturer:	**MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends the EC - Type Examination Certificates listed in the Schedule to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedules of the said Certificates but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

A copy of this Supplementary Certificate shall be attached to each of the original Certificates.

This certificate may only be reproduced in its entirety, without any change, Schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **08/0067**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR

DIRECTOR
On behalf of
Baseefa (2001) Ltd.

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Registered in England No. 4305578 at the above address

Schedule

Description of the variation to the Equipment or Protective System

Alternative certification label wording for the units listed below and as on the scheduled drawings.

Certificate No.	Supplement No.	Equipment Type
BAS00ATEX2031	3	Type XB9 Xenon Beacon
BAS00ATEX2097X	10	Type DB3 Sounder and DB4 Speaker Units
BAS00ATEX2204X	2	Type XB10 Beacon
Baseefa02ATEX0224X	6	Type XB4 Xenon Beacon
BAS02ATEX2086X	6	Type DB10 Loudspeaker Units
Baseefa03ATEX0222	4	Type SM87 HXB & SM87 LED Beacons
Baseefa04ATEX0166X	3	Type DB16 IIB Speaker Unit

Report No.

None

Special Conditions for Safe Use

None additional to those listed previously

Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Drawings and Documents

Number	Sheet	Issue	Date	Description
227-173	-	A	28-01-08	Type XB9 Xenon Beacon
219-833	-	A	28-01-08	Type DB3 Sounder Units
199-519	-	A	28-01-08	Type DB4 Speaker Units
228-210	-	A	28-01-08	Type XB10 Beacon
188-625	-	A	28-01-08	Type XB4 Xenon Beacon
253-154	-	A	07-01-08	Type DB10 Loudspeaker Units
562-661	-	A	28-01-08	Type SM87 HXB Xenon Beacon
562-662	-	A	28-01-08	Type SM87 LED Beacon
286-145	-	A	07/01/08	Type DB16 IIB Speaker Unit

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/5**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**Cooper MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **10/0595**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
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On behalf of
Baseefa

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e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222/5**

15 **Description of the variation to the Equipment or Protective System**

Variation 5.1

To permit clear LEDs in the SM87 LED Beacon.

16 **Report Number**

None.

17 **Special Conditions for Safe Use**

None

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
562-141	1	B	20.07.10	Circuit Diagram, SM87 LED Blue/Clear 24V & 48V

ITEM	Tag	950-XL-01102	: FZ-01 Fire Beacon Activation	Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD
TASK	code	C10001103	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		225420465/50/01			
Manufacturer	Eaton MEDC			**Model**		SM87LEDS			
Cert No.	Baseefa 03 ATEX 0222			**Equipment Ambient Temp.**		-55°C to +55°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex d	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T6	**IP Rating**	IP66/67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	PL	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		OK	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	NA	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-XL-01102	: FZ-01 Fire Beacon Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001103		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	NA	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	PL	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-XL-01102	: FZ-01 Fire Beacon Activation		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001103	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type "nR" only)	x	NA	
71	Breathing operation is satisfactory (type "nR" only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for 'IS' Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

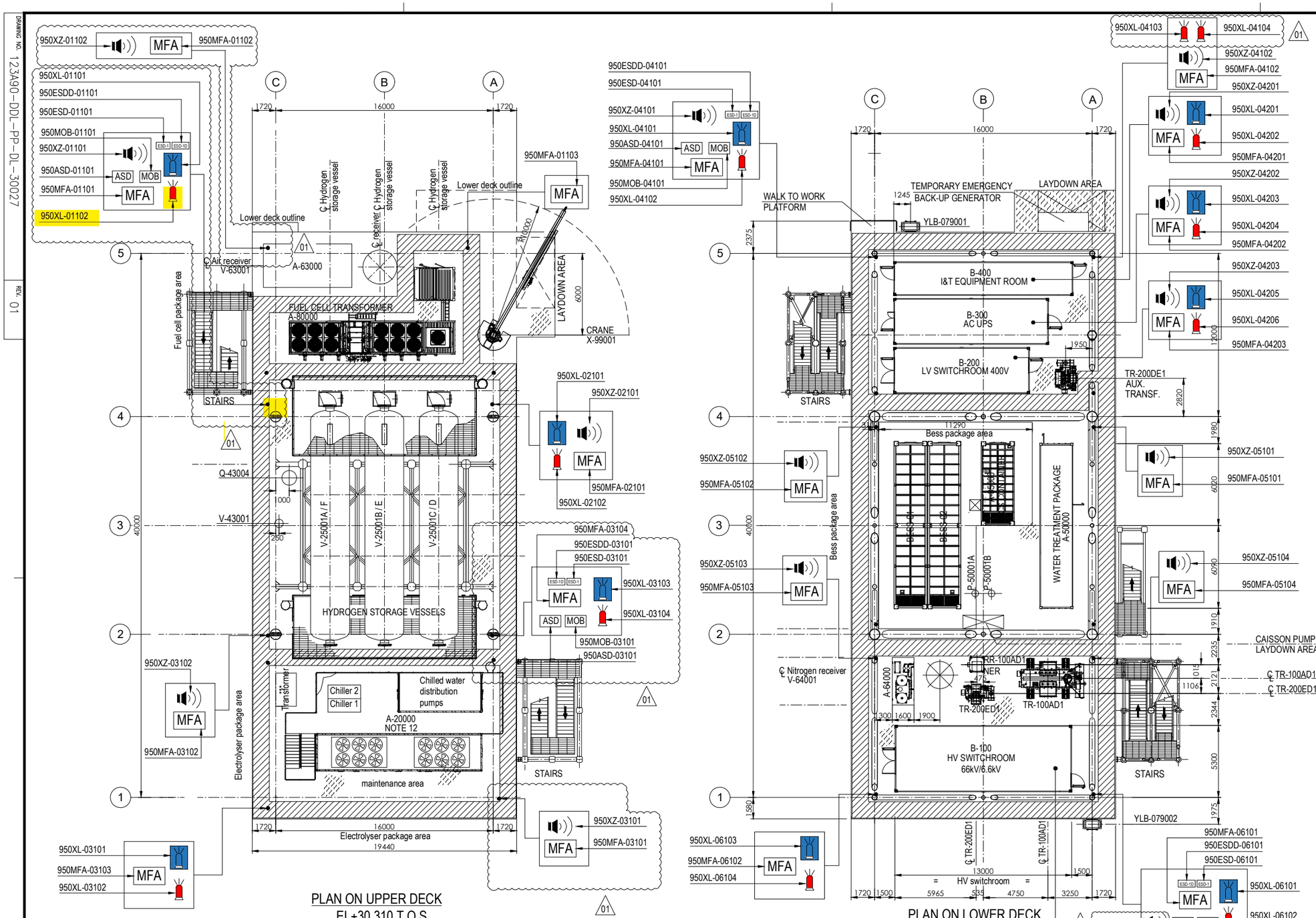
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-12	2024-12-13	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-12T17:08:12.917Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-13T12:12:27.990Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 01



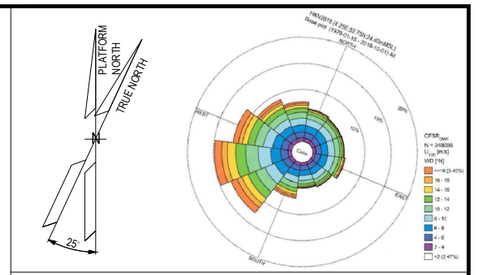
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
01. 5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
1_B	18/09/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
01 123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

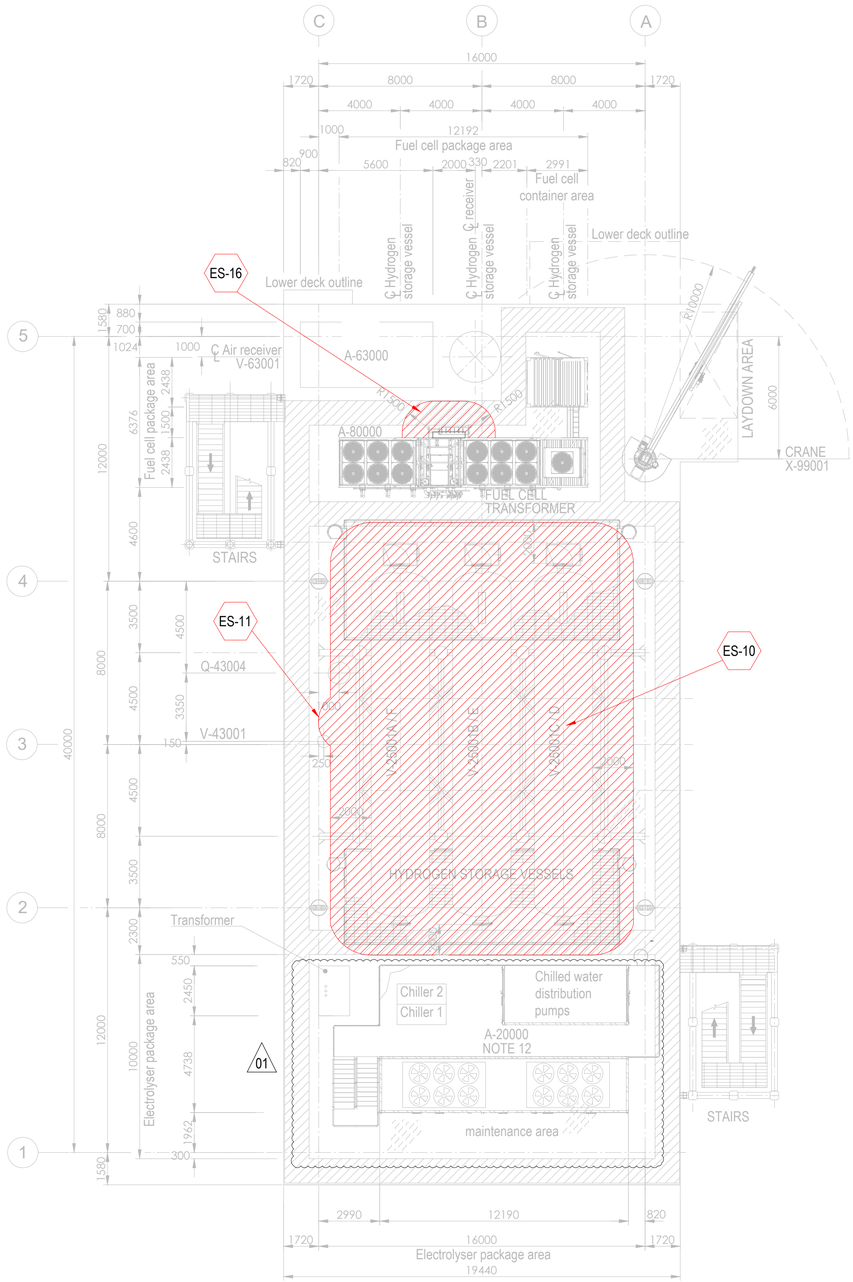
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 10/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 01

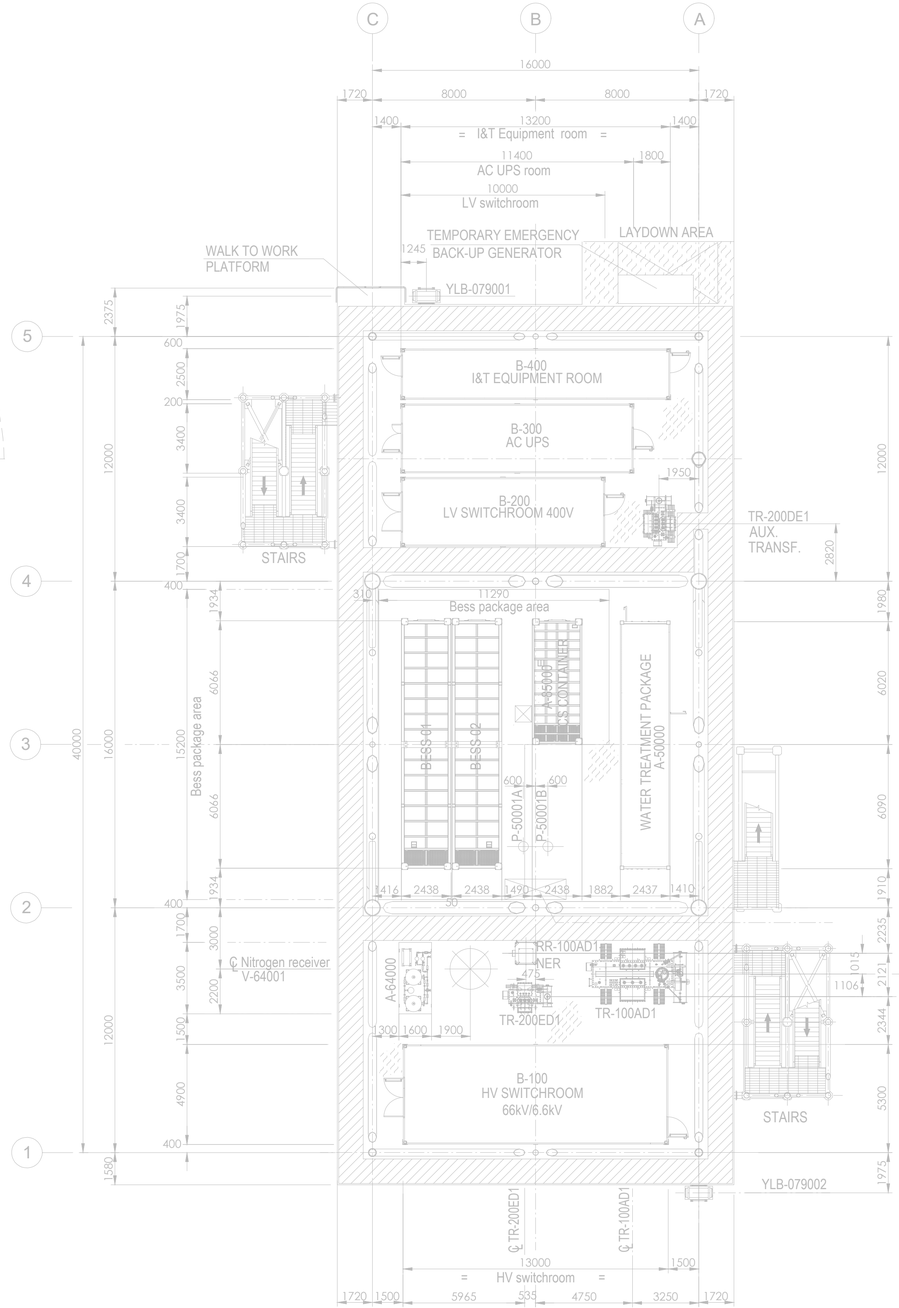
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REV. 01



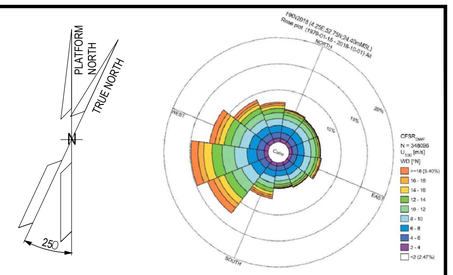
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

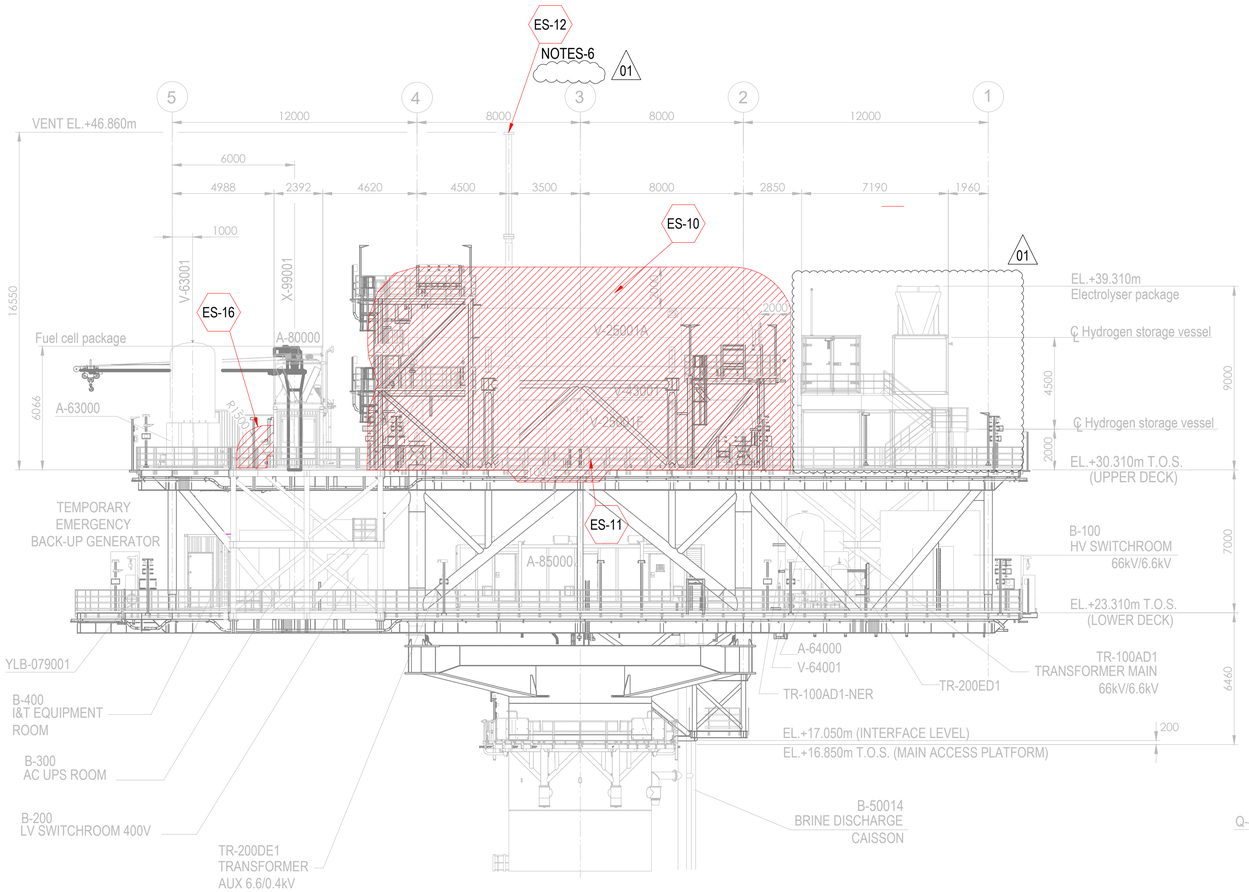
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

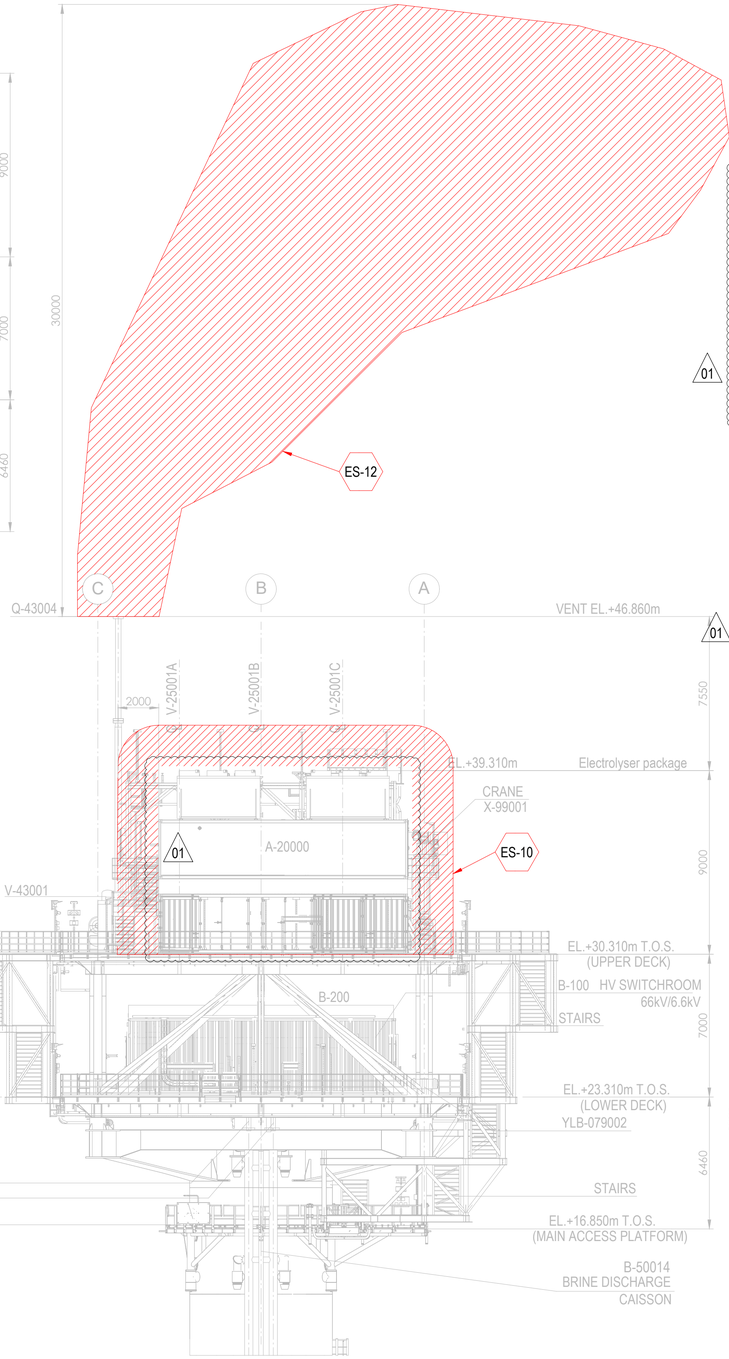
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



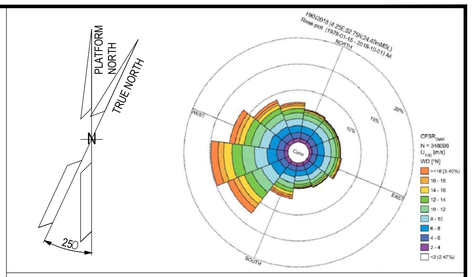
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>

950-XZ-01101 (1BK, 2BK) — NOTE-2 — C-950-XZ-01101/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-01102 (1BK, 2BK) — NOTE-2 — C-950-XZ-01102/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XL-01101 (1BK, 2BK) — NOTE-2 — C-950-XL-01101/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XL-01102 (1BK, 2BK) — NOTE-2 — C-950-XL-01102/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1BK	1	1BK
2BK	2	2BK
	SH	
3BK	3	3BK
4BK	4	4BK
	SH	
5BK	5	5BK
6BK	6	6BK
	SH	
7BK	7	7BK
8BK	8	8BK
	SH	
SPARE	9	9BK
	10	10BK
	SH	
SPARE	11	11BK
	12	12BK
	SH	
	OS	

950-JE-01104/B400-FGS-002

12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01104

1BK	1	950-XZ-01101
2BK	2	
3BK	3	950-XZ-01102
4BK	4	
5BK	5	950-XL-01101
6BK	6	
7BK	7	950-XL-01102
8BK	8	
9BK	9	SPARE
10BK	10	
11BK	11	SPARE
12BK	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

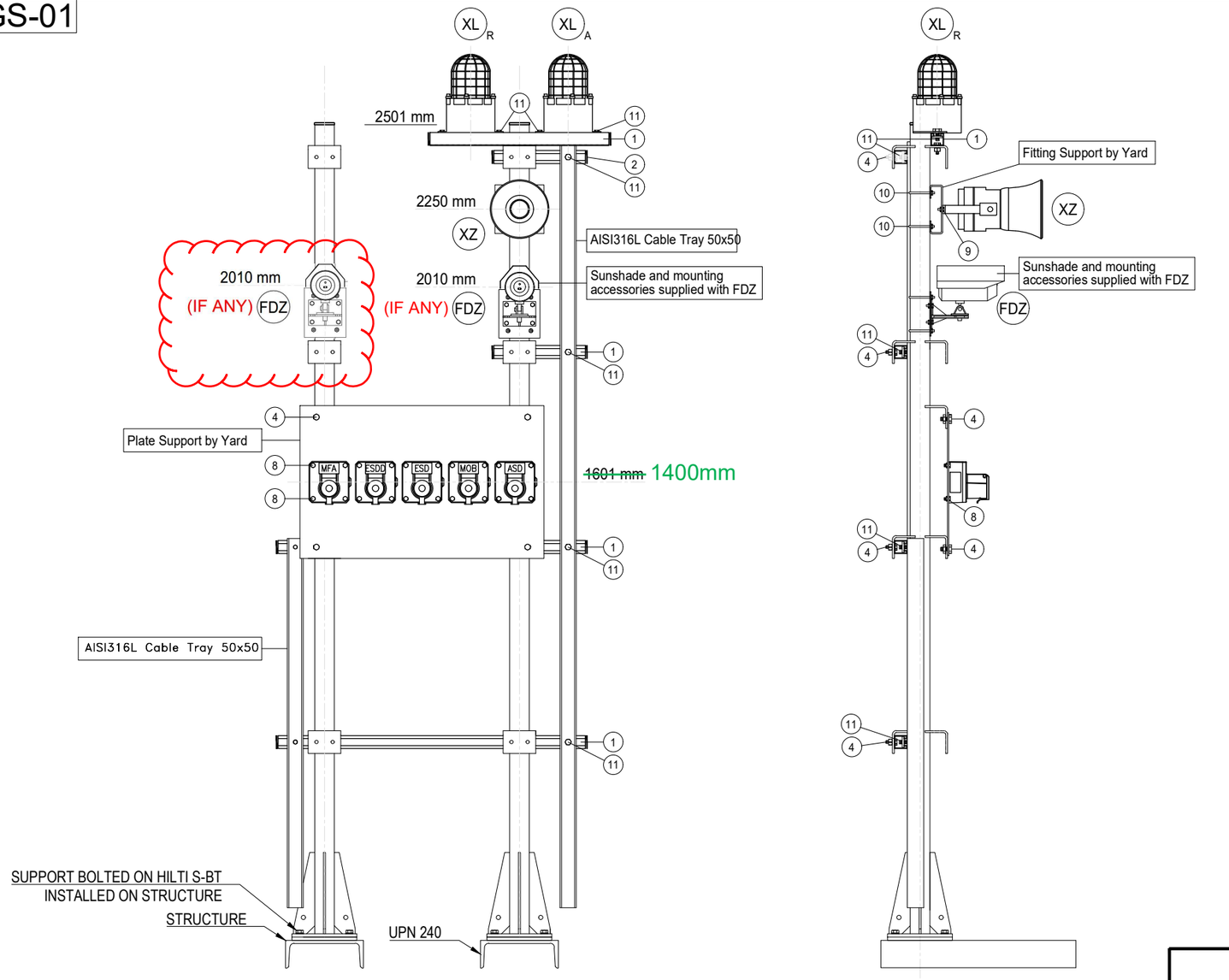
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	6m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	18
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	20
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	10

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-01101
	XL_R	BEACON - RED	950-XL-01102
	FDZ	FLAME DETECTOR	950-FDZ-01101 & 950-FDZ-02101
	XZ	SOUNDER	950-XZ-01101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-01101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-01101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-01101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-01101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01101
2	XL_A	BEACON - AMBER	950-XL-06101
	XL_R	BEACON - RED	950-XL-06102
	~~FDZ~~	~~FLAME DETECTOR~~	~~950-FDZ-06104~~
	XZ	SOUNDER	950-XZ-06101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-06101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-06101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-06101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-06101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-06101

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

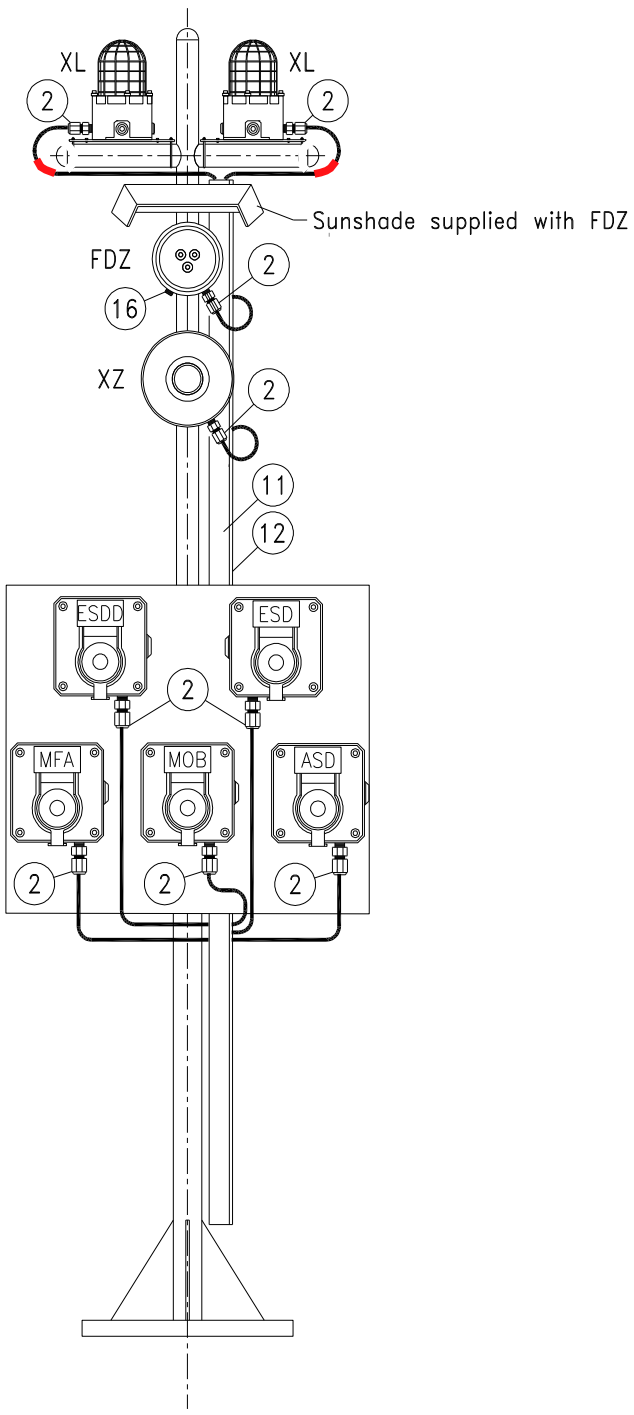
ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 020	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-XL-04101 (AMBER)
	950-XL-04102 (RED)
	~~950-FDZ-04101~~
	950-XZ-04101
	950-ESDD-04101
	950-ESD-04101
	950-MFA-04101
	950-MOB-04101
	950-ASD-04101
2	950-XL-06101 (AMBER)
	950-XL-06102 (RED)
	~~950-FDZ-06101~~
	950-XZ-06101
	950-ESDD-06101
	950-ESD-06101
	950-MFA-06101
	950-MOB-06101
	950-ASD-06101
3	950-XL-01101
	950-XL-01102
	950-FDZ-01101
	950-FDZ-02101
	950-XZ-01101
	950-ESDD-01101
	950-ESD-01101
	950-MOB-01101
	950-ASD-01101
	950-MFA-01101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_F	12/12/24	C.Pilato

ROSETTI MARINO SpA

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	9

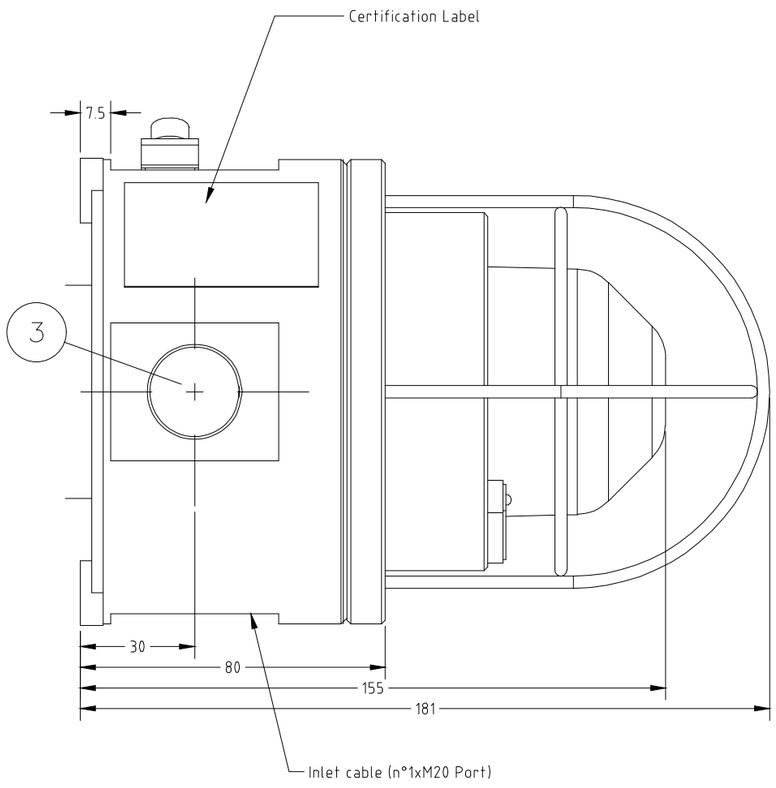
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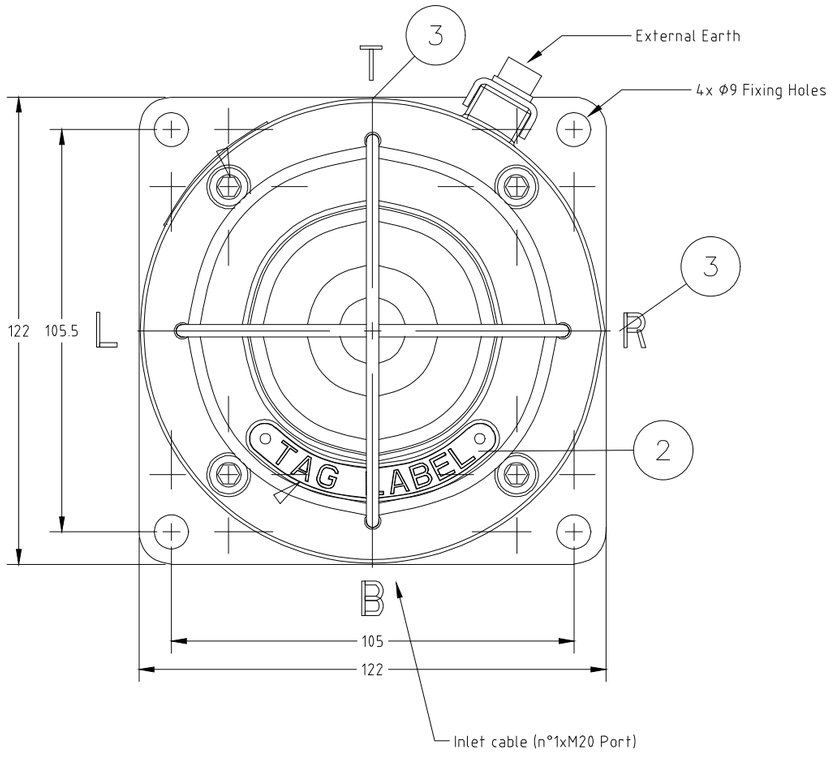
FIRE FLASH BEACON (RED)

ITEM	DESCRIPTIONS	NR
1	Fire Flash Beacon (Red), MEDC SM87LEDSB024RY1B1RYNRZZZ	1
2	Stainless Steel Name Plate	1
3	Stop Plug M20 Ex d AISI 316	2
4		
5		
6		
7		
8		
9		
10		

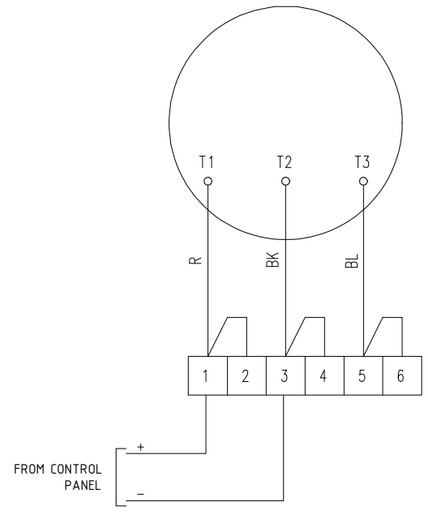
INSTALLATION
QUANTITY

13





WIRING



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FIRE FLASH BEACON (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FIRE FLASH BEACON (RED) – TAG

POS.	TAG NUMBER
1	950-XL-01102
2	950-XL-02102
3	950-XL-03102
4	950-XL-03104
5	950-XL-04102
6	950-XL-04104
7	950-XL-04202
8	950-XL-04204
9	950-XL-04206
10	950-XL-06102
11	950-XL-06104
12	950-XL-06202
13	950-XL-07102

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FIRE FLASH BEACON (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 022

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FIRE FLASH BEACON (RED)

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-XL-01102	FZ-01 FIRE BEACON ACTIVATION	FIRE ALARM
2	950-XL-02102	FZ-02 FIRE BEACON ACTIVATION	FIRE ALARM
3	950-XL-03102	FZ-03 FIRE BEACON ACTIVATION	FIRE ALARM
4	950-XL-03104	FZ-03 FIRE BEACON ACTIVATION	FIRE ALARM
5	950-XL-04102	FZ-04 FIRE BEACON ACTIVATION	FIRE ALARM
6	950-XL-04104	FZ-04 FIRE BEACON ACTIVATION	FIRE ALARM
7	950-XL-04202	FZ-04 FIRE BEACON ACT. - B-400 INDOOR	FIRE ALARM
8	950-XL-04204	FZ-04 FIRE BEACON ACT. - B-300 INDOOR	FIRE ALARM
9	950-XL-04206	FZ-04 FIRE BEACON ACT. - B-200 INDOOR	FIRE ALARM
10	950-XL-06102	FZ-06 FIRE BEACON ACTIVATION	FIRE ALARM
11	950-XL-06104	FZ-06 FIRE BEACON ACTIVATION	FIRE ALARM
12	950-XL-06202	FZ-06 FIRE BEACON ACT. - B-100 INDOOR	FIRE ALARM
13	950-XL-07102	FZ-07 FIRE BEACON ACTIVATION	FIRE ALARM

File: 1724000821-IN-DS-00004-02.xlsx
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SM87HXB 5 joule xenon and SM87LED high intensity LED beacon range

Ex d, weatherproof



Overview

These certified beacons have been designed for use in harsh environmental conditions. The stainless steel or marine grade alloy enclosures are suitable for use offshore or onshore, where lightweight combined with corrosion resistance and strength is required. Units can be painted to customer specification and fitted with identification labels.

LED version available, offering extended lifetimes.

Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

Features

- Zone 1 and Zone 2 use
- Ex d IIC T4/T5/T6
- ATEX approved, Ex II 2GD
- IECEx certified Gb, Db
- UL listed for USA and Canada
  - Class I, Div 1, Groups C & D
  - Class I, Zone 1, AExd IIB
- CSA certified
- CQST certified*
- INMETRO certified*
- SIL 2 certified
- CCOE certified
- IP66 and IP67
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Xenon or LED versions
- Various lens colours
- Optional lens guard
- Telephone or relay initiated

*Depending on version

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
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March 2024

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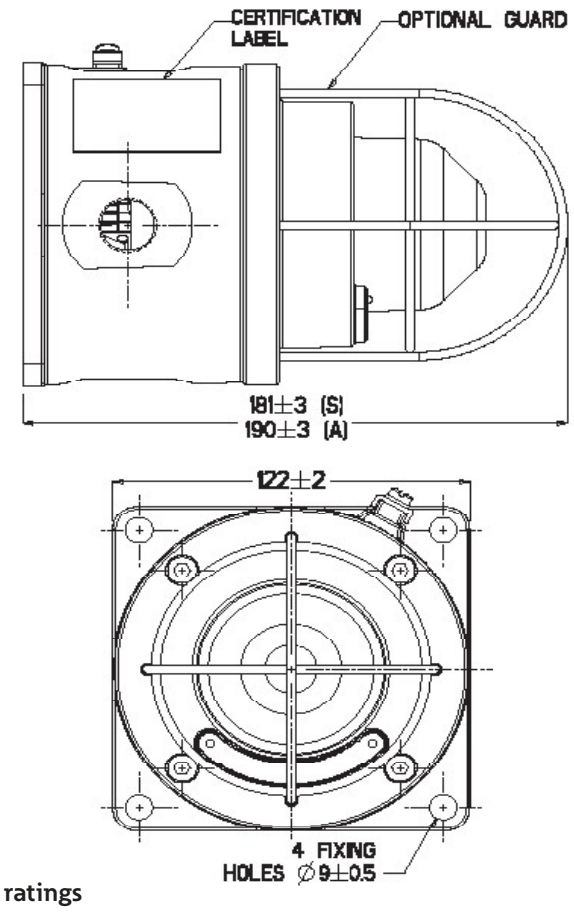
Certifications

ATEX Ex d	Cert. no. Baseefa 03ATEX0222 Certified to: EN60079-0, EN60079-1, EN60079-31 SM87HXB: Ex II 2GD, Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db SM87LED: Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55°C/ T70°C Db
IECEx Ex d	Cert. no. IECEx BAS 09.0059 Certified to: IEC60079-0, IEC60079-1, IEC60079-31 SM87HXB: Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db SM87LED: Ex d IIC T6 Gb, Ex tb IIIC T55°C/ T70°C Db
UL	Listing no. E187894 Class I, Div 1, Groups C & D Class I, Zones 1. (SM87HXB & SM87XBT only)
CSA	Cert no. 96406. (SM87HXB only) Certified to: C22.2 Nos 0, 0.4, 0.5, 9, 30-M1986, 94-M91, 137-M1981 Class I, Div 1. Group D
INMETRO Ex d	SM87HXB: Ex db IIC T5/T6 Gb, Ex tb IIIC T80°C/T95°C Db SM87LED: Ex db IIC T6 Gb, Ex tb IIIC T70°C Db
CQST Ex d	SM87HXB: Ex d IIC T5/T6 Gb, Ex tb IIIC T65°C/ T80°C/ T95°C Db
SIL	SIL2 certification to IEC61508. Cert. No. 20151119-4786827453

Specifications

Material	SM87HXBS and SM87LEDS: Grade 316 ANC4B stainless steel SM87HXBA and SM87LEDA: LM25 TF marine grade alloy Lens: glass UL version available only in marine grade alloy
Finish	Epoxy paint finish as standard
Certified temp	SM87HXB: ATEX, IECEx, CQST, INMETRO -55°C to +70°C (T5) -55°C to +55°C (T6) UL -55°C to +70°C CSA -50°C to +40°C SM87LED: ATEX, IECEx, CQST, INMETRO -55°C to +55°C* (T6) * Operating temperature is -20°C to +55°C
Weight	SM87HXBS & SM87LEDS: 3.8kg each (approx) SM87HXBA & SM87LEDA: 2kg. each (approx)
Ingress protection	IP66 & IP67
Entries	Up to 4 x M20 / M25 ISO or 1/2" / 3/4" NPT
Terminals	SM87HXB SM87LED: Terminal suitable for 2.5mm2 cable
Relay initiate	Initiation by telephone ringing tone or low voltage control signals
Labels	Duty & tag labels optional

General arrangement drawing (all dimensions in mm)



Electrical ratings

	d.c.		a.c. 50/60Hz				
Voltage	24	48	110	120	220	240	254
Tube energy (Joules) SM87HXB	5	5	6	7	6	7	8
Current consumption SM87HXB	393	175	250	275	120	135	153
Current consumption SM87LED (mA)	165	85	N/A	N/A	N/A	N/A	N/A
Effective intensity (Cd)	29	29	32	39	32	39	44
Peak intensity (Cd)	22213	22213	25061	30187	25061	30187	34174

NOTE: The above figures (Cd) are for a clear lens @ 1Hz flash rate

Multiplying factor for coloured lenses

Red	Blue	Amber	Green	Yellow
0.15	0.12	0.51	0.49	0.36

The photometric data given above has been verified by BSI. Reports are available if required

LED light output - steady or flashing (customer selectable)

	Red	Blue	Amber	Green
Total LED output (candela)	192	64	64	17

LED/lens colour: red, blue, green, amber, yellow (not LED) or clear
Flash rate: 90fpm as standard, other flash rates available on request

Ordering requirements

Flash rate: 60fpm

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Model	Certification	Voltage	Lens/LED colour	Guard	Entries	Tag/duty	Options	Finish
SM87LEDS	B	024	R	Y	1B1R	Y	N	R

Voltage	Code
Xenon (stainless steel)	SM87HXBS
Xenon (alloy)	SM87HXBA
LED Exd (stainless steel)	SM87LEDS
LED Exd (alloy)	SM87LEDA

Certification	Code
ATEX	B
IECEx	J
UL	UL†
CSA	C‡
Chinese(CQST)	Q
INMETRO	DM

† Only SM87HXBA is available UL certified
‡ Only SM87HXB

Voltage	Code
24 V d.c.	024
48 V d.c.	048
110 V a.c. not LED	110
120 V a.c. not LED	120
220 V a.c. not LED	220
240 V a.c. not LED	240
254 V a.c. not LED	254

Colour	Code
Clear	C
Red	R
Blue	B
Green	G
Amber	A
Yellow (not LED)	Y

Guard	Code
None	N
Yes	Y

Entries	Code
M20	1
M25	2
1/2" NPT	3
3/4" NPT	4
Top	*T
Bottom	*B
RHS	*R
LHS	*L

* Prefix position with entry size code
e.g. 1T1B=M20 Top and Bottom entries

Label	Code
None	N
Yes	Y*

* Please specify wording (Note: 15 characters maximum)

Options	Code
Telephone	T*‡
Relay	R*‡
EOL resistor	E*†
None	N

* Not available on UL versions
† Please specify
‡ For SM87LED please specify if steady or flashing is required

Colour	Code
Red	R
Blue	B
Yellow	Y
Yellow/ black stripe	X
Grey	G
White	W
Special	S*

*Please specify

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
950-SDZ-04208	FZ-04 Smoke detect. in B-300 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051785	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04209	FZ-04 Smoke detect. in B-300 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4050815	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04210	FZ-04 Smoke detect. in B-300 AC UPS room	LOWER DECK	1724000821	Fores	Zettler	4051736	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04211	FZ-04 Smoke detect. in B-300 AC UPS room	LOWER DECK	1724000821	Fores	Zettler	4051777	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04212	FZ-04 Smoke detect. in B-300 AC UPS room	LOWER DECK	1724000821	Fores	Zettler	4051708	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04213	FZ-04 Smoke detect. in B-200 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051769	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04214	FZ-04 Smoke detect. in B-200 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051786	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04215	FZ-04 Smoke detect. in B-200 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051705	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04216	FZ-04 Smoke detect. in B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051744	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04217	FZ-04 Smoke detect. in B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051770	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-04218	FZ-04 Smoke detect. in B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051724	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06201	FZ-06 Smoke detect. in B-100 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051704	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06202	FZ-06 Smoke detect. in B-100 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051745	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06203	FZ-06 Smoke detect. in B-100 HVAC air intake	LOWER DECK	1724000821	Fores	Zettler	4051716	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06204	FZ-06 Smoke detect. in B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051762	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06205	FZ-06 Smoke detect. in B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051768	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-SDZ-06206	FZ-06 Smoke detect. in B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Zettler	4051782	MR601TEx	II 1 GD	BAS 01 ATEX 1134 X	1724000821-COM-LIS-00011	II 2G Ex-i IIC T1	-	N/A	True	N/A	True	
950-XL-01101	FZ-01 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/1	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-01102	FZ-01 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/1	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-02101	FZ-02 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/2	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-02102	FZ-02 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/2	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-03101	FZ-03 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/3	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-03102	FZ-03 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/3	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-03103	FZ-03 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/4	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-03104	FZ-03 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/4	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04101	FZ-04 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/5	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04102	FZ-04 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/5	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04103	FZ-04 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/6	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04104	FZ-04 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/6	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04201	FZ-04 Optical exp gas alarm B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Medc	225420465/40/7	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04202	FZ-04 Optical fire alarm B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Medc	225420465/50/7	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04203	FZ-04 Optical exp gas alarm B-300 AC UPS room	LOWER DECK	1724000821	Fores	Medc	225420465/40/8	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04204	FZ-04 Optical fire alarm B-300 AC UPS room	LOWER DECK	1724000821	Fores	Medc	225420465/50/8	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04205	FZ-04 Optical exp gas alarm B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/40/9	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-04206	FZ-04 Optical fire alarm B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/50/9	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-05201	FZ-05 Optical exp gas alarm water treat. pkg	LOWER DECK	1724000448	PSC	E2S			Safe Area		1724000448-MAC-DA-00006			A-5000	True		False	
950-XL-05202	FZ-05 Optical fire alarm water treat. pkg	LOWER DECK	1724000448	PSC	E2S			Safe Area		1724000448-MAC-DA-00006			A-5000	True		False	
950-XL-06101	FZ-06 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/10	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-06102	FZ-06 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/10	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-06103	FZ-06 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/11	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-06104	FZ-06 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/11	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-06201	FZ-06 Optical exp gas alarm B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/40/12	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-06202	FZ-06 Optical fire alarm B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/50/12	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-07101	FZ-07 Optical exp gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/40/13	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XL-07102	FZ-07 Optical fire alarm	LOWER DECK	1724000821	Fores	Medc	225420465/50/13	SM87LEDS	II 2 G	Baseefa 03 ATEX 0222	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	False	
950-XZ-01101	FZ-01 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/01	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-01102	FZ-01 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/02	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-02101	FZ-02 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/03	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-03101	FZ-03 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/04	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-03102	FZ-03 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/05	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-04101	FZ-04 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/06	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-04102	FZ-04 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/07	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-04201	FZ-04 Acoustic fire&gas alarm B-400 I&T equip. room	LOWER DECK	1724000821	Fores	Medc	225420465/60/08	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-04202	FZ-04 Acoustic fire&gas alarm B-300 AC UPS room	LOWER DECK	1724000821	Fores	Medc	225420465/60/09	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-04203	FZ-04 Acoustic fire&gas alarm B-200 LV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/60/10	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-05101	FZ-05 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/11	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-05102	FZ-05 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/12	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-05103	FZ-05 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/13	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-05104	FZ-05 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/14	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-05201	FZ-05 Acoustic fire&gas alarm water treat. pkg	LOWER DECK	1724000448	PSC	E2S			Safe Area		1724000448-MAC-DA-00006			A-5000	True		False	
950-XZ-06101	FZ-06 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/15	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-06201	FZ-06 Acoustic fire&gas alarm B-100 HV/MV SWGR room	LOWER DECK	1724000821	Fores	Medc	225420465/60/16	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-XZ-07101	FZ-07 Acoustic fire&gas alarm	LOWER DECK	1724000821	Fores	Medc	225420465/60/17	DB3BM	II 2 G	UL 21 ATEX 2559X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

1 # SUPPLEMENTRY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa03ATEX0222/6**

4 Equipment or Protective System: **SM87 Beacons**

5 Manufacturer: **Cooper MEDC Limited**

6 Address: **Colliery Road, Pinxton, Nottingham NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or a protective system designed and constructed in accordance with the specification set out in the Schedule of this certificate which incorporates and supersedes all previous issues of the said certificate.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR/09/0082/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN60079-0: 2009 **EN60079-1: 2007** **IEC60079-31: 2008**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This Supplementary EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD Ex d IIC T* (Ta -55°C to + **°C) Gb Ex tb IIIC T°C (Ta -55°C to + **°C) Db IP66/IP67**

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/1065**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa03ATEX222/6**

15 Description of Equipment or Protective System

The Type SM87 Beacons comprise a cylindrical enclosure on a square base and a cover provided with a glass dome to component enclosure Baseefa09ATEX0018U. The base and cover may be manufactured from either aluminium or stainless steel and the cover is secured by screws of grade A4-80 stainless steel. The base is provided with up to four threaded cable entries. The units may be joined together by the manufacturer's supplied coupling up to a maximum of 5 units.

The enclosure contains various internal arrangements to form the following:-

A filament lamp and terminals to form a **Type SM87 LU3** rated up to 240Vac, 10W, 25W or 40W.

A fluorescent lamp, a PCB and terminals to form a **Type SM87 LU1** rated up to 254Vac or 48Vdc, 5W or 10W.

A Xenon Lamp, a PCB and terminals to form a **Type SM87 HXB** rated up to 254Vac or 48Vdc, 11W.

A Xenon electronics unit PCB and terminals to form a **Type SM87 XBT/A** rated up to 254Vac or 48Vdc 11W. This unit is to drive the XTB/B unit described below.

A Xenon Lamp PCB and terminals to form a **Type SM87 XBT/B** powered from the unit above.

Four PCBs containing clusters of LEDs, a driver PCB and terminals to form a **Type SM87 LED** rated up to 48Vdc 4W (white) or 5.6W (blue).

The temperature classification and ambient temperature range for the beacons fitted with the specified lamps are indicated below.

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 LU3	10	T100°C	-55°C to + 70°C	30
		T85°C	-55°C to + 55°C	
		T70°C	-55°C to + 40°C	
	25	T130°C	-55°C to + 55°C	65
		T115°C	-55°C to + 40°C	
	40	T155°C	-55°C to + 55°C	110
		T140°C	-55°C to + 40°C	
SM87 LU1	5	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
	10	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
SM87 HXB	11	T95°C	-55°C to + 70°C	60
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 XBT/A	11	T70°C	-55°C to + 55°C	40
		T55°C	-55°C to + 40°C	

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 XBT/B	-	T110°C	-55°C to + 85°C	20
		T95°C	-55°C to + 70°C	
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 LED White	4	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	
SM87 LED Blue	5.6	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	

16 Report Number

Baseefa Certification Report GB/BAS/ExTR09.0082/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The drawings indicated below amalgamate the current design and previous variations, and supersede all previous issues.

Number	Sheet	Issue	Date	Description
562-749	1	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies
562-749	2	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies
562-749	3	A	11.08.10	XHB, XBT, LU1, LU3, LED Assemblies

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/7**
4	Equipment or Protective System:	**SM87 Beacons**
5	Manufacturer:	**Cooper MEDC Limited**
6	Address:	**Unit B, Sutton Parkway, Oddicroft Lane, Sutton-in-Ashfield, NG17 5FB**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0676**

Project File No. **15/0438**

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pp MDowney MDOWNEY
R S SINCLAIR
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222/7**

15 Description of the variation to the Equipment or Protective System

Variation 7.1

To permit an alternative type MBK 2.5 terminal, and minor drawings amendments.

Variation 7.2

To permit an increase in power of the blue and white LED versions to 7.2W.

The complete listing is indicated below.

Beacon	Watts	Marked Temperature	Ambient temperature range	Cable Temperature Rise (K)
SM87 LU3	10	T100°C	-55°C to + 70°C	30
		T85°C	-55°C to + 55°C	
		T70°C	-55°C to + 40°C	
	25	T130°C	-55°C to + 55°C	65
		T115°C	-55°C to + 40°C	
	40	T155°C	-55°C to + 55°C	110
		T140°C	-55°C to + 40°C	
SM87 LU1	5	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
	10	T85°C	-55°C to + 55°C	50
		T70°C	-55°C to + 40°C	
SM87 HXB	11	T95°C	-55°C to + 70°C	60
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 XBT/A	11	T70°C	-55°C to + 55°C	40
		T55°C	-55°C to + 40°C	
SM87 XBT/B	-	T110°C	-55°C to + 85°C	20
		T95°C	-55°C to + 70°C	
		T80°C	-55°C to + 55°C	
		T65°C	-55°C to + 40°C	
SM87 LED Red/green/amber	4	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	
SM87 LED White/Blue	7.2	T70°C	-55°C to + 55°C	20
		T55°C	-55°C to + 40°C	

16 Report Number

GB/BAS/ExTR15.0176/00.

17 Specific Conditions of Use

None.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
562-749	1-3 inc.	B	03.06.15	General Assembly SM87 – ATEX Certification

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	EC - Type Examination Certificate Number:	**Baseefa03ATEX0222**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC LIMITED**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd. Notified body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **03(C)0265**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amendments 1 & 2 **EN 50018: 2000 + Amendment 1** **EN 50281-1-1: 1998**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD EEx d IIC T* (see schedule)

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa (2001) Ltd. Customer Reference No. **0676**

Project File No. **03/0265**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222**

15 Description of Equipment or Protective System

The Type SM87 Beacons each comprise a cylindrical enclosure on a square base with a domed glass cover secured by 4 off M6 x 12mm long socket head cap screws of grade A4-80 stainless steel. The base and cover ring may be manufactured from either aluminium or stainless steel.

The interior of the units may contain one of the following lamp types and the associated control gear, each with different designations and thermal characteristics as shown below :-

TYPE SM87 ---	Lamp Type	Voltage (V)	Watts (W)	Temperature Classification T* (T_{amb}= -55°C to + °C)			
				+40°C	+55°C	+70°C	+85°C
LU3	Filament	240 ac	48	T135°C	T200°C	N/A	
LU1	Fluorescent	254 ac	10	T100°C	T135°C	N/A	
		240 ac		T85°C	T100°C		
		110/120 ac	5				
		12, 24, 48 dc			T85°C		
HXB	Xenon	110, 240, 254 ac	11	T85°C	T135°C	T135°C	N/A
		12, 24, 30, 48 dc					
XBT/A	Xenon (Electronics unit)	110, 240, 254 ac	11*	T85°C	T135°C	N/A	
		12, 24, 30, 48 dc					
XBT/B	Xenon (Lamp unit)	N/A		N/A			T135°C
LED	LED	24, 48 dc	4	T85°C	T135°C	N/A	
	LED (Blue)		5.6				

* Note XBT units A & B are intended to be used together in pairs and are rated accordingly

The enclosure is provided with internal and external earth connection facilities.

Up to 4 cable entry holes threaded M20 to M25 (or NPT & Pg equivalents) are provided for the accommodation of suitable BASEEFA certified flameproof IIC cable entry devices, with or without the interposition of a suitable BASEEFA certified flameproof IIC thread adapter. Unused entries are to be fitted with suitable BASEEFA certified flameproof IIC stopping plugs.

Suitable flameproof IIC cable entry devices, thread adapters and stopping plugs certified as Equipment (not a Component) under an EC Type Examination Certificate to Directive 94/9/EC may also be used in the manner specified above.

If the unit is intended for use in a dust atmosphere these devices must be sealed in accordance with the relevant codes of practice to ensure a dust tight seal.

In addition, these units may be supplied by the manufacturer in an assembly of up to five interconnected enclosures.

16 Report Number

Baseefa Certification Report No. 03(C)0265

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	A	26-03-03	General Arrangement, SM87 Beacons
562-130	A	28-02-03	Enclosure, Earth & Seal Detail
562-128	A	25-03-03	Cover, Machining Detail, Stainless Steel
562-129	A	25-03-03	Enclosure & Cover Detail, Aluminium
562-127	A	25-03-03	Enclosure, Machining Detail, Stainless Steel
562-132	A	26-03-03	Circuit Diagram, SM87 HXB 240V, High Power
562-133	A	26-03-03	Circuit Diagram, SM87 HXB 240V
562-134	A	23-03-03	Circuit Diagram, SM87 HXB 110/120V
562-135	A	27-03-03	Circuit Diagram, SM87 HXB 254V
562-136	A	27-03-03	Circuit Diagram, SM87 HXB 24V
562-137	A	26-03-03	Circuit Diagram, SM87 HXB 48V
562-138	A	26-03-03	Circuit Diagram, Relay/Telephone Interface
562-139	A	26-03-03	Circuit Diagram, SM87 Fluorescent 12, 24 & 48V
562-140	A	26-03-03	Circuit Diagram, SM87 LED 24V
562-141	A	26-03-03	Circuit Diagram, SM87 LED 48V
562-142	A	26-03-03	Circuit Diagram, SM87 LED (Blue) 24 & 48V
562-143	A	26-03-03	Circuit Diagram, SM87 HXB 12V
562-144	A	26-03-03	Circuit Diagram, SM87 HXB 30V

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/1**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **05/0662**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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DIRECTOR
On behalf of
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13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

Increased dimensional tolerance for the wellglass cover.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	B	06-10-05	General Arrangement, SM87 Beacons

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/2**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/0040**

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13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/2

15 Description of the variation to the Equipment or Protective System

Variation 2.1

Increase in the maximum dissipated wattage of the LUI fluorescent fitting rated at 110V to 120V from 5W to 10W

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-131 Sheets 1 to 3	C	11-01-07	General Arrangement, SM87 Beacons
562-573	A	11-01-07	AC Fluorescent Ballast Circuit Diagram

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/3**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**MEDC**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa03ATEX0222 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **07/0351**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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13 # Schedule

14 ## Certificate Number Baseefa03ATEX0222/3

15 Description of the variation to the Equipment or Protective System

Variation 3.1

Increase in the depth of label fixing holes.

16 Report Number

None

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Issue	Date	Description
562-129	B	24-04-07	Enclosure/Cover Details

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**See Schedule**
4	Equipment or protective system:	**See Schedule**
5	Manufacturer:	**MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends the EC - Type Examination Certificates listed in the Schedule to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedules of the said Certificates but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

A copy of this Supplementary Certificate shall be attached to each of the original Certificates.

This certificate may only be reproduced in its entirety, without any change, Schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **08/0067**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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Schedule

Description of the variation to the Equipment or Protective System

Alternative certification label wording for the units listed below and as on the scheduled drawings.

Certificate No.	Supplement No.	Equipment Type
BAS00ATEX2031	3	Type XB9 Xenon Beacon
BAS00ATEX2097X	10	Type DB3 Sounder and DB4 Speaker Units
BAS00ATEX2204X	2	Type XB10 Beacon
Baseefa02ATEX0224X	6	Type XB4 Xenon Beacon
BAS02ATEX2086X	6	Type DB10 Loudspeaker Units
Baseefa03ATEX0222	4	Type SM87 HXB & SM87 LED Beacons
Baseefa04ATEX0166X	3	Type DB16 IIB Speaker Unit

Report No.

None

Special Conditions for Safe Use

None additional to those listed previously

Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Drawings and Documents

Number	Sheet	Issue	Date	Description
227-173	-	A	28-01-08	Type XB9 Xenon Beacon
219-833	-	A	28-01-08	Type DB3 Sounder Units
199-519	-	A	28-01-08	Type DB4 Speaker Units
228-210	-	A	28-01-08	Type XB10 Beacon
188-625	-	A	28-01-08	Type XB4 Xenon Beacon
253-154	-	A	07-01-08	Type DB10 Loudspeaker Units
562-661	-	A	28-01-08	Type SM87 HXB Xenon Beacon
562-662	-	A	28-01-08	Type SM87 LED Beacon
286-145	-	A	07/01/08	Type DB16 IIB Speaker Unit

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa03ATEX0222/5**
4	Equipment or Protective System:	**SM87 BEACONS**
5	Manufacturer:	**Cooper MEDC Limited**
6	Address:	**Colliery Road, Pinxton, Nottingham, NG16 6JF**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa03ATEX0222** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0676**

Project File No. **10/0595**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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13 **Schedule**

14 **Certificate Number Baseefa03ATEX0222/5**

15 **Description of the variation to the Equipment or Protective System**

Variation 5.1

To permit clear LEDs in the SM87 LED Beacon.

16 **Report Number**

None.

17 **Special Conditions for Safe Use**

None

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
562-141	1	B	20.07.10	Circuit Diagram, SM87 LED Blue/Clear 24V & 48V

ITEM	Tag	950-XZ-01101	: FZ-01 Sounder Activation	Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD
TASK	code	C10001128	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		225420465/60/01			
Manufacturer	Eaton MEDC			**Model**		DB3BM			
Cert No.	UL 21 ATEX 2559X			**Equipment Ambient Temp.**		-60°C to +85°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T4	**IP Rating**	IP66

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	NA	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	NA	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-XZ-01101	: FZ-01 Sounder Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001128		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	PL	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-XZ-01101	: FZ-01 Sounder Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001128		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

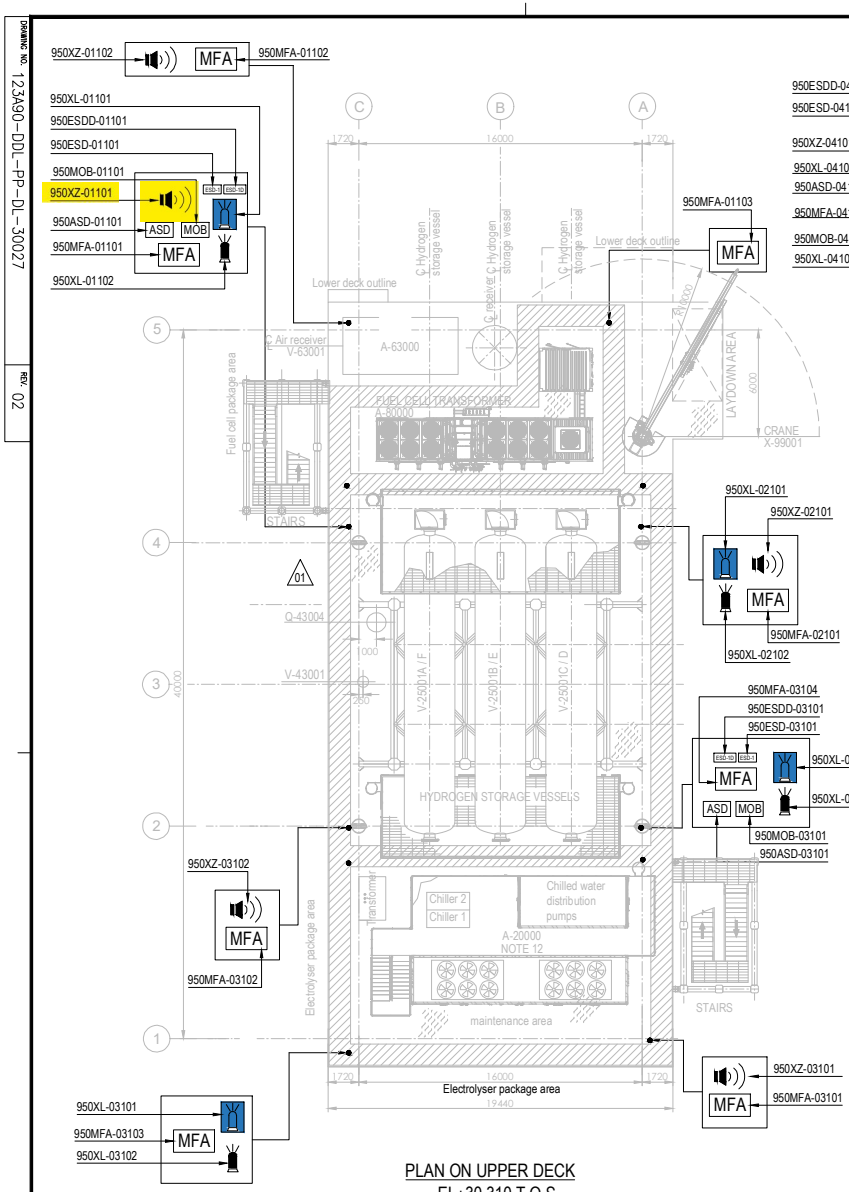
	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-11	2024-12-11	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:14:59.005Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-11T16:57:06.206Z	

DRAWING NO. 123A90-DDL-PP-DL-30027 REV. 02



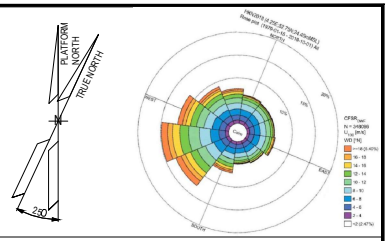
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

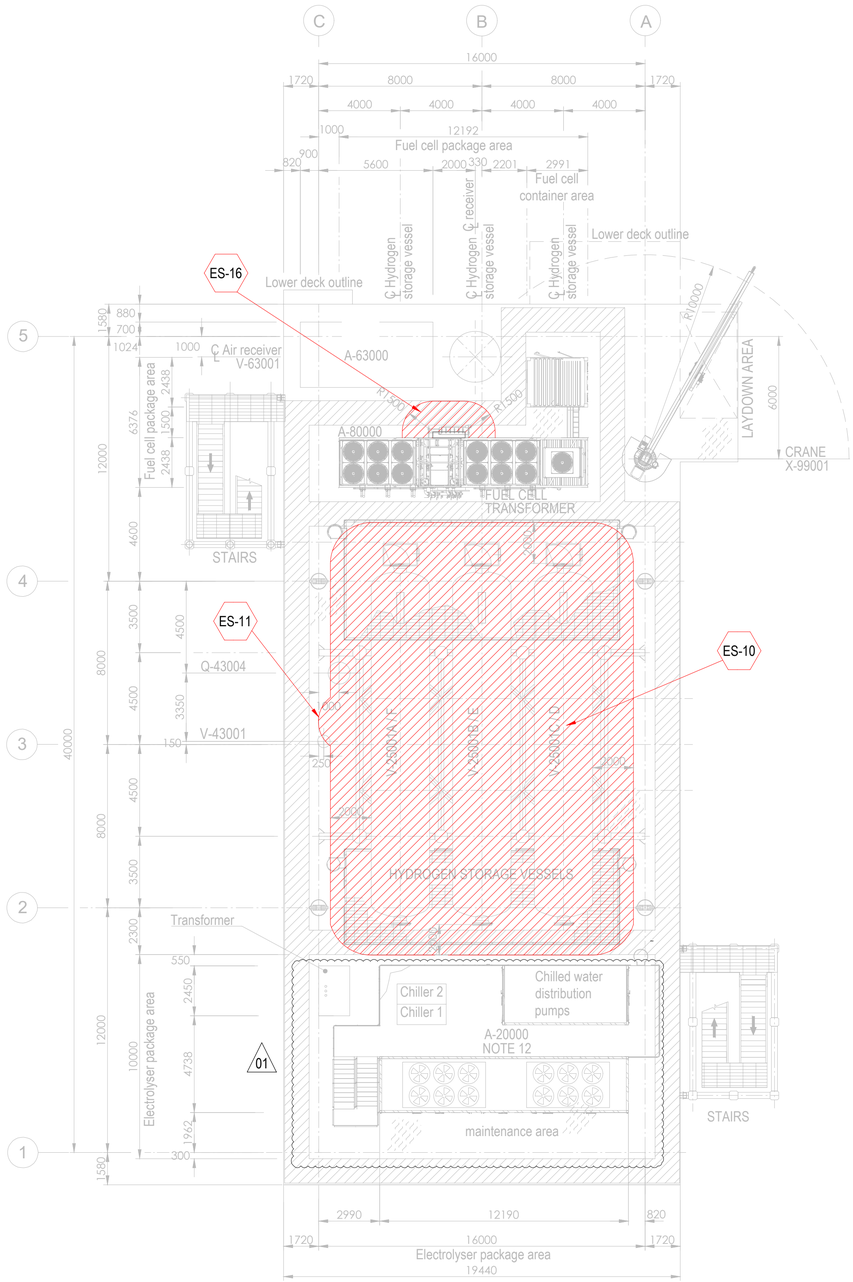
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

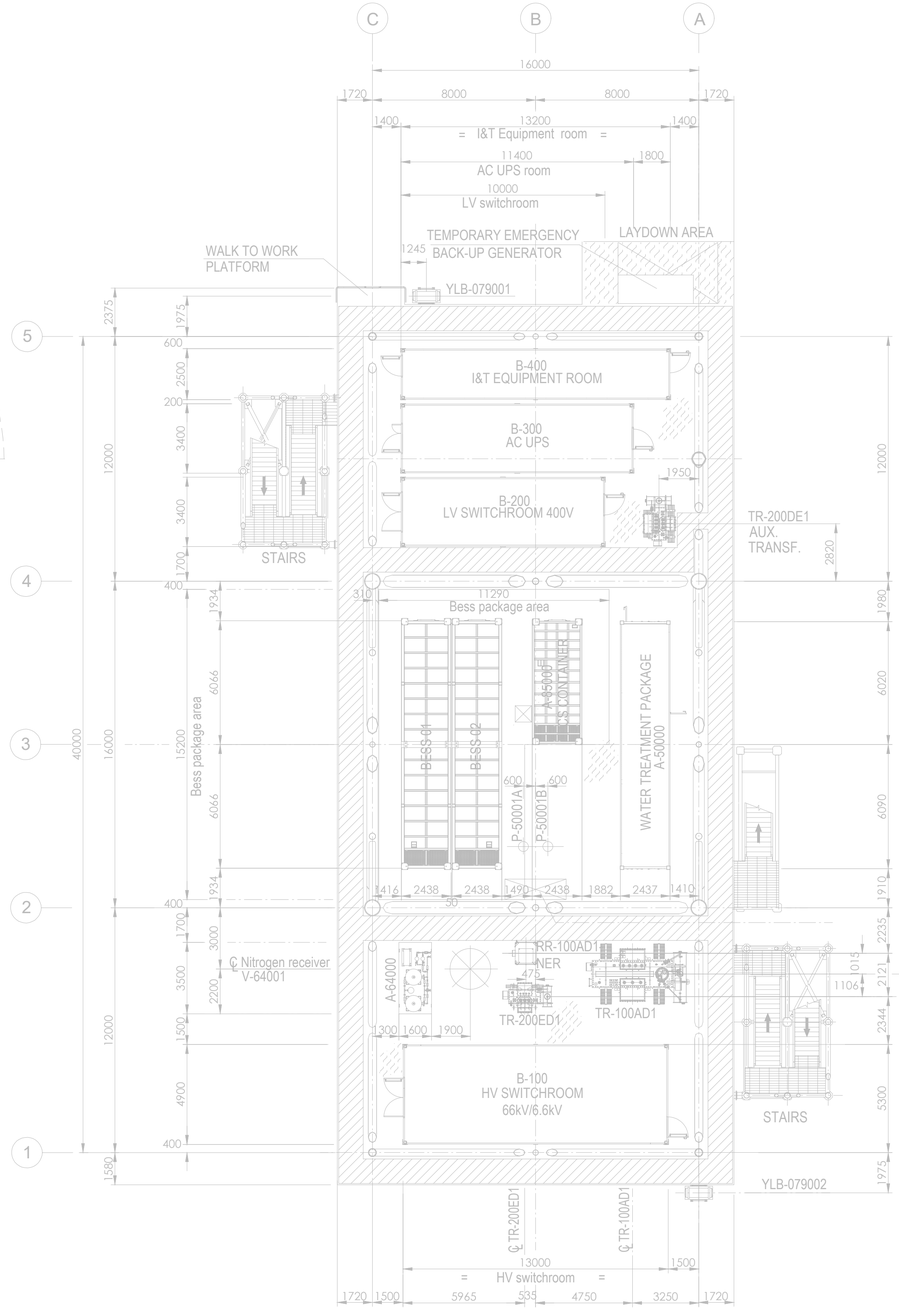
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



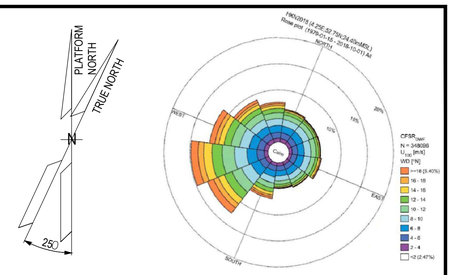
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

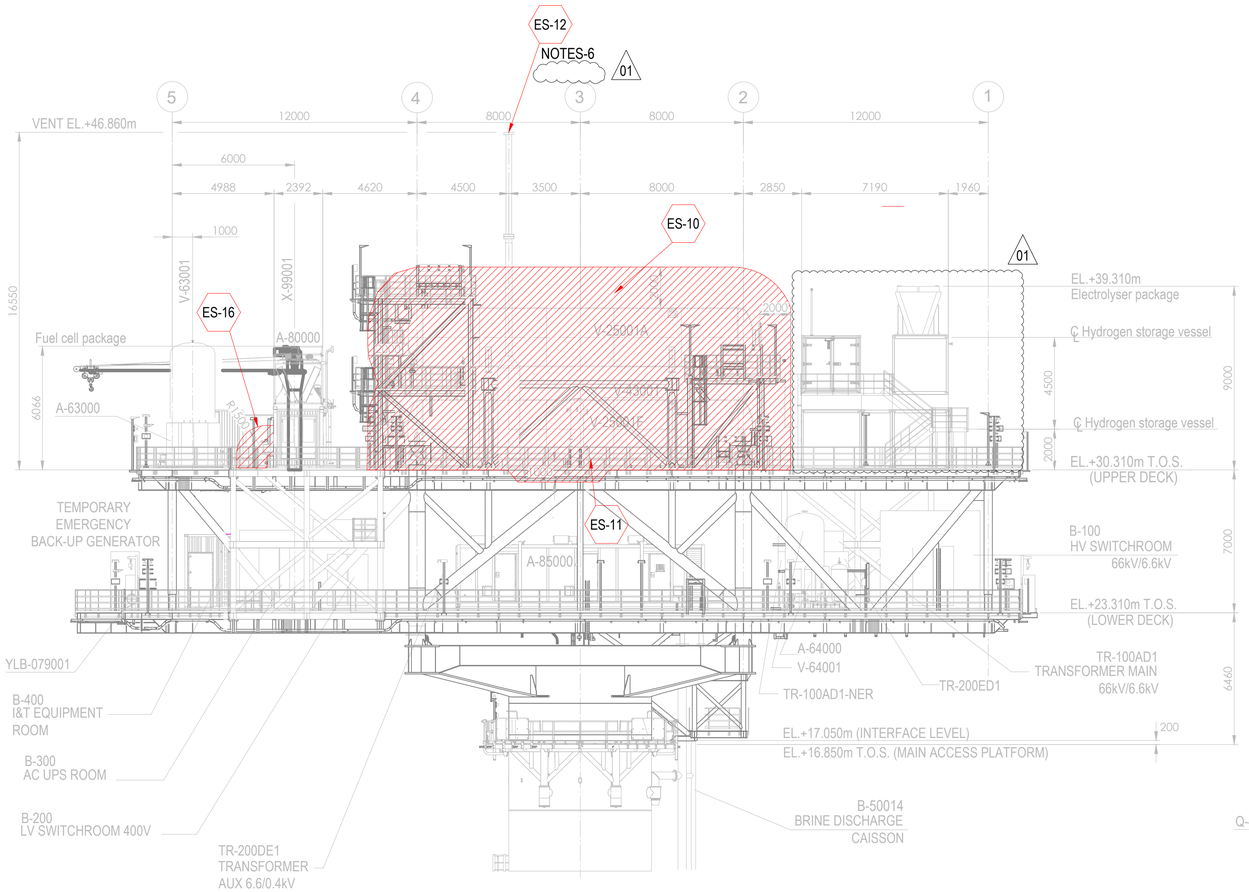
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

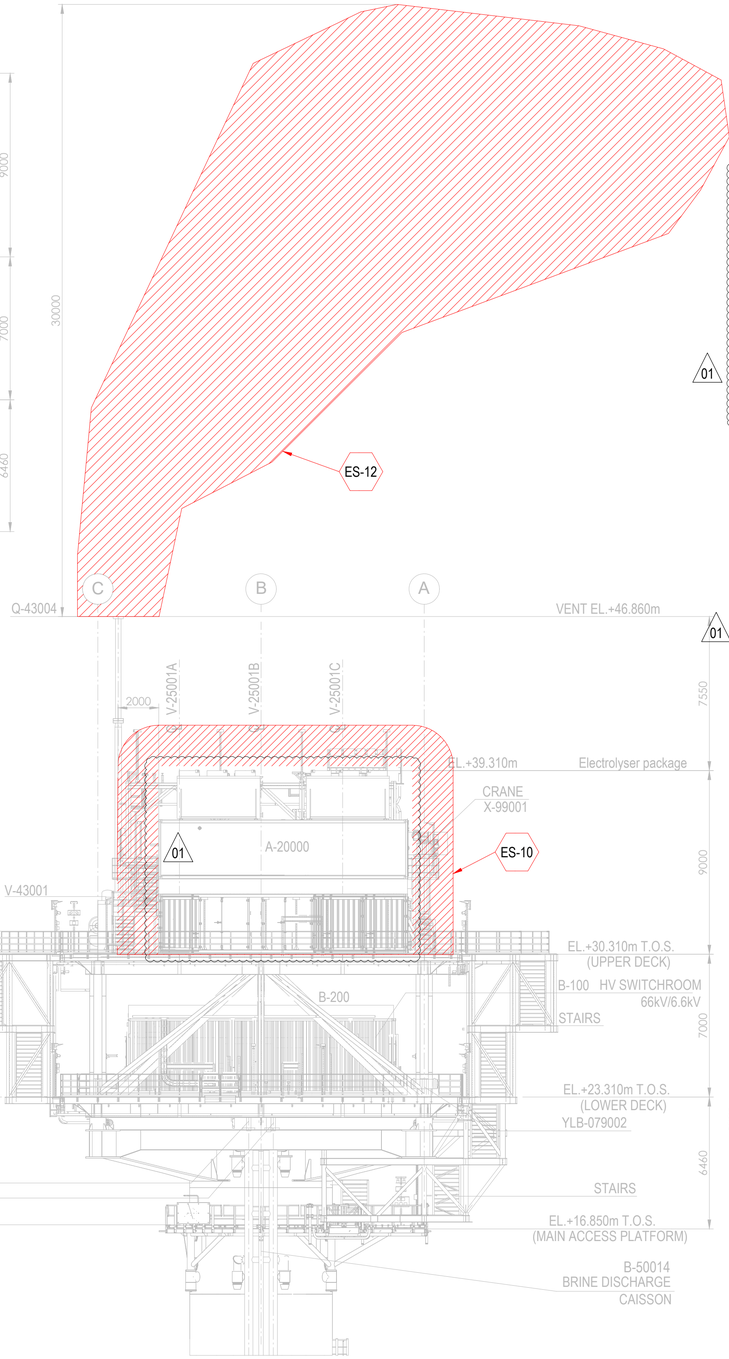
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



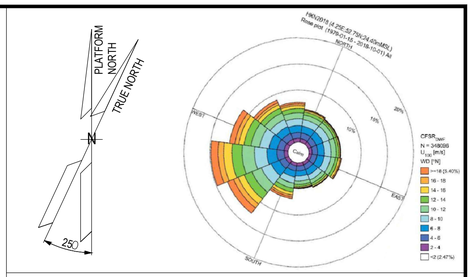
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

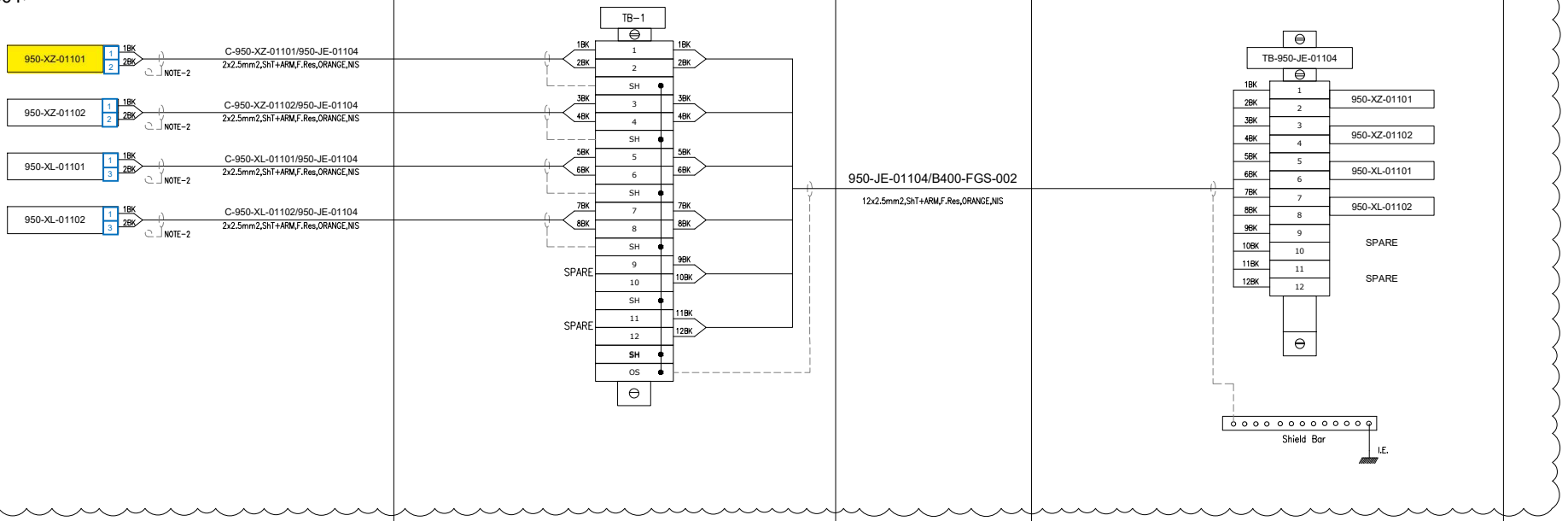
File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

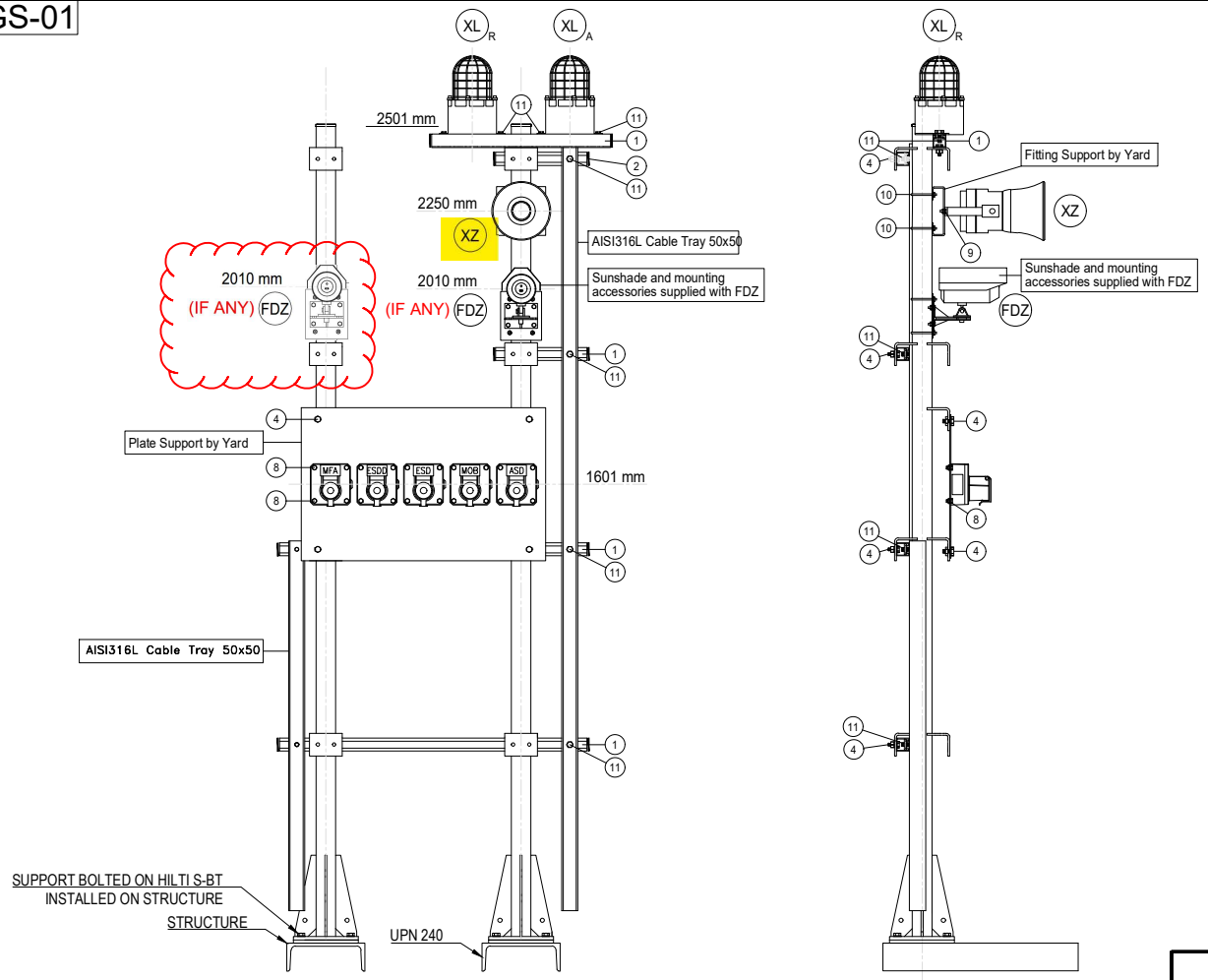
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

FGS-01



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	6m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	18
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	20
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M8 FOR U-CHANNEL 41X41 + BOLT M8x35 + WASHER M8	10

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-01101
	XL_R	BEACON - RED	950-XL-01102
	FDZ	FLAME DETECTOR	950-FDZ-01101 & 950-FDZ-02101
	XZ	SOUNDER	950-XZ-01101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-01101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-01101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-01101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-01101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01101
2	XL_A	BEACON - AMBER	950-XL-06101
	XL_R	BEACON - RED	950-XL-06102
	~~FDZ~~	~~FLAME DETECTOR~~	~~950-FDZ-06104~~
	XZ	SOUNDER	950-XZ-06101
	ESDD	MANUAL CALL POINT CONNECTED TO SIS	950-ESDD-06101
	ESD	MANUAL CALL POINT CONNECTED TO SIS	950-ESD-06101
	MOB	MANUAL CALL POINT CONNECTED TO SIS	950-MOB-06101
	ASD	MANUAL CALL POINT CONNECTED TO SIS	950-ASD-06101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-06101

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE | SCALE /

DRAWN VBA | CHECKED LCA | APPROVED DLO | DATE 11/07/2024

A3 | DRAWING NO. 123A90-DDL-IN-DD-40017 | SHEET 020 | REV. 01

NOTES

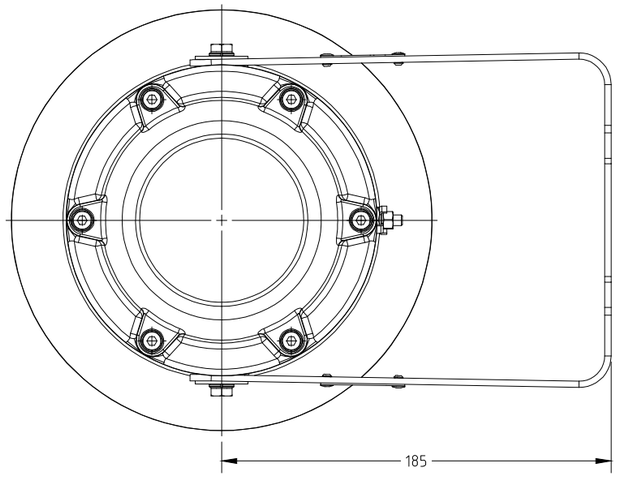
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

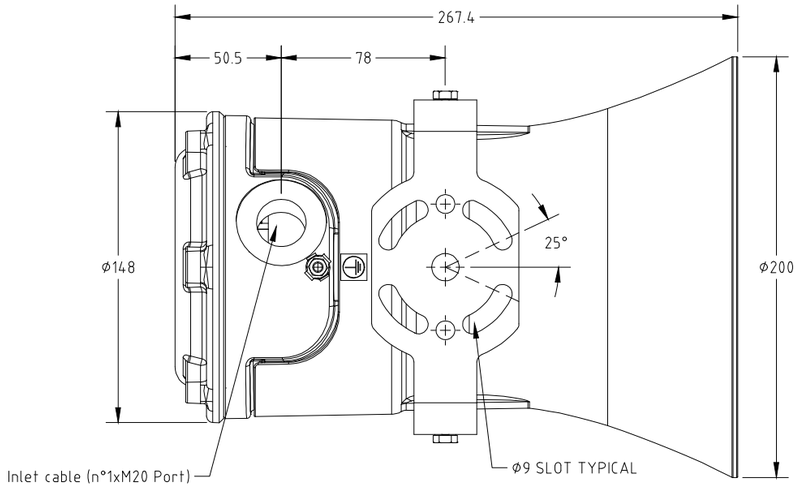
VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_E	13/11/24	G.Randi

ROSETTI MARINO SpA

SOUNDER





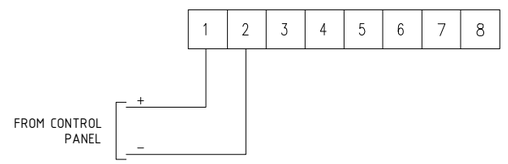
ITEM	DESCRIPTIONS	NR
1	Sounder, MEDC DM3BMSD048DT1BNR	1
2		
3		
4		
5		
6		
7		
8		
9		
10		

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

WIRING



FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

SOUNDER – TAG

POS.	TAG NUMBER
1	950-XZ-01101
2	950-XZ-01102
3	950-XZ-02101
4	950-XZ-03101
5	950-XZ-03102
6	950-XZ-04101
7	950-XZ-04102
8	950-XZ-04201
9	950-XZ-04202
10	950-XZ-04203
11	950-XZ-05101
12	950-XZ-05102
13	950-XZ-05103
14	950-XZ-05104
15	950-XZ-06101
16	950-XZ-06201
17	950-XZ-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

SOUNDER

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-XZ-01101	FZ-01 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
2	950-XZ-01102	FZ-01 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
3	950-XZ-02101	FZ-02 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
4	950-XZ-03101	FZ-03 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
5	950-XZ-03102	FZ-03 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
6	950-XZ-04101	FZ-04 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
7	950-XZ-04102	FZ-04 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
8	950-XZ-04201	FZ-04 SOUNDER ACT. - B-400 INDOOR	EMERGENCY SHUTDOWN ALARM
9	950-XZ-04202	FZ-04 SOUNDER ACT. - B-300 INDOOR	EMERGENCY SHUTDOWN ALARM
10	950-XZ-04203	FZ-04 SOUNDER ACT. - B-200 INDOOR	EMERGENCY SHUTDOWN ALARM
11	950-XZ-05101	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
12	950-XZ-05102	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
13	950-XZ-05103	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
14	950-XZ-05104	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
15	950-XZ-06101	FZ-06 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
16	950-XZ-06201	FZ-06 SOUNDER ACT. - B-100 INDOOR	EMERGENCY SHUTDOWN ALARM
17	950-XZ-07101	FZ-07 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM

File: 1724000821-IN-DS-00004-02.xlsx
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DB3BM sounders range up to 116dB

Ex d, weatherproof



Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
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Oddicroft Lane
Sutton in Ashfield
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Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

Certifications

ATEX Ex db	Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31 Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db, IP66 (IP65 short flare)
IECEx Ex db	Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31 Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db, IP66 (IP65 short flare)
UKEX Ex db	Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31 Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db IP66 (IP65 short flare)
Safe Area	EN 61010-1, EN 60529, EN61000-6

Specifications

Material	Ex enclosure – marine grade alloy or stainless steel Flare - flame retardant, high impact, UV stable, thermoplastic polyester (UV stability tested to ISO 4892 part 3) Hardware - bracket, fixings and captive cover screws in 316 stainless steel
Fire retardancy	Outer flare - thermoplastic polyester. V0 flammability rating
Finish	Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified
Voltage	DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W.
Weight	Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit
Ingress protection	IP66 & IP67 (terminal only). IP65 short flare
Entries	Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available
Terminals	AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only) DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only)
Mounting arrangement	Stainless steel bracket with ratchet facility, optional swivel bracket available. Swivel standard on stainless steel unit
Labels	Optional duty and tag labels available
Tone information	28 tones per stage. Additional custom tones available (contact MEDC) Suitable for use with 200 Hz tones
Relative Humidity	99% Non-condensing

Tone activation and selection

Voltage	Unit	No.of stages	Tone activation	Tone selection
DC	Standard	1	Apply power	1 x DIP switch
		2	Reverse polarity	2 x DIP switches
			Common -ve with 2 +ve supplies	2 x DIP switches
			*Common +ve with 2 -ve supplies	2 x DIP switches
		3	Common -ve with 3 +ve supplies	3 x DIP switches
	Alternative tone activation (Option M)	2	*Common -ve with 2 +ve supplies	2 x DIP switches
		3	Common +ve with 3 -ve supplies	3 x DIP switches
	Alternative tone activation (remote) (Option R)	1-5	Volt free activation (remote switching)	1 x DIP switch for stage 1. Tone pre-selected for subsequent stages
AC	Standard	1	Apply power	1 x DIP switch
	Alternative tone activation (remote) (Option R)	1-2	Volt free activation (remote switching)	1 x DIP switch for stage 1. Tone preselected for the 2nd stage

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

Current consumption: Based on a continuous 970Hz tone

Voltage	Current for IIC unit	Current for IIIC unit
12 Vdc	700 mA	716 mA
24 Vdc	329 mA	339 mA
48 Vdc	171 mA	173 mA
110 Vac	115 mA	122 mA
120 Vac	106 mA	113 mA
220 Vac	59 mA	63 mA
230 Vac	52 mA	55 mA
240 Vac	55 mA	58 mA
254 Vac	59 mA	63 mA

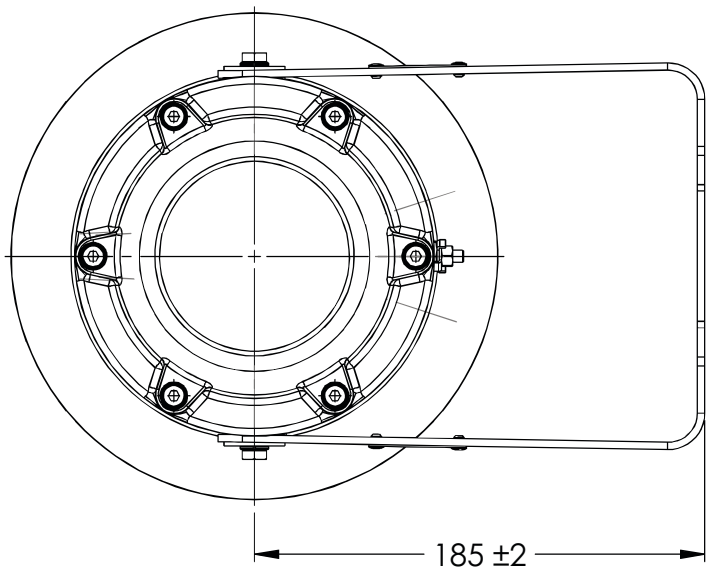
Certified temperature	Ex d/UL min	Max
	-60°C	+85°C

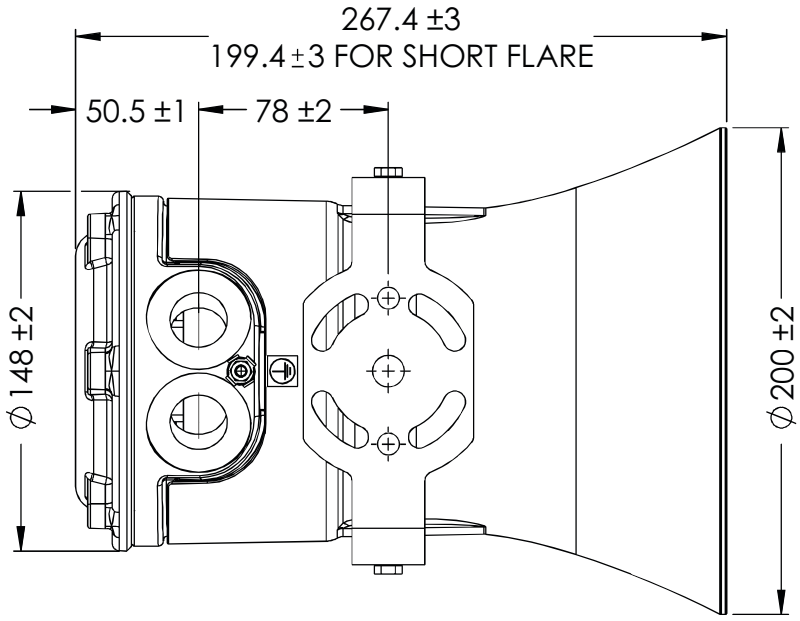
Operating temperature at launch (DC Only): -40 °C min +85 °C max
-55 °C as standard to follow. Please contact MEDC for low temperature options

Max output (dB) 1400Hz @ 1m	Short Flare	Long Flare
	113 dB	116 dB

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

General arrangement drawing (all dimensions in mm)





Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Model

DB3BM

Material

S

Finish	Code
Alloy	A
Stainless Steel	S

Ex Certification

D

Ex Certification	Code
UKEX/ATEX Ex d	D
IECEx Ex d	J
Weatherproof	W

Voltage

048

Voltage	Code
12-48 Vdc	048‡
110 Vac	110
120 Vac	120*
220 Vac	220
230 Vac	230
240 Vac	240*
254 Vac	254

*Complies with UL regulated power supply requirements

Labels

DT

Labels	Code
None	N
Duty	D*
Tag	T*

*Please specify

Entries

1B

Entries	Code
1 x M20	1B
2 x M20	2B
2 x M20 inc 1 x plug	2BP
1 x ½"NPT	1C
2 x ½" NPT	2C
2 x ½" NPT inc 1 x plug	2CP
1 x M25	1D
2 x M25	2D
2 x M25 inc 1x plug	2DP
1 x ¾" NPT	1E
2 x ¾" NPT	2E
2 x ¾" NPT inc 1x plug	2EP

Options

N

Options	Code
None	N
Swivel bracket	B‡
EOL	E*
Alternative tone activation	M**
Volt free activation (remote)	R**
Short flare	S
Custom tones (not std 27)	TΔ

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

Finish

R (RAL 3020)

Finish	Code
Natural black	N
Natural red	R
Yellow	Y
Grey	G
Blue	B
Special	S*

*Please specify

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
365	02	950-XL-06102	FIRE FLASH BEACON	FZ-06 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/10	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
366	02	950-XL-06104	FIRE FLASH BEACON	FZ-06 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/11	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
367	02	950-XL-06202	FIRE FLASH BEACON	FZ-06 FIRE BEACON ACT. - B-100 INDOOR	MEDC	SM87LEDS	225420465/50/12	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
368	02	950-XL-07102	FIRE FLASH BEACON	FZ-07 FIRE BEACON ACTIVATION	MEDC	SM87LEDS	225420465/50/13	Ex II 2GD, Ex d IIC T6 Gb, Ex tb IIIC T55ºC/ T70ºC Db	1724000821-IN-DS-00004	Baseefa 03 ATEX 0222	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	NONE
369	02	950-XZ-01101	SOUNDER	FZ-01 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/01	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
370	02	950-XZ-01102	SOUNDER	FZ-01 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/02	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
371	02	950-XZ-02101	SOUNDER	FZ-02 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/03	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
372	02	950-XZ-03101	SOUNDER	FZ-03 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/04	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
373	02	950-XZ-03102	SOUNDER	FZ-03 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/05	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
374	02	950-XZ-04101	SOUNDER	FZ-04 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/06	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
375	02	950-XZ-04102	SOUNDER	FZ-04 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/07	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
376	02	950-XZ-04201	SOUNDER	FZ-04 SOUNDER ACT. - B-400 INDOOR	MEDC	DB3BM	225420465/60/08	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
377	02	950-XZ-04202	SOUNDER	FZ-04 SOUNDER ACT. - B-300 INDOOR	MEDC	DB3BM	225420465/60/09	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
378	02	950-XZ-04203	SOUNDER	FZ-04 SOUNDER ACT. - B-200 INDOOR	MEDC	DB3BM	225420465/60/10	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
379	02	950-XZ-05101	SOUNDER	FZ-05 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/11	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
380	02	950-XZ-05102	SOUNDER	FZ-05 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/12	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
381	02	950-XZ-05103	SOUNDER	FZ-05 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/13	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
382	02	950-XZ-05104	SOUNDER	FZ-05 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/14	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
383	02	950-XZ-06101	SOUNDER	FZ-06 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/15	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
384	02	950-XZ-06201	SOUNDER	FZ-06 SOUNDER ACT. - B-100 INDOOR	MEDC	DB3BM	225420465/60/16	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
385	02	950-XZ-07101	SOUNDER	FZ-07 SOUNDER ACTIVATION	MEDC	DB3BM	225420465/60/17	Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db	1724000821-IN-DS-00004	UL 21 ATEX 2559X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
386	02	77-HS-001A	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper AHU1 Inlet Air	EATON	GHG 432	24-11391	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
387	02	77-HS-001B	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper AHU1 Inlet Air	EATON	GHG 432	24-11392	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
388	02	77-HS-002A	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper AHU2 Inlet Air	EATON	GHG 432	24-11393	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
389	02	77-HS-002B	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper AHU2 Inlet Air	EATON	GHG 432	24-11394	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
390	02	77-HS-003A	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper Exhaust Air	EATON	GHG 432	24-11395	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
391	02	77-HS-003B	PUSH BUTTON DPDT CONTACT	B-100 Fire Damper Exhaust Air	EATON	GHG 432	24-11396	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES
392	02	77-HS-004A	PUSH BUTTON DPDT CONTACT	B-200 Fire Damper AHU3 Inlet Air	EATON	GHG 432	24-11397	II 2 G Ex ed ib m IIC T6	1724000821-IN-DS-00004	BVS 22 ATEX E032 X	Zone 2		1724000821	FORES ENGINEERING	NA	NA	NO	YES

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **UL 21 ATEX 2559X Rev. 0**

[4] Product: **DB4BM range of Loudspeakers and DB3BM range of Sounders**

[5] Manufacturer: **Eaton MEDC Ltd.**

[6] Address: **Unit B, Sutton Parkway, Oddicroft Lane, Sutton-in-Ashfield NG17 5FB UK**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR21.0017/00.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1: 2014** **EN 60079-31:2014**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following:

II 2 G Ex db IIC T* Gb

II 2 D Ex tb IIIC T*°C Db

(Tamb -60°C to +*°C)

*See Schedule for T class & ambient combination

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2021-08-11

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

This certificate may only be reproduced in its entirety and without any change, schedule included.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
UL 21 ATEX 2559X Rev. 0

[15] Description of Product

DB4BM Loudspeakers
The DB4BM Loudspeakers are comprised of a cylindrical metallic body and two metallic covers, two compartments are electrically connected by a bushing. The front cover is threaded and closes a flameproof chamber for housing the speaker driver assembly. In the front cover is a sintered wire mesh element that facilitates sound transmission. An elastomeric O-ring seal located within the cover provides against water ingress to the manufacturer's self-declared IPX6 protection when fitted with a long horn flare or self-declared IPX5 protection when fitted with a short horn flare.

The flanged rear cover closes a chamber that houses a transformer assembly and control PCB. An elastomeric O-ring seal located within the enclosure body provides against water ingress to the manufacturer's self-declared IPX6 and IPX7 protection. The cover is fixed with six M5 x 0.8 x 20mm long socket head screws of minimum property class A2-70, the screws can be both reduced shank and fully threaded to the screw head. Up to two M20 or M25 cable entries (alternative option 1/2" NPT or ¾" NPT) are provided in the side of the enclosure to accommodate suitably certified cable entries devices.
A non-metallic horn assembly comprising long, or short horn flare is fitted externally to the front cover, and along the sides, of the enclosure, together with a metallic mounting bracket.

DB3BM Sounders
The DM3BM Sounders are identical in construction to the DB4BM Loudspeakers with the exception that the flameproof chamber contains different components, including sound generating PCB's.

Performance testing
Not applicable.

Temperature range and Electrical Data

Loudspeakers

Type Designation	Rated Voltage Max.	Rated Power	Ambient Range / Temperature Class							
			-60°C to +40°C		-60°C to +55°C		-60°C to +70°C		-60°C to +85°C	
			Gas	Dust	Gas	Dust	Gas	Dust	Gas	Dust
DB4BM	25V ac	8W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB4BM	25V ac	15W	T5	T100°C	-	-	-	-	T4	T135°C
DB4BM	25V ac	25W	T5	T100°C	-	-	T4	T135°C	T3	T200°C
DB4BM	70V ac	8W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB4BM	70V ac	15W	T5	T100°C	-	-	-	-	T4	T135°C
DB4BM	70V ac	25W	T5	T100°C	-	-	T4	T135°C	T3	T200°C
DB4BM	100V ac	8W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB4BM	100V ac	15W	T5	T100°C	-	-	-	-	T4	T135°C
DB4BM	100V ac	25W	T5	T100°C	-	-	T4	T135°C	T3	T200°C

Sounders

Type Designation	Rated Voltage Range	Rated Power	Ambient Range / Temperature Class							
			-60°C to +40°C		-60°C to +55°C		-60°C to +70°C		-60°C to +85°C	
			Gas	Dust	Gas	Dust	Gas	Dust	Gas	Dust
DB3BM	12-48V dc	15W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB3BM	110/120V ac	15W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB3BM	220/240V ac	15W	T6	T85°C	T5	T100°C	-	-	T4	T135°C
DB3BM	254V ac	15W	T6	T85°C	T5	T100°C	-	-	T4	T135°C

Routine Tests
Routine tests according to EN 60079-1 cl. 16. are not required, as the enclosures have been successfully tested at four times the reference pressure.

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[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
UL 21 ATEX 2559X Rev. 0

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

- For replacement purposes M5 x 0.8 x 20 mm long cover bolts shall be used and shall have a property class of A2-70 or stronger. Reduced shank fasteners must be used with covers employing threaded holes. Fully threaded fasteners must be used with covers employing plain clearance holes.
- The flameproof joints are not intended to be repaired.
- Potential Electrostatic Charging Hazard. If the unit requires cleaning, only clean exterior with a damp cloth to avoid electrostatic charge build-up. See instructions for further guidance.
- If a metal certification label is attached to the horn it is known to be capable of retaining a 3.33 pF charge.

Condition of Manufacture

- The current/ power draw for DB3BM Sounder custom tones shall not exceed that of the worst-case French Fire Sound Tone (Tone 15).

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark EATON will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change, schedule included.

ITEM	Tag	950-FDZ-01104	: Flame Detector - FZ-01 Fuel Cell PK Area	Dwg	123A90-DDL-SAF-DL-30027		
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD		
TASK	code	C10001503	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01

Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		606521			
Manufacturer	Fire and Gas Detection Technologies			**Model**		FlameSpec FLS-UV-IR-AS11			
Cert No.	ICQC 19 ATEX 0424X			**Equipment Ambient Temp.**		-55°C to +75°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T5	**IP Rating**	IP66/68

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	OK	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-FDZ-01104	: Flame Detector - FZ-01 Fuel Cell PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001503		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		OK	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	OK	
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	OK	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-FDZ-01104	: Flame Detector - FZ-01 Fuel Cell PK Area		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001503	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

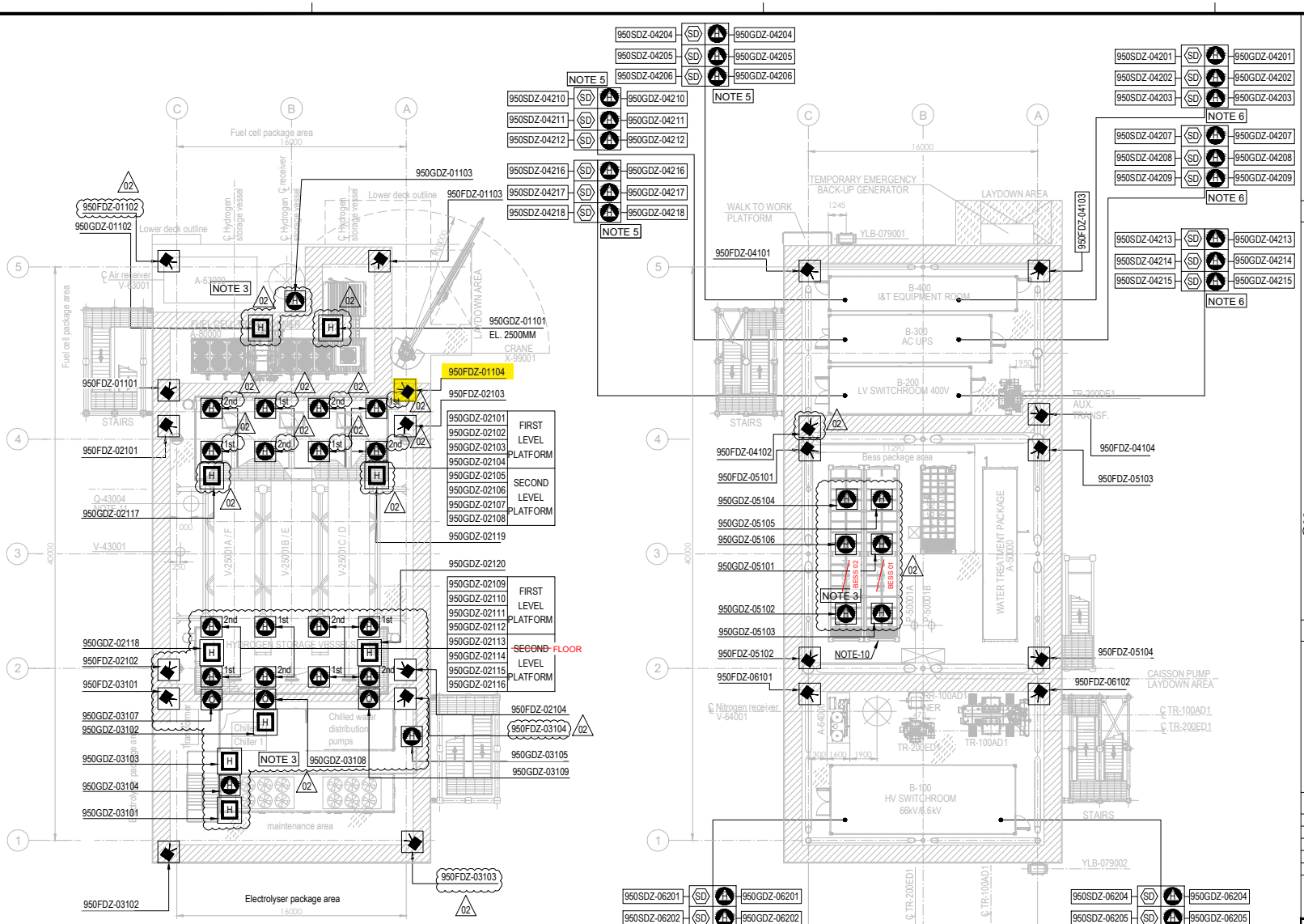
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-04	2025-01-16	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-04T10:51:17.285Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-16T14:45:21.422Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



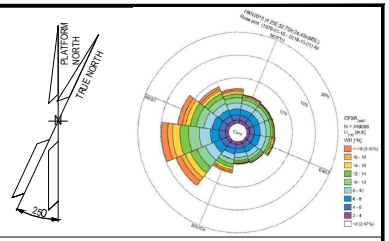
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

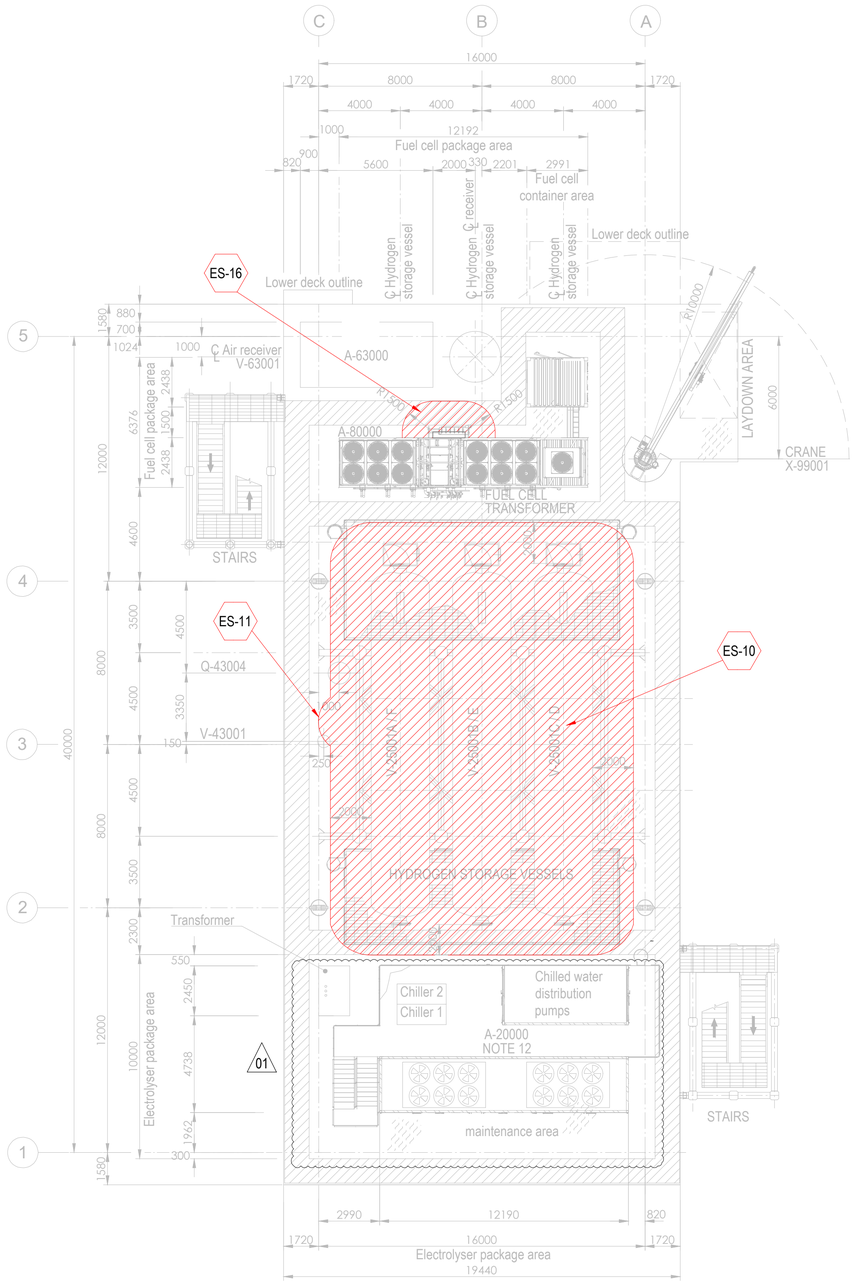
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

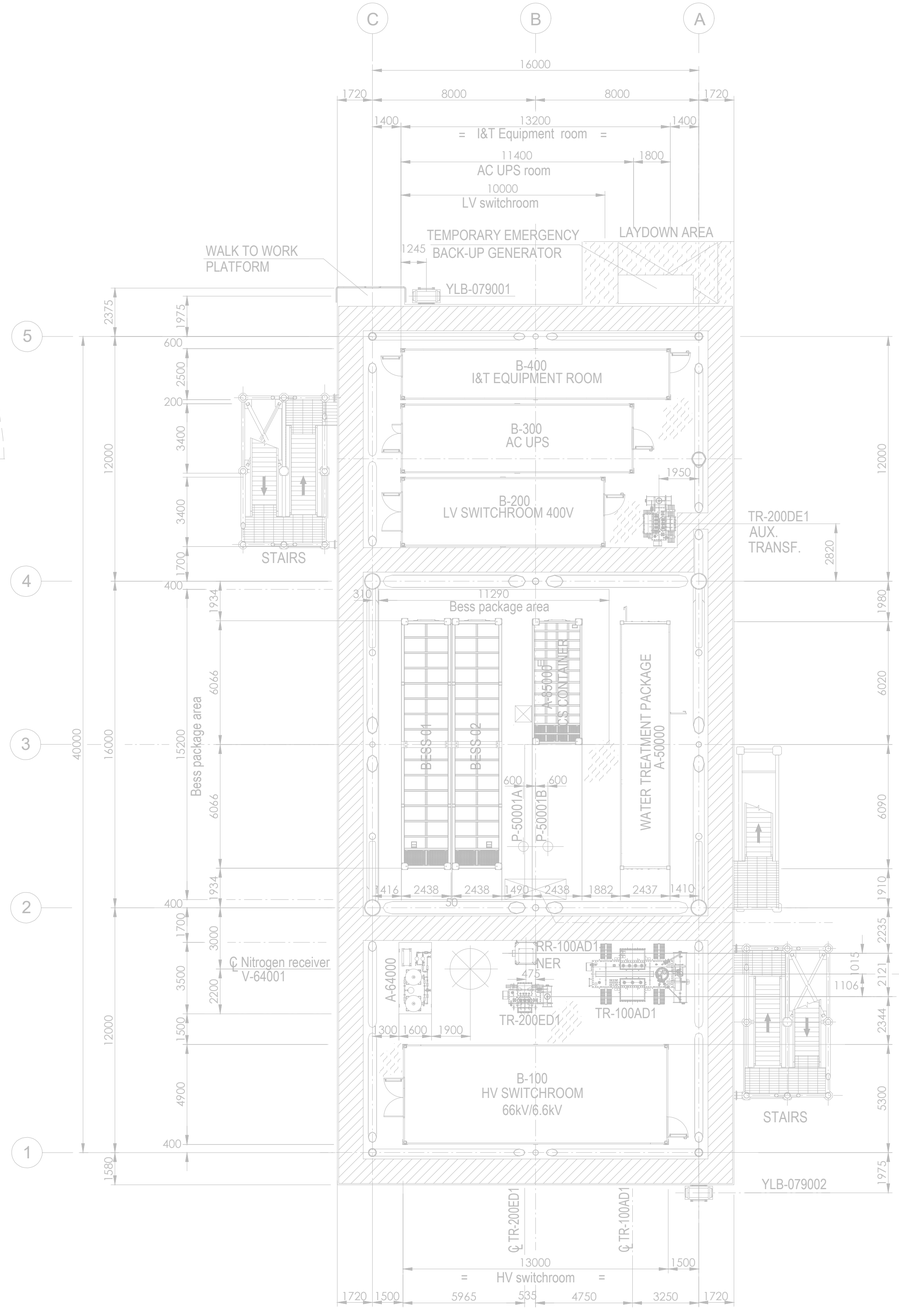
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



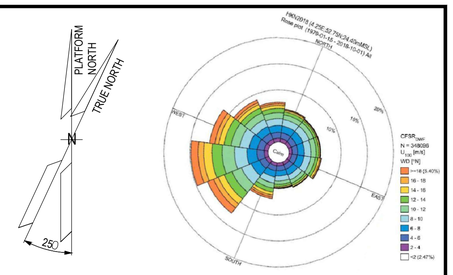
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

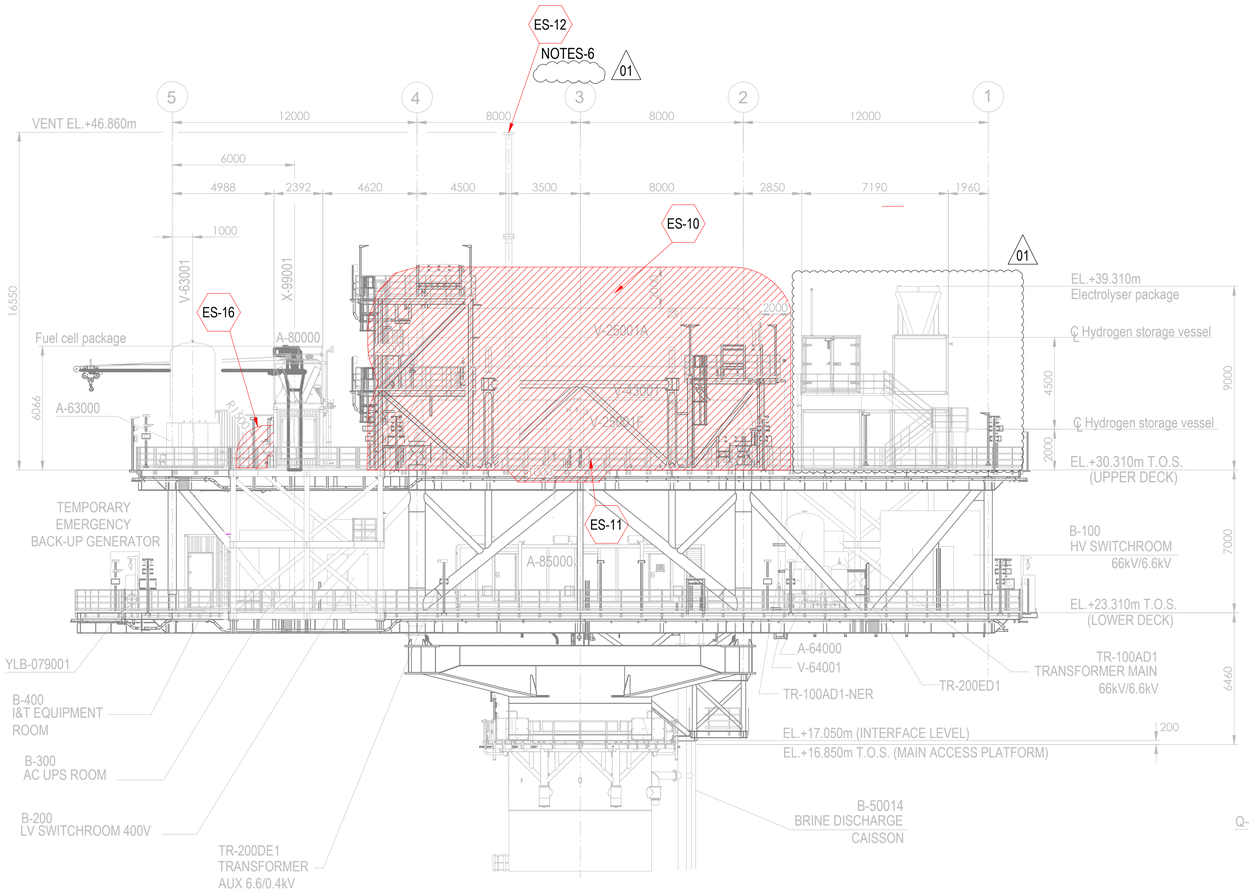
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

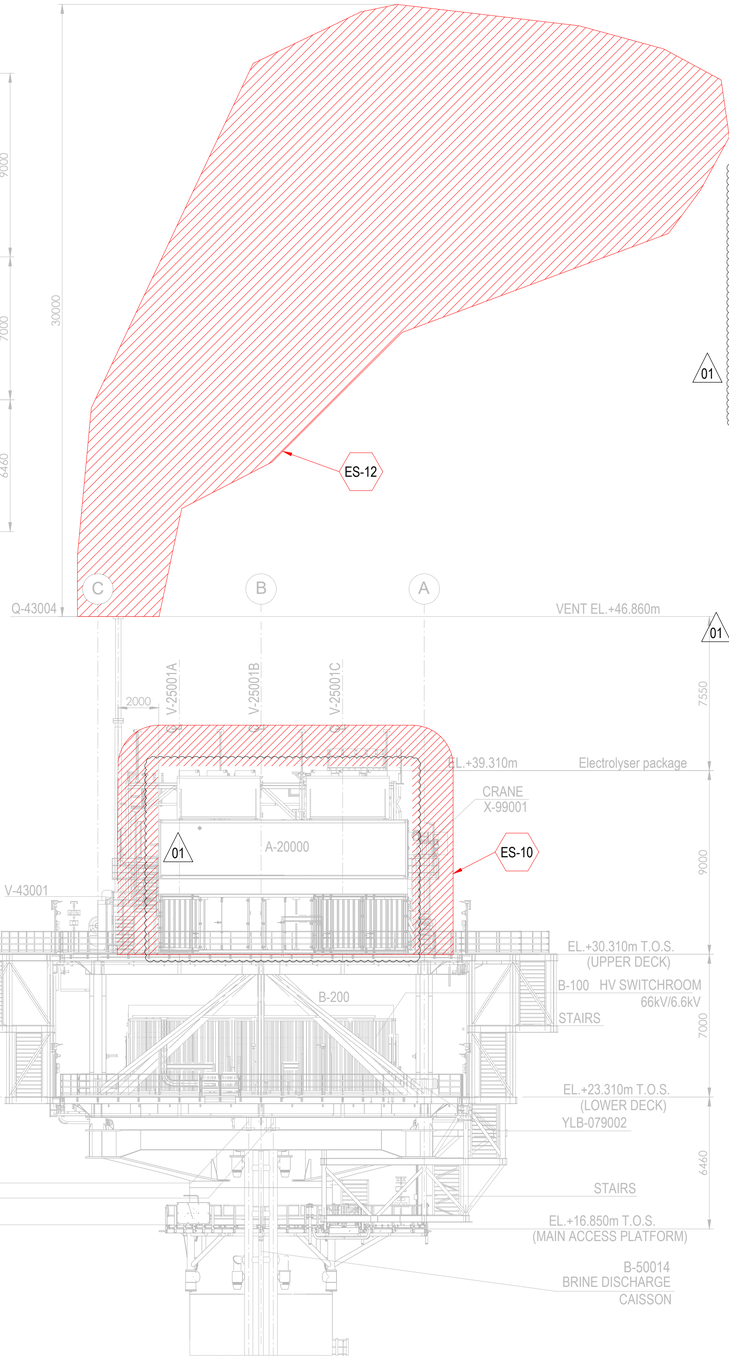
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



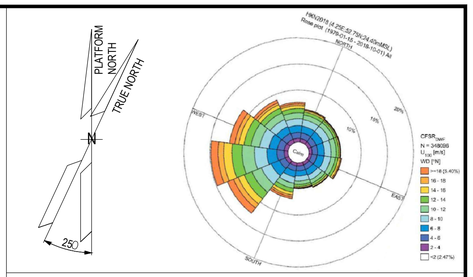
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

RD, WH, BK

NOTE-2

C-950-FDZ-01101/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01102/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01103/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01104/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1, 2, 3, SH, 4, 5, 6, SH, 7, 8, 9, SH, 10, 11, 12, SH, 13, SPARE, 14, 15, SH, 16, SPARE, 17, 18, SH, OS

TR1, TR2, TR3, TR4, TR5, TR6

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

SPARE

SPARE

Shield Bar

I.E.

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

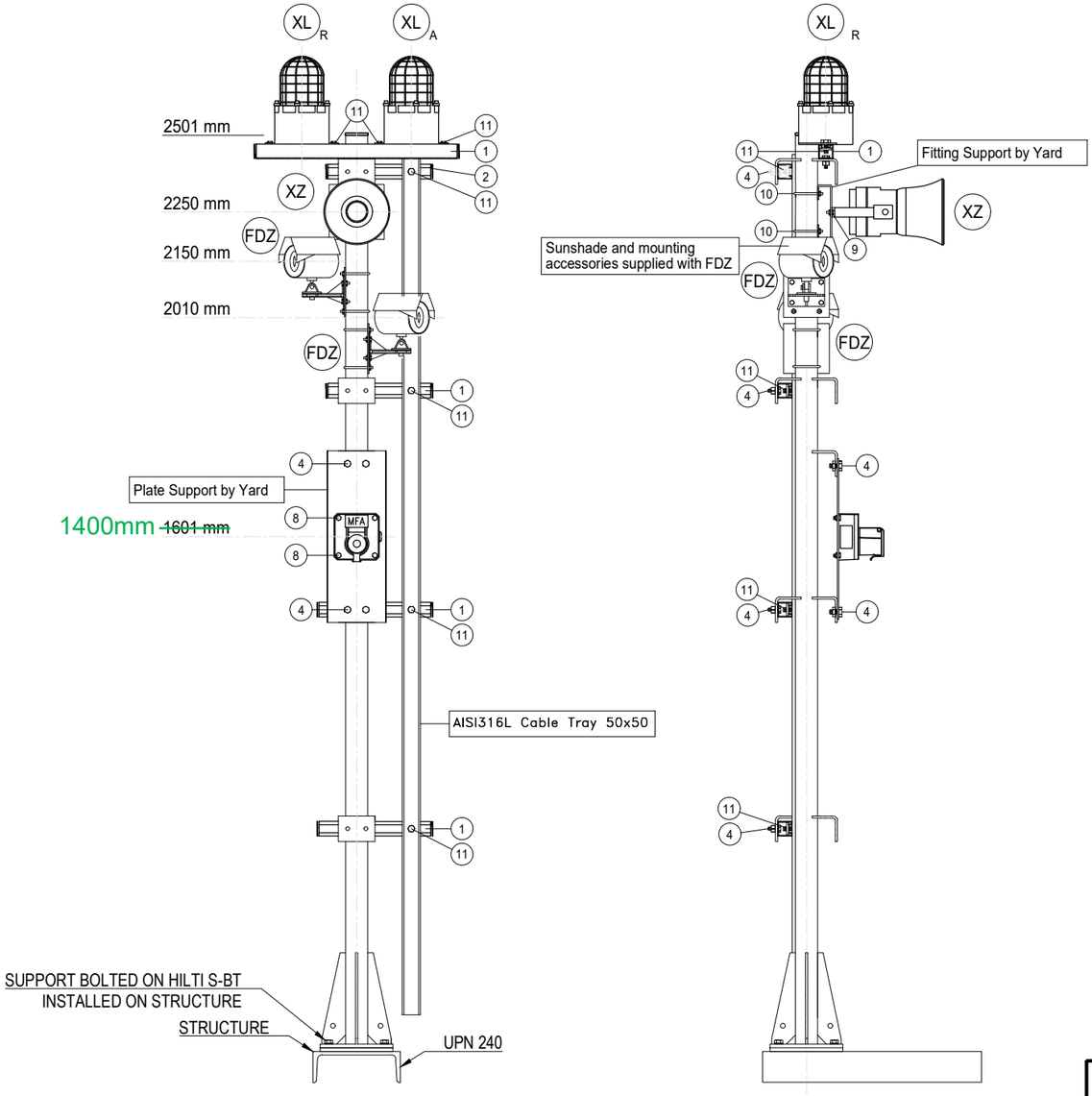
A3	DRAWING NO.	SHEET	REV.
	123A90–DDL–IN–DG–40016	030	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-04

123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	5m
2	LDPE PLUG FOR U-CHANNEL 41x41	10
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	14
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	8

POLE	ITEM	DESCRIPTION	TAGNAME
1	XL_A	BEACON - AMBER	950-XL-02101
	XL_R	BEACON - RED	950-XL-02102
	FDZ	FLAME DETECTOR	950-FDZ-01104
	FDZ	FLAME DETECTOR	950-FDZ-02103
	XZ	SOUNDER	950-XZ-02101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-02101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_I	20/12/24	V.Ramponi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

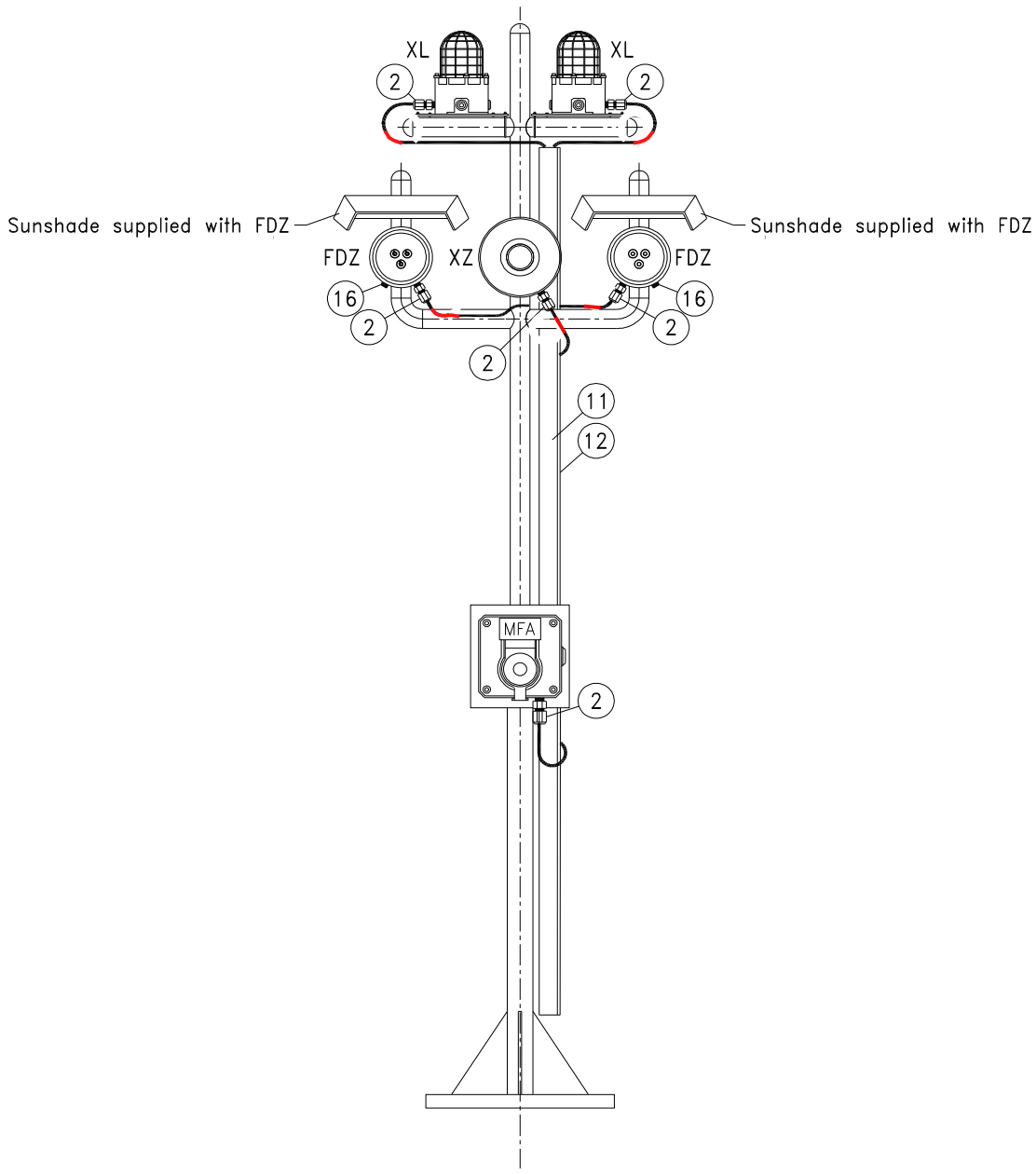
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 023	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-XL-02101 (AMBER)
	950-XL-02102 (RED)
	950-FDZ-01104
	950-XZ-02101
	950-FDZ-02103
	950-MFA-02101

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	2
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	6

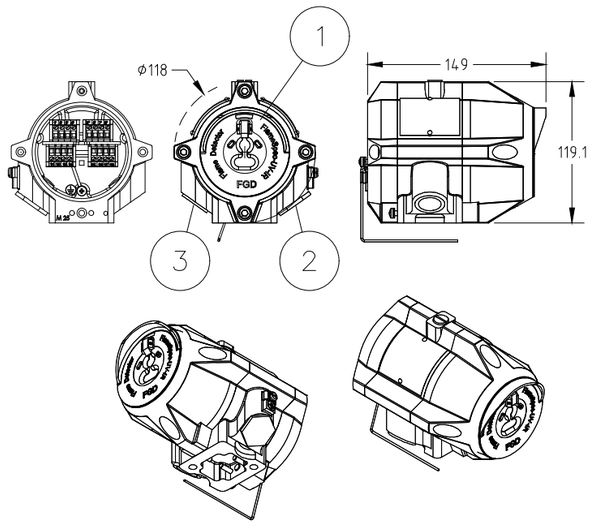
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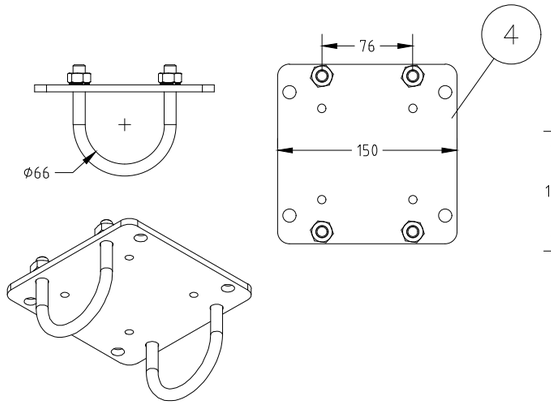
FLAME DETECTOR / 2" PIPE MOUNTING

ITEM	DESCRIPTIONS	NR
1	Flame Detector, FGD FlameSpec FLS-UV-IR-AS11	1
2	Reducer M25 - M20 Ex d AISI 316	1
3	Stop Plug M25 Ex d AISI 316	1
4	2 inch Mounting Kit, FGD F107X0050.00	1
5	Tilt Assy, FGD F110X0090.00	1
6	Weather Shield, FGD F107X0240.00	1
7	Stainless Steel Name Plate	
8		
9		
10		

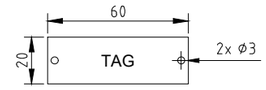
INSTALLATION QUANTITY

22



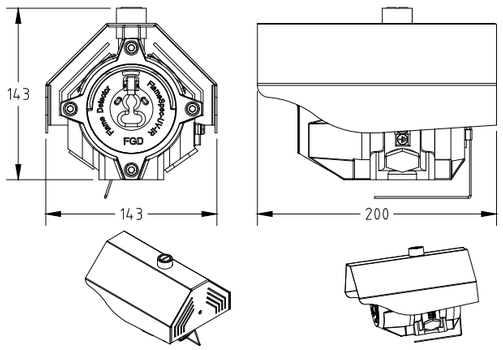


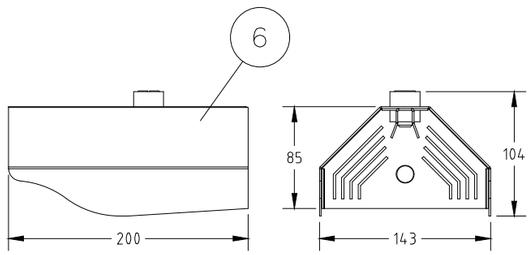
7 STAINLESS STEEL NAME PLATE DETAILS

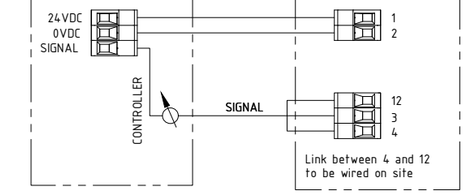


NOTE 5

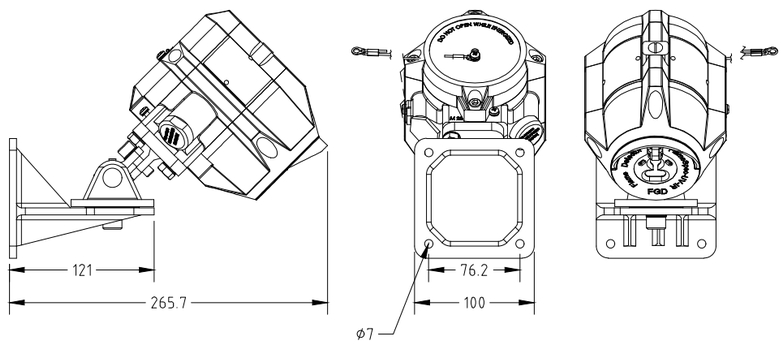
GA WEATHER SHIELD AND DETECTOR







INSTALLATION SCHEME



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR / 2" PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-FDZ-01101
2	950-FDZ-01102
3	950-FDZ-01103
4	950-FDZ-01104
5	950-FDZ-02101
6	950-FDZ-02102
7	950-FDZ-02103
8	950-FDZ-02104
9	950-FDZ-03101
10	950-FDZ-03102
11	950-FDZ-03103
12	950-FDZ-03104
13	950-FDZ-04101
14	950-FDZ-04102
15	950-FDZ-04103
16	950-FDZ-04104
17	950-FDZ-05101
18	950-FDZ-05102
19	950-FDZ-05103
20	950-FDZ-05104
21	950-FDZ-06101
22	950-FDZ-06103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	014	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR

POS.	TAG NUMBER	SERVICE
1	950-FDZ-01101	FZ-01 FUEL CELL PK AREA
2	950-FDZ-01102	FZ-01 FUEL CELL PK AREA
3	950-FDZ-01103	FZ-01 FUEL CELL PK AREA
4	950-FDZ-01104	FZ-01 FUEL CELL PK AREA
5	950-FDZ-02101	FZ-02 H2 STORAGE VESSELS AREA
6	950-FDZ-02102	FZ-02 H2 STORAGE VESSELS AREA
7	950-FDZ-02103	FZ-02 H2 STORAGE VESSELS AREA
8	950-FDZ-02104	FZ-02 H2 STORAGE VESSELS AREA
9	950-FDZ-03101	FZ-03 ELECTROLYZER PK AREA
10	950-FDZ-03102	FZ-03 ELECTROLYZER PK AREA
11	950-FDZ-03103	FZ-03 ELECTROLYZER PK AREA
12	950-FDZ-03104	FZ-03 ELECTROLYZER PK AREA
13	950-FDZ-04101	FZ-04 B-400/B-300/B-200 AREA
14	950-FDZ-04102	FZ-04 B-400/B-300/B-200 AREA
15	950-FDZ-04103	FZ-04 B-400/B-300/B-200 AREA
16	950-FDZ-04104	FZ-04 B-400/B-300/B-200 AREA
17	950-FDZ-05101	FZ-05 BESS AREA
18	950-FDZ-05102	FZ-05 BESS AREA
19	950-FDZ-05103	FZ-05 BESS AREA
20	950-FDZ-05104	FZ-05 BESS AREA
21	950-FDZ-06101	FZ-06 B-100 AREA
22	950-FDZ-06103	FZ-06 B-100 AREA

File: 1724000821-IN-DS-00004-02.xlsx
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FlameSpec
UV-IR
UV-IR Flame Detector



The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 ft^2 (0.1m^2) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)	Avrg Resp.Time (s)
N-Heptane	1 x 1 ft.	Extreme	98 (30)	2.0
N-Heptane	1 x 1 ft.	High	75 (23)	1.7
N-Heptane	1 x 1 ft.	Medium	49 (15)	1.0
N-Heptane	1 x 1 ft.	Low	16 (5)	1.0
Gasoline	2 x 2 ft.	Extreme	197 (60)	3.3
Gasoline	1 x 1 ft.	Extreme	98 (30)	1.8
Gasoline	1 x 1 ft.	Medium	49 (15)	1.3
Methane	32-in Plume	Extreme	59 (18)	1.4
Methane	32-in Plume	Medium	30 (9)	0.9
LPG	32-in Plume	Extreme	75 (23)	1.2
LPG	32-in Plume	High	56 (17)	1.6
LPG	32-in Plume	Medium	33 (10)	1.2
LPG	32-in Plume	Low	13 (4)	1.2
Diesel	1 x 1 ft.	Extreme	75 (23)	2.6
Diesel	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Extreme	75 (23)	3.3
JP5	1 x 1 ft.	High	56 (17)	1.8
JP5	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Low	16 (5)	1.2
Kerosene	1 x 1 ft.	Extreme	75 (23)	1.8
Kerosene	1 x 1 ft.	Medium	36 (11)	0.9
Methanol	1 x 1 ft.	Extreme	52 (16)	0.8
Methanol	1 x 1 ft.	High	43 (13)	3.2
Methanol	1 x 1 ft.	Medium	30 (9)	1.3
Methanol	1 x 1 ft.	Low	10 (3)	2.7
Ethanol	1 x 1 ft.	Extreme	62 (19)	4.1
Ethanol	1 x 1 ft.	Medium	31 (9.5)	2.9
Isopropanol	1 x 1 ft.	Extreme	75 (23)	2.2
Isopropanol	1 x 1 ft.	Medium	36 (11)	0.8
Polypropylene	1 x 1 ft.	Extreme	49 (15)	1.4
Polypropylene	1 x 1 ft.	Medium	23 (7)	0.9
Hydrogen	32-in Plume	Extreme	66 (20)	6.4
Hydrogen	32-in Plume	Medium	33 (10)	1.0
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	59 (18)	3.2
Syngas (30%CH_4:70%H_2)	32-in Plume	Medium	33 (10)	1.2

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric arc	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Arc welding	10.0 (3.0)	No Alarm	10.0 (3.0)	No Alarm
Radiation heater, 2000W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Halogen lamp (500W) non-shielded	7.0 (2.0)	No Alarm	7.0 (2.0)	No Alarm
Halogen lamp (1000W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Exhausts	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Projector led	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Solenoid bell	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
soldering iron	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric Drill	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

FIRE DETECTION	**Detection time and distance**	5ms for fast burst of explosion 1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m) < 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of view (IR detection)	90° Horizontal, 80° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	14-17 AWG (2.5–1.0 mm²)
OUTPUTS	**Relays**	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
MECHANICAL SPECIFICATIONS	**Size**	5.51 x 3.54 × 3.54" (140×90×90mm)
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	**Temperature Range**	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	Up to 99% (RH), non-condensing
	Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	**ATEX**	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C
	IECEx, INMETRO & PESO	Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx/Ex db IIC T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	EAC CU TR	1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C 1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)

ACCESSORIES	**Tilt mount, model FLS-TMO-S01**	**High vibration mounting bracket, model FLS-MIL-S01**
	Weather cover, model FLS-WCO-S01	**Flame simulator, model FLS-FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S01**
	Duct mount with window, model FLS-DMW-S01	**Duct mount for airshield, model FLS-DMX-S01**
WARRANTY	**5 years**	

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Specifications subject to change without notice.

FlameSpec

FLS-FSIM

Flame Simulator Family



The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

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Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

Flame Simulator Family

	Simulator Kits Part Nos	FLS-FSIM-IR3-KIT	FLS-FSIM-IR3-H2-KIT	FLS-FSIM-UV-IR-KIT
	Detector type	FLS-IR3[1] FLS-IR3-HD[1]	FLS-IR3-H2 FLS-IR3-H2-HD	FLS-UV-IR FLS-UV-IR-HD
OPERATION DISTANCES	**Detector Sensitivity**	ft. m	ft. m	ft. m
	Extreme	30 9.0	30 9.0	42.5 13.0
	High	20 6.0	20 6.0	26 8.0
	Medium	10 3.0	10 3.0	20 6.0
	Low	3.3[2] 1.0[2]	3.3[2] 1.0[2]	6.6 2.0
ELECTRICAL SPECIFICATIONS	**Operating Voltage nominal, V**	3.7	3.7	3.7
	Number of activations between charging	~1000	~1000	~50
	Battery Capacity, mAh	>3000	>3000	>3000
	Charging time, hours	up to 3	up to 3	up to 3
	Indication	3 Color LED (Green, Yellow, Red)		
	All Simulator Models			
MECHANICAL SPECIFICATIONS	**Size**	3.9 x 3.9 x 7.8" (100 x 100 x 200mm)		
	Weight	3.96 lbs. (1.8 kg)		
	Simulator Enclosure Material	Painted Aluminum LM25		
ENVIRONMENTAL SPECIFICATIONS	**Ingress Protection**	IP65 (NEMA 4X)		
	Humidity	up to 99% (RH), non-condensing		
	Operating temperature	Min: −4°F (−20°C) Max: +122°F (+50°C)		
APPROVALS	**Explosion proof**	ATEX Ex II 2 G Ex db ib op is IIC T6 Gb Ex II 2 D Ex tb ib op is IIIC T85°C Db -20°C<Ta<+50°C		
ACCESSORIES included in kits	**Carrying Case**	FLS-FSIM-CASE		
	Carrying Strap	FLS-FSIM-STRAP		
	Cover Tool	FLS-FSIM-TOOL		
	Allen Key	FLS-FSIM-ALLEN		
	Battery Charger	FLS-FSIM-CHRGR		
WARRANTY	**3 Years**			

[1]not CO2L variant
[2]with collimator removed

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Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
77-HS-009A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11407	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-009B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11408	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-010A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11409	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-010B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11410	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-011A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11411	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-011B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11412	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-012A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11413	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-012B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11414	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-013A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11415	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-013B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11416	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-014A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11417	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-014B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11418	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-015A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11419	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-015B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11420	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-016A	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11421	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
77-HS-016B	Hand Switch	LOWER DECK	1724000821	Fores	EATON	24-11422	GHG 432	II 2 G	BVS 22 ATEX E032 X	1724000821-COM-LIS-00011	II 2 G Ex ed ib m IIC T6	-	N/A	True	N/A	True	
80-PSV-001	Hyrogen storage to A-80000 Package discharge	LOWER DECK	1724000518	Technical Srl	Technical Srl	291496	320-K10-5L	Zone 2	Declaration of Conformity by Technical Srl	1724000518-IN-DA-00003 / 1724000518-IN-DS-00004	II 2G Ex h IIC T6..T1 Gb	-	N/A	False	N/A	False	HAZARDOUS-AREA_3 HAZARDOUS-AREA_2 HAZARDOUS-AREA_5 HAZARDOUS-AREA_6
80-PT-002	Hyrogen storage to A-80000 Package	LOWER DECK	1724000979	Terranova Srl	Terranova Srl	SE240657	SST76-H-7-K-2-0-2-1-4 + MAN2-R6		TI17ATEX304X	1724000979-IN-DA-00003 / 1724000979-IN-DS-00004	ATEX Ex II 1/2G Ex db IIC / IIB, T6/T5, Ga/Gb or ATEX Ex II 1/2G Ex ia IIC T6/T5/T4 Ga/Gb	-	N/A	False	N/A	True	HAZARDOUS-AREA_6
80-XV-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N/A	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	False	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-XY-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-ZSH-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
80-ZSL-001	Hyrogen storage to A-80000 Package vent system	LOWER DECK	1724000204	RFS	SOLDO	N.A.	FP06P-S1-04-32-NU-V-77A-24D-57	Zone 2, Gas Group IIC	CML 19ATEX1359X	1724000204-IN-DG-00006	Ex II 2GD Ex d IIC T4/T6	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_6
950-ASD-01101	FZ-01 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/1	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-03101	FZ-03 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/2	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-04101	FZ-04 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/3	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-06101	FZ-06 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/4	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ASD-07101	FZ-07 abandon shutdown (ASD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/5	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-01101	FZ-01 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/11	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-03101	FZ-03 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/12	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-04101	FZ-04 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/13	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-06101	FZ-06 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/14	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESD-07101	FZ-07 emergency shut down (ESD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/15	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-01101	FZ-01 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/16	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-03101	FZ-03 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/17	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-04101	FZ-04 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/18	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-06101	FZ-06 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/19	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-ESDD-07101	FZ-07 depress. emergency shut down (ESDD)	LOWER DECK	1724000821	Fores	Medc	225420465/30/20	SM87PBL	II 2 G	Baseefa 03 ATEX 0075 X	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01101	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01102	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01103	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-01104	FZ-01 Flame detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02101	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02102	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02103	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-02104	FZ-02 Flame detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03101	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03102	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-03103	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

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SIA „International Center for Quality Certification - ICQC"
Reģ. Nr.LV40103539825
Skolasiela 63-19, Jūrmala, LV-2016, Latvija

EU Notified Body
No. 2549

LATAK-S1-499

(1) EU-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres – Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number: **ICQC 19 ATEX 0424 X** **Issue: 1**

(4) Equipment: **FlameSpec Detector types: FLS-IR3-ASXX, FLS-IR3-H2-ASXX, FLS-UV-IR-ASXX, FLS-UV-IR-F-ASXX**

(5) Manufacturer: **Fire & Gas Detection Technologies, Inc**

(6) Address: **4222 E. La Palma Ave, Anaheim, CA 92807, USA**

(7) This equipment and any acceptable variation, also documents which are specified in the schedule to this certificate.

(8) The certification body ICQC, Notified body No. 2549 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in confidential report no **424/2019/07/ATEX**

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012/A11:2013, EN 60079-1:2014, EN 60079-7:2015, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and the construction of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture and supply of this equipment. These are not covered by the certificate

(12) The marking of the equipment or protective system shall include the following:

II 2 G Ex db IIC T5 Gb or II 2 G Ex db eb IIC T5 Gb and II 2D Ex tb IIIC T95 °C Db -55°C<Ta<75°C

II 2 G Ex db IIC T4 Gb or II 2 G Ex db eb IIC T4 Gb and II 2D Ex tb IIIC T105 °C Db -55°C<Ta<85°C

Director of Certification: Sergey Kovalev

International Center for Quality Certification • Notified Body 2549 • JŪRMALA, LATVIJA

Date of issue: 11 March, 2020
Jurmala, Latvia

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(13) **SCHEDULE**

(14) **to EU-TYPE EXAMINATION CERTIFICATE: ICQC 19 ATEX 0424 X** **Issue: 1**

(15) **Description of Equipment:**

FlameSpec Detector types: FLS-IR3-ASXX (DWG F120B0010), FLS-IR3-H2-ASXX (DWG F150B0010), FLS-UV-IR-ASXX (DWG F110B0010) and FLS-UV-IR-F-ASXX (DWG F160B0010) are infrared and UV/IR flame detectors, which provide fast response, high performance and reliable detection of all types of hydrocarbon and hydrogen fires (visible and non-visible).

The flame detector consists of electronic compartment in type of protection flameproof enclosure "d" and terminal compartment which meets the requirements of types of protection increased safety "e" and flameproof enclosure "d" with a two openings 3/4" NPT or M25 for cable glands.

The cable entry devices (cable glands) shall be certified with a appropriated type of protection. Unused entries shall be closed with certified blanking elements. Installing and use of cable gland and blanking elements shall be in compliance with EN 60079-14 current edition.

The detector is intended for use as part of a complex system and can be installed indoor or outdoor. The detector has a window heater, which automatically turns on by the ambient temperature below 5°C.

There are following features available in the flame detectors:

- Alarm Relay
- Fault Relay
- 4-20 mA and HART Output
- RS-485
- Data/Event logger
- Built-in-Test (BIT)

Technical characteristics:

Parameters	**Value**
Supply voltage	18 ... 32 V DC
Current Consumption	Standby: 100 mA Maximum: 200 mA all systems in operation (including window heater)
Alarm Relay, SPST, Normally open and normally closed	2A at 30 VDC
Fault Relay, SPST, Normally open	
Degree of protection	IP66 / IP68
Ambient temperature range	-55°C to +75°C or -55°C to +85°C

Routine tests:

Routine tests according to cl. 7.1 of EN 60079-7 shall be conducted for Exe terminal compartment with a test voltage of 500 V

Routine tests according to cl. 16 of EN 60079-1 shall be conducted for Exd electronic compartment with a test pressure of 1,36 MPa

(16) **Descriptive Documents:**

User Guide Release Number: F110V0010– FlameSpec-IR3; F120V0010 –FlameSpec-UV-IR; F150V0010– FlameSpec-IR3-H2; F160V0010 – FlameSpec-UV-IR-F

The drawings are listed in Evaluation report No: 424/2019/07/ATEX

Certificate History

Issue/Date	**Evaluation report**	**Comment**
Issue 0 from 21.01.2019	424/2019/07/ATEX	The release of the prime certificate.
Issue 1 from 11.03.2020	424/2019/07/ATEX	Manufacturer address change. Product design unchanged.

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(17) **Specific conditions of use:**
17.1 The Exd electronic compartment of flame detector has flamepaths which differ from those in IEC 60079-1. Repairs shall be conducted only by FG Detection Technologies LTD.

(18) **Essential Health and Safety Requirements:**
Met by compliance with the standards mentioned in clause (9).

Certificate without signature are void. This certificate may only be reproduced in its entirety and without any change, schedule included. Extracts or modifications must be authorized by SIA ICQC.

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres Directive 94/9/EC**

(1) # EC-TYPE EXAMINATION CERTIFICATE

(3) Number of the EC type examination certificate: **INERIS 14ATEX0029X**

(4) Equipment or protective system:

FITTING UNITS TYPE RE**** or RE******* or PL**** or NP*** or EM*** or ELF***

(5) Manufacturer: **RIBCO**

(6) Address: Via dei Mille, 12
20061 Carugate (MI)-ITALY

(7) This equipment or protective system and any other acceptable alternative of this one are described in the annex of this certificate and the descriptive documents quoted in this annex.

(8) INERIS, notified body and identified under number 0080, in accordance with article 9 of Council Directive 94/9/EC of the 23rd March 1994, and accredited by COFRAC under number 5-0045 for certification of products and services (scope of accreditation available on the website www.cofrac.fr) certifies that this equipment or protective system fulfils the Essential of Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, described in annex II of the Directive.

The examinations and the tests are consigned in report No 028198/14.

(9) The respect of the Essential Health and Safety Requirements is ensured by:

- conformity with:

EN 60079-0	:	2012/A11	:2013
EN 60079-1	:	2007	
EN 60079-7	:	2007	
EN 60079-31	:	2009	

- specific solutions adopted by the manufacturer to meet the Essential Health and Safety Requirements described in the descriptive documents.

Parc Technologique Alata BP 2 F-60550 Verneuil-en-Halatte
tél + 33(0)3 44 55 66 77 **fax** + 33(0)3 44 55 66 99 **internet** www.ineris.fr

Institut national de l'environnement industriel et des risques
Etablissement public à caractère industriel et commercial - RCS Senlis B 381 984 921 - Siret 381 984 921 00019 - APE 7120B

(10) Sign X, when it is placed following the Number of the EC type examination certificate, indicates that this equipment and protective system is subjected to the special conditions for safe use, mentioned in the annex of this certificate.

(11) This EC type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system, these are not covered by this certificate.

(12) The marking of the equipment or the protective system will have to contain:

Ex I M2 Ex II 2 GD

Verneuil-en-Halatte, 2014.06.26

ATMOSPHERES EXPLOSIVES ORGANISME NOTIFIE INERIS NOTIFIED BODY EXPLOSIVE ATMOSPHERES

The Chief Executive Officer of INERIS
By delegation
T. HOUEIX
Ex Certification Officer

(13) # ANNEX

(14) EC TYPE EXAMINATION CERTIFICATE N°INERIS 14ATEX0029X

(15) DESCRIPTION OF THE EQUIPMENT OR THE PROTECTIVE SYSTEM

This series of fitting units is composed by adapters, plugs, nipples and 90°bends can be made in EN AW-6060, CW614N (OT58), AISI 316L or ASTM A105.

It gets the degree of protection IP66 according to the EN 60529 standard.

PARAMETERS RELATING TO THE SAFETY

Size of threaded joints:

Taper threading	:	NPT	:	3/8" NPT up to 3" NPT.
Cylindrical threading	:	ISO-262 and ISO965-1/2/3	:	M16 x 1.5 mm up to M90 x 1.5 mm.

Operating temperature:

-40°C to +100°C with EPDM O-ring;

-60°C to +180°C with silicone O-ring.

MARKING

Marking has to be readable and indelible; it has to include the following indications:

a) Marking for units without aluminum

RIBCO
20061 Carugate (MI)-ITALY
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
INERIS 14ATEX0029X
(Year of construction)
Ⓔx I M2 Ⓔx II 2 GD
Ex d I Mb
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db IP66

On the small equipments, the marking can be reduced:

RIBCO-I
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
(Year of construction)
INERIS 14ATEX0029X
Ⓔx I M2 Ⓔx II 2 GD
Ex d/e/tb
IP66

Marking may be carried out in the language of the country of use.

The protective system or equipment has also to carry the marking normally stipulated by its construction standards.

b) Marking for units in aluminum

RIBCO
20061 Carugate (MI)-ITALY
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
INERIS 14ATEX0029X
(Year of construction)
Ⓔx II 2 GD
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db IP66

On the small equipments, the marking can be reduced:

RIBCO-I
RE****** or RE******* or PL**** or NP*** or EM*** or ELF***
(Year of construction)
INERIS 14ATEX0029X
Ⓔx II 2 GD
Ex d/e/tb
IP66

Marking may be carried out in the language of the country of use.

The protective system or equipment has also to carry the marking normally stipulated by its construction standards.

ROUTINE EXAMINATIONS AND TESTS

None.

(16) DESCRIPTIVE DOCUMENTS

The descriptive document quoted hereafter constitutes the technical documentation of the equipment, subject of this certificate.

- Certification File DC-FIT-00 Rev.0 (12 items) signed on 2014.03.10

(17) SPECIAL CONDITIONS FOR SAFE USE

Operating temperature of the fitting units:

-40°C to +100°C with EPDM O-ring;

-60°C to +180°C with silicone O-ring.

(18) ESSENTIAL SAFETY AND HEALTH REQUIREMENTS

The respect of the Essential Health and Safety Requirements is ensured by:

- Conformity to the standards quoted in clause (9).
- All provisions adopted by the manufacturer and defined in the descriptive documents.

TÜV SÜD ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

(1) # EU-Type Examination Certificate

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

TPS 19 ATEX 105708 0001 X Rev. 00

(4) Equipment or Protective System: Stopping plugs - Type: BHL M25, BHL 3/4NPT

(5) Manufacturer: Shenzhen Zhongli Hardware Products Co., Ltd.

(6) Address: Building 1, Hehe Science and technology Park, Daxing Community, Fucheng Street, Longhua District, 518109 Shenzhen, PEOPLE'S REPUBLIC OF CHINA

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) TÜV SÜD Product Service GmbH, Notified Body no. 0123, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports with no. 64.105.19.01091.01

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	**EN 60079-1:2014**
EN 60079-7:2015+A1:2018	**EN 60079-31:2014**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2GD Ex db IIC Gb Ex eb IIC Gb
Ex tb IIIC Db

Certification Body, München, 13.01.2020

Ing. Kristof De Gersem, MSc.

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 München • Germany

A4 / 07.17

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT
TÜV SÜD

(13) **Schedule**

(14) **EU-Type Examination Certificate no.**

TPS 19 ATEX 105708 0001 X Rev. 00

Product Service

Certificate History

Revision:	Description:	Report no.:	Issue Date:
Rev. 00	First issue of certificate.	64.105.19.01091.01	13.01.2020

(15) Description of equipment:

The stopping plugs comprise a cylindrical body with an external male thread along its length. BHL M25 has M thread and BHL 3/4NPT has NPT thread. The body material of them are SUS316L. BHL M25 with an "O" ring seal but BHL 3/4NPT without.

The stopping plugs are designed for use in explosive atmospheres classified as Gas Zone 1 and Zone 2 and as Dust Zone 21 and Zone 22.

The M and NPT thread forms are in explosion protection type "d", "e" and "t".

See the instruction manual for further details.

Model designation:

BHL M25, BHL 3/4NPT

Model difference:

Type	Metric	NPT
BHL M25	M25	-
BHL 3/4NPT	-	¾ NPT

Technical data:

Service temperature (Ts)	-60°C≤Ts≤180°C
Degree of protection by enclosure	IP64*, IP66**, IP68**

* IP64 is tested according to EN/IEC 60079-0.
** IPX6 and IPX8 are tested according to EN/IEC 60529; IPX8: 1m, 24h.

Warning label:

N/A

Installation instruction:

See installation instructions provided by the manufacturer and part of this certification.

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 München • Germany

A4 / 07.17

TÜV®

(13) **Schedule**

(14) **EU-Type Examination Certificate no.**

TPS 19 ATEX 105708 0001 X Rev. 00

Product Service

See also (17) Special conditions for safe use.

(16) Test report(s): 64.105.19.01091.01

Routine tests:

N/A

Document List:

File no.:	Description:	Pages:	Rev:	Date:
20191006M-01	BHL M25 drawing	1	A/0	2019-11-25
20191006F-01	BHL 3/4NPT drawing	1	A/0	2019-11-25
BC0601A	BHL M25 Instruction manual	1	00	2019-11-25
BC0601B	BHL 3/4NPT Instruction manual	1	00	2019-11-25

A copy of the full documentation is kept confidentially at TÜV SÜD.

(17) Special conditions for safe use:

1. The equipment shall be installed according to the instruction manual provided by manufacturer.
2. Service temperature: -60°C to 180°C.
3. To maintain the IP64 requirement according to EN/IEC 60079-0, BHL M25 and BHL 3/4NPT shall be made wrench tight. BHL M25 requires at least 5 threads engaged and shall be installed perpendicular to the mounting face and with a groove for sealing ring, ensuring that the sealing ring is evenly compressed against the mounting face. BHL 3/4NPT shall be made up wrench-tight and at least 3 ½ threads engaged.
4. To maintain the flameproof properties, BHL M25 shall be made wrench tight and requires at least 5 threads engaged. BHL 3/4NPT shall be made wrench tight and the threads length engaged shall be not less as the "L2" dimension according ANSI/ASME B1.20.1. When this cannot be realised at the final installation, the stopping plugs cannot be used for "Ex db" applications.

(18) Essential health and safety requirements:

Assured by compliance with standards set out in (9).

Certificates without signature shall not be valid. The Certificates may only be circulated in full including its schedule(s). Extracts or alterations are subject to approval by TÜV SÜD Product Service GmbH. In case of dispute, the German text shall prevail. The document is administrated under the following number: EX5A 105708 0001 Rev. 00

Doc. Name: Temp-ExNBG-TPS-EU-Type-Cert-Rev. 04

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 München • Germany

72/137 TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT
TÜV SÜD

ITEM	Tag	950-GDZ-01101 : H2 GD FZ-01 Fuel Cell PK Area		Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)		Module	UD
TASK	code	C10001512	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		ARTA-1680			
Manufacturer	Dräger			**Model**		Polytron® 8900 UGLD (Sensor ETR 0521)			
Cert No.	PTB 11 ATEX 1005X (TR)			**Equipment Ambient Temp.**		-40 °C to 70 °C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db [ia Ga]	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T4	**IP Rating**	IP65/66/67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state “NA”. Comments are required for ‘Failure’ column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	OK	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		PL	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex “e” – Ex “n” – Ex “t”)	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	NA	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-GDZ-01101	: H2 GD FZ-01 Fuel Cell PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001512		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		PL	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	Note	See PL C30002156
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	OK	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	OK	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	NA	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-GDZ-01101	: H2 GD FZ-01 Fuel Cell PK Area		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001512	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

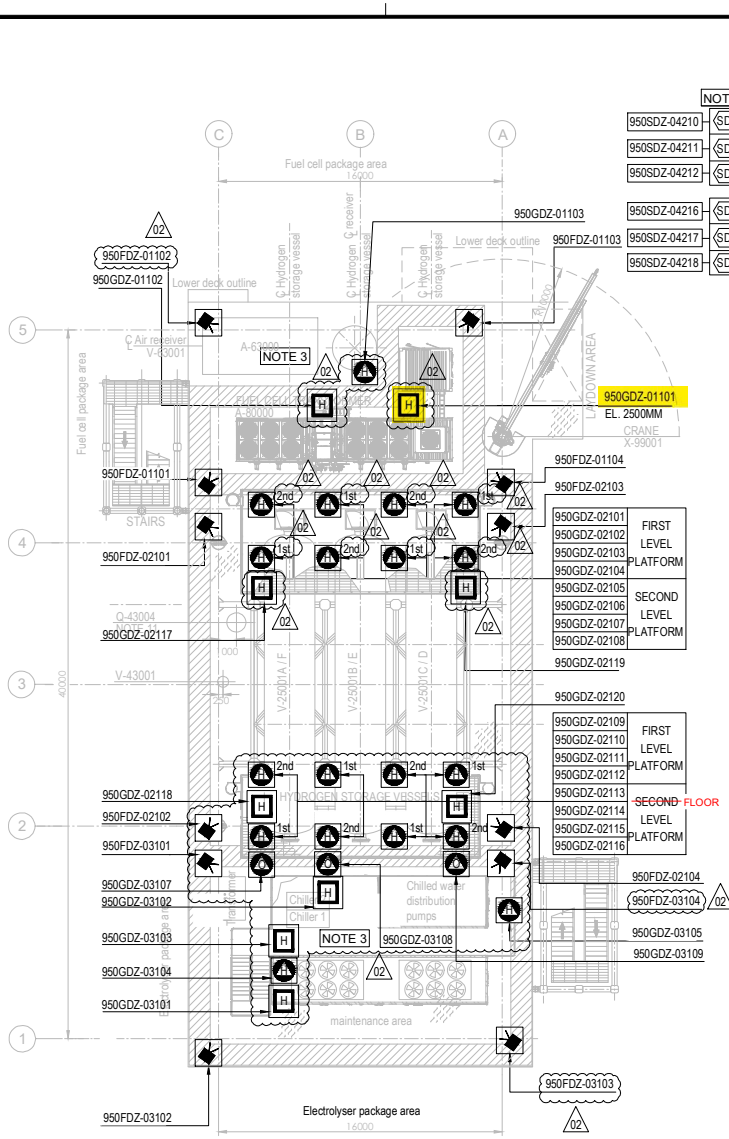
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

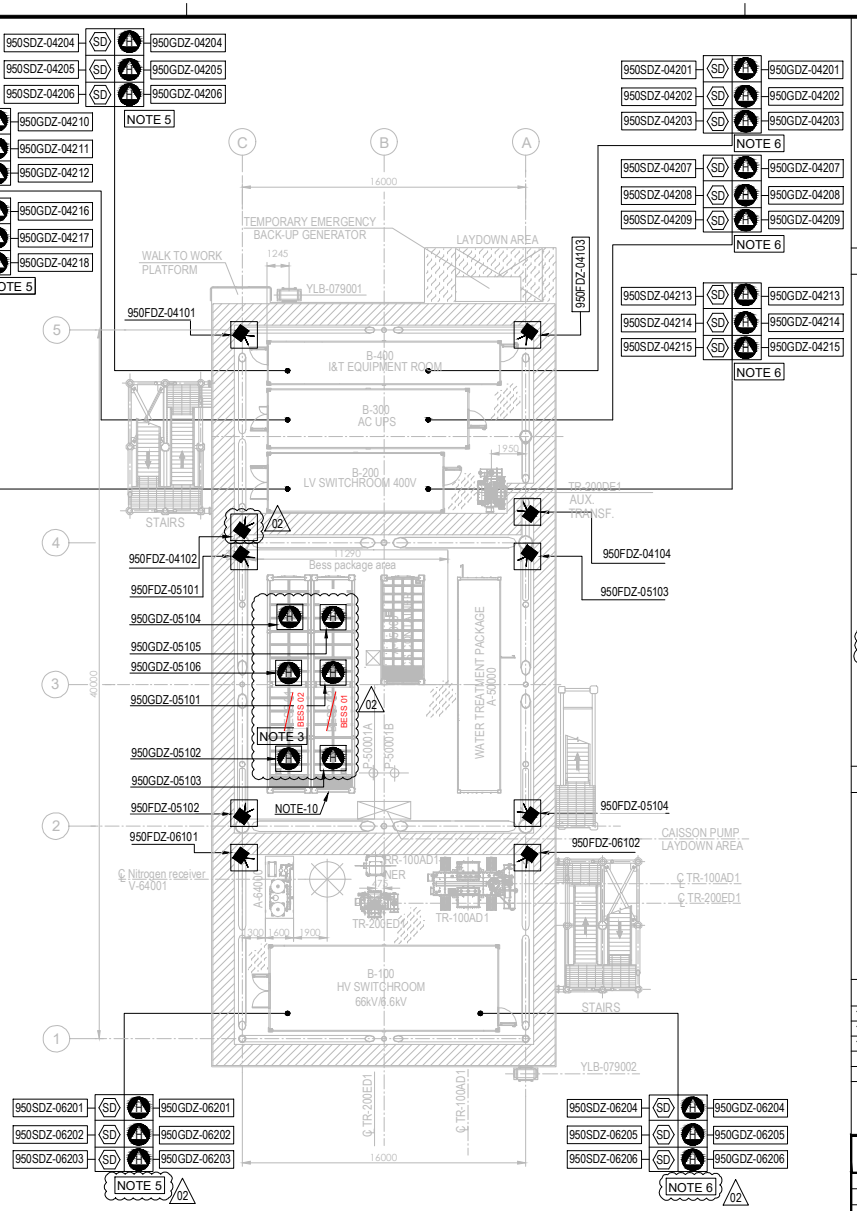
Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-11	2024-12-30	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:16:50.474Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-30T16:06:39.212Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

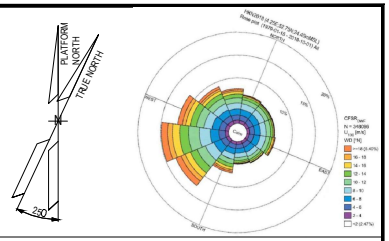
REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

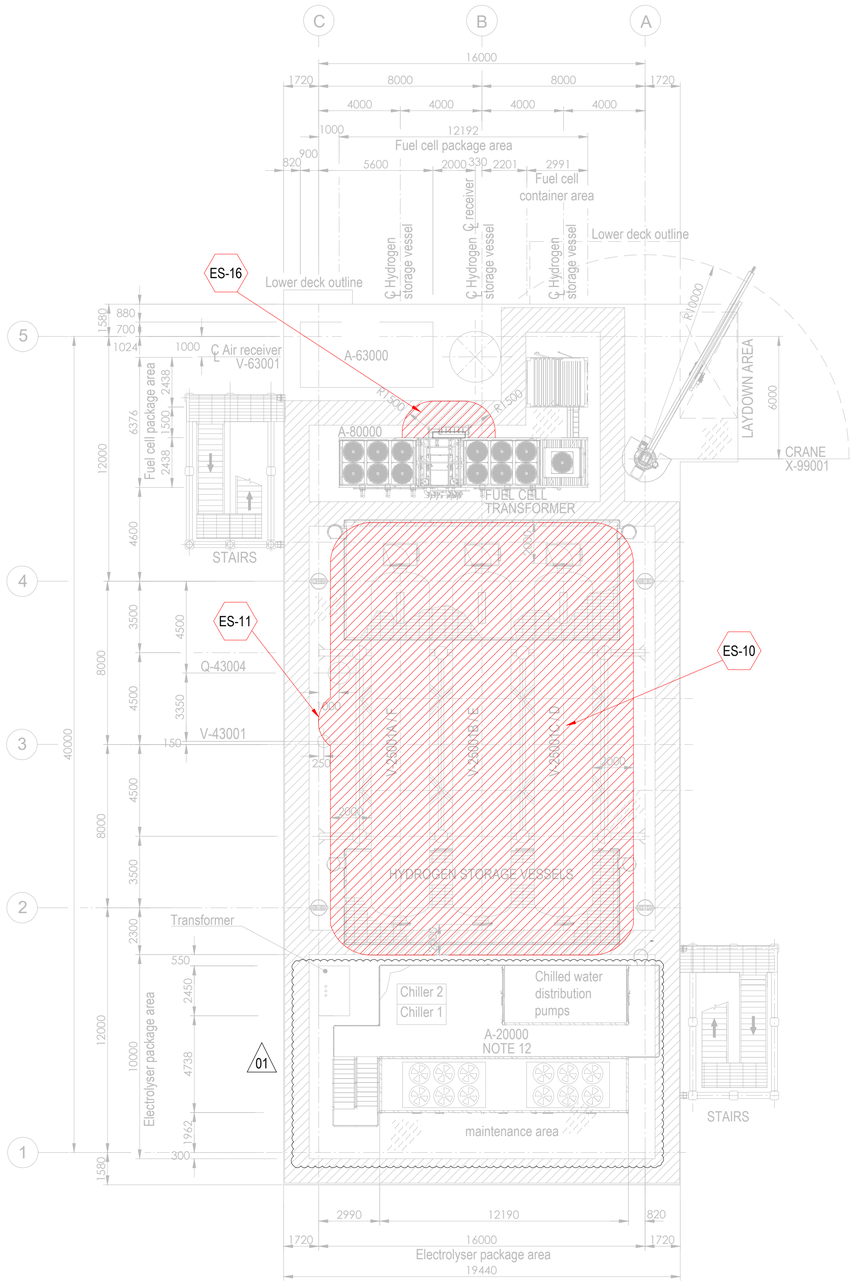
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

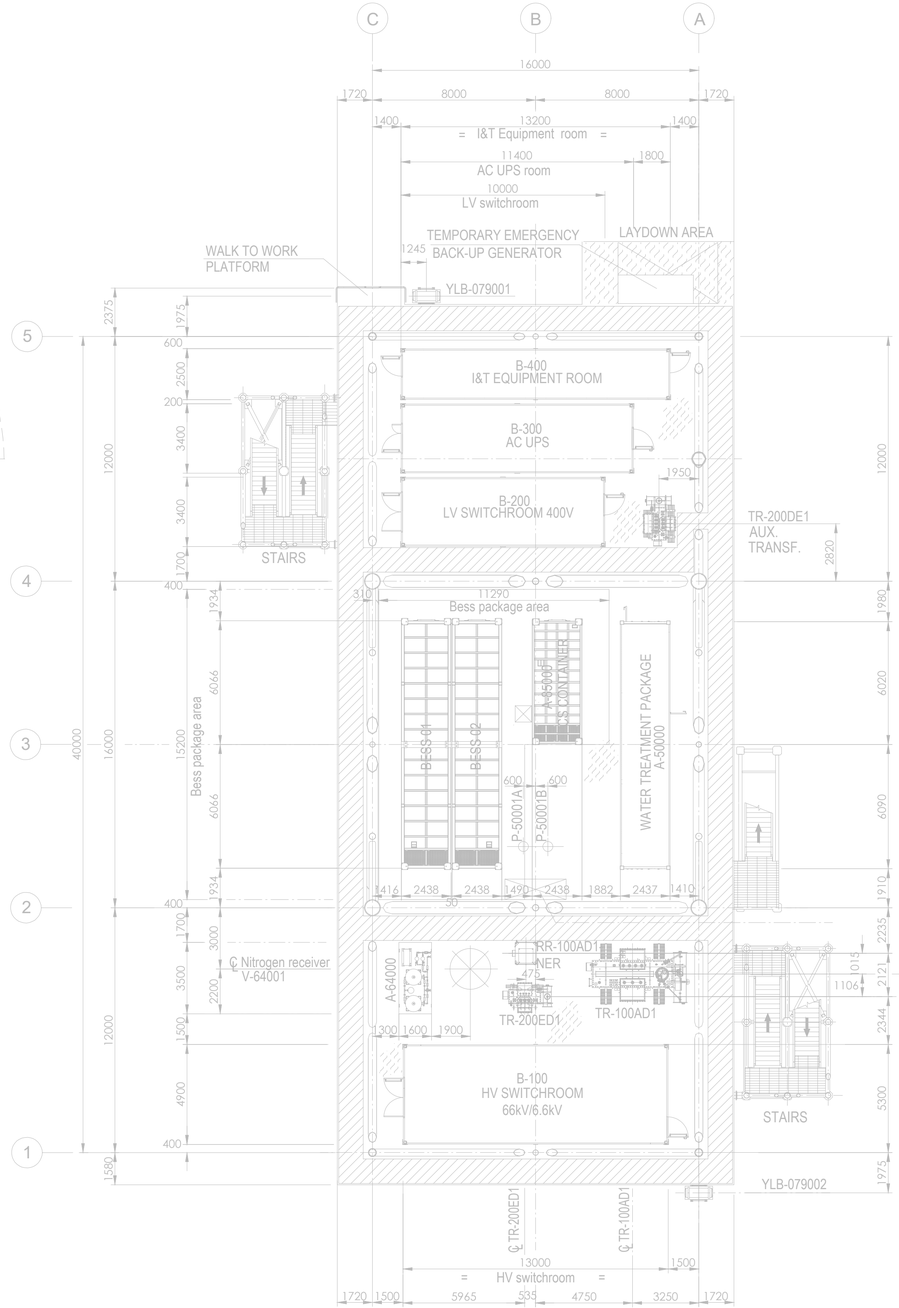
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



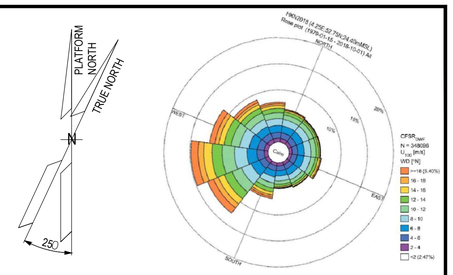
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

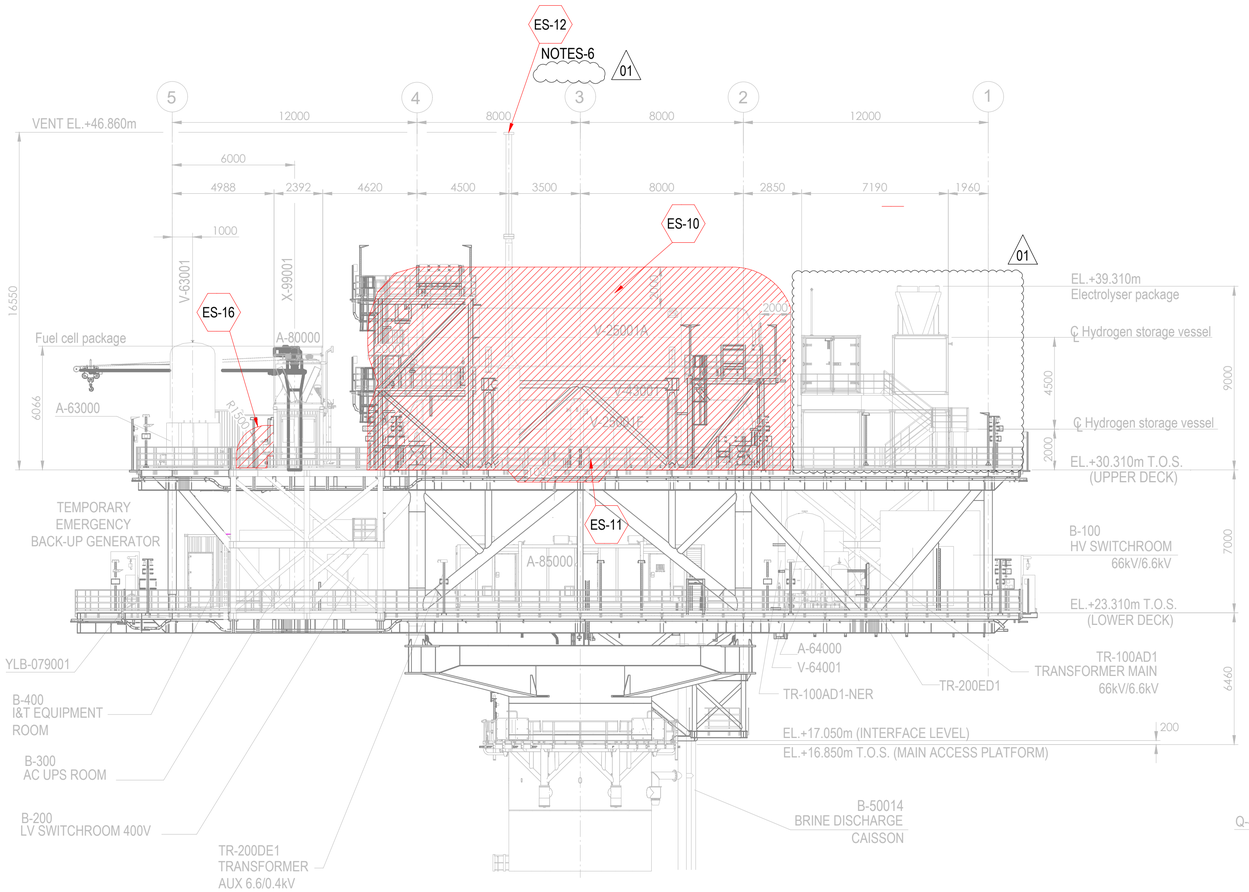
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

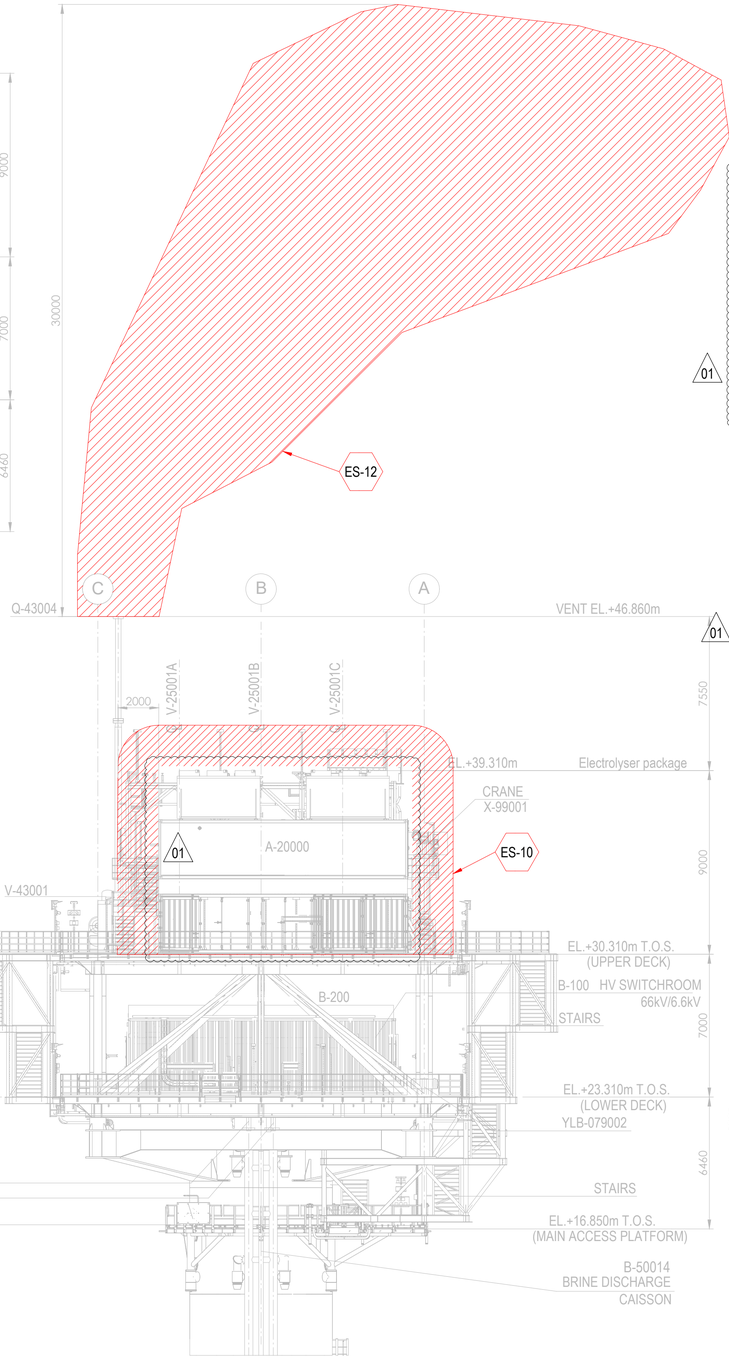
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



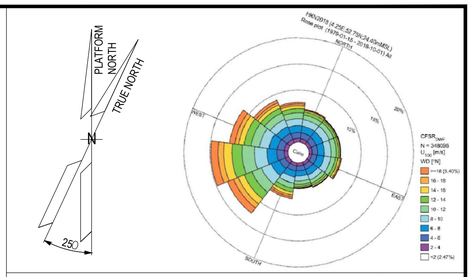
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

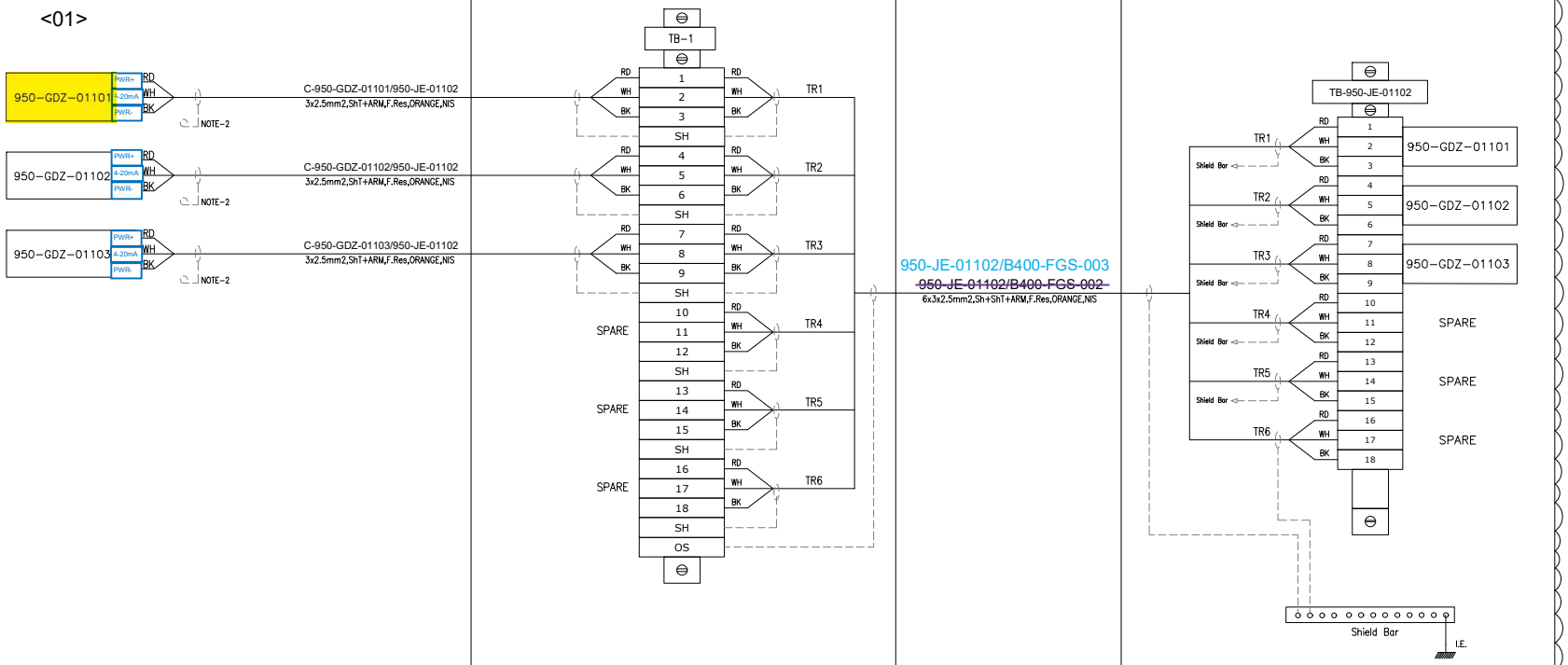
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 031	REV. 01

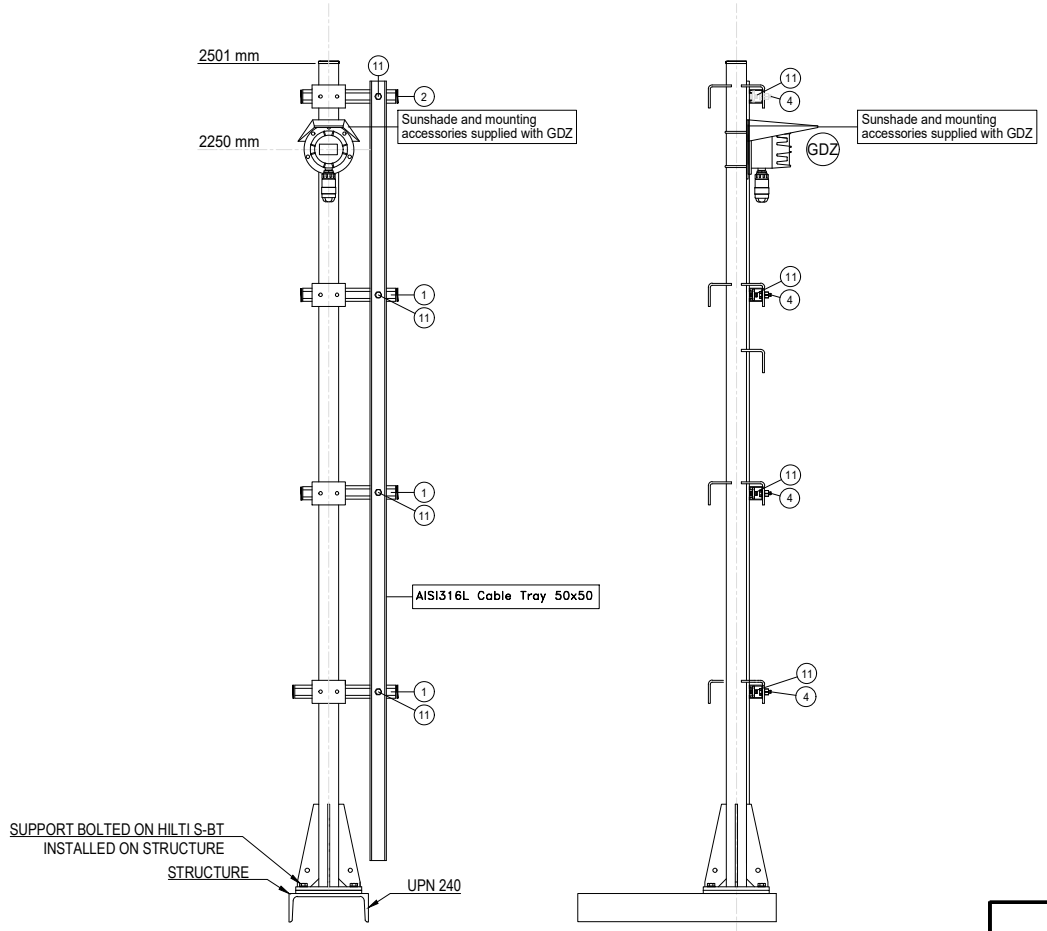
File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-12

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	2m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	10
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	6



POLE	ITEM	DESCRIPTION	TAGNAME
1	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02119
2	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02120
3	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01101
4	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01102
5	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01103
6	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03101
7	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03103

1

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DD-40017

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

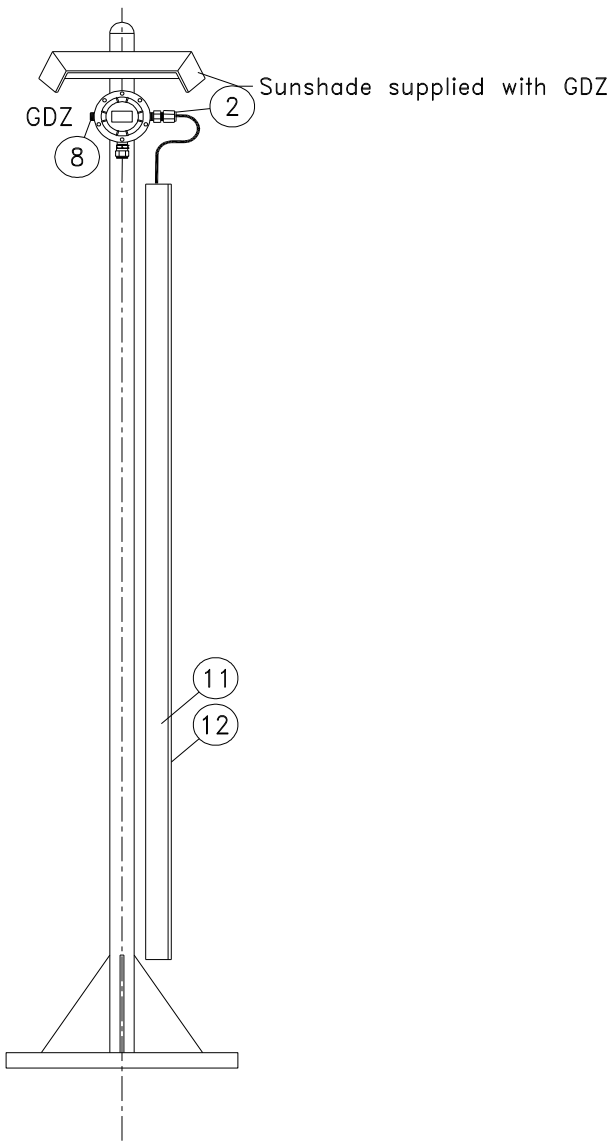
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 031	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-GDZ-02101
2	950-GDZ-02102
3	950-GDZ-02103
4	950-GDZ-02104
5	950-GDZ-02105
6	950-GDZ-02106
7	950-GDZ-02107
8	950-GDZ-02108
9	950-GDZ-02111
10	950-GDZ-03104
11	950-GDZ-03105
12	950-GDZ-03106
13	950-GDZ-03107
14	~~950-GDZ-03108~~ 950-GDZ-03102
15	950-GDZ-03109
16	950-GDZ-02117
17	950-GDZ-02119
18	950-GDZ-02120
19	950-GDZ-01101
20	950-GDZ-01102
21	950-GDZ-01103
22	950-GDZ-03101
23	950-GDZ-03103

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
8		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M20	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	1

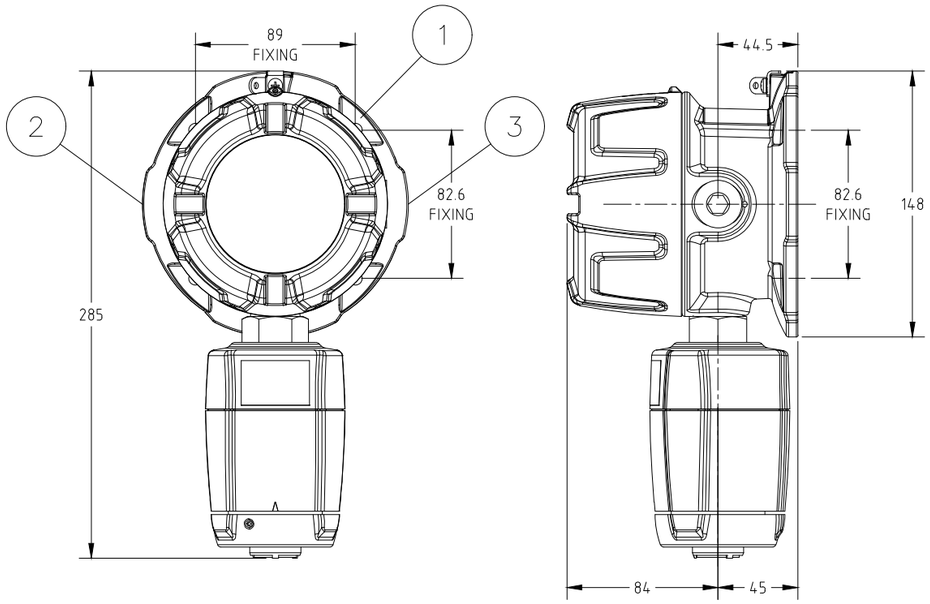
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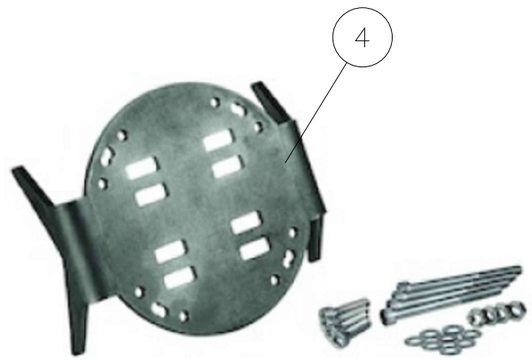
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING

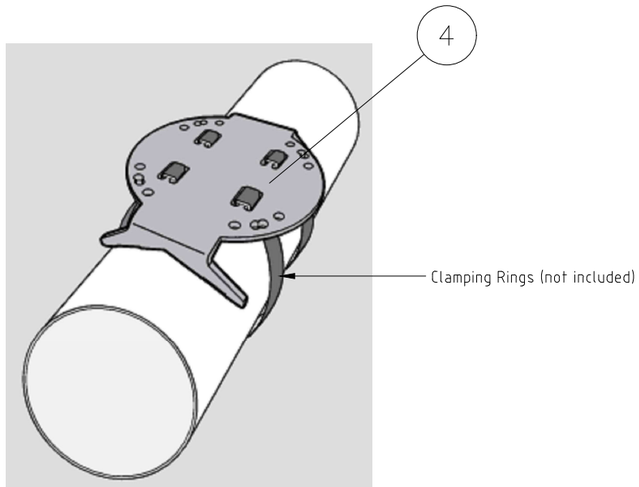
ITEM	DESCRIPTIONS	NR
1	Hydrogen Ultrasonic Leak Detector, DRÄGER Polytron 8900 UGLD d S 4-20/HART Relay	1
2	Reducer 3/4" NPT - M20 Ex d AISI 316	2
3	3/4" plug Ex d AISI 316	1
4	Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER	1
5	Sun and weather protection kit Polytron, DRÄGER	1
6	Stainless Steel Name Plate	1
7		
8		
9		
10		

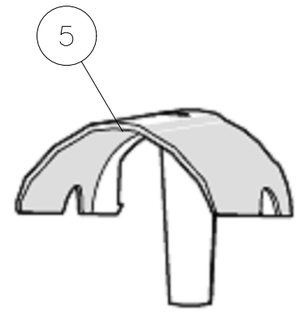
INSTALLATION QUANTITY

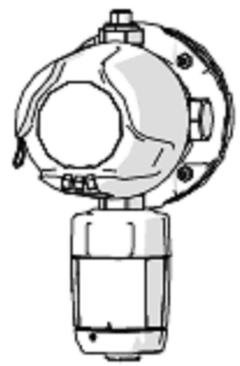
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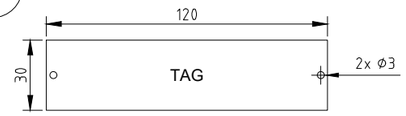






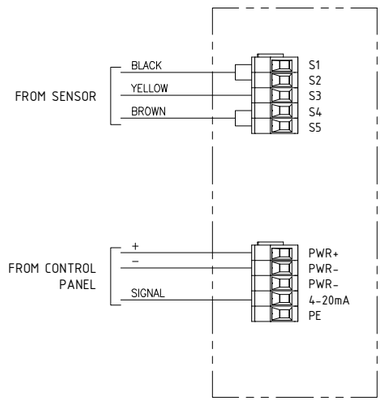
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STAINLESS STEEL
NAME PLATE DETAILS



NOTE 5

WIRING



FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	009	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-GDZ-01101
2	950-GDZ-01102
3	950-GDZ-02117
4	950-GDZ-02118
5	950-GKDZ-02119
6	950-GDZ-02120
7	950-GDZ-03101
8	950-GDZ-03102
9	950-GDZ-03103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 010

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

HYDROGEN ULTRASONIC LEAK DETECTORS

POS.	TAG NUMBER	SERVICE
1	950-GDZ-01101	H2 GD FZ-01 FUEL CELL PK AREA
2	950-GDZ-01102	H2 GD FZ-01 FUEL CELL PK AREA
3	950-GDZ-02117	H2 GD FZ-02 H2 STORAGE VESSELS AREA
4	950-GDZ-02118	H2 GD FZ-02 H2 STORAGE VESSELS AREA
5	950-GKDZ-02119	H2 GD FZ-02 H2 STORAGE VESSELS AREA
6	950-GDZ-02120	H2 GD FZ-02 H2 STORAGE VESSELS AREA
7	950-GDZ-03101	H2 GD FZ-03 ELECTROLYZER PK AREA
8	950-GDZ-03102	H2 GD FZ-03 ELECTROLYZER PK AREA
9	950-GDZ-03103	H2 GD FZ-03 ELECTROLYZER PK AREA

File: 1724000821-IN-DS-00004-02.xlsx
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Dräger Polytron® 8900 UGLD
Ultrasonic Gas Leak Detector

The Dräger Polytron® 8900 UGLD transmitter is an early warning area monitor for detecting high-pressure gas leaks in outdoor industrial process environments. Thanks to an ultrasonic acoustic sensor, it responds earlier than conventional gas detectors because it registers the sound of leaking gas instead of measuring the concentration of accumulated gas clouds. As gas escapes, leaks are immediately detected in the surrounding area, regardless of the wind direction.



Dräger. Technology for Life®

Benefits

Ultrasonic sensor technology – the early warning system for gas leaks

Typical gas detection systems used to monitor pressurised gas pipes or containers in industrial environments only detect a gas leak if the gas is in the immediate vicinity of the gas sensor. Environmental influences such as wind can delay or prevent a gas cloud from being detected by gas sensors. On the contrary, the Dräger Polytron 8900 UGLD is not affected by environmental factors and detects a high-pressure gas leak as soon as gas escapes. Effective early gas leak warnings can prevent unnecessary shutdowns, saving time and money.

A perfect complement to your gas detection system

The Dräger Polytron 8900 extends the Polytron 8000 series family with acoustic gas leak detection. All transmitters in this series have the same design and an identical user interface. A common user interface ensures that little training or maintenance is required for existing users. The Polytron 8900 UGLD perfectly complements existing flame and gas detection systems with reliable early gas leak warnings.

Delivers results that are easy to understand

For easy interpretation of results, the measured values on the display of the Polytron 8900 UGLD are shown from 0 to 100 percent of the full scale decibel sensitivity range. The ultrasound level is immediately displayed and transmitted without the use of difficult to interpret artificial intelligence. Alarms are configured at a specific level above a predetermined background noise level. Additionally, a time delay of up to 30 seconds can be set in the control system.

Can even detect gas leaks in loud industrial environments

Loud process areas generate noise which is mostly in the audible spectrum. Gas leaks from pressurized vessels above 10 bar generate both audible sound and inaudible ultrasound. Since Polytron 8900 is tuned to measure in the ultrasound spectrum, it can easily identify gas leaks with a leak rate of 100 g/sec in a 65 ft radius circle.

Robust design and fully-sealed sensor

The Polytron 8900 UGLD is an explosion-proof transmitter with a sensor housed in a galvanically-isolated, intrinsically-safe enclosure. The sensor is an ultrasonic microphone that is completely sealed in PVCC, making it impervious to water and dirt. It provides reliable readings without the need for an additional environmental protection baffle. Regular calibration is not necessary, but unlike some other UGLDs on the market, calibration is possible and easy. The expected lifespan of the ultrasonic sensor is more than 10 years.

Technical Data

Dräger Polytron® 8900 UGLD			
Type	Explosion proof / flameproof enclosed transmitter (“d”) or combined with increased safety (“d/e”)		
Gases	Flammable and toxic gases such as hydrogen, methane, ethylene, propane, CO_2, nitrogen and hydrogen sulphide		
Measurement ranges	0-100% equivalent to 55-110 dB; typical alarm setting 10% UGLD signal above background		
Display	Back-lit graphic LCD display; 3 status LEDs (green/yellow/red)		
Sensor Type	PVCC coated piezoelectric microphone with built-in automatic self-test sound generator		
Sensor Performance	Response Time	< 3 sec.	
	Minimum Pressure	> 2 bar (29 psi) Methane	
	Coverage Radius	6.5ft -65 ft depending on gas type, leak rate and background noise	
	Frequency Range	18 kHz - 80 kHz	
Electrical data	Analogue signal output	Normal operation	4 to 20 mA
		Maintenance	Constant 3.4 mA or
			4 mA ±1 mA
			1 Hz modulation; (adjustable)
		Fault	< 1,2 mA
	Digital signal output	HART®	
	Power supply	10 to 30 V DC, 3-wire	
	Power consumption	w/ relay, remote	100 mA at 24 V
	Relay specification	Two alarm relays and one error relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	

Environmental conditions (See sensor data sheet)	Temperature	-40 to 70°C (-40 to 158°F) with relays
	Pressure	700 to 1,300 mbar
	Humidity	0 to 100 % relative humidity
Housing	Transmitter housing	Stainless steel SS316L
	Sensor housing	Polyamide 6
	Housing protection type	NEMA 4X & 7, IP65/66/67
	Cable entry	Three ¾" NPT thread openings or M20 cable gland
	Dimensions (H × W × D)	11.02" x 5.90" x 5.12" inches
	Weight, approx.	11 lbs
Approvals	UL	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4
	CSA*	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4
	IECEx	Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40/ +70°C; “e” version;
	ATEX	II 2G Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C II 2G Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version
	CE Markings	ATEX (Directive 2014/34/EU) Electromagnetic compatibility (Directive 2014/30/EU) Low voltage (Directive 2014/35/EU)
	Marine approval*	DNV-GL

Technical Data

	SIL 2	Certificate TÜV Süd

* Pending

Ordering Information

Dräger Polytron® 8900 UGLD	Approval code	Part number
Polytron® 8900 UGLD d S 4-20/HART® Relay Stainless Steel Ex d Housing with 4-20mA HART® output and 3 Relays	ETR 0521	83 28 030

Accessories		Part number
Magnetic Wand		45 44 101
Remote Sensing Head with wall mount kit		83 28 021
Connecting cable with plug for the Remote Sensing Head	5 m	83 23 305
	15 m	83 23 315
	30 m	83 23 330
UGLD Calibration and Bump Test Kit w/o Air Cylinder		83 28 042
Zero Air Gas Cylinder 103L for Calibration and Bump Test Kit		45 10 058
Pole Mount Kit		45 44 198
Polysoft Basic (one year license)		83 28 600
Polysoft Basic (Subscription – yearly fee)		83 28 601
IR Connection Kit (requires PolySoft)		45 44 197

HART® is a registered trademark of the HART Communication Foundation.

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
950-FDZ-03104	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04101	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04102	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04103	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04104	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05101	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05102	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05103	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05104	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06101	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06102	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	1544	FlameSpec FLS-FSIM-UV/IR-KIT	Zone 2	ICQC 20 ATEX 0447X	1724000821-IN-DS-00004	II 2GD Ex db ib op is IIC T6 Gb	-	N/A	True	N/A	True	
950-FDZ-06103	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	FGD	-	FlameSpec FLS-UV-IR-AS11	Zone 2	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-IN-DS-00004	II 2GD Ex db eb IIC T5 Gb	-	N/A	True	N/A	True	
950-GDZ-01101	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1680	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01102	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1685	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01103	FZ-01 H2 detect. in fuel cell package area	UPPER DECK	1724000821	Fores	Dräger	ARTB-0194	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-IN-DS-00004	II 2G Ex db IIC T6/T4 Gb	-	N/A	True	N/A	True	
950-GDZ-02101	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2193	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02102	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2196	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02103	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2197	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02104	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTB-1620	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02105	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2185	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02106	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2201	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02107	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2206	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02108	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2198	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02109	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2203	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02110	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2204	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 11 ATEX 1005 X **Issue: 4**

(4) Product: Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01**

(5) Manufacturer: Dräger Safety AG & Co. KGaA

(6) Address: Revalstraße 1, 23560 Lübeck, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 22-21212.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018+AC:2020, EN 60079-1:2014+AC:2018,
EN IEC 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex db IIC T6...T4 Gb	**bzw.**
II 2 G Ex db ia IIC T6...T4 Gb	**bzw.**
II 2 G Ex db eb IIC T6...T4 Gb	**bzw.**
II 2 D Ex tb IIIC T80°C...T130°C Db	**bzw.**
II 2 G Ex db eb ia IIC T6...T4 Gb	**bzw.**

ZSEx001e c

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

Ex	**II 2 (1) G Ex db [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) D Ex tb [ia Da] IIIC T135°C Db**	

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, December 14, 2022
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

ZSEx001e c

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 11 ATEX 1005 X, Issue: 4**

(15) Description of Product

The Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01** consist of three different types of sensor and interfaces. The Gas detection transmitter type ETR 0*** uses the electrochemical sensing principle or an ultrasonic sensor with an electrochemical sensor interface, the Gas detection transmitter type ITR 0*** uses the infrared sensing principle and the Gas detection transmitter type XTR 0*** uses the catalytic sensing principle or infrared sensing principle with a catalytic sensor interface. The Gas detection transmitter type RCU 0*** shall only be used with separate certified sensors. The sensor frontend (EC sensing head) of the ETR 0*** series comprises a galvanically separating barrier circuit (inside the flameproof enclosure) and intrinsically safe electronics located out-side the flameproof enclosure as well as an electro-chemical sensor or ultrasonic sensor - all of them being covered by this certificate. The sensors of the ITR 0*** and XTR 0*** series are covered by separate certifications, which are accepted under this certificate.

The internal electronic covers the intrinsically safe fieldbus under consideration of the maximum FISCO input ratings applicable for the operation as both FISCO Field device or alternatively non-intrinsically safe fieldbus PA/FF.

Type code:

***TR 0** * * *
1 2 3 4

1: Sensing principle / sensors
- E = electrochemical
- I = infrared
- X = catalytic

2: Series and enclosure material
- 2 = 02/03 series, aluminium enclosure
- 3 = 02/03 series, stainless steel enclosure
- 4 = 04/05 series, aluminium enclosure
- 5 = 04/05 series, stainless steel enclosure

3: Sensors

ITR 0 * * *

3: Sensors
- 0 = IDS 0001
- 1 = IDS 0101

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2 = IDS 0102
5 = IDS 0105

ETR 0 * * *
3: Sensors
0 = DrägerSensor or DrägerSensor XS with adapter *or DrägerSensor with Gas Generator type EDS 03***
2 = Ultraschall Sensor

XTR 0 * * *
3: Sensors
0 = IDS 0002
1 = XDS 020*
2 = Ex-Sensor LC NPT

4: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	"d", Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

Type code for Junction Box, type EAC 01 (Remote Sensor)**

EAC 01 * *
1 2

1: Enclosure Material
0 = Aluminum
1 = Stainless Steel
2: Features not relevant for the type of protection

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Type code for Remote Box, type RCU 0*

RCU 0 * * *
1 2 3

1: Enclosure Material
2 = Aluminum
3 = Stainless Steel
2: Features not relevant for the types of protection

3: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	“d”, Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

The relation between ambient temperature and the assigned temperature class is as follows:

Type	Ambient temperature range	Temperature class (Gas)	Temperature class (dust)
ITR 0*0* RCU 0*** XTR 0*0*	-40 °C to +65 °C	T4	T130°C
All other versions	-40 °C to +80 °C	T4	T130°C
All versions	-40 °C to +40 °C	T6	T80°C
ETR 02/032* ETR 04/052*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +40 °C	T6	T135°C

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Electrical Ratings:

Maximum supply wattage: P_{max}: 5 W

Supply:

ETR 02/03** series	10...30 VDC, 0.08...0.15 A
ITR 02/03** series	10...30 VDC, 0.1...0.75 A
XTR 02/03** series	10...30 VDC, 0.1...0.2 A
ETR 04/05** series	10...30 VDC, 0.1...0.35 A
ITR 04/05** series	10...30 VDC, 0.3...1.0 A
RCU 02/03** series	10...30 VDC, 0.3...1.0 A
XTR 04/05** series	10...30 VDC, 0.15...0.45 A
Relay	5A, 30 VDC or 230 VAC

Fieldbus circuit:
Field device as Fieldbus system in type of protection Intrinsic Safety Ex ia IIC; FISCO in acc. of IEC 60079-11, using only for the interface type A; B; E; F; S; T; W and X
or
Field device as Fieldbus system (non-intrinsically safe) using only for the interface type 2 and K
Electrical data: Maximum values:

Model	Voltage, Ui [VDC]	Current, Ii [mA]	Power, Pi [mW]
ETR 04*(*) ETR 05*(*) ITR 04*(*) ITR 05*(*) RCU 02*(*) RCU 03*(*) XTR 04*(*) XTR 05*(*)	17.5	380	5320

For the Gas detection transmitters series ETR ****
Sensor circuit: in type of protection Intrinsic safety Ex ia IIC / IIIC;
only for connecting Dräger Sensor or XS with adapter or
ultrasonic sensor or DraegerSensor with electrochemical sensor
type EDS 03**

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

(16) Test Report PTB Ex22-21212

(17) Specific conditions of use

The circuits are limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1 for FISCO field device operation.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

Braunschweig, December 14, 2022

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ITEM	Tag	950-GDZ-01102	: H2 GD FZ-01 Fuel Cell PK Area	Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD
TASK	code	C10001513	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		ARTA-1685			
Manufacturer	Dräger			**Model**		Polytron® 8900 UGLD d S 4- 20/HART (XTR 0510)			
Cert No.	PTB 11 ATEX 1005X			**Equipment Ambient Temp.**		-40 °C to 40 °C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T6	**IP Rating**	IP65/66/67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	OK	
6	Equipment circuit identification is available	x	OK	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	NA	
8	There is no damage or unauthorized modifications	x	OK	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		PL	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	NA	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	OK	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-GDZ-01102	: H2 GD FZ-01 Fuel Cell PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001513		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		PL	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	Note	See PL C30002174 & C30002175
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	OK	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	OK	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	PL	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ROSETTI MARINO PROVERLIS CROSSWIND

ITEM	Tag	950-GDZ-01102	: H2 GD FZ-01 Fuel Cell PK Area	Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD
TASK	code	C10001513	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity: CCK / Discipline: ATEX / Form: CJX01		Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	Manufacturer:	NA	Model:	NA		
		Authority:	NA	Cert No:	NA	Type:	NA

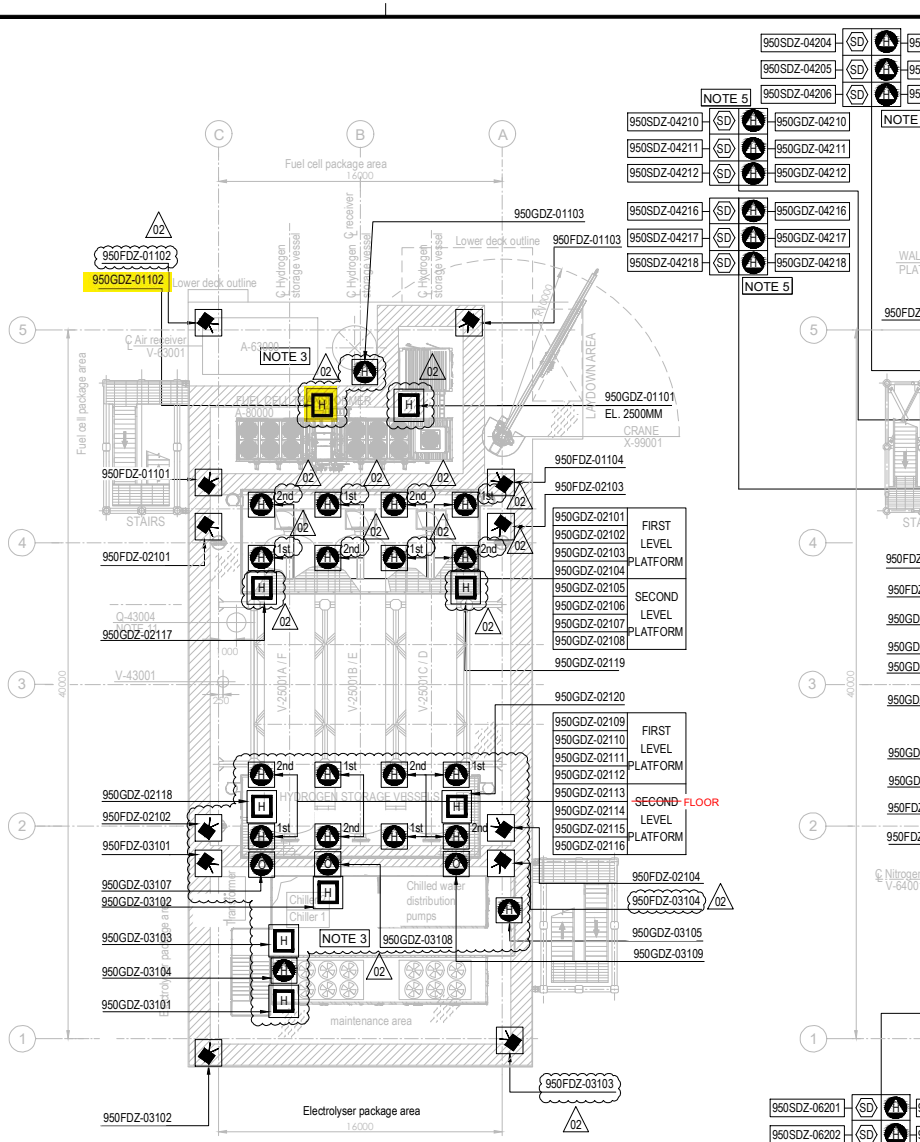
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	Passed - Complete
	Failed

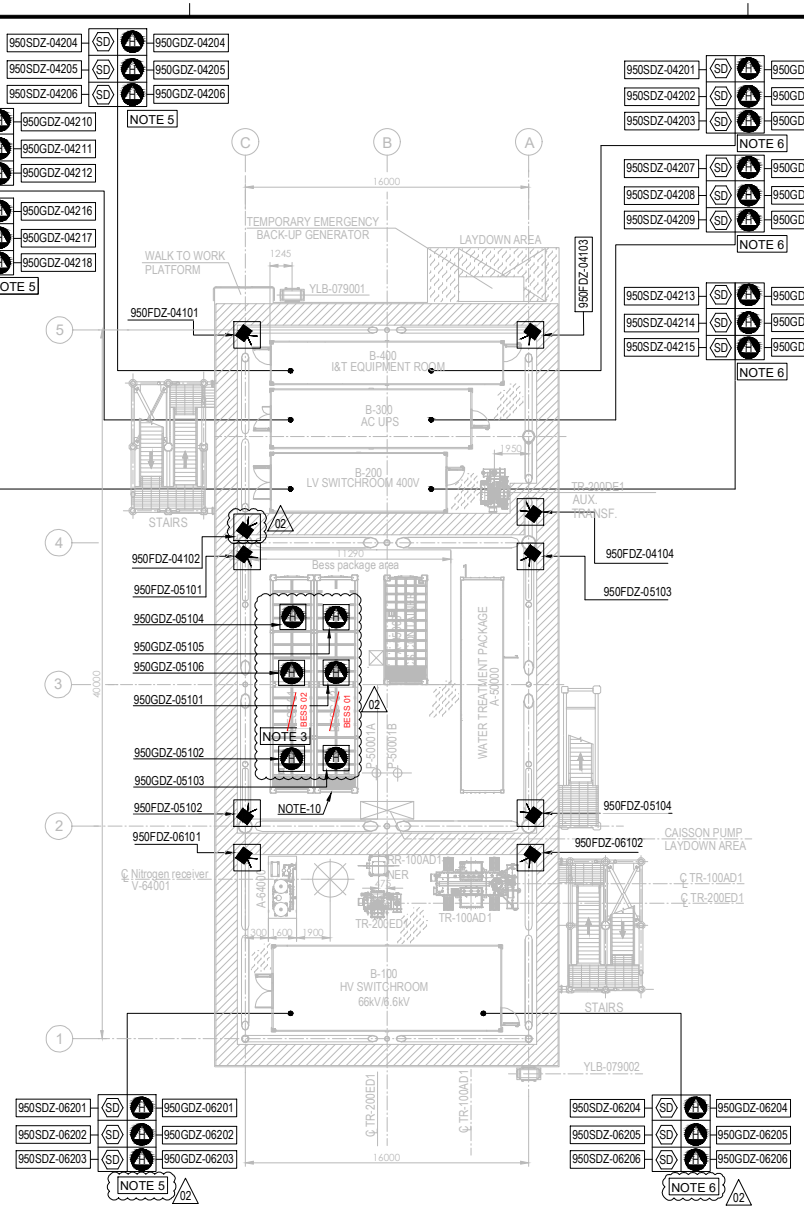
Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-11	2024-12-30	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-11T15:17:05.192Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-30T16:29:35.935Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

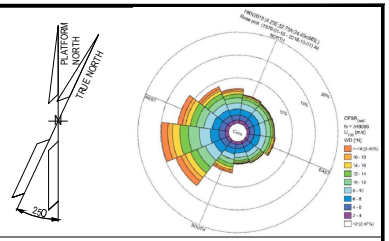


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

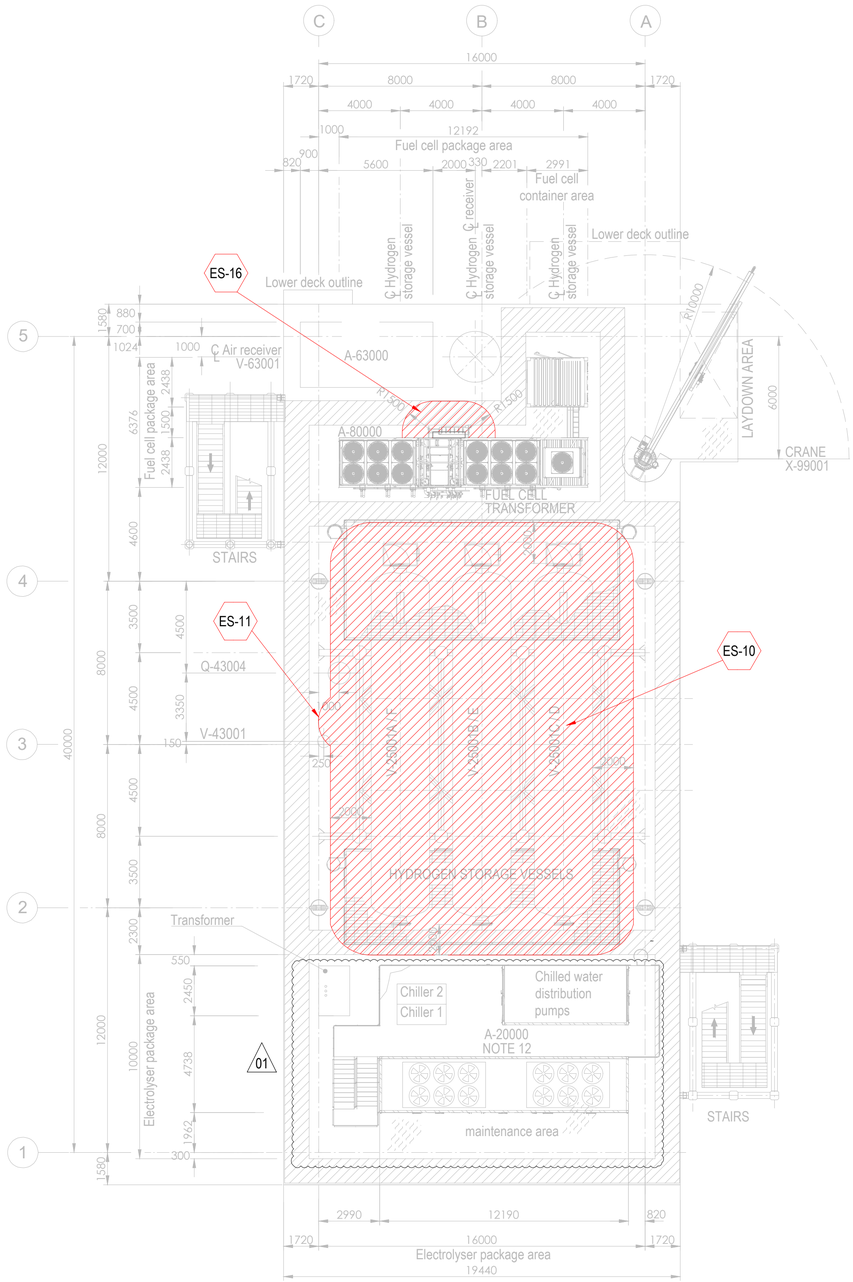
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

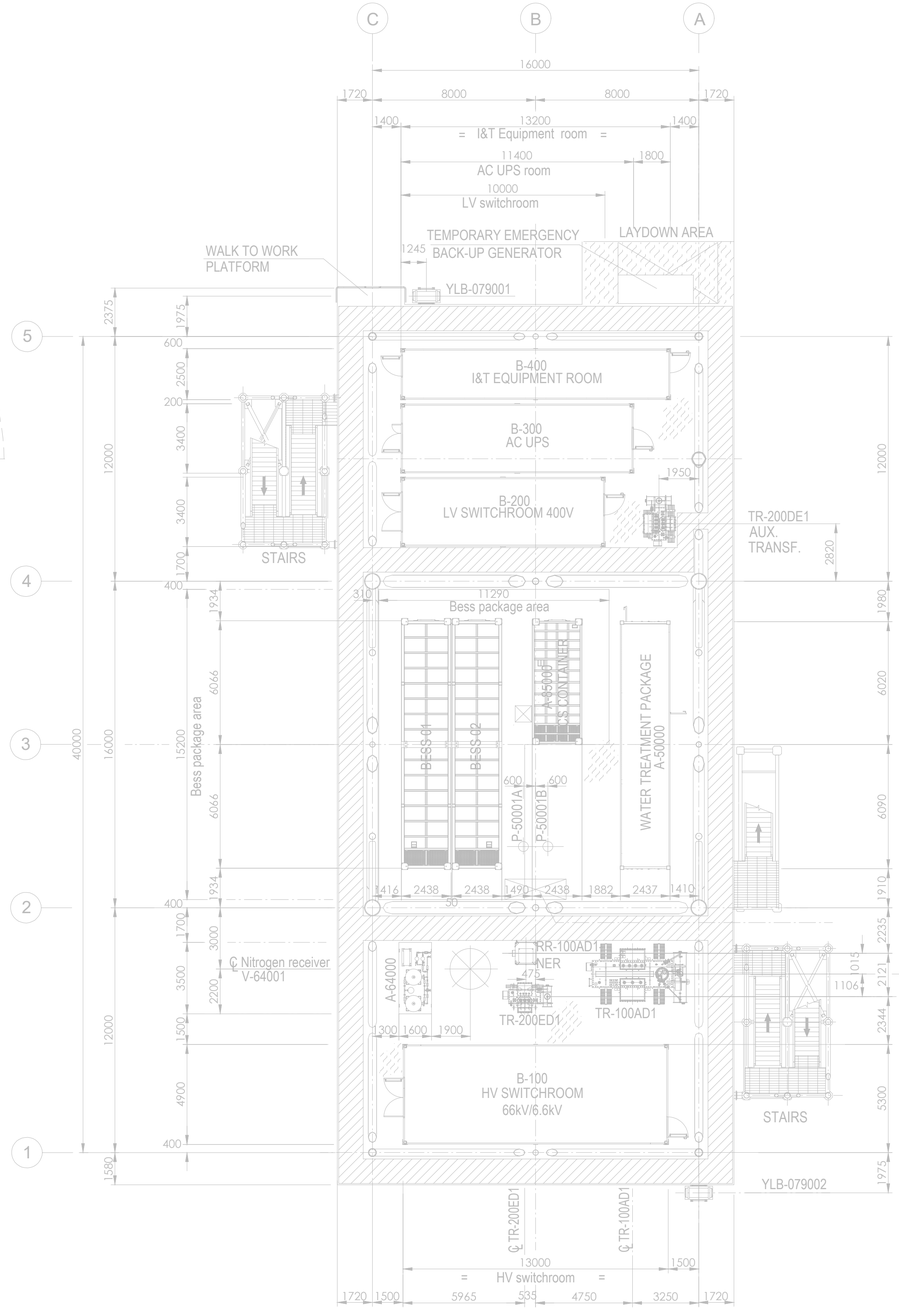
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



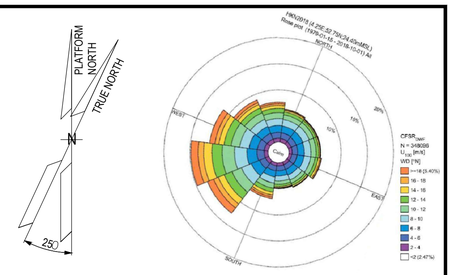
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

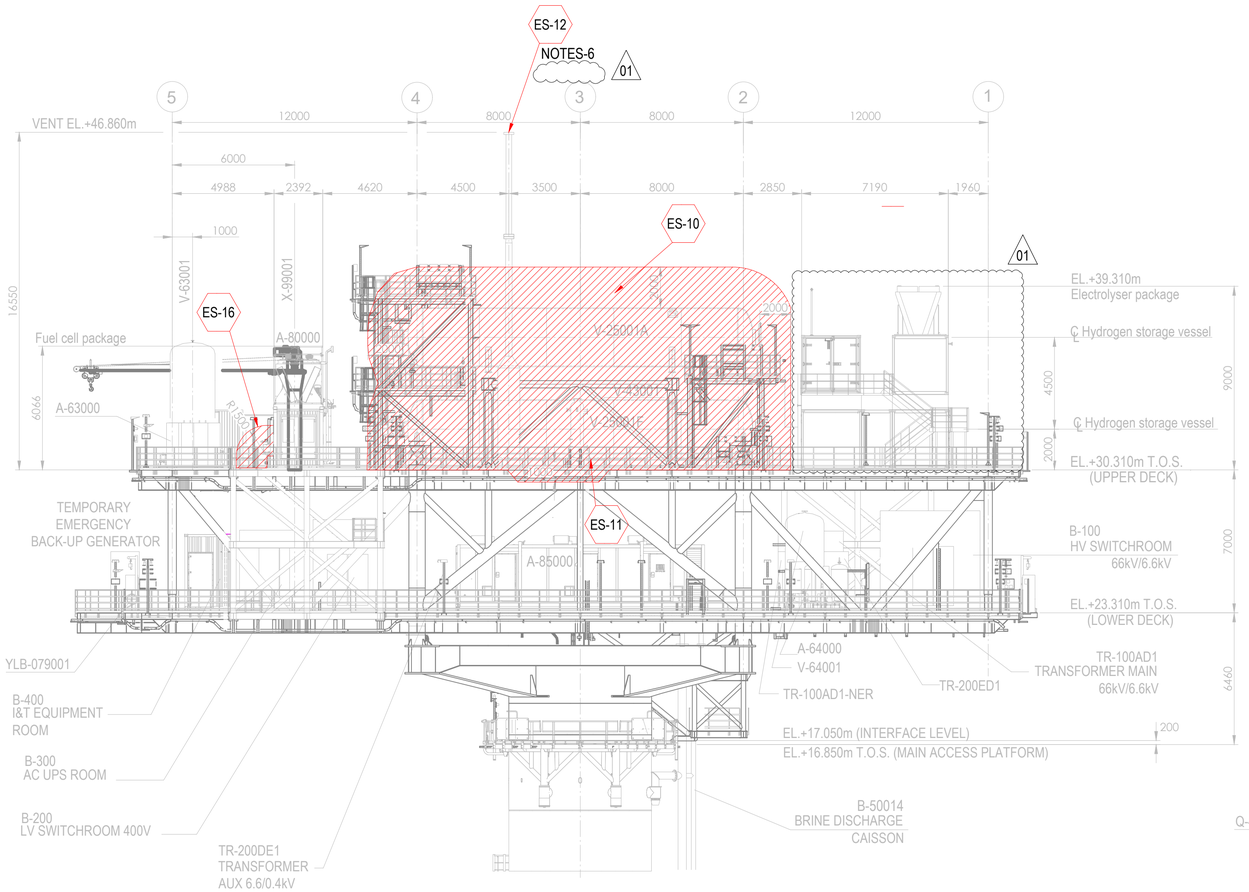
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

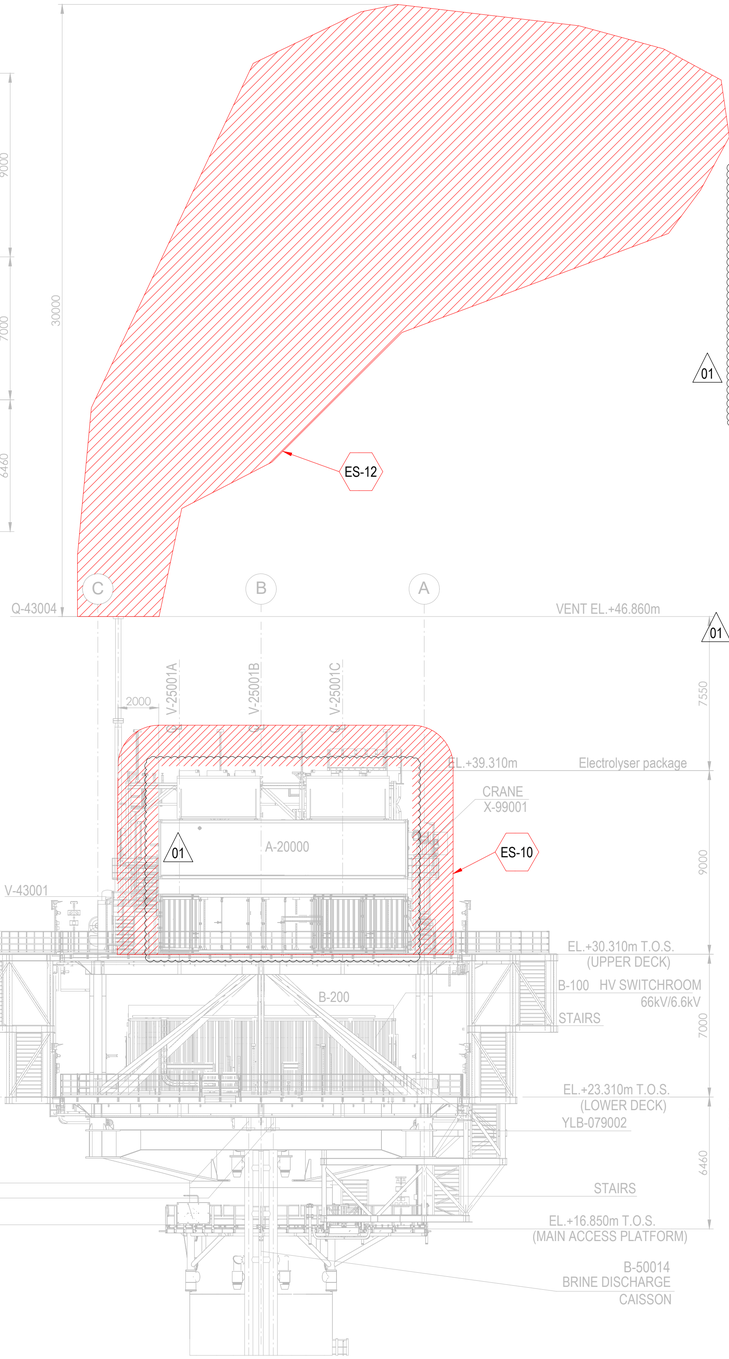
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



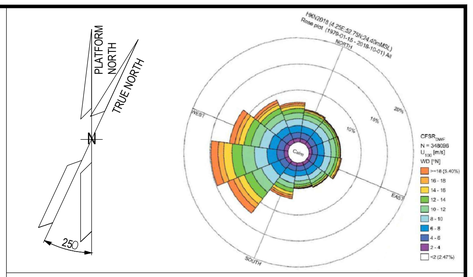
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

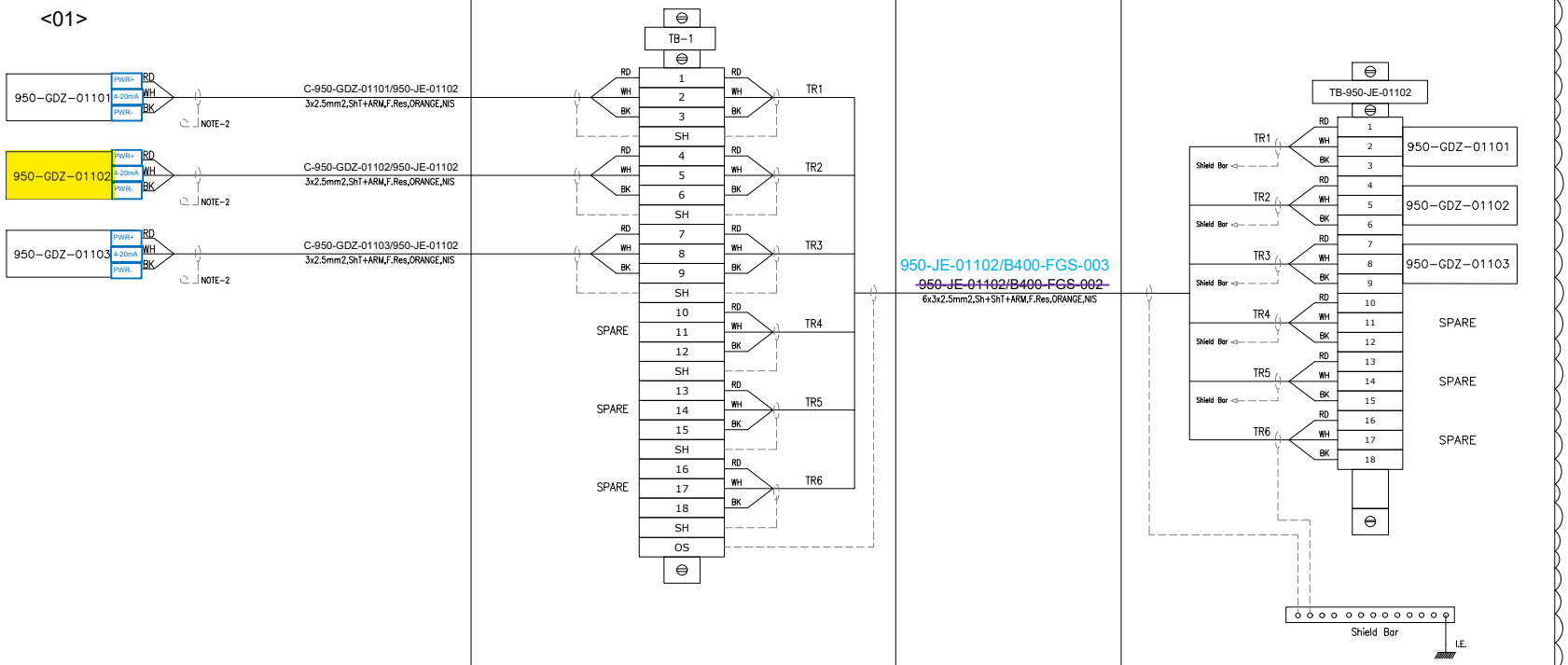
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DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 031	REV. 01

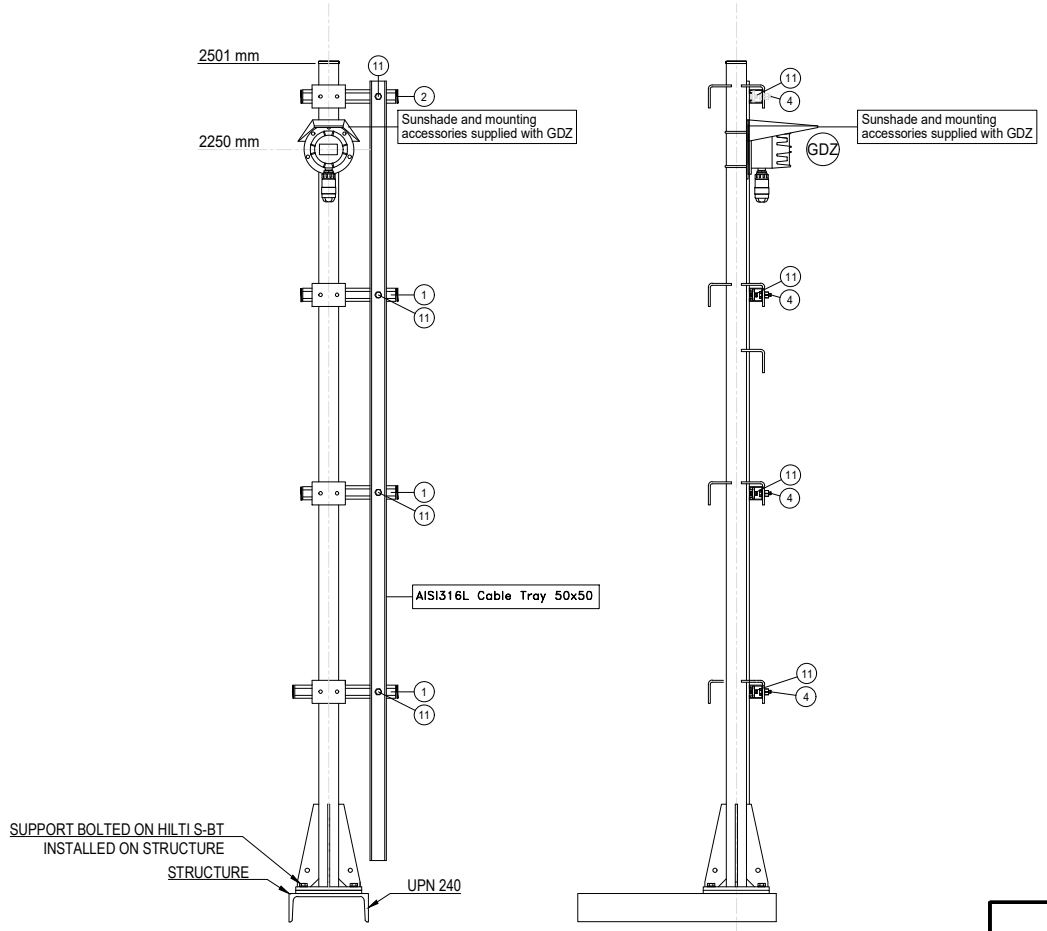
File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-12

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	2m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	10
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	6



POLE	ITEM	DESCRIPTION	TAGNAME
1	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02119
2	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02120
3	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01101
4	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01102
5	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01103
6	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03101
7	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03103

1

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DD-40017

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

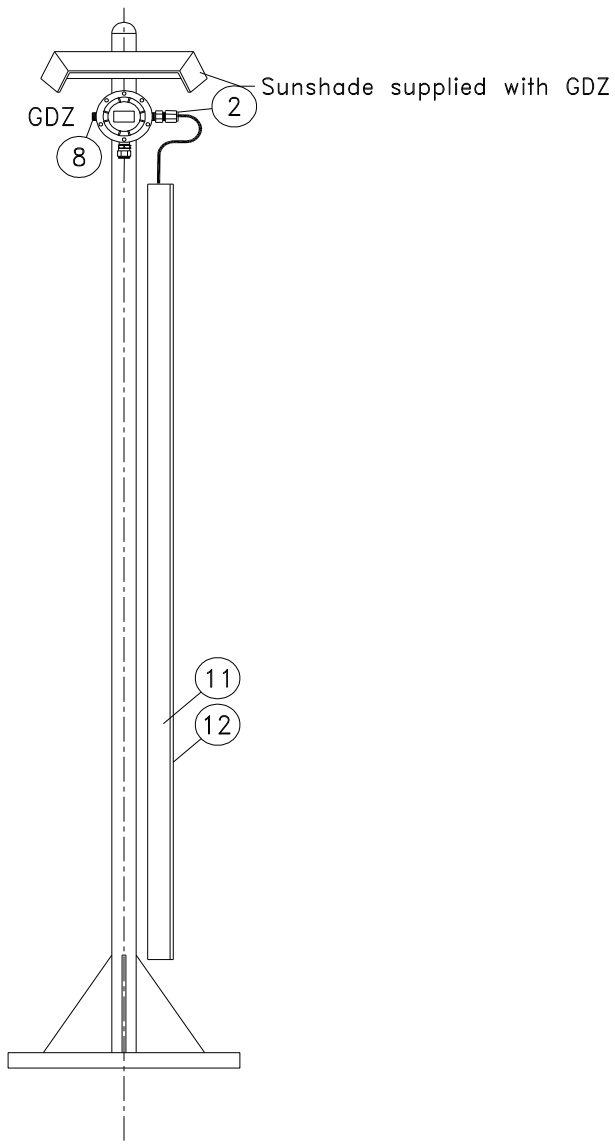
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 031	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-GDZ-02101
2	950-GDZ-02102
3	950-GDZ-02103
4	950-GDZ-02104
5	950-GDZ-02105
6	950-GDZ-02106
7	950-GDZ-02107
8	950-GDZ-02108
9	950-GDZ-02111
10	950-GDZ-03104
11	950-GDZ-03105
12	950-GDZ-03106
13	950-GDZ-03107
14	~~950-GDZ-03108~~ 950-GDZ-03102
15	950-GDZ-03109
16	950-GDZ-02117
17	950-GDZ-02119
18	950-GDZ-02120
19	950-GDZ-01101
20	950-GDZ-01102
21	950-GDZ-01103
22	950-GDZ-03101
23	950-GDZ-03103

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
8		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M20	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	1

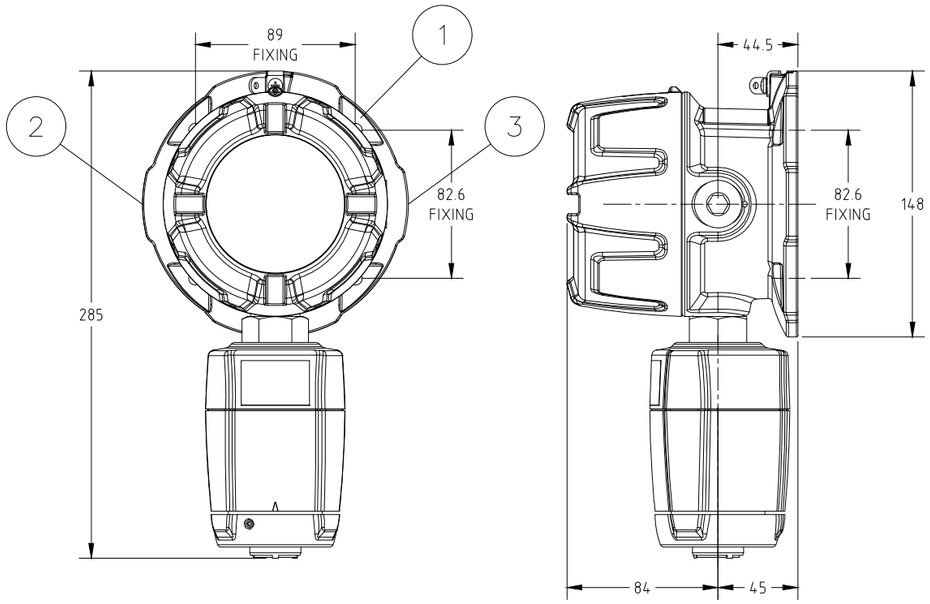
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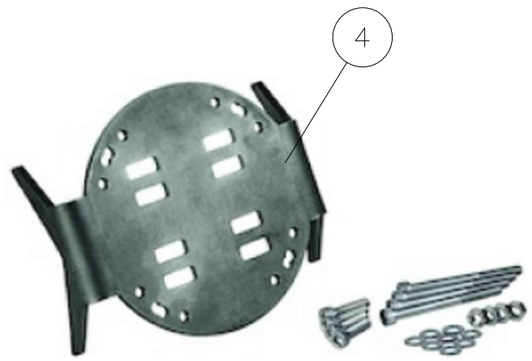
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING

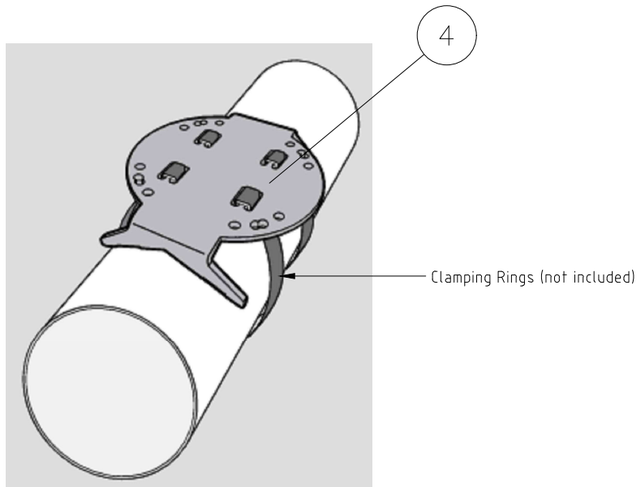
ITEM	DESCRIPTIONS	NR
1	Hydrogen Ultrasonic Leak Detector, DRÄGER Polytron 8900 UGLD d S 4-20/HART Relay	1
2	Reducer 3/4" NPT - M20 Ex d AISI 316	2
3	3/4" plug Ex d AISI 316	1
4	Pipe mount bracket kit Polytron 5000/8000 series, DRÄGER	1
5	Sun and weather protection kit Polytron, DRÄGER	1
6	Stainless Steel Name Plate	1
7		
8		
9		
10		

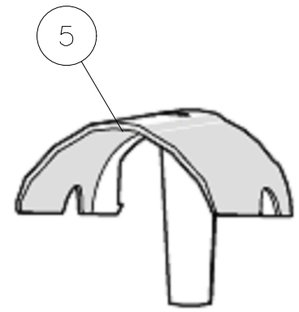
INSTALLATION QUANTITY

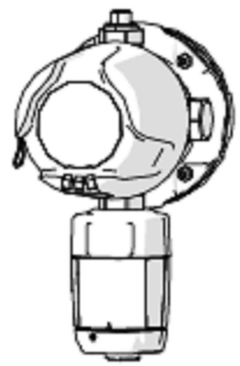
9





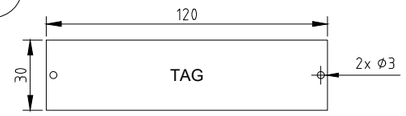






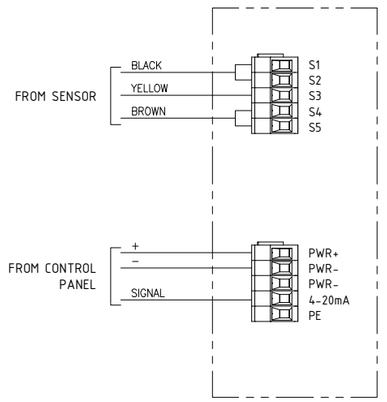
6

STAINLESS STEEL
NAME PLATE DETAILS



NOTE 5

WIRING



FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	009	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-GDZ-01101
2	950-GDZ-01102
3	950-GDZ-02117
4	950-GDZ-02118
5	950-GKDZ-02119
6	950-GDZ-02120
7	950-GDZ-03101
8	950-GDZ-03102
9	950-GDZ-03103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
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00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
HYDROGEN ULTRASONIC LEAK DETECTOR / PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	010	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

HYDROGEN ULTRASONIC LEAK DETECTORS

POS.	TAG NUMBER	SERVICE
1	950-GDZ-01101	H2 GD FZ-01 FUEL CELL PK AREA
2	950-GDZ-01102	H2 GD FZ-01 FUEL CELL PK AREA
3	950-GDZ-02117	H2 GD FZ-02 H2 STORAGE VESSELS AREA
4	950-GDZ-02118	H2 GD FZ-02 H2 STORAGE VESSELS AREA
5	950-GKDZ-02119	H2 GD FZ-02 H2 STORAGE VESSELS AREA
6	950-GDZ-02120	H2 GD FZ-02 H2 STORAGE VESSELS AREA
7	950-GDZ-03101	H2 GD FZ-03 ELECTROLYZER PK AREA
8	950-GDZ-03102	H2 GD FZ-03 ELECTROLYZER PK AREA
9	950-GDZ-03103	H2 GD FZ-03 ELECTROLYZER PK AREA

File: 1724000821-IN-DS-00004-02.xlsx
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Dräger Polytron® 8900 UGLD
Ultrasonic Gas Leak Detector

The Dräger Polytron® 8900 UGLD transmitter is an early warning area monitor for detecting high-pressure gas leaks in outdoor industrial process environments. Thanks to an ultrasonic acoustic sensor, it responds earlier than conventional gas detectors because it registers the sound of leaking gas instead of measuring the concentration of accumulated gas clouds. As gas escapes, leaks are immediately detected in the surrounding area, regardless of the wind direction.



Dräger. Technology for Life®

Benefits

Ultrasonic sensor technology – the early warning system for gas leaks

Typical gas detection systems used to monitor pressurised gas pipes or containers in industrial environments only detect a gas leak if the gas is in the immediate vicinity of the gas sensor. Environmental influences such as wind can delay or prevent a gas cloud from being detected by gas sensors. On the contrary, the Dräger Polytron 8900 UGLD is not affected by environmental factors and detects a high-pressure gas leak as soon as gas escapes. Effective early gas leak warnings can prevent unnecessary shutdowns, saving time and money.

A perfect complement to your gas detection system

The Dräger Polytron 8900 extends the Polytron 8000 series family with acoustic gas leak detection. All transmitters in this series have the same design and an identical user interface. A common user interface ensures that little training or maintenance is required for existing users. The Polytron 8900 UGLD perfectly complements existing flame and gas detection systems with reliable early gas leak warnings.

Delivers results that are easy to understand

For easy interpretation of results, the measured values on the display of the Polytron 8900 UGLD are shown from 0 to 100 percent of the full scale decibel sensitivity range. The ultrasound level is immediately displayed and transmitted without the use of difficult to interpret artificial intelligence. Alarms are configured at a specific level above a predetermined background noise level. Additionally, a time delay of up to 30 seconds can be set in the control system.

Can even detect gas leaks in loud industrial environments

Loud process areas generate noise which is mostly in the audible spectrum. Gas leaks from pressurized vessels above 10 bar generate both audible sound and inaudible ultrasound. Since Polytron 8900 is tuned to measure in the ultrasound spectrum, it can easily identify gas leaks with a leak rate of 100 g/sec in a 65 ft radius circle.

Robust design and fully-sealed sensor

The Polytron 8900 UGLD is an explosion-proof transmitter with a sensor housed in a galvanically-isolated, intrinsically-safe enclosure. The sensor is an ultrasonic microphone that is completely sealed in PVCC, making it impervious to water and dirt. It provides reliable readings without the need for an additional environmental protection baffle. Regular calibration is not necessary, but unlike some other UGLDs on the market, calibration is possible and easy. The expected lifespan of the ultrasonic sensor is more than 10 years.

Technical Data

Dräger Polytron® 8900 UGLD			
Type	Explosion proof / flameproof enclosed transmitter (“d”) or combined with increased safety (“d/e”)		
Gases	Flammable and toxic gases such as hydrogen, methane, ethylene, propane, CO_2, nitrogen and hydrogen sulphide		
Measurement ranges	0-100% equivalent to 55-110 dB; typical alarm setting 10% UGLD signal above background		
Display	Back-lit graphic LCD display; 3 status LEDs (green/yellow/red)		
Sensor Type	PVCC coated piezoelectric microphone with built-in automatic self-test sound generator		
Sensor Performance	Response Time	< 3 sec.	
	Minimum Pressure	> 2 bar (29 psi) Methane	
	Coverage Radius	6.5ft -65 ft depending on gas type, leak rate and background noise	
	Frequency Range	18 kHz - 80 kHz	
Electrical data	Analogue signal output	Normal operation	4 to 20 mA
		Maintenance	Constant 3.4 mA or
			4 mA ±1 mA
			1 Hz modulation; (adjustable)
		Fault	< 1,2 mA
	Digital signal output	HART®	
	Power supply	10 to 30 V DC, 3-wire	
	Power consumption	w/ relay, remote	100 mA at 24 V
	Relay specification	Two alarm relays and one error relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	

Environmental conditions (See sensor data sheet)	Temperature	-40 to 70°C (-40 to 158°F) with relays
	Pressure	700 to 1,300 mbar
	Humidity	0 to 100 % relative humidity
Housing	Transmitter housing	Stainless steel SS316L
	Sensor housing	Polyamide 6
	Housing protection type	NEMA 4X & 7, IP65/66/67
	Cable entry	Three ¾" NPT thread openings or M20 cable gland
	Dimensions (H × W × D)	11.02" x 5.90" x 5.12" inches
	Weight, approx.	11 lbs
Approvals	UL	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4
	CSA*	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4
	IECEx	Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40/ +70°C; “e” version;
	ATEX	II 2G Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C II 2G Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version
	CE Markings	ATEX (Directive 2014/34/EU) Electromagnetic compatibility (Directive 2014/30/EU) Low voltage (Directive 2014/35/EU)
	Marine approval*	DNV-GL

Technical Data

	SIL 2	Certificate TÜV Süd

* Pending

Ordering Information

Dräger Polytron® 8900 UGLD	Approval code	Part number
Polytron® 8900 UGLD d S 4-20/HART® Relay Stainless Steel Ex d Housing with 4-20mA HART® output and 3 Relays	ETR 0521	83 28 030

Accessories		Part number
Magnetic Wand		45 44 101
Remote Sensing Head with wall mount kit		83 28 021
Connecting cable with plug for the Remote Sensing Head	5 m	83 23 305
	15 m	83 23 315
	30 m	83 23 330
UGLD Calibration and Bump Test Kit w/o Air Cylinder		83 28 042
Zero Air Gas Cylinder 103L for Calibration and Bump Test Kit		45 10 058
Pole Mount Kit		45 44 198
Polysoft Basic (one year license)		83 28 600
Polysoft Basic (Subscription – yearly fee)		83 28 601
IR Connection Kit (requires PolySoft)		45 44 197

HART® is a registered trademark of the HART Communication Foundation.

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
950-FDZ-03104	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04101	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04102	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04103	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04104	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05101	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05102	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05103	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05104	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06101	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06102	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	1544	FlameSpec FLS-FSIM-UV/IR-KIT	Zone 2	ICQC 20 ATEX 0447X	1724000821-IN-DS-00004	II 2GD Ex db ib op is IIC T6 Gb	-	N/A	True	N/A	True	
950-FDZ-06103	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	FGD	-	FlameSpec FLS-UV-IR-AS11	Zone 2	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-IN-DS-00004	II 2GD Ex db eb IIC T5 Gb	-	N/A	True	N/A	True	
950-GDZ-01101	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1680	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01102	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1685	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01103	FZ-01 H2 detect. in fuel cell package area	UPPER DECK	1724000821	Fores	Dräger	ARTB-0194	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-IN-DS-00004	II 2G Ex db IIC T6/T4 Gb	-	N/A	True	N/A	True	
950-GDZ-02101	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2193	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02102	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2196	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02103	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2197	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02104	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTB-1620	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02105	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2185	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02106	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2201	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02107	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2206	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02108	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2198	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02109	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2203	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02110	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2204	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 11 ATEX 1005 X **Issue: 4**

(4) Product: Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01**

(5) Manufacturer: Dräger Safety AG & Co. KGaA

(6) Address: Revalstraße 1, 23560 Lübeck, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 22-21212.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018+AC:2020, EN 60079-1:2014+AC:2018,
EN IEC 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex db IIC T6...T4 Gb	**bzw.**
II 2 G Ex db ia IIC T6...T4 Gb	**bzw.**
II 2 G Ex db eb IIC T6...T4 Gb	**bzw.**
II 2 D Ex tb IIIC T80°C...T130°C Db	**bzw.**
II 2 G Ex db eb ia IIC T6...T4 Gb	**bzw.**

ZSEx001e c

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

Ex	**II 2 (1) G Ex db [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) D Ex tb [ia Da] IIIC T135°C Db**	

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, December 14, 2022
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

ZSEx001e c

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 11 ATEX 1005 X, Issue: 4**

(15) Description of Product

The Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01** consist of three different types of sensor and interfaces. The Gas detection transmitter type ETR 0*** uses the electrochemical sensing principle or an ultrasonic sensor with an electrochemical sensor interface, the Gas detection transmitter type ITR 0*** uses the infrared sensing principle and the Gas detection transmitter type XTR 0*** uses the catalytic sensing principle or infrared sensing principle with a catalytic sensor interface. The Gas detection transmitter type RCU 0*** shall only be used with separate certified sensors. The sensor frontend (EC sensing head) of the ETR 0*** series comprises a galvanically separating barrier circuit (inside the flameproof enclosure) and intrinsically safe electronics located out-side the flameproof enclosure as well as an electro-chemical sensor or ultrasonic sensor - all of them being covered by this certificate. The sensors of the ITR 0*** and XTR 0*** series are covered by separate certifications, which are accepted under this certificate.

The internal electronic covers the intrinsically safe fieldbus under consideration of the maximum FISCO input ratings applicable for the operation as both FISCO Field device or alternatively non-intrinsically safe fieldbus PA/FF.

Type code:

***TR 0** * * *
1 2 3 4

1: Sensing principle / sensors
- E = electrochemical
- I = infrared
- X = catalytic

2: Series and enclosure material
- 2 = 02/03 series, aluminium enclosure
- 3 = 02/03 series, stainless steel enclosure
- 4 = 04/05 series, aluminium enclosure
- 5 = 04/05 series, stainless steel enclosure

3: Sensors

ITR 0 * * *

3: Sensors
- 0 = IDS 0001
- 1 = IDS 0101

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2 = IDS 0102
5 = IDS 0105

ETR 0 * * *
3: Sensors
0 = DrägerSensor or DrägerSensor XS with adapter *or DrägerSensor with Gas Generator type EDS 03***
2 = Ultraschall Sensor

XTR 0 * * *
3: Sensors
0 = IDS 0002
1 = XDS 020*
2 = Ex-Sensor LC NPT

4: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	"d", Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

Type code for Junction Box, type EAC 01 (Remote Sensor)**

EAC 01 * *
1 2

1: Enclosure Material
0 = Aluminum
1 = Stainless Steel
2: Features not relevant for the type of protection

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Type code for Remote Box, type RCU 0*

RCU 0 * * *
1 2 3

1: Enclosure Material
2 = Aluminum
3 = Stainless Steel
2: Features not relevant for the types of protection

3: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	“d”, Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

The relation between ambient temperature and the assigned temperature class is as follows:

Type	Ambient temperature range	Temperature class (Gas)	Temperature class (dust)
ITR 0*0* RCU 0*** XTR 0*0*	-40 °C to +65 °C	T4	T130°C
All other versions	-40 °C to +80 °C	T4	T130°C
All versions	-40 °C to +40 °C	T6	T80°C
ETR 02/032* ETR 04/052*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +40 °C	T6	T135°C

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Electrical Ratings:

Maximum supply wattage: P_{max}: 5 W

Supply:

ETR 02/03** series	10...30 VDC, 0.08...0.15 A
ITR 02/03** series	10...30 VDC, 0.1...0.75 A
XTR 02/03** series	10...30 VDC, 0.1...0.2 A
ETR 04/05** series	10...30 VDC, 0.1...0.35 A
ITR 04/05** series	10...30 VDC, 0.3...1.0 A
RCU 02/03** series	10...30 VDC, 0.3...1.0 A
XTR 04/05** series	10...30 VDC, 0.15...0.45 A
Relay	5A, 30 VDC or 230 VAC

Fieldbus circuit:
Field device as Fieldbus system in type of protection Intrinsic Safety Ex ia IIC; FISCO in acc. of IEC 60079-11, using only for the interface type A; B; E; F; S; T; W and X
or
Field device as Fieldbus system (non-intrinsically safe) using only for the interface type 2 and K
Electrical data: Maximum values:

Model	Voltage, Ui [VDC]	Current, Ii [mA]	Power, Pi [mW]
ETR 04*(*) ETR 05*(*) ITR 04*(*) ITR 05*(*) RCU 02*(*) RCU 03*(*) XTR 04*(*) XTR 05*(*)	17.5	380	5320

For the Gas detection transmitters series ETR ****
Sensor circuit: in type of protection Intrinsic safety Ex ia IIC / IIIC;
only for connecting Dräger Sensor or XS with adapter or
ultrasonic sensor or DraegerSensor with electrochemical sensor
type EDS 03**

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

(16) Test Report PTB Ex22-21212

(17) Specific conditions of use

The circuits are limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1 for FISCO field device operation.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

Braunschweig, December 14, 2022

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ITEM	Tag	950-GDZ-01103 : H2 GD FZ-03 Electrolyzer PK Area	Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)	Module	UD	
TASK	code	C10001514	Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity	CCK	Discipline	ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Schedule Ref. #				**Area Code**					
Area Class Drawing	123A90-DDL-SAF-DL-30022			**Serial No.**		ARTB-0194			
Manufacturer	Dräger			**Model**		Polytron® 8200 CAT DQ d S 4- 20/HART (XTR 0510)			
Cert No.	PTB 11 ATEX 1005X			**Equipment Ambient Temp.**		-40°C +40°C			
Area Classification	HAZARDOUS	**Zone**	2	**Gas group**	IIC	**Temp class**	T1		
Equipment Protection Type	Ex db	**EPL**	Gb	**Gas group**	IIC	**Temp class**	T6	**IP Rating**	IP65/66/67

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	x	OK	
2	Equipment group is correct	x	OK	
3	Equipment temperature class is correct	x	OK	
4	Degree of IP protection of equipment is appropriate for the level of protection	x	OK	
5	Equipment circuit identification is correct	x	OK	
6	Equipment circuit identification is available	x	NA	
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	x	OK	
8	There is no damage or unauthorized modifications	x	PL	
9	There is no evidence of unauthorized modifications	x	OK	
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight		OK	
	Physical check	x	OK	
11	Threaded covers on enclosures are of the correct type, are tight and secured		NA	
	Physical check	x	NA	
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	x	OK	
13	Condition of enclosure gaskets is satisfactory	x	OK	
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	x	OK	
15	Electrical connections are tight	x	OK	
16	Bridging links do not reduce creepage / clearance and are allowed	x	NA	
17	Unused terminals are tightened	x	OK	
18	Encapsulated components are undamaged	x	NA	
19	Flameproof components are undamaged	x	OK	
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	x	NA	
21	HID lamps are not indicating EOL effects	x	NA	
22	Lamp type, rating, pin configuration and position are correct	x	NA	
23	Breathing and drainage devices are satisfactory	x	NA	
24	Type of cable is appropriate	x	OK	
25	There is no obvious damage to the cables	x	OK	
26	Cable glands are the correct type and installed correctly	x	OK	
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	x	NA	
28	Stopping boxes and cable boxes are corrected filled	x	OK	

ITEM	Tag	950-GDZ-01103	: H2 GD FZ-03 Electrolyzer PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001514		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	ATEX	Form	CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x	NA	
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section		PL	
	Physical check	x	OK	
31	Automated electric protective devices operate within permitted limits	x	NA	
32	Special conditions (if applicable) have been complied with.	x	OK	
33	All cable cores are uniquely labeled	x	Note	See PL C30002119 & C30002120
34	Cable cores not in use are correctly terminated	x	OK	
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x	OK	
36	No undue accumulation of dust and dirt	x	OK	
37	All equipment housings are clean and dry	x	OK	
38	All moving parts are free and have no mechanical damage	x	NA	
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x	NA	
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x	NA	
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x	NA	
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x	NA	
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x	NA	
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x	NA	
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x	NA	
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x	NA	
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x	NA	
50	Cable glands are of the correct type and installed correctly	x	OK	
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x	PL	
52	Flame path are clean and undamaged	x	OK	
53	Flange gap dimensions are within tolerances	x	NA	
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
55	The ventilation airflow is not impeded	x	NA	
56	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
58	Variable voltage/frequency installation complies with documentation	x	OK	
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x	NA	
60	Power conductors are not bunched together causing possible hot spots	x	NA	
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x	NA	
62	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
64	The ventilation airflow is not impeded	x	NA	
65	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
66	Variable voltage/frequency installation complies with documentation	x	NA	

ITEM	Tag	950-GDZ-01103	: H2 GD FZ-03 Electrolyzer PK Area		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10001514	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline ATEX	Form	CJX01	Hazardous Area Equipment Detailed Inspection

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x	NA	
68	Hermetically sealed and enclosed break devices are undamaged	x	NA	
69	Restricted breathing properties satisfactory (conduct vacuum test)	x	NA	
70	Test port, if fitted, is functional (type “nR” only)	x	NA	
71	Breathing operation is satisfactory (type “nR” only)	x	NA	
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x	NA	
73	The ventilation airflow is not impeded	x	NA	
74	Insulation resistance (IR) of the motor windings is satisfactory	x	NA	
75	Motor protection devices operate within the permitted tE or tA time limits.	x	NA	
76	Variable voltage/frequency installation complies with documentation	x	NA	
Extra Ex p checks				
77	Pressurization gas is correct type	x	NA	
78	Actual pressure is within maximum and minimum settings for equipment	x	NA	
79	Timers set as per certification documentation	x	NA	
80	Alarms and trip functions operate correctly as per certification documentation	x	NA	
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x	NA	
82	Automatic electrical protective devices operate within permitted limits	x	NA	
83	Automatic electrical protective devices are set correctly	x	NA	
84	Protective gas inlet temperature is below maximum specified	x	NA	
85	Ducts, pipes and enclosures are in good condition	x	NA	
86	Protective gas is substantially free from contaminants	x	NA	
87	Protective gas pressure and/or flow is adequate	x	NA	
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x	NA	
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x	NA	
90	Specific conditions of use (if applicable) are complied with		NA	
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for ‘IS’ Installation	x	NA	
92	Cables are installed in accordance with the documentation	x	NA	
93	Segregation is maintained between IS and non-IS Circuits	x	NA	
94	Cable screens are isolated at one end (field side)	x	NA	
95	Cable screens are earthed in accordance with the documentation	x	NA	
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x	NA	
97	Equipment installed is the one specified in the documentation	x	NA	
98	Ambient temperature range of the apparatus is correct for the installation	x	NA	
99	Service temperature range of the apparatus is correct for the installation	x	NA	
100	Installation is clearly labelled	x	NA	
101	Printed circuit boards are clean and undamaged	x	NA	
102	The maximum voltage Um of the associated apparatus is not exceeded	x	NA	
103	Point-to-point connections are all correct	x	NA	
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x	NA	
105	Earth connections maintain the integrity of the type of protection	x	NA	
106	Intrinsically safe circuit earthing is satisfactory	x	NA	
107	Insulation resistance is satisfactory	x	NA	
108	Short-circuit protection of the power supply is in accordance with the documentation	x	NA	

	BARRIER:	**Manufacturer:**	NA	**Model:**	NA		
		Authority:	NA	**Cert No:**	NA	**Type:**	NA

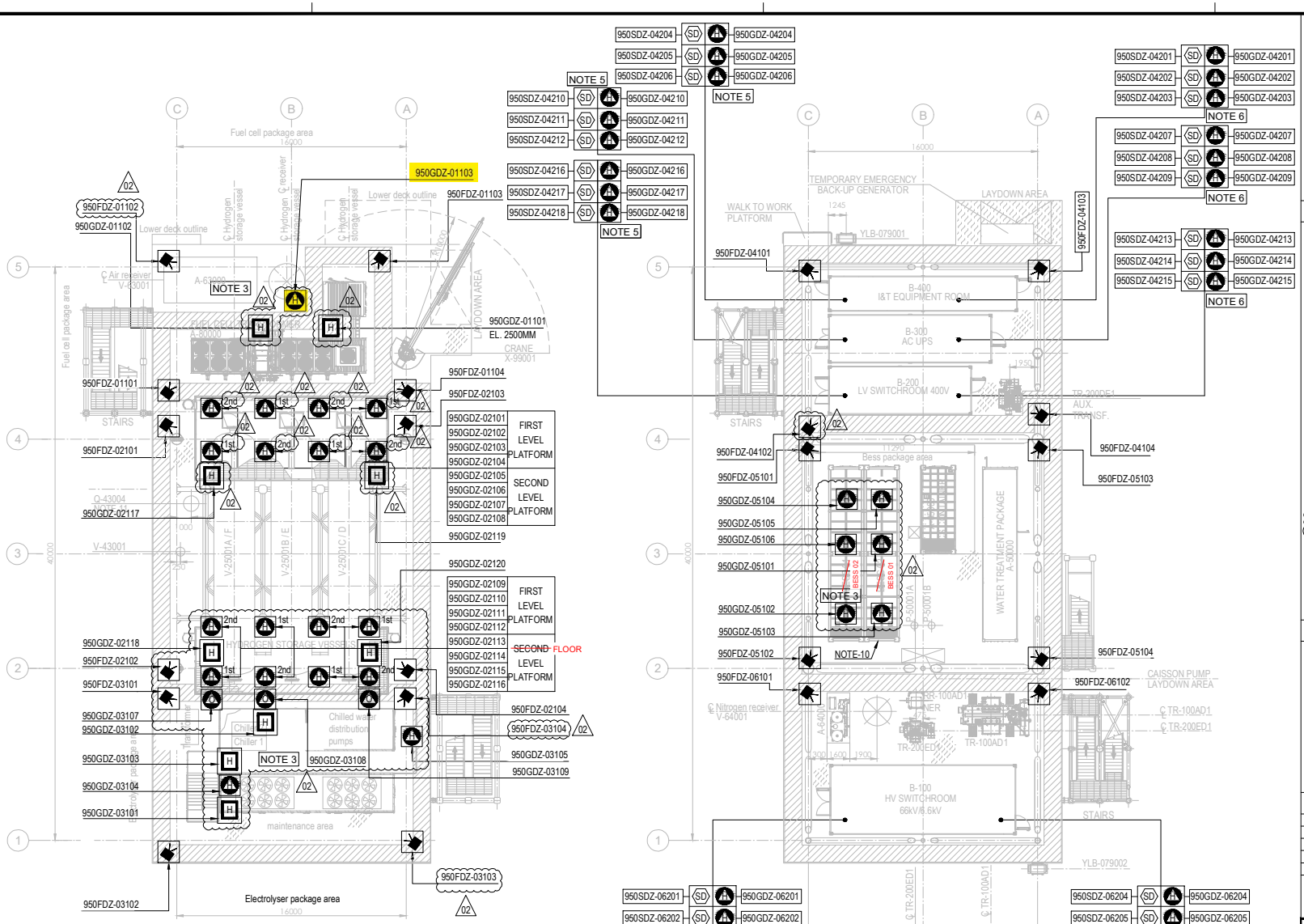
Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17

Please mark only one box as appropriate	
●	**Passed - Complete**
	Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-18	2024-12-30	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-18T10:37:27.993Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-30T16:42:50.922Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

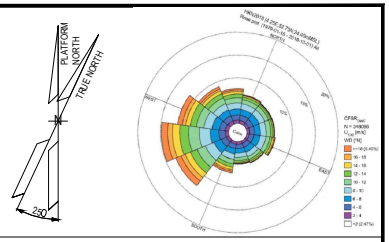
REV. 02



EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

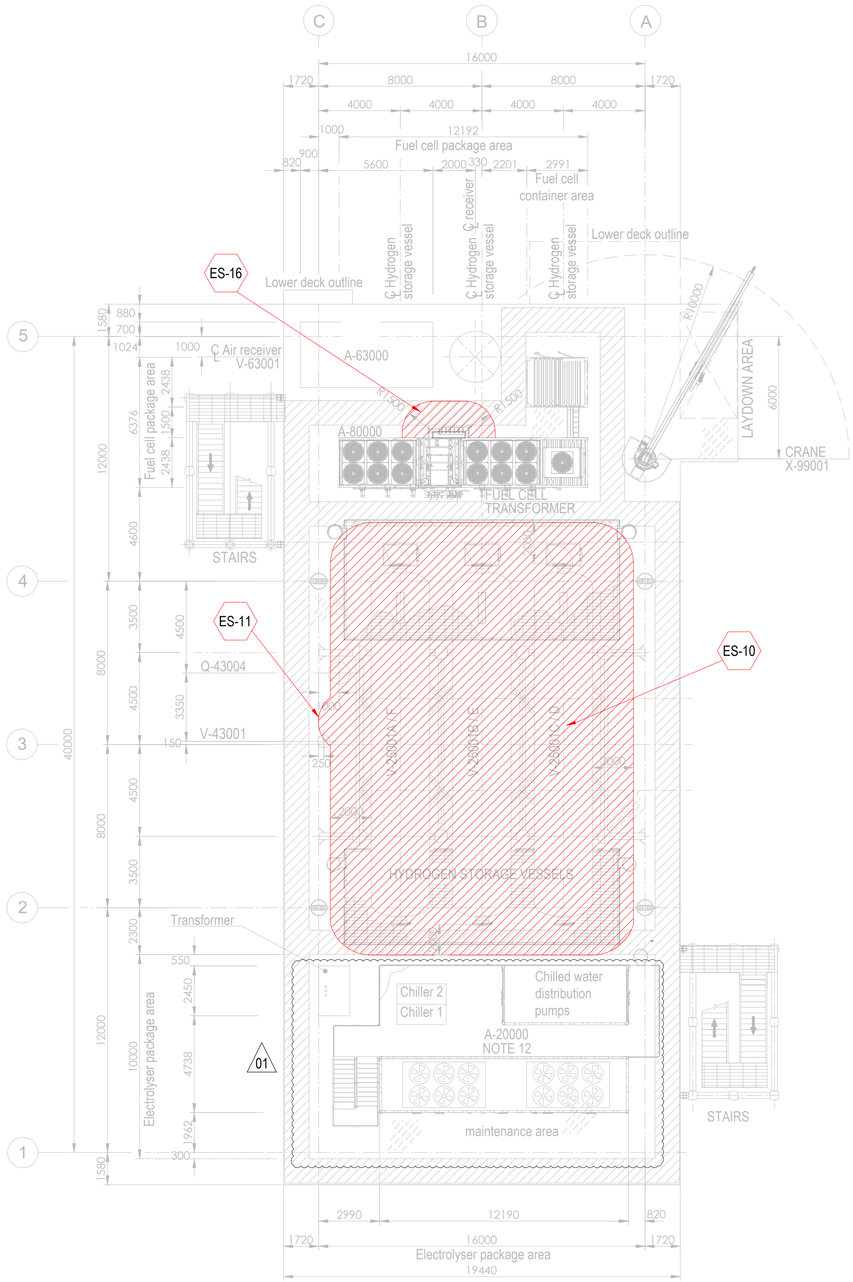
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

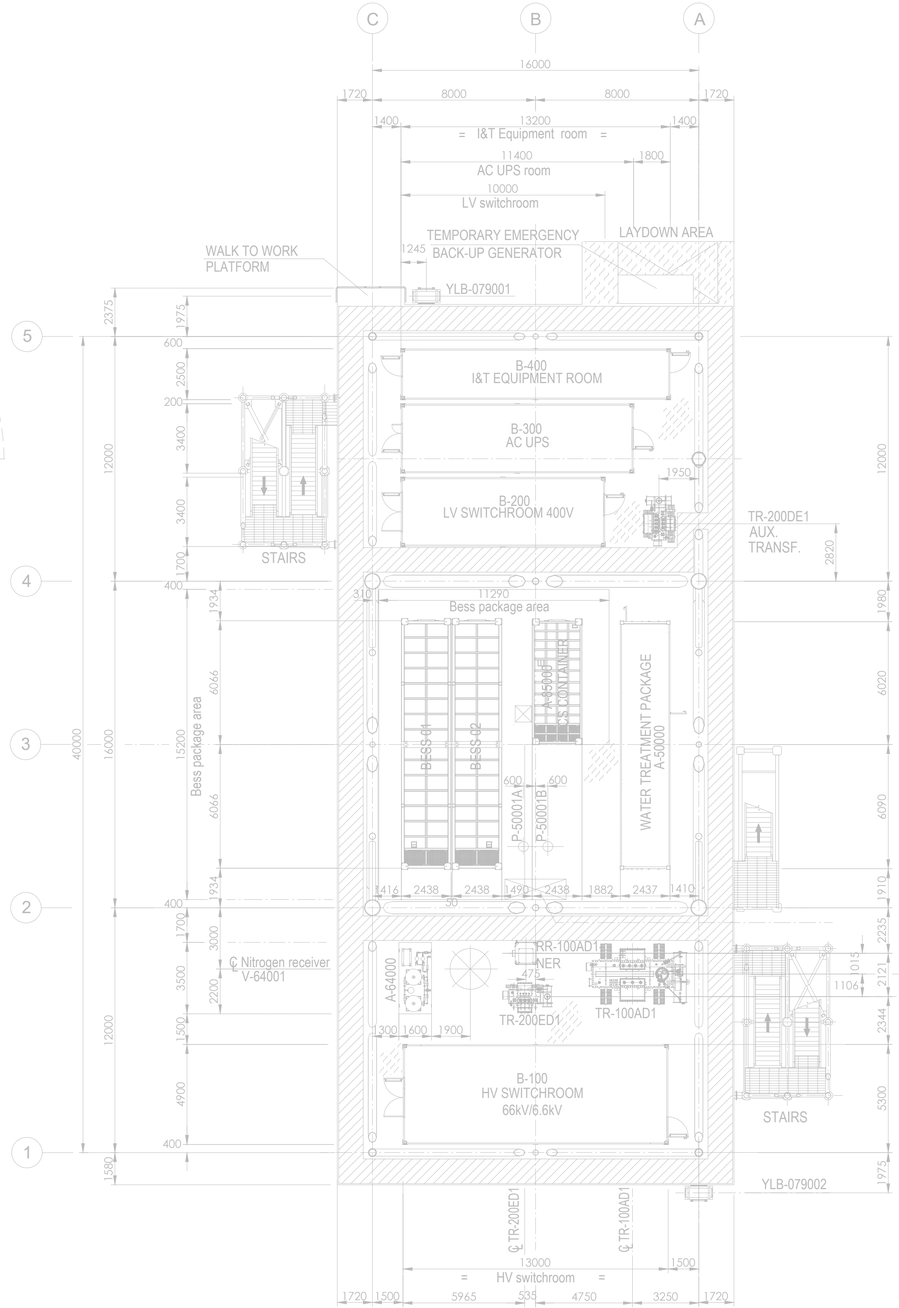
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DRAWING NO. 123A90-DDL-SAF-DL-30022

REV. 01



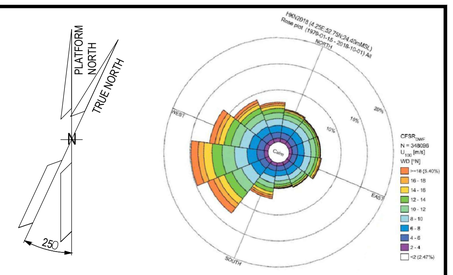
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	A-50000	WATER TREATMENT PACKAGE		

Tag No.	Equipment Tag	Description	Material	Ventilation Type
12	A-64000	NITROGEN SYSTEM		
13	B-100	HV SWITCHROOM 66kV/6.6kV		
14	B-200	LV SWITCHROOM 400V		
15	B-300	AC UPS EQUIPMENT ROOM		
16	B-400	I&T EQUIPMENT ROOM		
17	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
18	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
19	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
20	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
21	X-99001	CRANE		
22	V-64001	NITROGEN RECEIVER		



1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
7. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES16	FUEL CELL

01

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

01

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

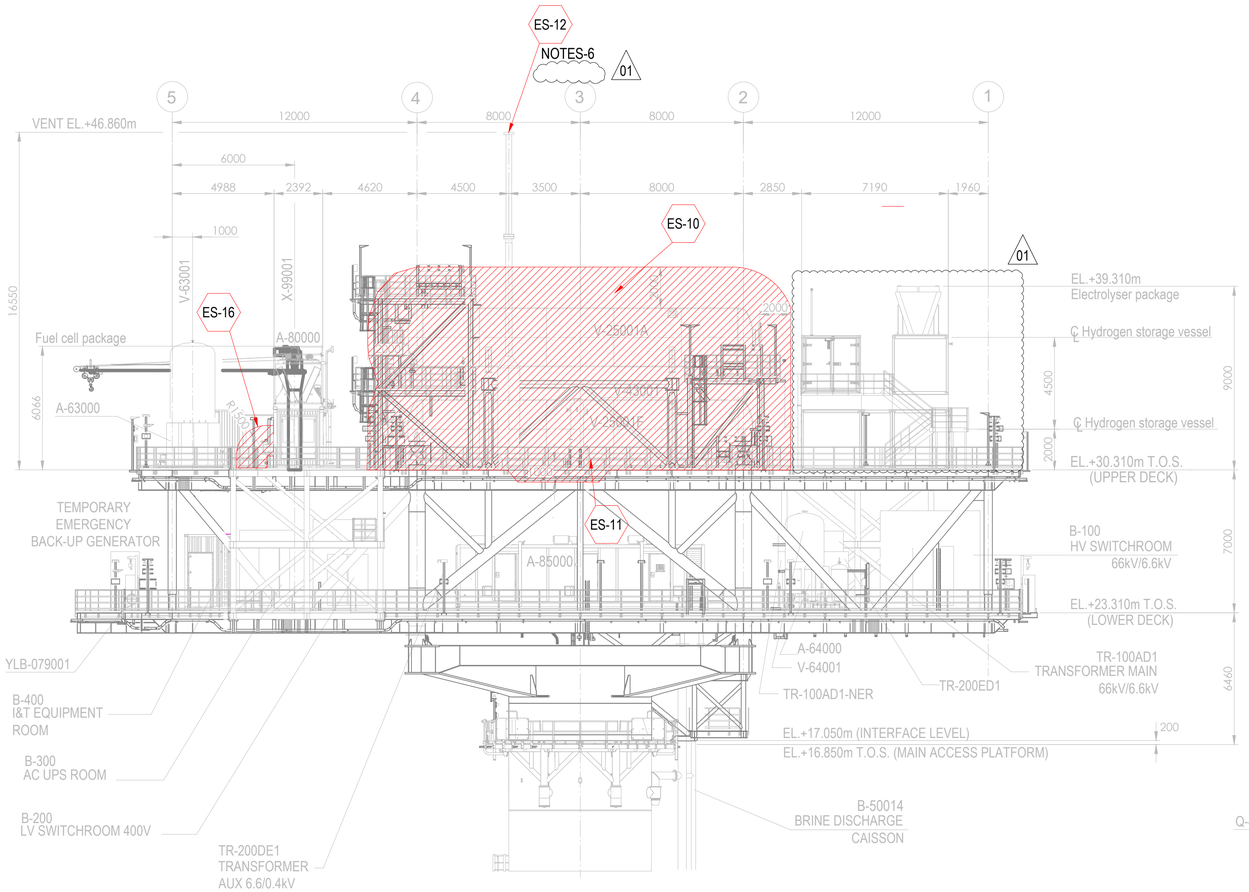
TITLE : BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30022	SHEET 001	REV. 01

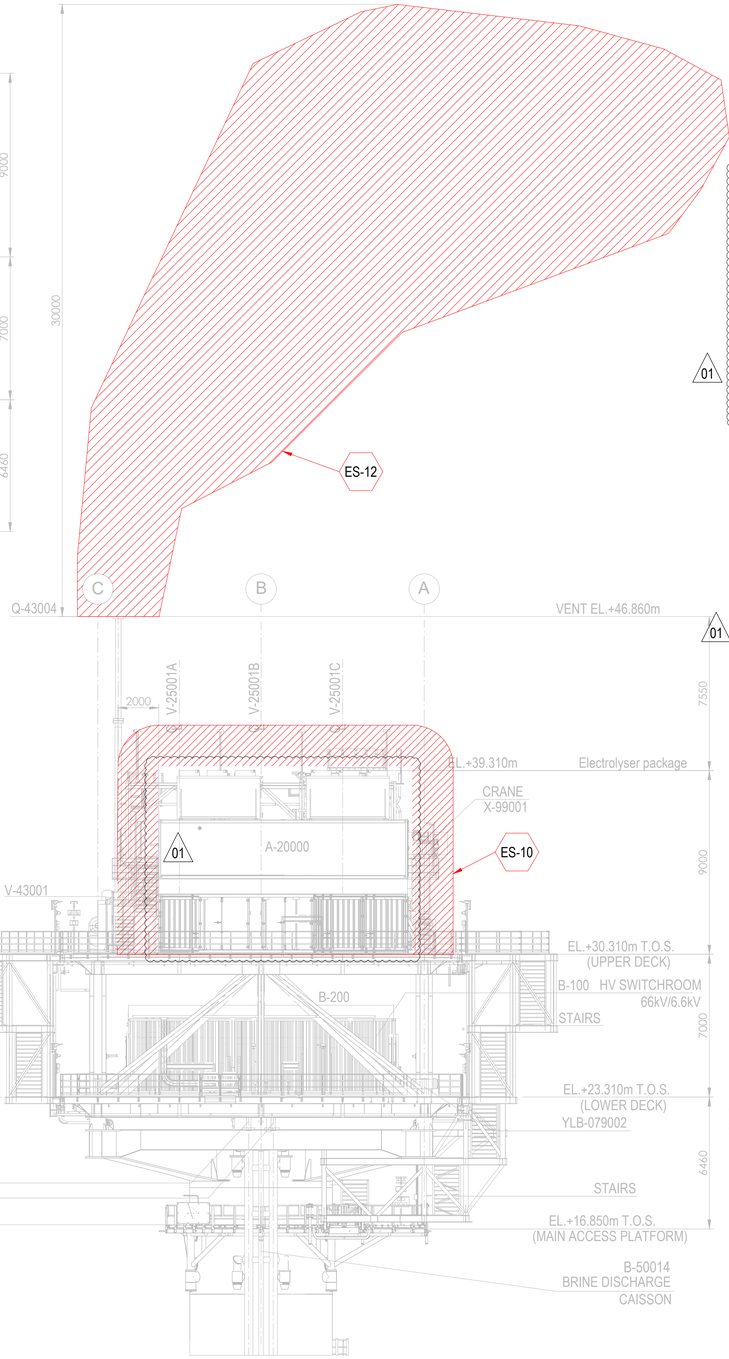
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DRAWING NO. 123A90-DDL-SAF-DL-30024

REV. 01



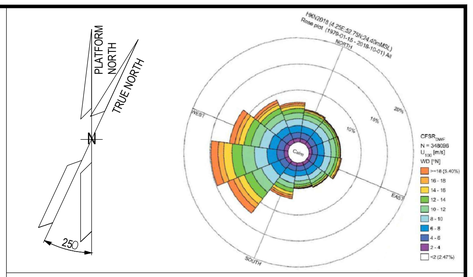
ELEVATION LOOKING EAST



ELEVATION LOOKING NORTH

01

Tag No.	Equipment Tag	Description	Material	Ventilation Type
01	P-50001 A/B	SEA WATER LIFT PUMPS	SEA WATER	NATURAL (OPEN AREA)
02	Q-43004	HYDROGEN VENT	HYDROGEN	NATURAL (OPEN AREA)
03	V-43001	HYDROGEN VENT KO DRUM	HYDROGEN	NATURAL (OPEN AREA)
04	V-25001 (A/B/C/D/E/F)	HYDROGEN STORAGE VESSELS	HYDROGEN	NATURAL (OPEN AREA)
05	V-63001	INSTRUMENT AIR RECEIVER	INSTRUMENT AIR	NATURAL (OPEN AREA)
06	A-20000	ELECTROLYSER PACKAGE		
07	A-63000	INSTRUMENT AIR PACKAGE		
08	A-80000	FUEL CELL PACKAGE		
09	A-85000	BESS PACKAGE		
10	YLB-079001/2	LIFE RAFTS		
11	B-100	HV SWITCHROOM 66kV/6.6kV		
12	B-200	LV SWITCHROOM 400V		
13	B-300	AC UPS EQUIPMENT ROOM		
14	B-400	I&T EQUIPMENT ROOM		
15	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		
16	TR-100AD1-NER	NEUTRAL EARTHING RESISTOR		
17	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV		
18	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT		
19	X-99001	CRANE		
20	V-64001	NITROGEN RECEIVER		



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. PLATFORM NORTH DIRECTION IS N 25°W.
4. VENT TOP SHALL BE REACHEABLE FOR MAINTENANCE PURPOSE.
5. THE BESS IS CONSIDERED SAFE AREA EXCEPT EXTRACTORES FROM BATTERIES , CURRENTLY NOT SHOWN IN DRAWINGS, SINCE INFORMATION FROM VENDOR IS NOT YET AVAILABLE.[ES17]
6. (ES12) IS SHOWN ONLY ON ELEVATION LOOKING NORTH ON THIS LAYOUT
7. THE LOCATION OF EMISSION SOURCES ON THE LAYOUT ARE ONLY INDICATIVE. EMISSION SOURCES CONSIDERED ARE PRESENT WITHIN THE EXTENSION OF HAZARDOUS CLASSIFIED AREAS SHOWN ON THE LAYOUT. THIS IS BECAUSE VALVES AND FLANGES,WHICH ARE CONSIDERED POTENTIAL SOURCES OF RELEASE POINTS FOR FLAMMABLE GAS ARE NOT SHOWN ON CURRENT LAYOUT PROVIDED. THE SAME APPLIES TO THE EMISSION SOURCES FOR CPI'S ITEM.
8. IDENTIFIED EMISSION SOURCES DETAIL

EMISSION SOURCE No.	IDENTIFIED AREAS
ES10	HYDROGEN STORAGE VESSLES
ES11	HYDROGEN VENT KO DRUM
ES12	HYDROGEN VENT
ES16	FUEL CELL

01

LEGEND

ZONE 0 | ZONE 1 | ZONE 2 | ES EMISSION SOURCES

01

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	27/08/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/02/24	MMA	CCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
HAZARDOUS AREA CLASSIFICATION
ELEVATION LOOKING NORTH & EAST

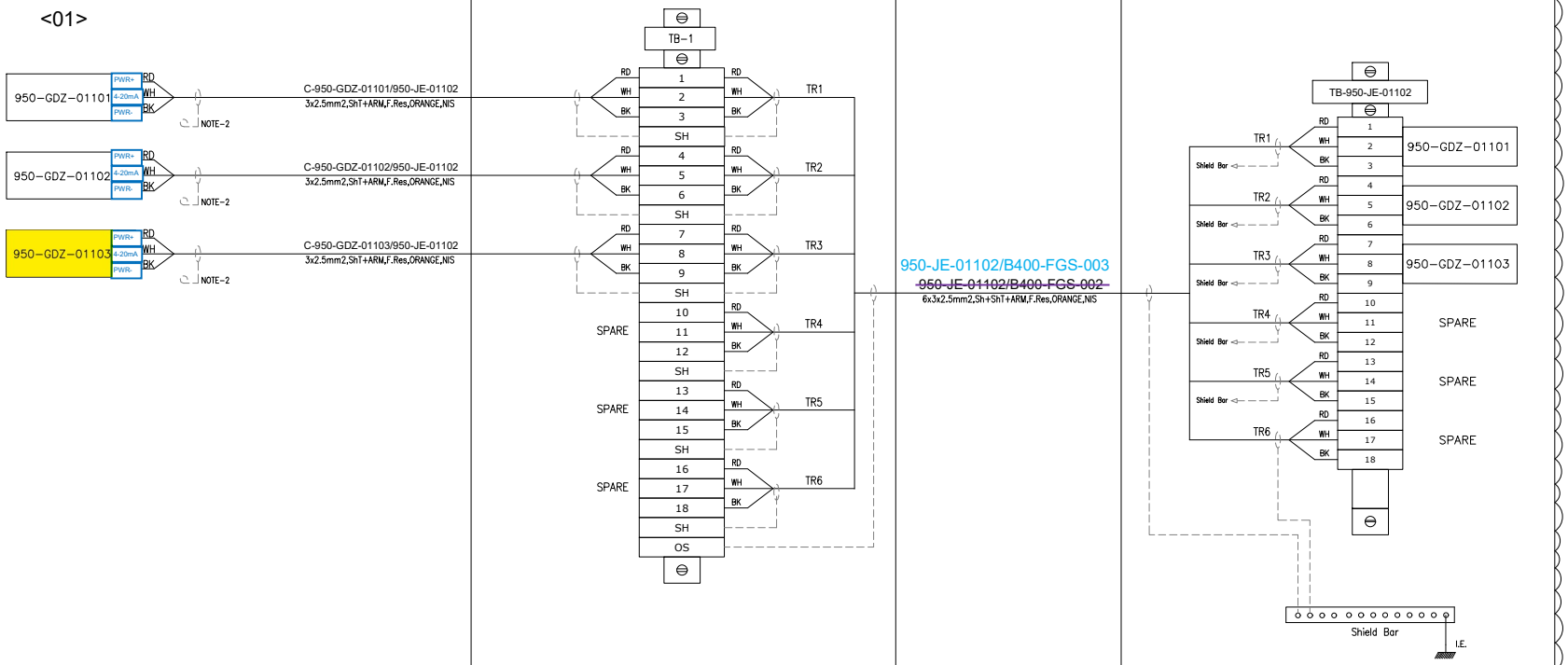
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN M. MAGNI	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 03/07/24

A1	DRAWING NO. 123A90-DDL-SAF-DL-30024	SHEET 001	REV. 01

File Name : 123A90-DDL-SAF-DL-30024 Rev.01

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 031	REV. 01

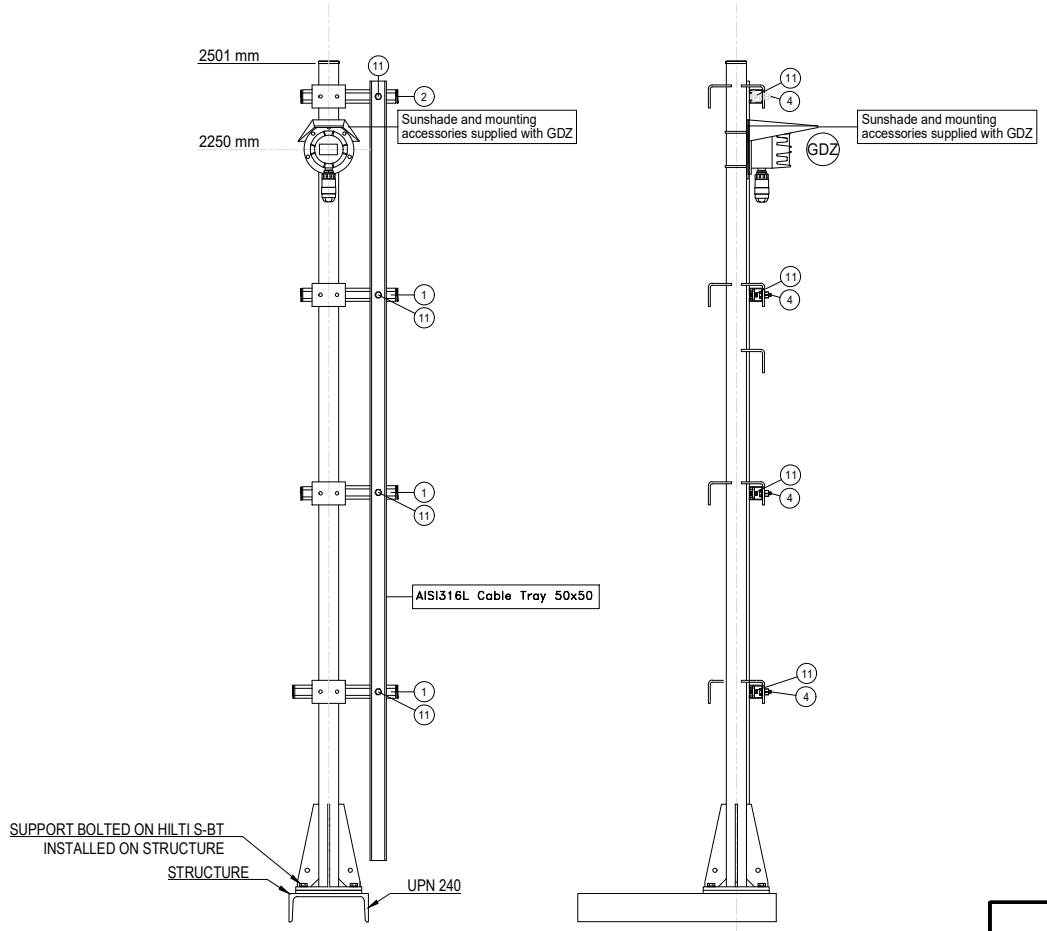
File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-12

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00

POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	2m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	10
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	6



POLE	ITEM	DESCRIPTION	TAGNAME
1	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02119
2	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-02120
3	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01101
4	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01102
5	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-01103
6	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03101
7	GDZ	H2 GAS DETECTOR - ULTASONIC TYPE	950-GDZ-03103

1

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DD-40017
REV.: 1_H | DATE: 06/12/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

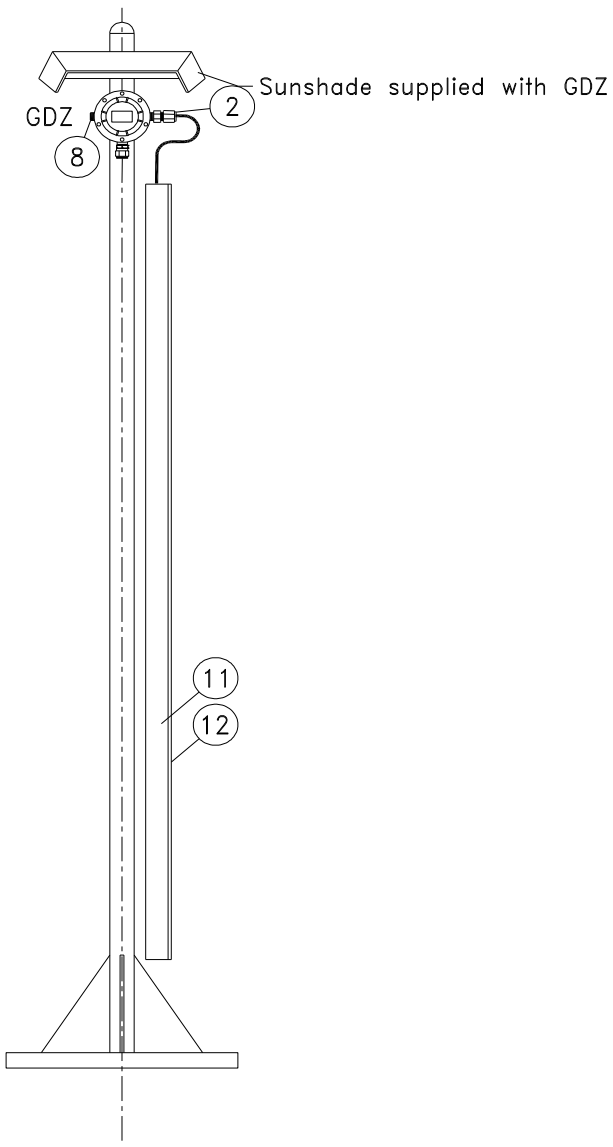
ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 031	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-GDZ-02101
2	950-GDZ-02102
3	950-GDZ-02103
4	950-GDZ-02104
5	950-GDZ-02105
6	950-GDZ-02106
7	950-GDZ-02107
8	950-GDZ-02108
9	950-GDZ-02111
10	950-GDZ-03104
11	950-GDZ-03105
12	950-GDZ-03106
13	950-GDZ-03107
14	~~950-GDZ-03108~~ 950-GDZ-03102
15	950-GDZ-03109
16	950-GDZ-02117
17	950-GDZ-02119
18	950-GDZ-02120
19	950-GDZ-01101
20	950-GDZ-01102
21	950-GDZ-01103
22	950-GDZ-03101
23	950-GDZ-03103

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
8		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M20	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	1

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HYDROGEN POINT DETECTORS

POS.	TAG NUMBER	SERVICE
1	950-GDZ-02101	H2 GD FZ-02 H2 STORAGE VESSELS AREA
2	950-GDZ-02102	H2 GD FZ-02 H2 STORAGE VESSELS AREA
3	950-GDZ-02103	H2 GD FZ-02 H2 STORAGE VESSELS AREA
4	950-GDZ-02104	H2 GD FZ-02 H2 STORAGE VESSELS AREA
5	950-GDZ-02105	H2 GD FZ-02 H2 STORAGE VESSELS AREA
6	950-GDZ-02106	H2 GD FZ-02 H2 STORAGE VESSELS AREA
7	950-GDZ-02107	H2 GD FZ-02 H2 STORAGE VESSELS AREA
8	950-GDZ-02108	H2 GD FZ-02 H2 STORAGE VESSELS AREA
9	950-GDZ-02109	H2 GD FZ-02 H2 STORAGE VESSELS AREA
10	950-GDZ-02110	H2 GD FZ-02 H2 STORAGE VESSELS AREA
11	950-GDZ-02111	H2 GD FZ-02 H2 STORAGE VESSELS AREA
12	950-GDZ-02112	H2 GD FZ-02 H2 STORAGE VESSELS AREA
13	950-GDZ-02113	H2 GD FZ-02 H2 STORAGE VESSELS AREA
14	950-GDZ-02114	H2 GD FZ-02 H2 STORAGE VESSELS AREA
15	950-GDZ-02115	H2 GD FZ-02 H2 STORAGE VESSELS AREA
16	950-GDZ-02116	H2 GD FZ-02 H2 STORAGE VESSELS AREA
17	950-GDZ-04201	H2 GD FZ-04 B-400 HVAC AIR INTAKE
18	950-GDZ-04202	H2 GD FZ-04 B-400 HVAC AIR INTAKE
19	950-GDZ-04203	H2 GD FZ-04 B-400 HVAC AIR INTAKE
20	950-GDZ-04204	H2 GD FZ-04 B-400 AMBIENT
21	950-GDZ-04205	H2 GD FZ-04 B-400 AMBIENT
22	950-GDZ-04206	H2 GD FZ-04 B-400 AMBIENT
23	950-GDZ-04207	H2 GD FZ-04 B-300 HVAC AIR INTAKE
24	950-GDZ-04208	H2 GD FZ-04 B-300 HVAC AIR INTAKE
25	950-GDZ-04209	H2 GD FZ-04 B-300 HVAC AIR INTAKE
26	950-GDZ-04210	H2 GD FZ-04 B-300 AMBIENT
27	950-GDZ-04211	H2 GD FZ-04 B-300 AMBIENT
28	950-GDZ-04212	H2 GD FZ-04 B-300 AMBIENT
29	950-GDZ-04213	H2 GD FZ-04 B-200 HVAC AIR INTAKE
30	950-GDZ-04214	H2 GD FZ-04 B-200 HVAC AIR INTAKE
31	950-GDZ-04215	H2 GD FZ-04 B-200 HVAC AIR INTAKE
32	950-GDZ-04216	H2 GD FZ-04 B-200 AMBIENT
33	950-GDZ-04217	H2 GD FZ-04 B-200 AMBIENT
34	950-GDZ-04218	H2 GD FZ-04 B-200 AMBIENT
35	950-GDZ-05101	H2 GD FZ-05 BESS AREA
36	950-GDZ-05102	H2 GD FZ-05 BESS AREA
37	950-GDZ-05103	H2 GD FZ-05 BESS AREA
38	950-GDZ-05104	
39	950-GDZ-05105	
40	950-GDZ-05106	
41	950-GDZ-06201	H2 GD FZ-06 B-100 HVAC AIR INTAKE
42	950-GDZ-06202	H2 GD FZ-06 B-100 HVAC AIR INTAKE
43	950-GDZ-06203	H2 GD FZ-06 B-100 HVAC AIR INTAKE
44	950-GDZ-06204	H2 GD FZ-06 B-100 AMBIENT
45	950-GDZ-06205	H2 GD FZ-06 B-100 AMBIENT
46	950-GDZ-06206	H2 GD FZ-06 B-100 AMBIENT
47	950-GDZ-03104	H2 GD FZ-03 ELECTROLYZER PK AREA
48	950-GDZ-03105	H2 GD FZ-03 ELECTROLYZER PK AREA
49	950-GDZ-01103	H2 GD FZ-03 ELECTROLYZER PK AREA

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Dräger Polytron® 8200 CAT
Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.



Dräger. Technology for Life®

Benefits

Fast and stable – the DrägerSensor® Ex

The built-in DrägerSensor® Ex is based on the proven catalytic bead measuring principle. It has excellent long-term stability with outstanding poison resistance. And this is the reason for its durability. Due to the novel gas inlet opening, the sensor responds to gas in only a few seconds. This allows you to react immediately with countermeasures and prevent the development of a flammable atmosphere.

Easy device management via digital communication

The Dräger Polytron 8200 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM. In addition to the common HART® communication system, the fieldbus interfaces PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

Same design, same operating principle

The Dräger Polytron 8200 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8200 is operated by means of a magnetic wand over contact surfaces.

Three relays for controlling external equipment

Upon request, the Dräger Polytron 8200 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audible alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

Safe, robust housing for every application

Polytron 8200 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions.

Make the impossible possible with the remote sensor

A remote explosion proof junction allows installation of the sensor up to 350' away from the transmitter in difficult to access areas. A permanently attached remote calibration adapter allows for remote bump testing or calibration from the Polytron display by using permanently attached tubing that takes the calibration gas to the sensor.

Technical Data

Dräger Polytron® 8200 CAT			
Type	Explosion proof / flameproof enclosed transmitter (“d”)		
Gases	Flammable gases and vapors		
Measuring ranges	DQ	0 to 100 % LEL	
	LC	0 to 10 % LEL	
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)		
Performance Characteristics	Accuracy/repeatability	Zero	≤ 1 % LEL
		Span	≤ 1 % LEL
		Long-term drift	≤ 3 % LEL after 6 months
	Response time	T50	< 7 seconds (methane)
		T90	< 13 seconds (methane)
Electrical data	Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
		Maintenance	Constant 3.4 mA (adjustable)
		Fault	< 1.2 mA
	Signal output digital	HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wires	
	Power supply	10 to 30 V DC	
	Power consumption (max.)	DQ w/o relay, non-remote	105 mA at 24 V
		DQ w/ relay, remote	145 mA at 24 V
	Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	
Environmental conditions (see sensor data sheet)	Temperature	-40 to 80 °C (-40 to 176 °F) without relay -40 to 70 °C (-40 to 158 °F) with relay- -50 to 85 °C (-122 to 185 °F) remote sensor	
	Pressure	23.6 to 38.4 inch Hg / 800 to 1,200 mbar	
	Humidity	5 to 95% r. h., non-condensing	
Housing	Transmitter housing	Epoxy coated copper-free aluminium or stainless steel SS316 L	
	Sensor housing	Stainless steel 303	
	Enclosure protection type	NEMA 4X & 7, IP65/66/67	
	Cable entry point	3/4" NPT threaded holes or M20 cable gland	
	Dimensions (H x W x D)	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
	Weight, approx.	Aluminium	4.9 lbs / 2.2 kg
		SS316 L	8.8 lbs / 4.0 kg
Approvals*	UL & CSA	Class I, Div 1, Groups A, B, C, D;	
		Class II, Div 1, Groups E, F, G;	
		Class I, Zone 1, Group IIC;	
		T-Code T6/T4	
	IECEx	Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70 °C;	
	ATEX	II 2G Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70 °C;	
	CE markings	ATEX (Directive 2014/34/EU)	
		Electromagnetic Compatibility (Directive 2014/30/EU)	
		Low Voltage (Directive 2014/35/EU)	
	Shipping approvals (for DQ sensor only)	DNV GL, ABS, LR, CCS, RMRS	
	MED approval (for DQ sensor only)	Certificate No. MEDB0000411	

Technical Data

	DEKRA Performance approval (for DQ sensor only)	Certificate No. BVS 13 ATEX G 001 X
	SIL 2 certified by TUEV Sued	Certificate No. Z10 053474 0023

* All docking station versions are only ATEX/IECEx approved

Ordering Information

Dräger Polytron® 8200 CAT	Approval Code	Order Number
Dräger Polytron® 8200 CAT DQ d A 4-20/HART®	XTR 0410	83 44 439
Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay	XTR 0411	83 44 440
Dräger Polytron® 8200 CAT DQ d S 4-20/HART®	XTR 0510	83 44 448
Dräger Polytron® 8200 CAT DQ d S 4-20/HART® relay	XTR 0511	83 44 449
Dräger Polytron® 8xx0 Kit (Custom configuration e. g. LC sensor or bus communication)		83 44 800

Accessories		Order Number
Magnetic wand		45 44 101
Pipe mount bracket		45 44 198
Aluminum junction box for remote sensor ‘d’		45 44 099
Stainless steel junction box for remote sensor ‘d’		45 44 098
Duct mount kit		68 12 725
IR Connection Kit Polytron® 5000/8000		45 44 197
PolySoft licence (1 year)		83 28 600
PolySoft licence (subscription)		83 28 601
Splash guard		68 12 510
Weather protection kit Dräger Polytron® 5/6/8xxx		37 02 198
Gassing adapter	PE, w/o tubing	68 06 978
	PE incl. tubing	46 09 314
Calibration adapter Viton®		68 10 536
Process adapter (Stainless steel) for DQ		68 12 470
Process adapter (Stainless steel) for LC		68 12 465

HART® is a registered trademark of the HART Communication Foundation.
FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.
Windows® is a registered trademark of Microsoft Corporation.

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equip.	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location
950-FDZ-03104	FZ-03 Flame detect. in electrolyzer package area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04101	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04102	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04103	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-04104	FZ-04 Flame detect. in B-400/B-300/B-200 area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05101	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05102	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05103	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-05104	FZ-05 Flame detect. in bess area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06101	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	Note1	FlameSpec FLS-UV-IR-AS11	II 2 G	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-FDZ-06102	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	Fire and Gas Detection Technologies	1544	FlameSpec FLS-FSIM-UV/IR-KIT	Zone 2	ICQC 20 ATEX 0447X	1724000821-IN-DS-00004	II 2GD Ex db ib op is IIC T6 Gb	-	N/A	True	N/A	True	
950-FDZ-06103	FZ-06 Flame detect. in B-100/Transformer area	LOWER DECK	1724000821	Fores	FGD	-	FlameSpec FLS-UV-IR-AS11	Zone 2	ICQC 19 ATEX 0424X (SENSOR) TPS19 ATEX 105708 0001X (PLUG) INERIS 14 ATEX 0029X (REDUCTION)	1724000821-IN-DS-00004	II 2GD Ex db eb IIC T5 Gb	-	N/A	True	N/A	True	
950-GDZ-01101	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1680	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01102	FZ-01 H2 detect. in fuel cell package area	LOWER DECK	1724000821	Fores	Dräger	ARTA-1685	Polytron® 8900 UGLD d S 4-20/HART® Relay	II 2 G	PTB 11 ATEX 1005X (TR)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-01103	FZ-01 H2 detect. in fuel cell package area	UPPER DECK	1724000821	Fores	Dräger	ARTB-0194	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-IN-DS-00004	II 2G Ex db IIC T6/T4 Gb	-	N/A	True	N/A	True	
950-GDZ-02101	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2193	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02102	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2196	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02103	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2197	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02104	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTB-1620	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02105	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2185	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02106	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2201	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02107	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2206	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02108	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2198	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02109	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2203	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	
950-GDZ-02110	FZ-02 H2 detect. in hydrogen storage vessels area	LOWER DECK	1724000821	Fores	Dräger	ARTC-2204	Polytron® 8200 CAT DQ d S 4-20/HART®	II 2 G	PTB 11 ATEX 1005X (TR) BVS 13 ATEX G 001X (TR) DEMKO 09 ATEX 0924202X (SENSOR) CML 18ATEX 1320X (REDUCTION)	1724000821-COM-LIS-00011	II 2G Ex-d IIC T1	-	N/A	True	N/A	True	

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 11 ATEX 1005 X **Issue: 4**

(4) Product: Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01**

(5) Manufacturer: Dräger Safety AG & Co. KGaA

(6) Address: Revalstraße 1, 23560 Lübeck, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 22-21212.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018+AC:2020, EN 60079-1:2014+AC:2018,
EN IEC 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex db IIC T6...T4 Gb	**bzw.**
II 2 G Ex db ia IIC T6...T4 Gb	**bzw.**
II 2 G Ex db eb IIC T6...T4 Gb	**bzw.**
II 2 D Ex tb IIIC T80°C...T130°C Db	**bzw.**
II 2 G Ex db eb ia IIC T6...T4 Gb	**bzw.**

ZSEx001e c

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

Ex	**II 2 (1) G Ex db [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) G Ex db eb ia [ia Ga] IIC T6...T4 Gb**	**bzw.**
Ex	**II 2 (1) D Ex tb [ia Da] IIIC T135°C Db**	

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, December 14, 2022
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

ZSEx001e c

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 11 ATEX 1005 X, Issue: 4**

(15) Description of Product

The Gas detection transmitters ETR/ITR/XTR/RCU 0***, EAC 01** consist of three different types of sensor and interfaces. The Gas detection transmitter type ETR 0*** uses the electrochemical sensing principle or an ultrasonic sensor with an electrochemical sensor interface, the Gas detection transmitter type ITR 0*** uses the infrared sensing principle and the Gas detection transmitter type XTR 0*** uses the catalytic sensing principle or infrared sensing principle with a catalytic sensor interface. The Gas detection transmitter type RCU 0*** shall only be used with separate certified sensors. The sensor frontend (EC sensing head) of the ETR 0*** series comprises a galvanically separating barrier circuit (inside the flameproof enclosure) and intrinsically safe electronics located out-side the flameproof enclosure as well as an electro-chemical sensor or ultrasonic sensor - all of them being covered by this certificate. The sensors of the ITR 0*** and XTR 0*** series are covered by separate certifications, which are accepted under this certificate.

The internal electronic covers the intrinsically safe fieldbus under consideration of the maximum FISCO input ratings applicable for the operation as both FISCO Field device or alternatively non-intrinsically safe fieldbus PA/FF.

Type code:

***TR 0** * * *
1 2 3 4

1: Sensing principle / sensors
- E = electrochemical
- I = infrared
- X = catalytic

2: Series and enclosure material
- 2 = 02/03 series, aluminium enclosure
- 3 = 02/03 series, stainless steel enclosure
- 4 = 04/05 series, aluminium enclosure
- 5 = 04/05 series, stainless steel enclosure

3: Sensors

ITR 0 * * *

3: Sensors
- 0 = IDS 0001
- 1 = IDS 0101

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2 = IDS 0102
5 = IDS 0105

ETR 0 * * *
3: Sensors
0 = DrägerSensor or DrägerSensor XS with adapter *or DrägerSensor with Gas Generator type EDS 03***
2 = Ultraschall Sensor

XTR 0 * * *
3: Sensors
0 = IDS 0002
1 = XDS 020*
2 = Ex-Sensor LC NPT

4: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	"d", Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

Type code for Junction Box, type EAC 01 (Remote Sensor)**

EAC 01 * *
1 2

1: Enclosure Material
0 = Aluminum
1 = Stainless Steel
2: Features not relevant for the type of protection

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Type code for Remote Box, type RCU 0*

RCU 0 * * *
1 2 3

1: Enclosure Material
2 = Aluminum
3 = Stainless Steel
2: Features not relevant for the types of protection

3: Interface

0	=	"d", 4-20 mA
1	=	"d", 4-20 mA with Relay
2	=	“d”, Modbus RTU
A	=	"d"+"ia", Foundation Fieldbus
B	=	"d"+"ia", Foundation Fieldbus SIF
E	=	"d"+"ia", Profibus
F	=	"d"+"ia", Profisafe
I	=	"d"+"e", 4-20 mA
J	=	"d"+"e", 4-20 mA with Relay
K	=	"d"+"e", Modbus RTU
S	=	"d"+"e"+"ia", Foundation Fieldbus
T	=	"d"+"e"+"ia", Foundation Fieldbus SIF
W	=	"d"+"e"+"ia", Profibus
X	=	"d"+"e"+"ia", Profisafe

The relation between ambient temperature and the assigned temperature class is as follows:

Type	Ambient temperature range	Temperature class (Gas)	Temperature class (dust)
ITR 0*0* RCU 0*** XTR 0*0*	-40 °C to +65 °C	T4	T130°C
All other versions	-40 °C to +80 °C	T4	T130°C
All versions	-40 °C to +40 °C	T6	T80°C
ETR 02/032* ETR 04/052*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +70 °C	T4	T135°C
ETR 02/030* ETR 04/050*	-40 °C to +40 °C	T6	T135°C

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

Electrical Ratings:

Maximum supply wattage: P_{max}: 5 W

Supply:

ETR 02/03** series	10...30 VDC, 0.08...0.15 A
ITR 02/03** series	10...30 VDC, 0.1...0.75 A
XTR 02/03** series	10...30 VDC, 0.1...0.2 A
ETR 04/05** series	10...30 VDC, 0.1...0.35 A
ITR 04/05** series	10...30 VDC, 0.3...1.0 A
RCU 02/03** series	10...30 VDC, 0.3...1.0 A
XTR 04/05** series	10...30 VDC, 0.15...0.45 A
Relay	5A, 30 VDC or 230 VAC

Fieldbus circuit:
Field device as Fieldbus system in type of protection Intrinsic Safety Ex ia IIC; FISCO in acc. of IEC 60079-11, using only for the interface type A; B; E; F; S; T; W and X
or
Field device as Fieldbus system (non-intrinsically safe) using only for the interface type 2 and K
Electrical data: Maximum values:

Model	Voltage, Ui [VDC]	Current, Ii [mA]	Power, Pi [mW]
ETR 04*(*) ETR 05*(*) ITR 04*(*) ITR 05*(*) RCU 02*(*) RCU 03*(*) XTR 04*(*) XTR 05*(*)	17.5	380	5320

For the Gas detection transmitters series ETR ****
Sensor circuit: in type of protection Intrinsic safety Ex ia IIC / IIIC;
only for connecting Dräger Sensor or XS with adapter or
ultrasonic sensor or DraegerSensor with electrochemical sensor
type EDS 03**

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 11 ATEX 1005 X, Issue: 4

(16) Test Report PTB Ex22-21212

(17) Specific conditions of use

The circuits are limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1 for FISCO field device operation.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. M. Thedens
Regierungsdirektor

Braunschweig, December 14, 2022

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In case of dispute, the German text shall prevail.

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Translation

EU-Type Examination Certificate Supplement 08

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

2 **Device with a measuring function for explosion protection Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 13 ATEX G 001 X**

4 Product: **Transmitters types ITR 041*, ITR 051*, ITR 042*, ITR 052*, XTR 040*, XTR 050*, XTR 041*, XTR 051*, XTR 042*, XTR 052*, ETR 040*, ETR 050***

5 Manufacturer: **Dräger Safety AG & Co. KGaA**

6 Address: **Revalstraße 1, 23560 Lübeck, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 13 ATEX G 001 X to apply to products designed and constructed in accordance with the specification set out in the Annex of the said certificate but having any variations specified in the Annex attached to this certificate and the documents therein referred to.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential test report PFG-no. 41300313P NIX.

9 Compliance with the Essential Health and Safety Requirements with respect to the measuring function for explosion protection has been assured by compliance with:

EN 60079-29-1:2007
EN 60079-29-1:2016
EN 50104:2010
EN 50271:2010
EN 50271:2018

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

see PTB 11 ATEX 1005 X Ausgabe 01

DEKRA Testing and Certification GmbH
Bochum, 2020-02-04

Signed: Kilisch
Managing Director

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DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 13 ATEX G 001 X
Supplement 08

15 **Product description**

15.1 **Subject and type**

Transmitter types ITR 041*, ITR 051*, ITR 042*, ITR 052*, XTR 040*, XTR 050*, XTR 041*, XTR 051*, XTR 042*, XTR 052*, ETR 040*, ETR 050*

Coding of type: (1)TR 0(2)(3)(4)

(1)	E, I or X	Sensor interface: infrared (I) or catalytic (X)
(2)	4 or 5	Material of housing: aluminium (4) or stainless steel (5)
(3)		internal sensor:
	1 or 2	for ITR: IDS 0101 (1) or IDS 0102 (2)
	0,1 or 2	for XTR: IDS 0002 (0) or XDS 0200 (1) or Ex-Sensor LC NPT (2)
		external sensor with junction box EAC 01**:
	1 or 2	for ITR: IDS 0101 (1) or IDS 0102 (2)
	0,1 or 2	for XTR: IDS 0002 (0) or XDS 0200 (1) or Ex-Sensor LC NPT (2)
		external sensor with other junction boxes:
	1 or 2	for ITR: IDS 0101 (1) or IDS 0102 (2) or IDS 0111 (1) or IDS 0112 (2)
	0,1 or 2	for XTR: IDS 0002 (0) or IDS 0012 (0) or Polytron SE Ex PR M* DQ (1) or Polytron SE Ex PR NPT1 DQ (1) or Polytron SE Ex HT M DQ (1) or Polytron SE Ex LC M1/2 DD (2)
	0	DrägerSensor (internal sensor only) for ETR 0*0*
(4)	0, 1, I, J	interface: "d", 4-20 mA (0) or "d", 4-20 mA with relays (1) or "d"+"e", 4-20 mA (I) or "d"+"e", 4-20 mA with relays (J)

15.2 **Description**

Reason for the supplement:
Modification of the software of the transmitter and re-testing of types ITR 041*, ITR 051*, ITR 042* and ITR 052* according to EN 60079-29-1:2016 and EN 50271:2018.
The test according to EN 50271:2018 concerns only transmitters types XTR 0*1*, XTR 0*2*, ETR 0*0*, ITR 041*, ITR 051*, ITR 042* and ITR 052*. The test according to EN 60079-29-1:2016 concerns only transmitters types XTR 0*1*, XTR 0*2*, ITR 041*, ITR 051*, ITR 042* and ITR 052*.

Description of Product

The transmitters ITR 0*1* (Polytron 8700 with sensor Dräger PIR 7000 type 334), ITR 0*2* (Polytron 8700 with sensor Dräger PIR 7000 type 340), XTR 0*0* (Polytron 8310 with Dräger Sensor IR) and XTR 0*1* (Polytron 8200 with DrägerSensor PR M DQ, HT M DQ or PR NPT DQ) are fixed equipment for the measurement of flammable gases and vapours mixed with air at volume fractions up to the lower explosive limit. The transmitters XTR 0*2* (Polytron 8200 with Ex-sensor LC M or LC NPT) are fixed equipment for the measurement of flammable gases and vapours mixed with air at volume fractions up to 10 % of the lower explosive limit. The sensor may be directly connected to the transmitter housing or operated as remote sensor.
The transmitters type ETR 0*0* (Polytron 8100 with DrägerSensor O_2 or DrägerSensor O_2 LS) are fixed equipment for the measurement of oxygen. The sensor is directly fitted to the transmitter housing. Operation with a remote sensor is not subject of this supplement to the EU-type examination certificate.
A 4-20 mA interface serves for transmission of the measured value to a control unit.
The transmitters can be equipped with a relay module that provides two alarm relays and one fault relay.

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15.3 **Parameters**

see PTB 11 ATEX 1005 X Ausgabe 01

15.4 **Measuring function for explosion protection**

This EU-type examination certificate covers:

- transmitters types ITR 041*, ITR 051*, ITR 042*, ITR 052*, XTR 040*, XTR 050*, XTR 041*, XTR 051*, XTR 042*, XTR 052* with software version 3.1.0 and transmitters types ETR 040* and ETR 050* with software version 3.1.0 (main) and 5 (SIOS)
- for transmitters types ITR 0*1* and ITR 0*2* (infrared sensor) the measuring function for those gases and vapours which are listed in the instruction manual with reference to the EU-type examination certificate BVS 08 ATEX G 001 X
- for transmitters type XTR 0*0* (infrared sensor) when operated in gas category methane the measuring function for methane in the measuring range 0 - 100 % LEL, when operated in gas category propane the measuring function for propane, i-butane, n-butane, n-pentane, n-hexane, n-octane, n-nonane and i-propanol in the measuring range 0 - 100 % LEL and ethanol and ethyl acetate in the measuring range 0 - 70 % LEL, and when operated in gas category ethylene the measuring function for ethylene, propylene, toluene, acetone and ethyl acetate in the measuring range 0 - 100 % LEL and methanol in the measuring range 0 - 70 % LEL
- for transmitters type XTR 0*1* (catalytic combustion sensor) the measuring function for methane, propane, acetone, acetylene, ammonia, special boiling point spirit 65/95, benzene, 1,3-butadiene, n-butane, 2-butanone, n-butyl acetate, diethyl ether, dimethyl ether, acetic acid, ethanol, ethylene, ethyl acetate, ethylene oxide, n-hexane, methanol, methyl methacrylate, n-octane, n-pentane, 2-propanol, propylene, propylene oxide, n-nonane, toluene, o-xylene and hydrogen in the measuring range 0 - 100 % LEL
- for transmitters type XTR 0*2* (catalytic combustion sensor) the measuring function for methane, propane, ethylene, acetylene, propylene, i-butylene, benzene, n-nonane and hydrogen in the measuring range 0 - 10 % LEL
- for transmitters type ETR 0*0* (electrochemical sensor) the measuring function for oxygen (measurement of inertisation) in the measuring range 0 - 5...25 % O_2
- use of the following outputs for safety relevant purposes:
  - display
  - 4-20 mA output for measured values
  - relays
- use of the following accessories for transmitters types ITR 0*1* and ITR 0*2*:
  - Spacer (part no. 6812617)
  - use of the following accessories for sensor PIR 7000:
    - Mounting set PIR 7000 (part no. 68 11 648)
    - Splash guard PIR 7000 (part no. 68 11 911)
    - Insect guard PIR 7000 (part no. 68 11 609)
    - Hydrophobic filter PIR 7000 (part no. 68 11 890)
    - Calibration adapter PIR 7000 (part no. 68 11 610)
    - Status indicator PIR 7000 (part no. 68 11 625)
    - Flowcell PIR 7000 (part no. 68 11 490)
    - Bump test adapter PIR 7000 (part no. 68 11 630)
    - Process adapter PIR 7000 (part no. 68 11 915)
    - Prozess cuvette PIR 7000 (part no. 68 11 415)
    - Prozess cuvette PIR 7000 SGR (part no. 68 13 219)
    - Junction box Ex e (part no. 68 11 898)
    - Junction boxes Ex d (part no. 45 20 561)
    - Magnetic wand (part no. 45 44 101)

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- use of the following accessories for transmitters type XTR 0*0*:
  - use of the following accessories for DrägerSensor IR:
    - Splash guard (part-no. 68 10 796)
    - Calibration adapter (part-no. 68 10 859)
    - Weather guard (part-no. 68 11 135)
    - Gassing-/process adapter (part-no. 68 11 330)
    - Magnetic wand (part-no. 45 44 101)
    - Junction box "Ex d" (part-no. 68 11 161)
    - Junction box "Ex e" (part-no. 68 11 299)
    - Junction box "Ex e" (part-no. 68 11 159)
- use of the following accessories for transmitters type XTR 0*1*:
  - Calibration adapter PE, Europe (part no. 68 06 978)
  - Process adapter (part no. 68 12 470)
  - Remote calibration adapter DQ (part no. 68 12 480)
- use of the following accessory for transmitters type XTR 0*2*:
  - Calibration adapter PE, Europe (part no. 68 06 978)
- use of the following accessories for transmitters type ETR 0*0*:
  - Calibration adapter PE, Europe (part no. 68 06 978)
  - Sensor test dongle (part no. 83 17 619)
  - Diagnostic dongle (part no. 83 17 860)

The EU-type examination includes the following deviations from the operating conditions required by EN 60079-29-1:

- Extended range of temperature at operation:	-40 °C to +70 °C (with relay module) -40 °C to +77 °C (ITR 0*1* und ITR 0*2*; without relay module) -40 °C to +65 °C (XTR 0*0*) -40 °C to +80 °C (XTR 0*1* and XTR 0*2*; without relay module) -40 °C to +85 °C (Polytron SE Ex LC M1/2 DD)
- Extended range of ambient pressure:	70 kPa to 130 kPa
- Extended range of humidity of the measured gas:	0 % RH to 95 % RH (ITR 0*1*, ITR 0*2*, and XTR 0*0*) 5 % RH to 95 % RH (XTR 0*1* and XTR 0*2*)

The EU-type examination includes the following deviations from the operating conditions required by EN 50104:

- Extended range of temperature at operation:	-40 °C to +65 °C (DrägerSensor O_2 LS)
- Deviating range of temperature at operation:	0 °C to +55 °C (DrägerSensor O_2)
- Extended range of ambient pressure:	70 kPa to 130 kPa
- Extended range of humidity of the measured gas:	5 % RH to 95 % RH (DrägerSensor O_2 LS) 10 % RH to 95 % RH (DrägerSensor O_2)

16 **Test report**

PFG-no. 41300313P NIX of 2020-02-04
EU-type examination certificate PTB 11 ATEX 1005 X Ausgabe 01 of 2017-05-10

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17 Special Conditions for Use

- see EU-type examination certificate PTB 11 ATEX 1005 X Ausgabe 01
- If operated with a relay module:
  - The main alarm shall be configured "latching" and "non-acknowledgeable" or "pre-acknowledgeable".
  - The pre-alarm shall only be configured "acknowledgeable" if it is used for operation of an acoustic alarm device.
- For transmitters types ITR 0*1* and ITR 0*2*:
  - see EU-type examination certificate BVS 08 ATEX G 001 X
- For transmitters type XTR 0*0*:
  - see 9th supplement to the EU-type examination certificate BVS 05 ATEX E 143 X
- For transmitters type XTR 0*1*:
  - When exposed to a directed flow of air mixed with gas, the measured values can be increased by up to 32 %.
  - When operated with the remote calibration adapter DQ the measured values can be increased by up to 70 %.
- For transmitters type XTR 0*2*:
  - Operate the transmitter when connected to a control unit that has a latching over-range indication. Do not use internal alarm relays of the transmitter.
  - When exposed to a directed flow of air mixed with gas, the measured values can be increased by up to 32 %.
  - Adjust the transmitter with the sensor in its operational orientation.
  - False alarms can occur during warming up of the sensor.
- For transmitters type ETR 0*0*:
  - The response time t_{20} can exceed the limit of EN 50104 for small concentration changes.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements with respect to the measuring function for explosion protection are covered by the standards listed under item 9.

19 Drawings and Documents

Drawings and documents are listed in the confidential test report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, dated 2020-02-04

Managing Director

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EU Type Examination Certificate CML 18ATEX1320X Issue 3

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **Type 737 & 797 Ranges of Adaptors & Reducers and 747, 757 & 767 Ranges of Stopping Plugs**

3 Manufacturer **CMP Products Ltd**

4 Address **Unit 36 Nelson Way**
Nelson Park East,
Cramlington
NE23 1WH
UK

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018	EN IEC 60079-7:2015+A1:2018
EN 60079-1:2014	EN 60079-31:2014

10 The equipment shall be marked with the following:

Ex I M2 Ex db I Mb and/or Ex eb I Mb
II 2 G Ex db IIC Gb and/or Ex eb IIC Gb
II 1 D Ex ta IIIC Da

Ex II 2 G Ex eb IIC Gb
II 1 D Ex ta IIIC Da

(NOTE: Equipment marked with mining code are not available in aluminium)

11 Description

The Type 737 & 797 Ranges of Adaptors & Reducers and 747, 757 & 767 Ranges of Stopping Plugs are designed for explosive atmospheres, supplied in metallic and non-metallic (excluding 797 range) material options.
The Adaptor and Reducer product ranges convert an existing cable entry thread to another type and/or size. They comprise a hexagonal or cylindrical body – with flats – threaded from both ends providing the change required. These can be manufactured with equal threads or a combination of various sizes and types, unless otherwise stated.

- 737 Adaptor – Comprises a male (M) entry thread, adapting to a female (F) thread of the same size or larger, and limited to a change of two ‘standard’ thread sizes, e.g. M16 x M25.
- 737 Reducer – Comprises a male (M) entry thread, reducing to a female (F) thread, smaller and not limited by a specific number of thread sizes,
  e.g. M130 (M) x M10 (F) being acceptable.
- 797 Adaptor/Reducer – Comprises M/M or F/F threads only and limited to a change of two ‘standard’ thread sizes; with the exception of F/F thread options, where a change of three ‘standard’ thread sizes is allowed for M20 (F) x M10 (F) only.

Stopping Plug product ranges provide a means of blanking unused cable entries, giving Ex protection.

- 747 Stopping Plug – Comprises a cylindrical body with an external male thread and hexagonal, or square drive, recess or protrusion.
  - Non-tamperproof – allen key hexagonal, or square drive, recess only accessible outside the enclosure
  - Tamperproof – allen key hexagonal, or square drive, recess only accessible inside the enclosure
- 757 Stopping Plug – Comprises a hexagonal head and cylindrical body with an external male thread.
- 767 Stopping Plug – Comprises a cylindrical body with an external male thread and domed head with allen key hexagonal, or square drive, recess.

Materials of manufacture

Metallic:

- Brass; aluminium; stainless steel; mild steel.

Non-Metallic:

- Glass reinforced flame-retardant nylon (Excluded from Group I applications).

All brass manufactured component parts can be optionally nickel-plated. All mild steel manufactured components can be optionally zinc plated.

Design Options

- The male entry component can be fitted with an O-ring seal, which locates on the mating face with its associated enclosure. This option having the product type prefixed with the letter ‘R’. Applicable to 737, 757, 767, and 797 (M/M only) product ranges.
- Alternative entry component thread forms; Metric, ET (conduit), PG, BSPP, BSPT, ISO, NPT, and NPSM. Refer to R12922A for thread specifications.
- Intermediate thread sizes permitted, e.g. M28.

Thread and Size Designations:

Table 1 details the size reference and thread designation of the thread options covered. Table 2 details the products and their approved thread size ranges:

Table 1

737 / 747 / 757 / 767 / 797 Size Reference and Recognised Equivalent Threads							
Size Ref.	**Metric**	**NPT**	**NPSM**	**BSPP**	**BSPT**	**PG DIN**	**E.T.**
10	M10	1/8	1/8	1/8	1/8	-	3/8
12	M12	1/4	1/4	1/4	1/4	PG7	1/2
16	M16	3/8	3/8	3/8	3/8	PG9	5/8
20	M20	1/2	1/2	1/2	1/2	PG11 PG13.5	3/4
25	M25	3/4	3/4	3/4	3/4	PG16 PG21	1
32	M32	1	1	1	1	-	1-1/4
40	M40	1-1/4	1-1/4	1-1/4	1-1/4	PG29	1-1/2
50	M50	1-1/2	1-1/2	1-1/2	1-1/2	PG36	2
63	M63	2	2	2	2	PG42	2-1/2
75	M75	2-1/2	2-1/2	2-1/2	2-1/2	PG48	3
90	M90	3	3	3	3	-	3-1/2
100	M100	3-1/2	3-1/2	3-1/2	3-1/2	-	4
115	M115	4	4	4	4	-	-
130	M130	5	5	5	5	-	-

NOTE: Metric entry threads of all model ranges may be manufactured with a thread pitch between 0.7 mm and 2.0 mm, with 1.5 mm as standard, with the exception of Size 10 which is only permitted with a 1.0 mm thread pitch.

Table 2

Product Range	Metallic*	
	Male Thread (Size Ref.)	**Female Thread (Size Ref.)**
737 Adaptor	12 to 130	12 to 130
737 Reducer	16 to 130	10 to 115
797	12 to 130	10 to 130
747 / 757 / 767	12 to 130	-
* Stainless Steel only, when any thread size 10 or 12 is required		

Product Range	Non-metallic*	
	Male Thread (Size Ref.)	**Female Thread (Size Ref.)**
737 Adaptor	20 to 75	20 to 90
737 Reducer	20 to 90	16 to 75
747 / 757 / 767	20 to 100	-
* Excluded from Group I applications		

Variation 1

This variation introduces the following modifications:

i. The introduction of a universal certificate schedule drawing detailing critical parts.
ii. The introduction of additional sizes.
iii. The introduction of an additional Specific Condition of Use.
iv. The amendment of drawing text and formatting, including consolidation, for consistency that has no effect on the technical content.
v. The update to the latest standard editions.

Variation 2

This variation introduces the following modification:

i. Correction to typographical errors on this certificate, relating to the ATEX certificate number.

Variation 3

This variation introduces the following modifications:

i. Introduction of a square socket (recessed) and a square plug (protrusion) on the 747 Stopping plugs and 767 Stopping plugs.
ii. Modification to the specific conditions of use

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	18 Feb 2019	R12060D/00	Issue of the prime certificate
1	04 May 2021	R12735B/00 R12922A	Introduction of variation 1
2	26 Jan 2022	N/A	Introduction of variation 2 Correction of typographical errors only, no supporting report was required.
3	09 Feb 2024	R16280A/00	Introduction of Variation 3

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. Non-metallic and aluminium adaptors, reducers and stopping plugs shall not bear any Group I marking.

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

i. The interfaces between a male thread of an adaptor/reducer and an associated enclosure, between a female thread of an adaptor/reducer and a cable entry device, and between a stopping plug and an associated enclosure cannot be defined. Therefore, it is the installer's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.

ii. Non-metallic adaptors, reducers and stopping plugs shall not be used in enclosures where the temperature, at the point of mounting, is outside the range of -20°C to +60°C.

iii. The installer shall refer to the manufacturer's instructions for the action necessary regarding the electrostatic risk associated with non-metallic adaptors, reducers and stopping plugs.

iv. Any cable gland used with the non-metallic adaptors and reducers shall be non-metallic.

v. The adaptors, reducers and stopping plugs sizes 10 & 12 have been tested to a mechanical impact of 7 J and therefore, when used in Group I applications, shall only be installed where the risk of mechanical impact is low.

Certificate Annex

Certificate Number	**CML 18ATEX1320X**
Equipment	**Type 737 & 797 Ranges of Adaptors & Reducers and 747, 757 & 767 Ranges of Stopping Plugs**
Manufacturer	**CMP Products Ltd**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
GA077	1 of 1	06	11 Feb 2019	ATEX Adaptors, Reducers and Stopping Plugs
GA133	1 of 1	05	11 Feb 2019	ATEX Non-metallic Adaptors, Reducers and Stopping Plugs
GA134	1 of 1	03	11 Feb 2019	Type 797 Male/Male & Female/Female Adaptors
GA307	1 of 1	03	11 Feb 2019	Type 737 & Type 797 Adaptors (Optional Sizes)
SCH0070	1 of 1	07	11 Feb 2019	Adaptor/Reducer Cross-Reference Chart

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
GA2372	1 to 2	00	04 May 2021	Adaptors, Reducers and Stopping Plugs
SCH0070	1 of 1	08	04 May 2021	Adaptor/Reducer Cross-Reference Chart

Issue 2

No drawings were introduced or revised under this issue.

Issue 3

Drawing No	Sheets	Rev	Approved date	Title
GA2372	1 to 2	02	09 Feb 2024	ADAPTORS, REDUCERS, AND STOPPING PLUGS

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 09 ATEX 0924202X Rev. 2**

[4] Product: **Gas Sensor XDS 02xx**

[5] Manufacturer: **Dräger Safety AG & Co. KGaA**

[6] Address: **Revalstrasse 1, 23560 Lübeck, Germany**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **US/UL/ExTR09.0006/03**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN 60079-31:2014**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following:

II 2 G Ex db IIC T6...T3 Gb

II 2 D Ex tb IIIC T130°C…T195°C Db

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2009-10-23
Re-issued: 2020-12-14

Notified Body
UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

[13] # Schedule

[14] # EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 09 ATEX 0924202X Rev. 2

[15] Description of Product
The Ex-Sensor XDS 020x (tapered NPT thread) may be mounted to enclosures, type of protection Flameproof Enclosure "d", employing female flameproof ¾" NPT threads.

Nomenclature for XDS 02 x x
I II III

I - Denotes basic gas sensor designation
XDS 02

II - Denotes threaded hub size located on the cover of the sensor
0 – 3/4" - 14 NPT male threads
1 – M25 x 1.5 male threads

III - Denotes limits on ambient temperature range
0 – -50 °C to +85 °C
1 – -50 °C to +155 °C

Performance testing
The measuring function of the product for explosion protection, according to Annex II clause 1.5.5, 1.5.6 and 1.5.7 of the Directive 2014/34/EU is not covered in this certificate.

Temperature range
The relation between ambient temperature and the assigned temperature class is as follows:

Ambient temperature range	Temperature class (G)	Maximum surface temperature (D)
-50 °C to +155 °C	T3	T195
-50 °C to +85 °C	T4	T130
-50 °C to +55 °C	T5	T130
-50 °C to +40 °C	T6	T130

Electrical data
Power supply:
30 V, max. 2 W

Routine tests
Routine tests according to EN 60079-1:2014, cl. 16 are required. As a suitable alternative for Overpressure testing the survey of welding parameters, such as yield, weld energy has been described by the Manufacturer and must be guaranteed during production process.

[16] Descriptive Documents
The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:
- The XDS02** component sensor was evaluated for a temperature classification related to various ambient temperatures as shown in the table under Temperature Range.
- Dust tightness suitability of threaded entry is to be verified in combination with the ultimate enclosure in the end-use application. This applies to "Flameproof Enclosure," "Increased Safety" and "Protection by Enclosure" applications equally.
- Ingress Protection ratings to IP6X in accordance with EN 60529:1992/A2 2013, if applicable, are to be verified in combination with the ultimate enclosure in the end-use application.
- Metric thread does not comply with EN 60079-1 and may only be used with Ex certified enclosures of Equipment Level Protection Gb or Gc or when subject to special investigation in end use.
- No repair is possible on the welded construction of the flameproof enclosure.

[18] Essential Health and Safety Requirements
The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information
The Ex-Sensor XDS 02xx has in addition passed the tests for Ingress Protection to IP 6X in accordance with EN60529:1991+A1:2000+A2:2013.

The trademark Dräger will be used as the company identifier on the marking label.

This certificate may only be reproduced in its entirety and without any change, schedule included.

Section 6 MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & process: MC & discipline : I

Instrumental	70-10 F&G Devices FZ-01 (Fuel Cell Area)

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
950-FDZ-01102	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10001502	CJX43	100	2025-01-13	RFC 1
950-FDZ-01103	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10000971	CJX43	100	2024-12-05	RFC 1
950-MFA-01102	FZ-01 MFA Activation	ONSHORE	C10001543	CJX00	100	2024-12-24	RFC 1
950-MFA-01103	FZ-01 MFA Activation	ONSHORE	C10001054	CJX00	100	2024-12-05	RFC 1
950-XZ-01102	FZ-01 Sounder Activation	ONSHORE	C10001556	CJX00	100	2024-12-27	RFC 1
C-950-FDZ-01101/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000202	CJX10	100	2024-12-24	RFC 1
C-950-FDZ-01102/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000203	CJX10	100	2025-01-13	RFC 1
C-950-FDZ-01103/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000204	CJX10	100	2024-12-05	RFC 1
C-950-FDZ-01104/950-JE-01101	FLAME DETECTOR / MARSHALLING PCS	ONSHORE	C10000205	CJX10	100	2025-01-13	RFC 1
C-950-GDZ-01101/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000264	CJX10	100	2024-12-24	RFC 1
C-950-GDZ-01102/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000265	CJX10	100	2024-12-27	RFC 1
C-950-GDZ-01103/950-JE-01102	GAS DETECTOR / MARSHALLING PCS	ONSHORE	C10000266	CJX10	100	2024-12-24	RFC 1
C-950-MFA-01101/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000294	CJX10	100	2024-12-23	RFC 1
C-950-MFA-01102/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000295	CJX10	100	2024-12-24	RFC 1
C-950-MFA-01103/950-JE-01103	MANUAL FIRE ALARM / MARSHALLING PCS	ONSHORE	C10000296	CJX10	100	2024-12-05	RFC 1
C-950-XL-01101/950-JE-01104	BEACON / MARSHALLING PCS	ONSHORE	C10000322	CJX10	100	2024-12-12	RFC 1
C-950-XL-01102/950-JE-01104	BEACON / MARSHALLING PCS	ONSHORE	C10000323	CJX10	100	2024-12-13	RFC 1
C-950-XZ-01101/950-JE-01104	SOUNDER / MARSHALLING PCS	ONSHORE	C10000320	CJX10	100	2024-12-11	RFC 1
C-950-XZ-01102/950-JE-01104	SOUNDER / MARSHALLING PCS	ONSHORE	C10000321	CJX10	100	2024-12-27	RFC 1

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-FDZ-01101/950-JE-01101	: FLAME DETECTOR / MARSHALLING PCS		Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10000202	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-FDZ-01101	To	950-JE-01101		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	PL
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,3	Ω
	SCREEN	0,3	Ω
	EARTH	NA	Ω
	ARMr	0,3	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

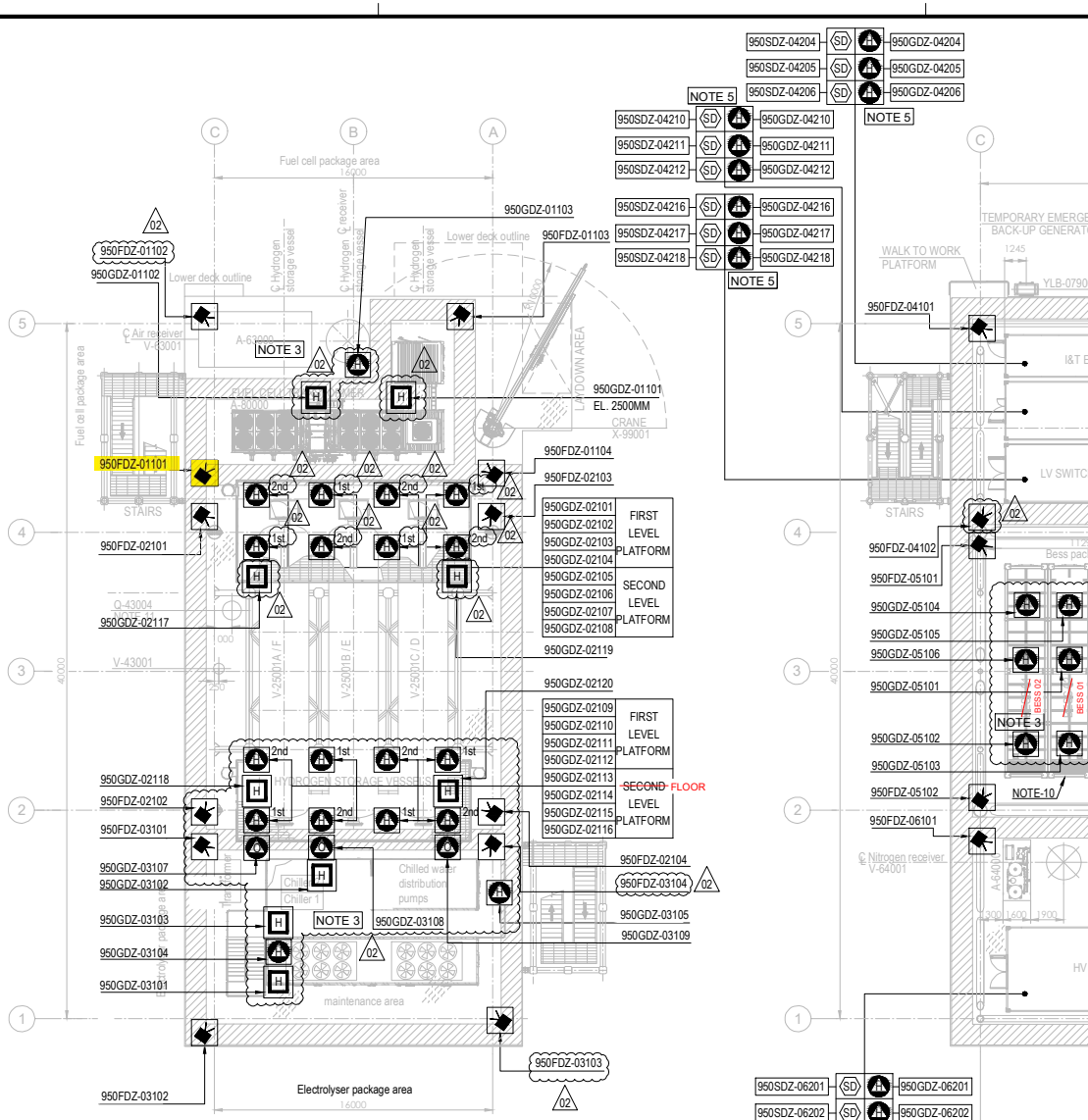
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

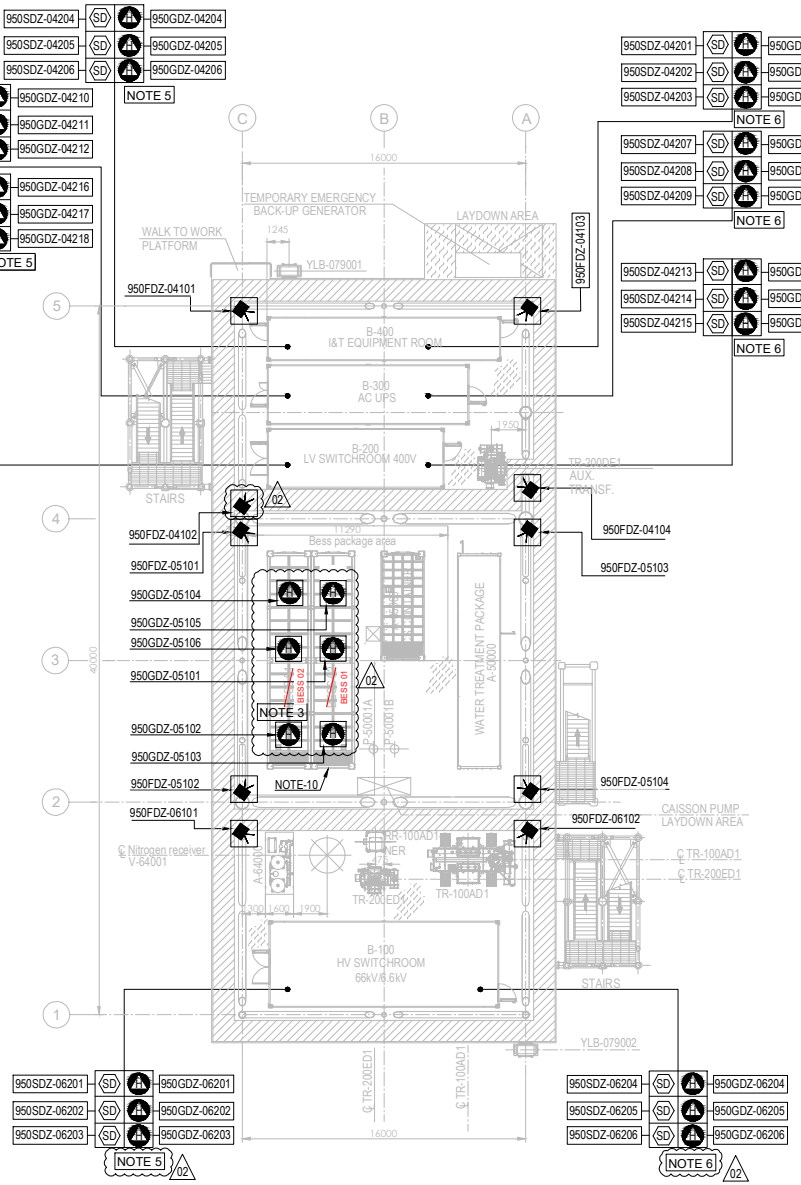
Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Andrea Andreani	
Date	2024-12-23	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-23T08:59:28.617Z	PROVERLIS Digitaly signed by Andrea Andreani 2024-12-24T08:22:04.928Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

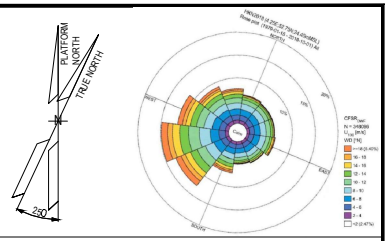


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

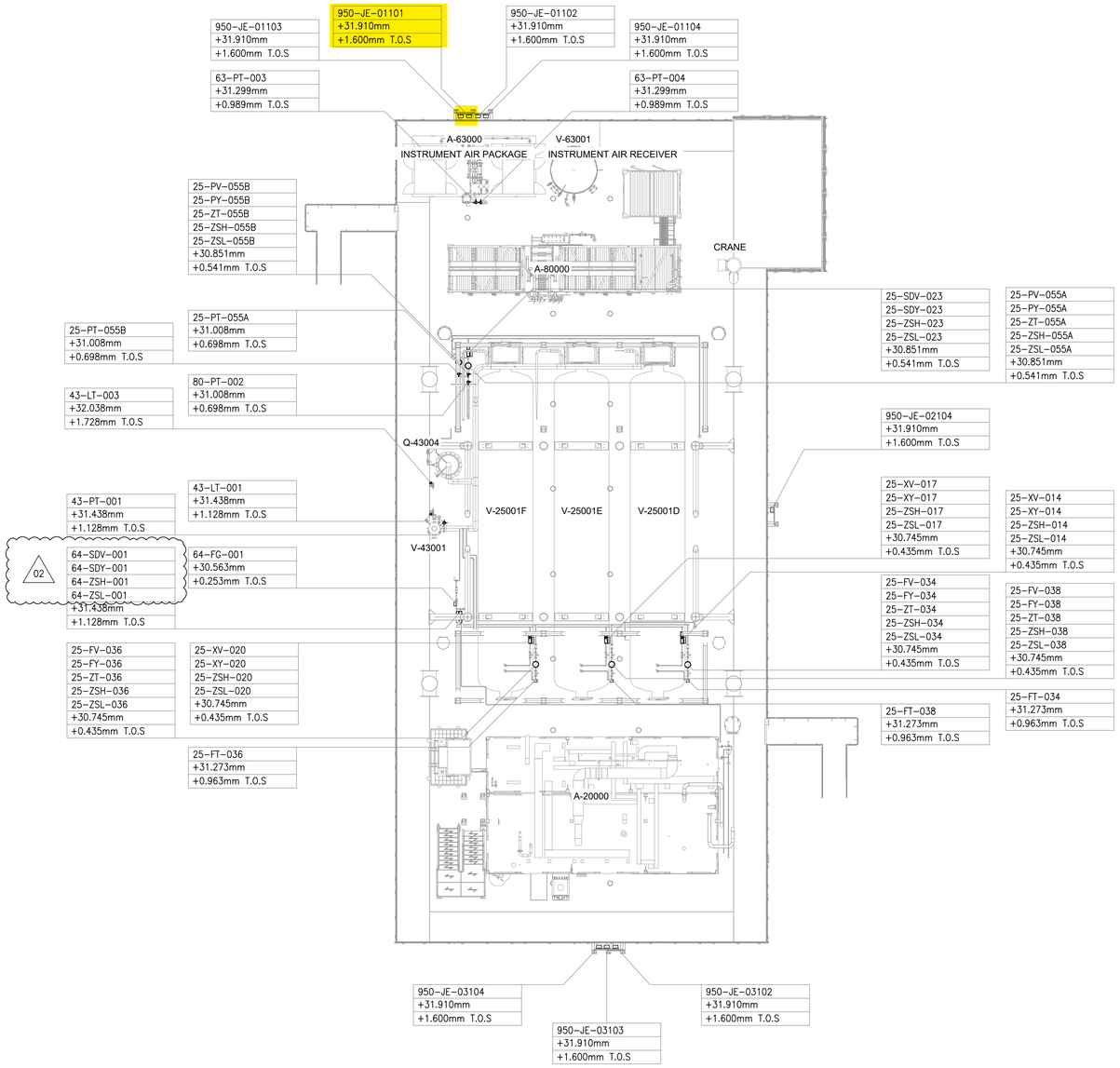
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
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A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

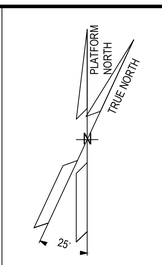
REV. 01

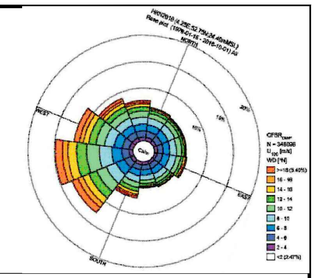


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

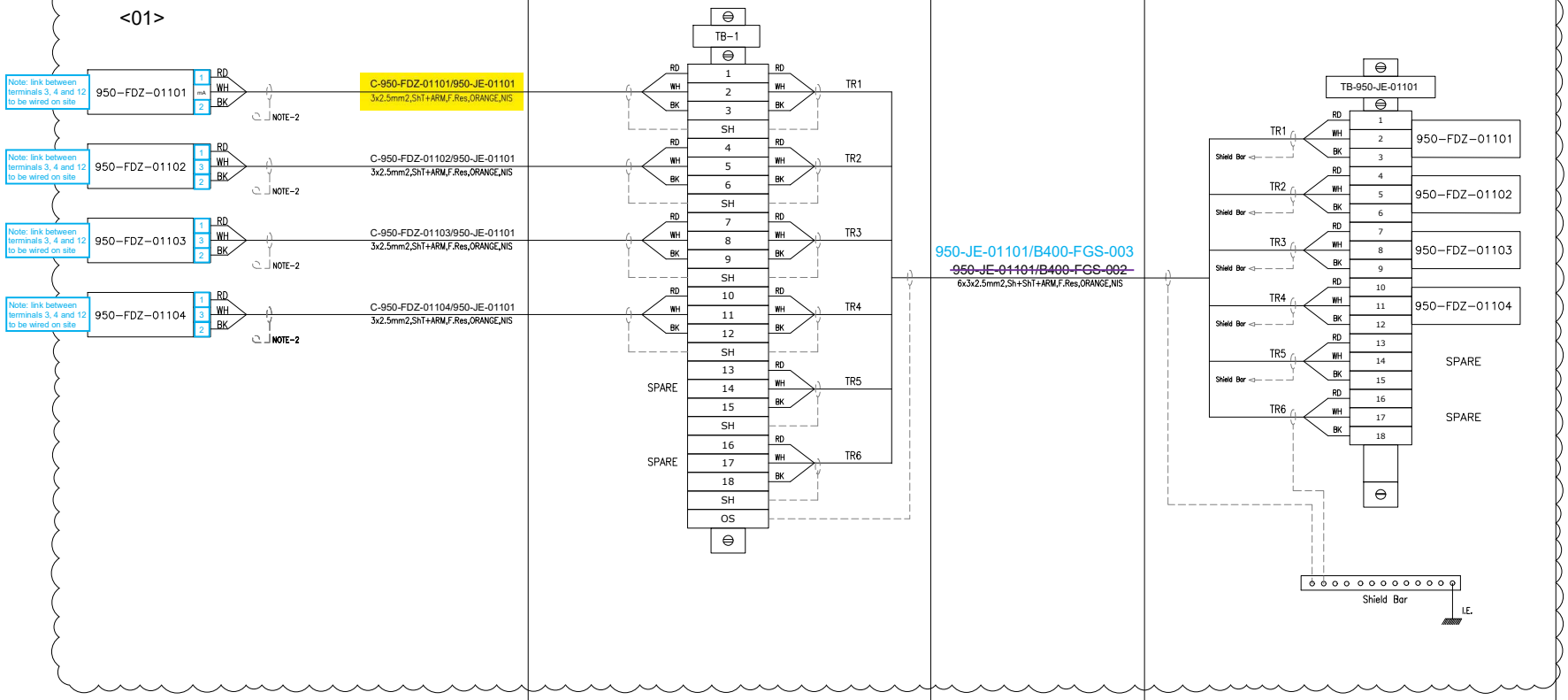
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90–DDL–IN–DL–40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV.01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01101	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

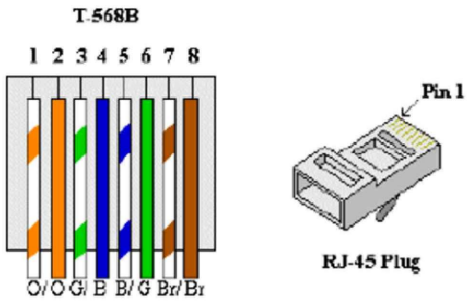
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File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015 REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:

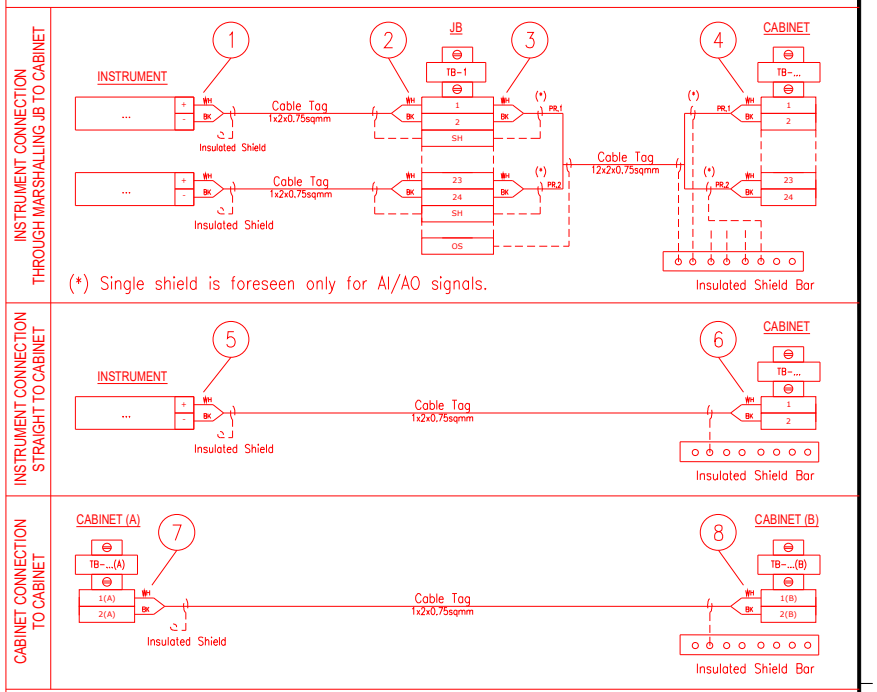


8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

I.E.	- GREEN —— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW —— P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

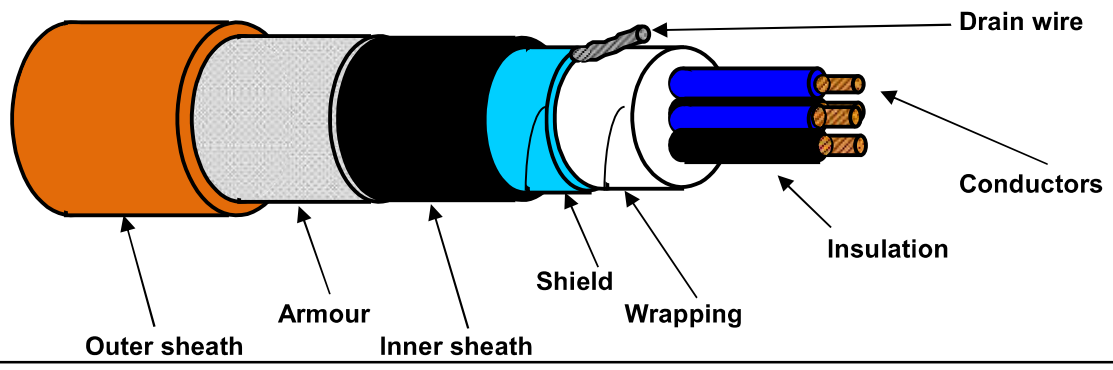
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-FDZ-01101/950-JE-01101	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-FDZ-01101	Flame Detector	Upper Deck	950-JE-01101	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double	M25	RED_M25MxM20F	T2_M20_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-950-FDZ-01102/950-JE-01101 : FLAME DETECTOR / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000203		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 — Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-FDZ-01102	To	950-JE-01101		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	PL
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0,4	Ω
	SCREEN		0,4	Ω
	EARTH		NA	Ω
	ARMr		0,4	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

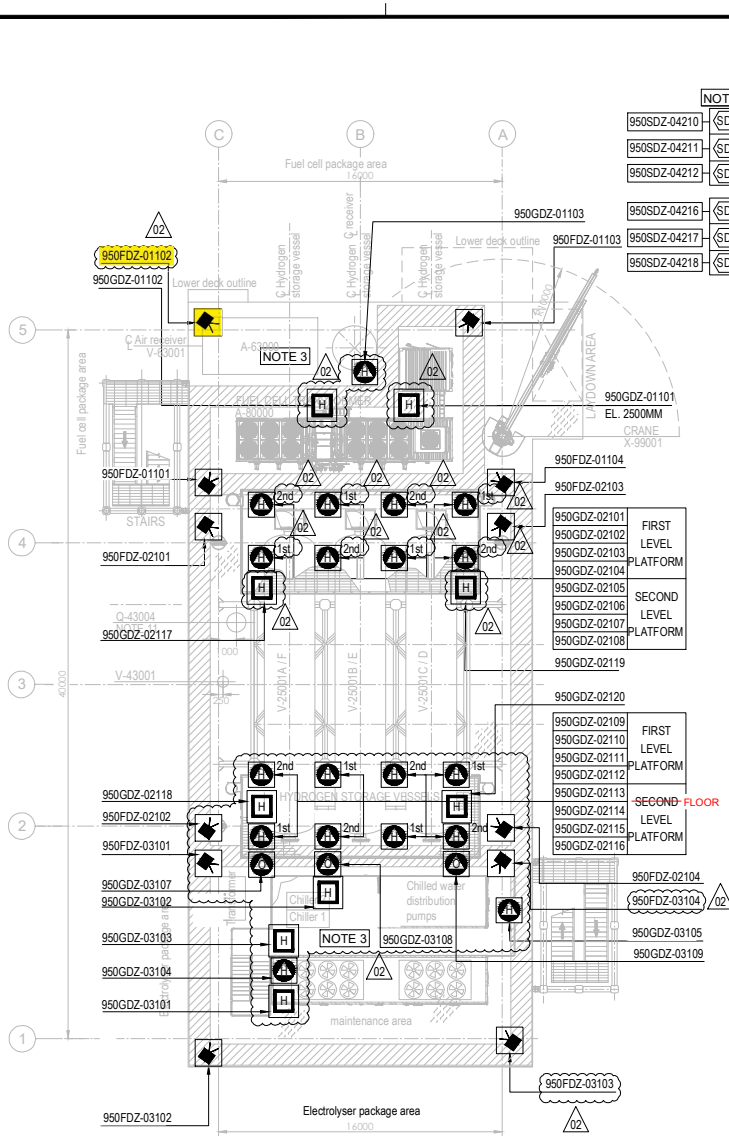
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

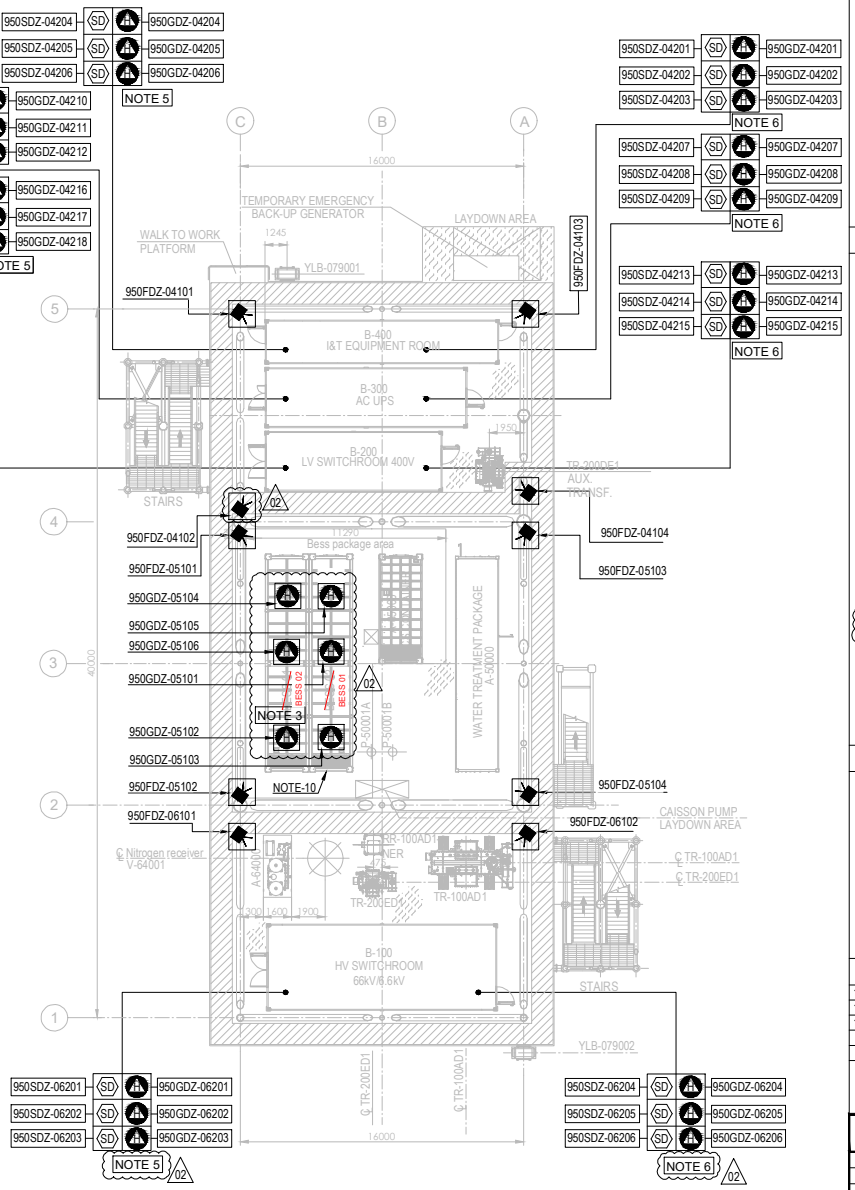
Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Andrea Andreani	
Date	2025-01-04	2025-01-13	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-04T08:37:01.947Z	PROVERLIS Digitaly signed by Andrea Andreani 2025-01-13T13:19:06.096Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

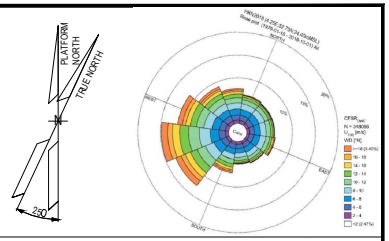


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

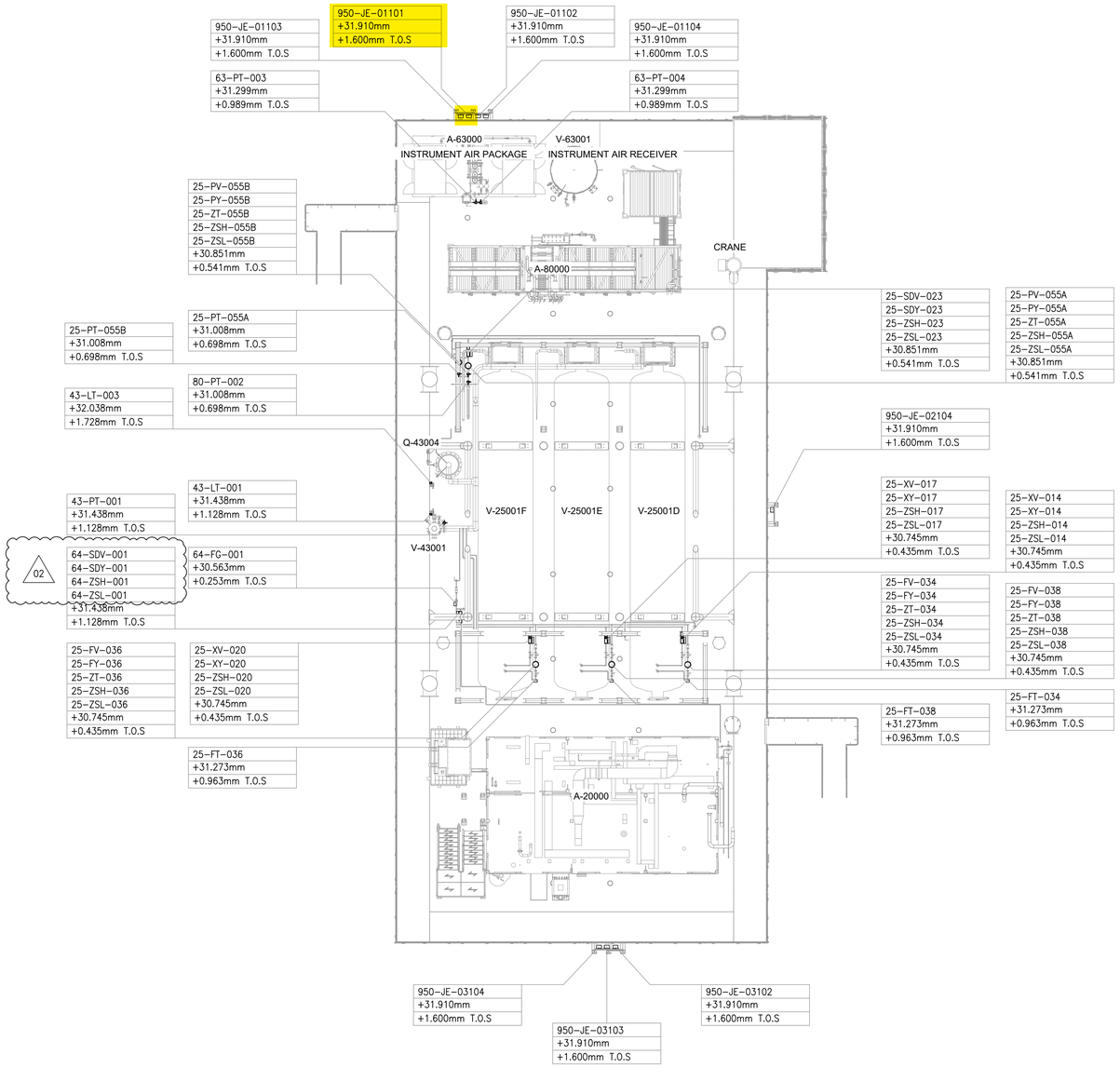
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

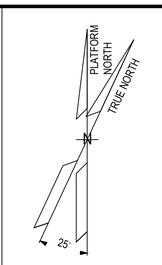
REV. 01

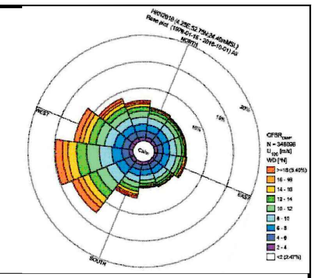


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90–DDL–IN–DL–40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV.01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

RD, WH, BK

NOTE-2

C-950-FDZ-01101/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01102/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01103/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01104/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1, 2, 3, SH, 4, 5, 6, SH, 7, 8, 9, SH, 10, 11, 12, SH, 13, SPARE, 14, 15, SH, 16, SPARE, 17, 18, SH, OS

TR1, TR2, TR3, TR4, TR5, TR6

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

SPARE

SPARE

Shield Bar

I.E.

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	030	01

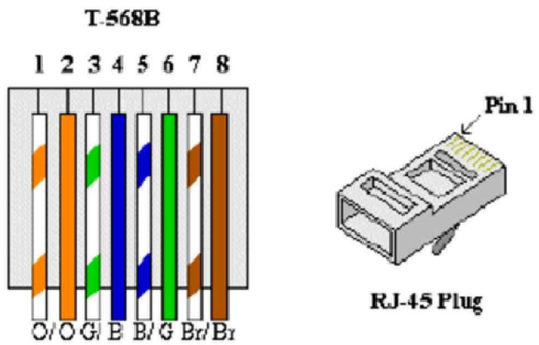
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



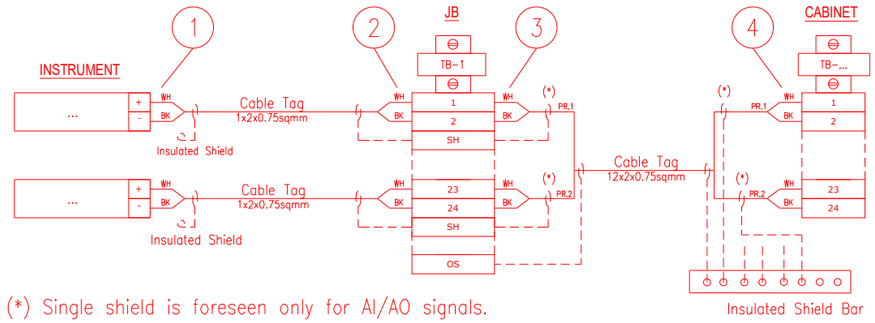
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

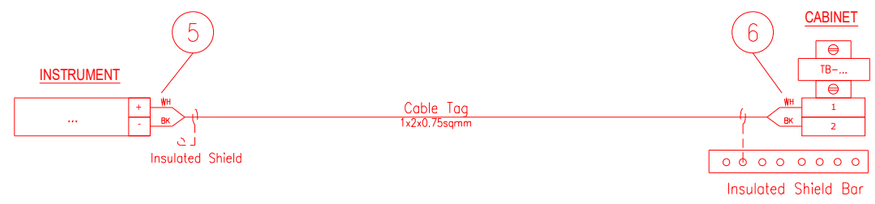
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

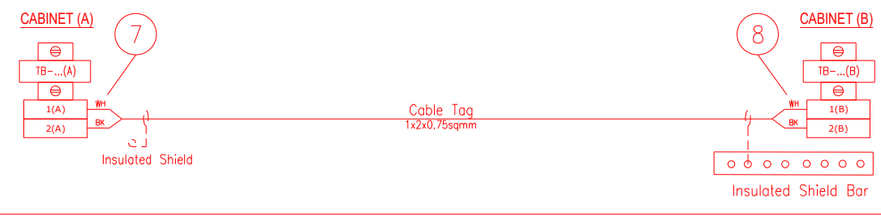
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

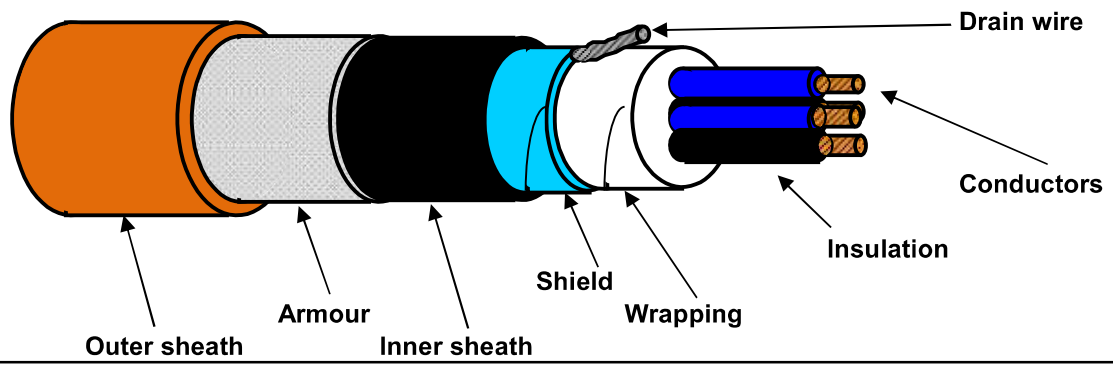
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-FDZ-01102/950-JE-01101	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-FDZ-01102	Flame Detector	Upper Deck	950-JE-01101	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double	M25	RED_M25MxM20F	T2_M20_Double				U-SEC-20C

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-950-FDZ-01103/950-JE-01101 : FLAME DETECTOR / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000204		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 — Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-FDZ-01103		To	950-JE-01101	

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	PL
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,3	Ω
	SCREEN	0,3	Ω
	EARTH	NA	Ω
	ARMr	0,3	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

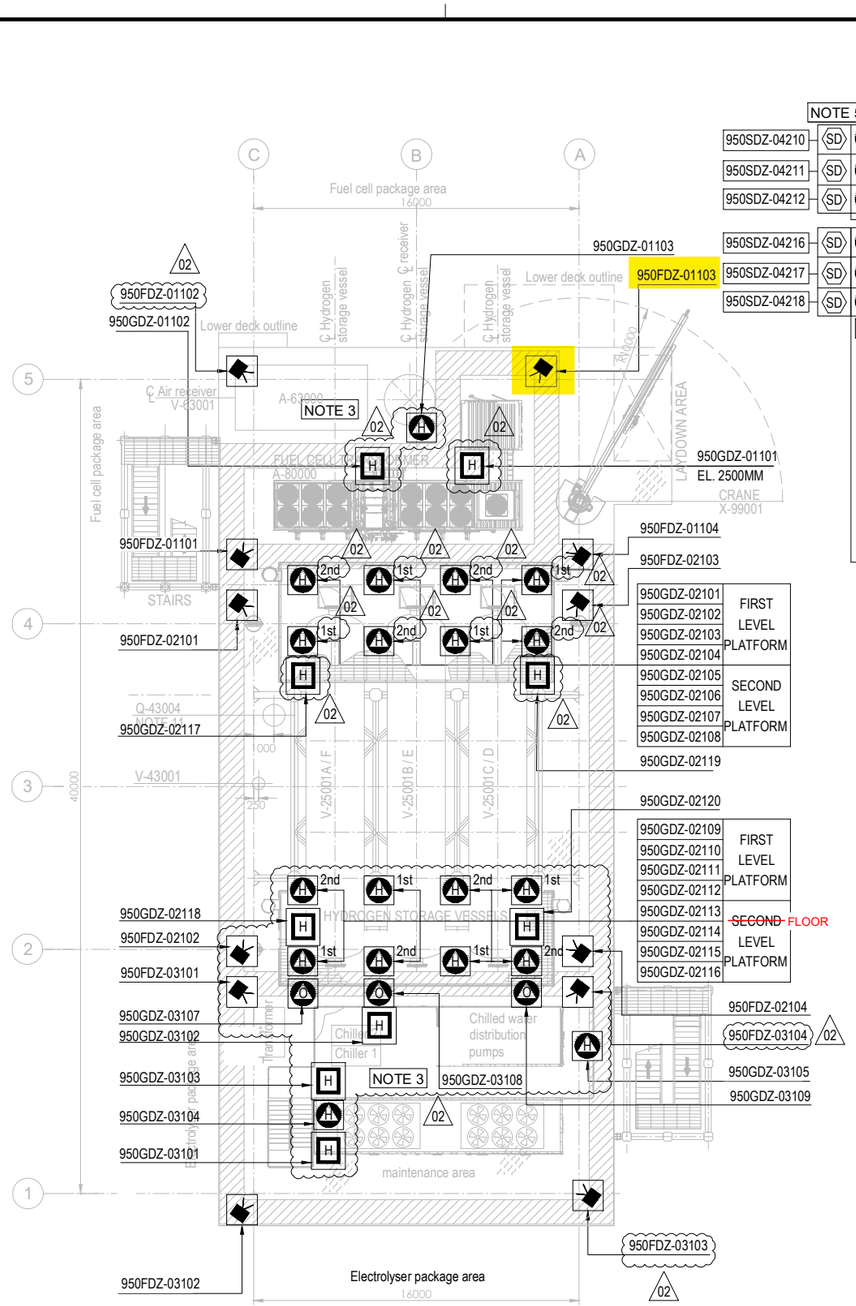
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-02	2024-12-05	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-02T07:04:23.626Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-05T12:58:15.974Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



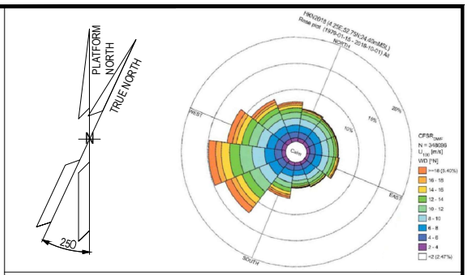
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
H	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

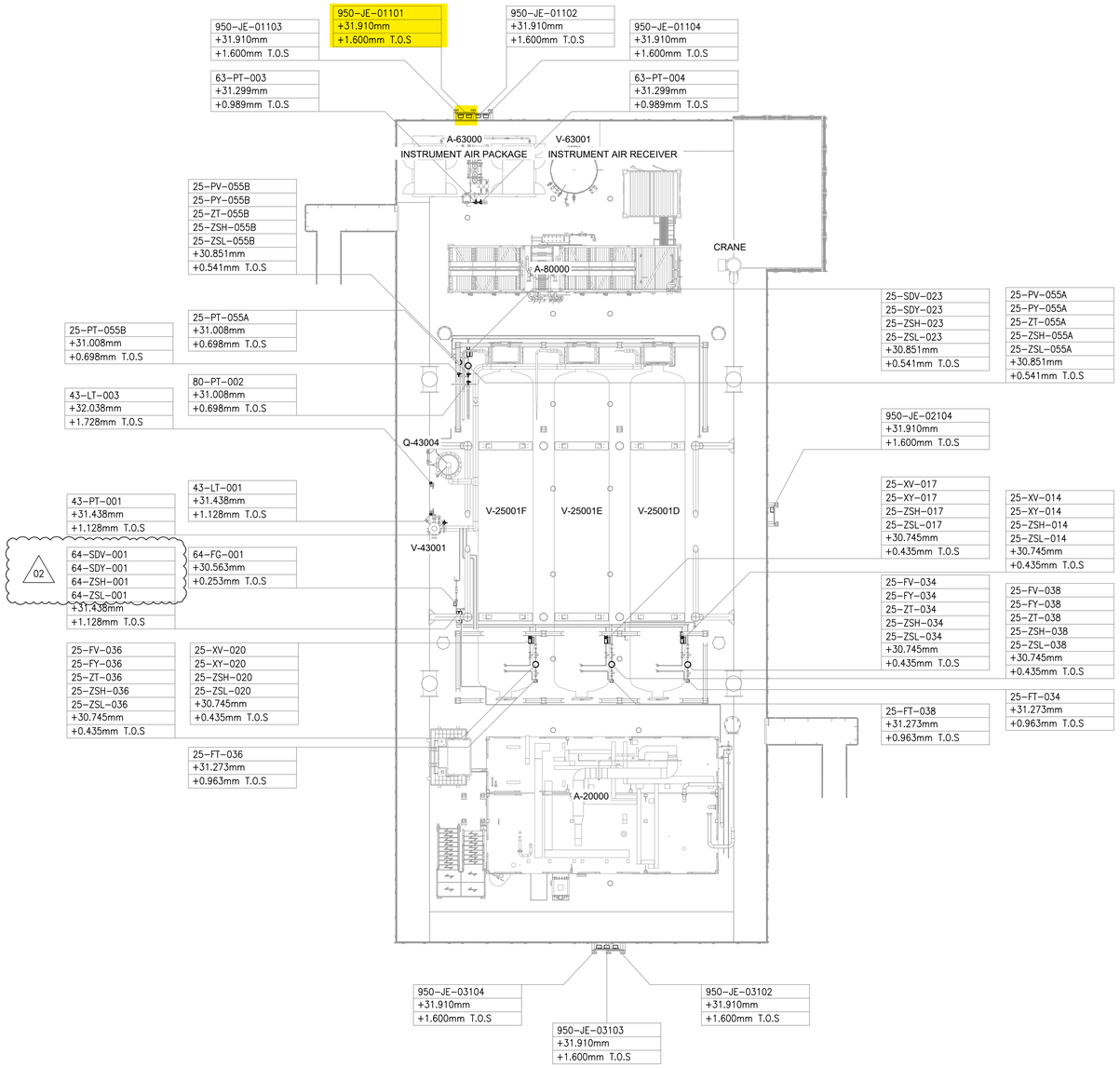
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

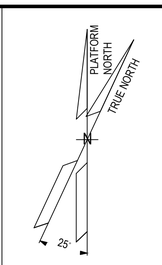
REV. 01

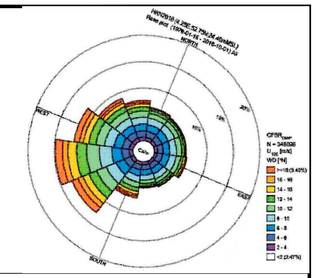


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90–DDL–IN–DL–40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV.01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

RD, WH, BK

NOTE-2

C-950-FDZ-01101/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01102/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01103/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01104/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1, 2, 3, SH, 4, 5, 6, SH, 7, 8, 9, SH, 10, 11, 12, SH, 13, SPARE, 14, 15, SH, 16, SPARE, 17, 18, SH, OS

TR1, TR2, TR3, TR4, TR5, TR6

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

SPARE

SPARE

Shield Bar

I.E.

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 030	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

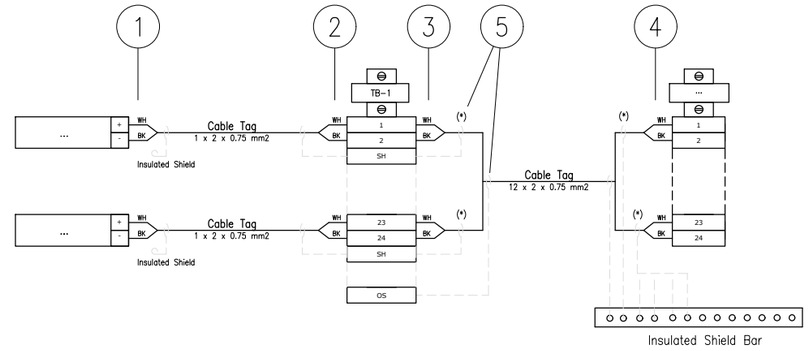
LEGENDS & SYMBOLS:

LEGEND:

I.E.	- GREEN ——— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN/YELLOW —— P.E. EARTH/BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

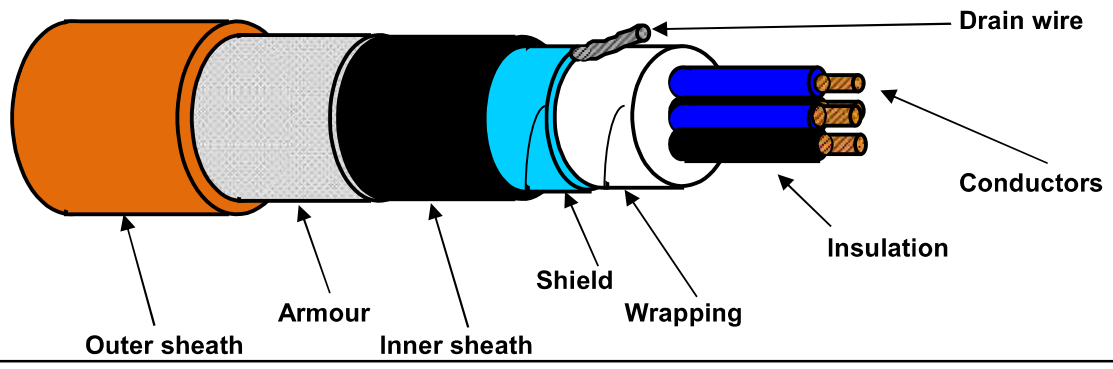
	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-FDZ-01103/950-JE-01101	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-FDZ-01103	Flame Detector	Upper Deck	950-JE-01101	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double	M25	RED_M25MxM20F	T2_M20_Double				U-SEC-20E / U-SEC-20D

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-950-FDZ-01104/950-JE-01101 : FLAME DETECTOR / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000205		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 — Multi/Single-Core Instrument Control Cable

CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH | Cores/Size mm²: 1X3X2,5 mm2 | Color: ORANGE

From: 950-FDZ-01104 | To: 950-JE-01101

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	PL
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,5	Ω
	SCREEN	0,5	Ω
	EARTH	NA	Ω
	ARMr	0,5	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

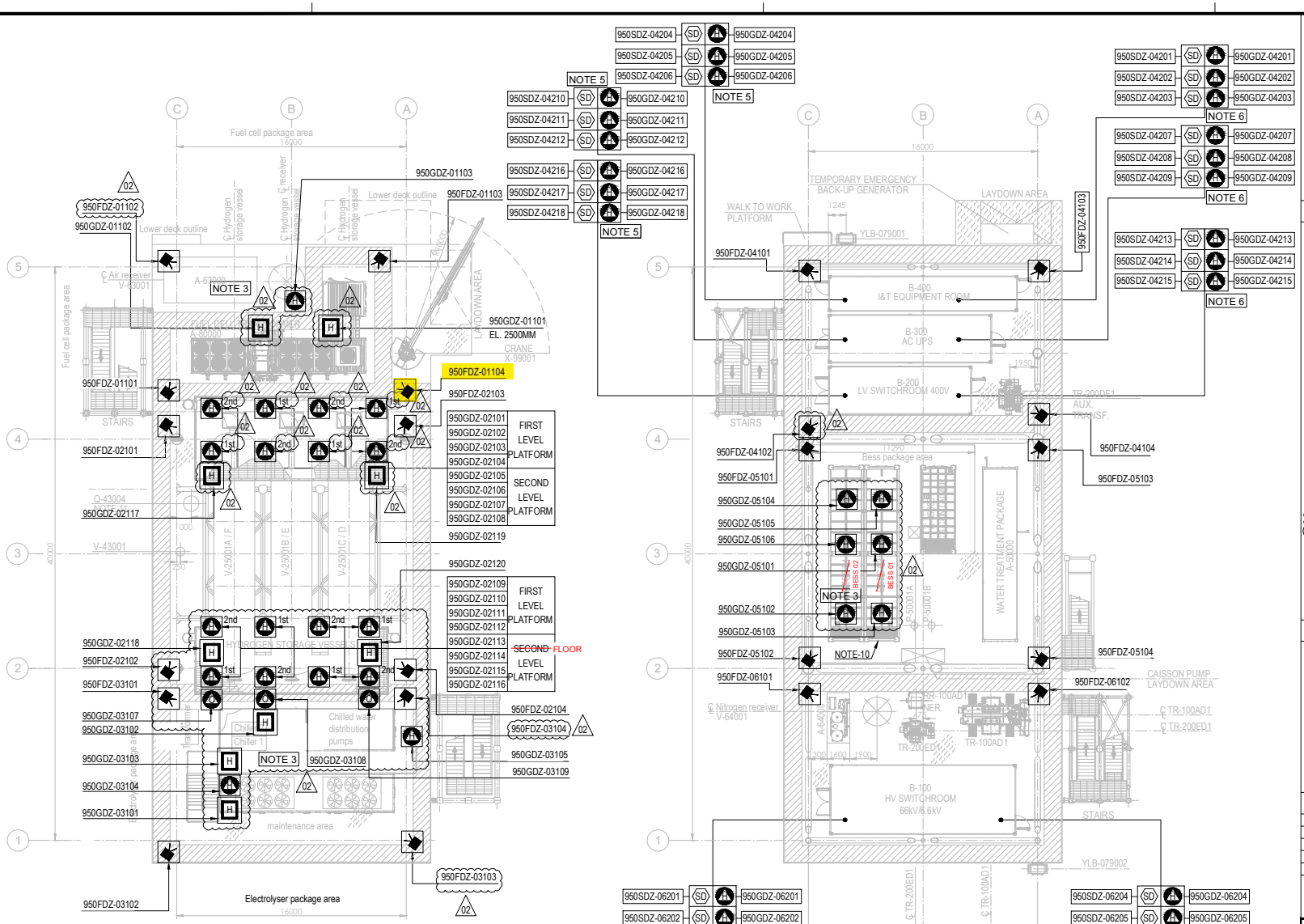
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 | Calibration date: N7722/24 10/07/2024

Comments: Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Andrea Andreani	
Date	2025-01-08	2025-01-13	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-08T09:51:22.645Z	PROVERLIS Digitaly signed by Andrea Andreani 2025-01-13T13:17:53.228Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



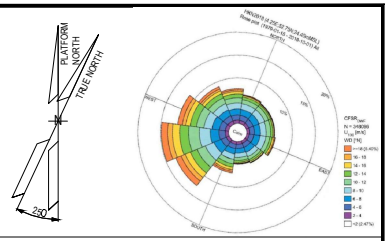
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

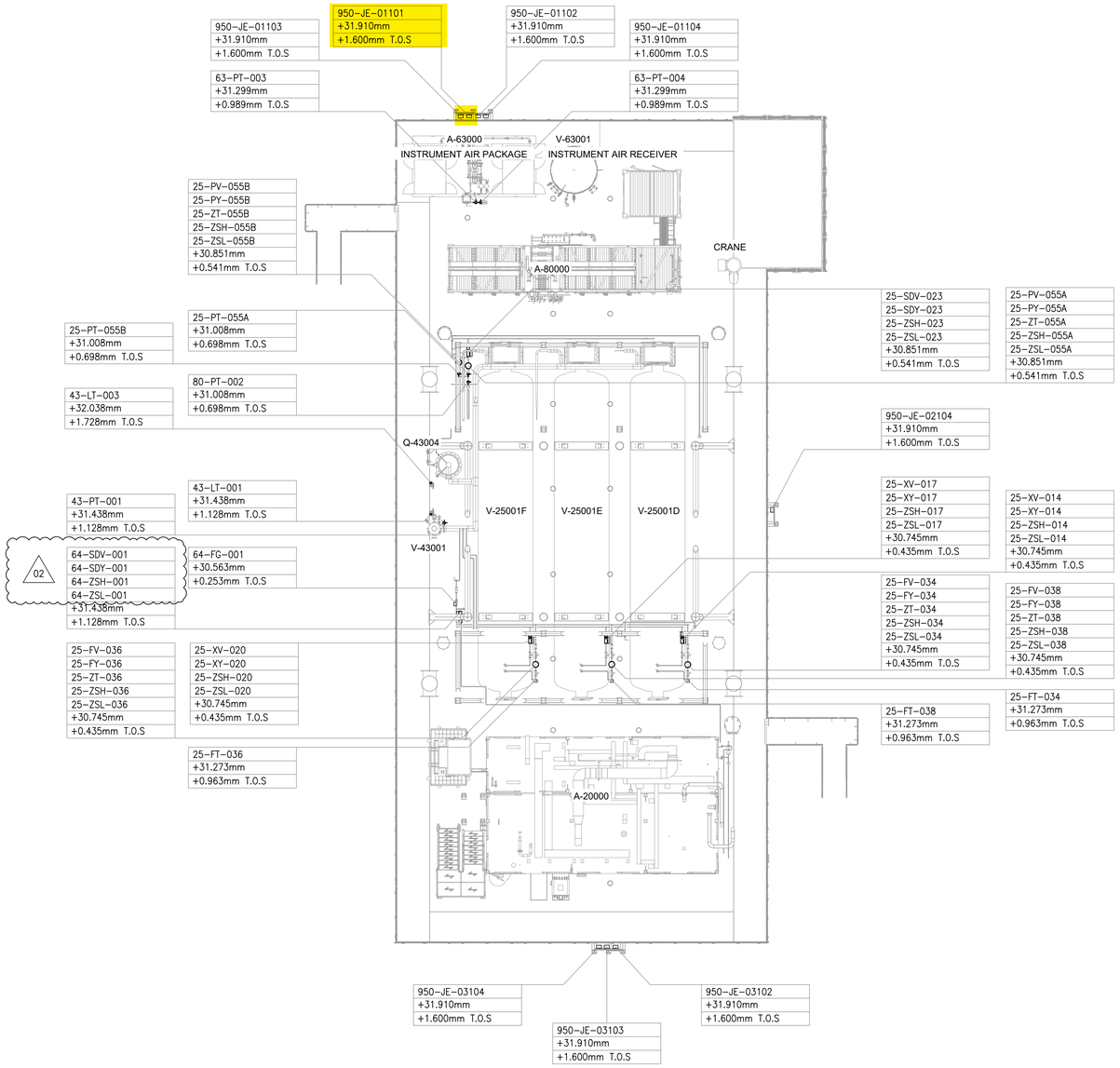
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

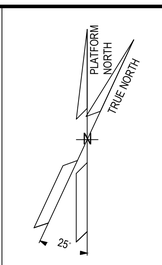
REV. 01

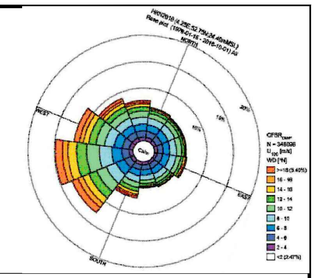


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90–DDL–IN–DL–40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV.01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

C-950-FDZ-01101/950-JE-01101

3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

NOTE-2

950-FDZ-01102

C-950-FDZ-01102/950-JE-01101

3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

NOTE-2

950-FDZ-01103

C-950-FDZ-01103/950-JE-01101

3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

NOTE-2

950-FDZ-01104

C-950-FDZ-01104/950-JE-01101

3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

NOTE-2

TB-1

1 RD
2 WH
3 BK
SH
4 RD
5 WH
6 BK
SH
7 RD
8 WH
9 BK
SH
10 RD
11 WH
12 BK
SH
13 SPARE
14
15
SH
16 SPARE
17
18
SH
OS

TR1 TR2 TR3 TR4 TR5 TR6

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

TR1 RD 1, WH 2, BK 3 — 950-FDZ-01101

TR2 RD 4, WH 5, BK 6 — 950-FDZ-01102

TR3 RD 7, WH 8, BK 9 — 950-FDZ-01103

TR4 RD 10, WH 11, BK 12 — 950-FDZ-01104

TR5 RD 13, WH 14, BK 15 — SPARE

TR6 RD 16, WH 17, BK 18 — SPARE

Shield Bar

Shield Bar

I.E.

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

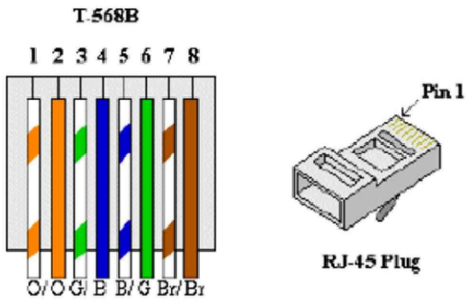
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A3	123A90–DDL–IN–DG–40016	030	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015 REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:

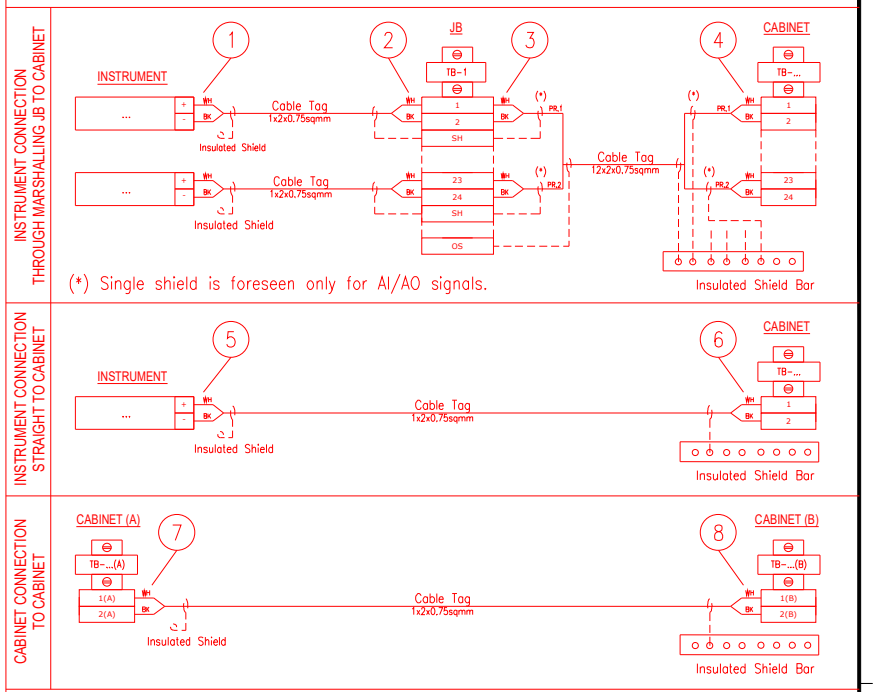


8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

I.E.	- GREEN —— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW —— P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

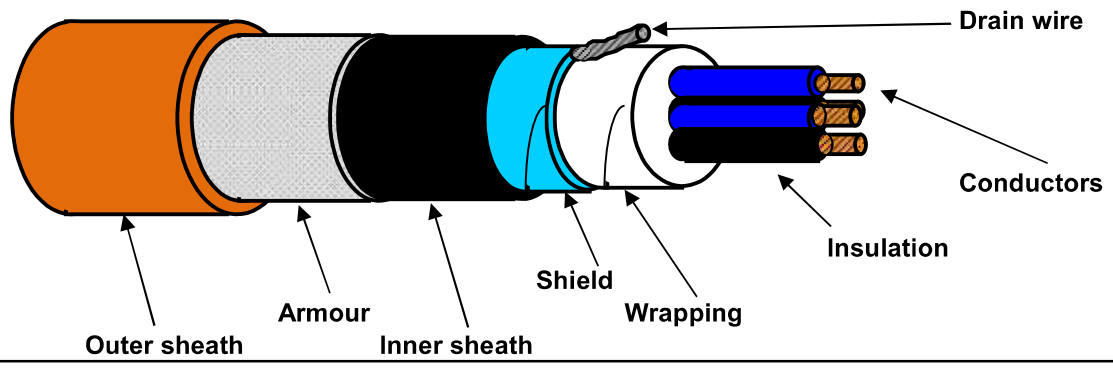
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-FDZ-01104/950-JE-01101	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-FDZ-01104	Flame Detector	Upper Deck	950-JE-01101	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double	M25	RED_M25MxM20F	T2_M20_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C / U-SEC-20F / U-SEC-20G / U-SEC-20H / L-SEC-22 / L-SEC-18E / L-SEC-13 / L-SEC-1J / L-SEC-1I / L-SEC-1H / L-SEC-1G / L-SEC-9

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

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The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-GDZ-01101/950-JE-01102 : GAS DETECTOR / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000264		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 — Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-GDZ-01101		To	950-JE-01102	

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	PL
6	Check bending radius is within the specified limits.	PL
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,2	Ω
	SCREEN	0,2	Ω
	EARTH	NA	Ω
	ARMr	0,2	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

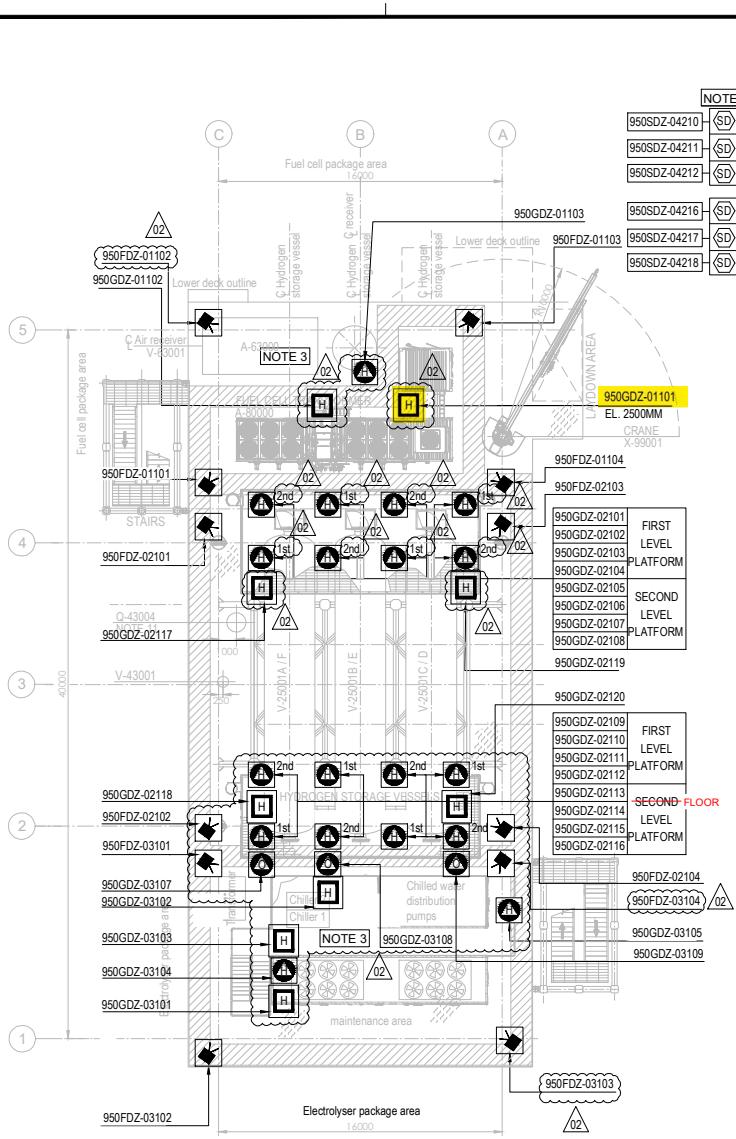
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000679

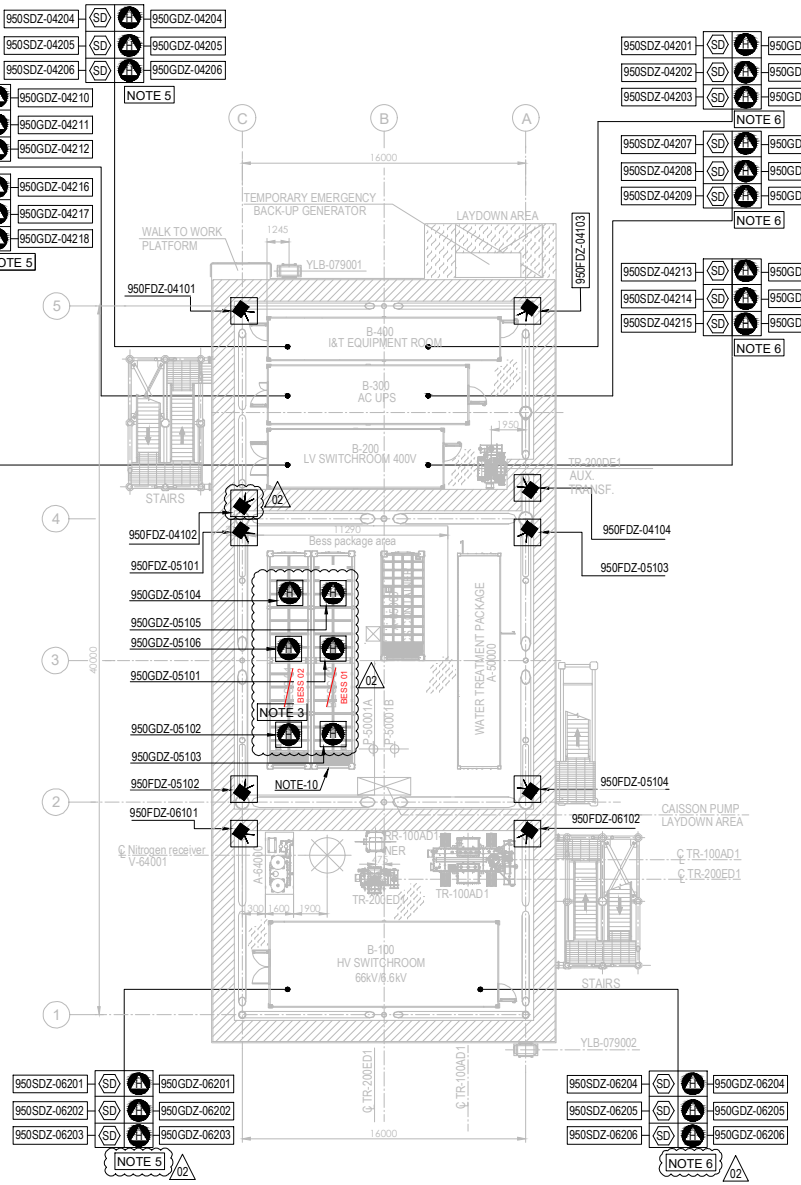
Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-23	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-23T08:59:47.192Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-24T10:58:42.739Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

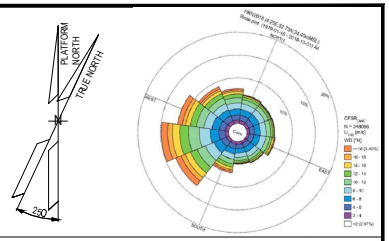


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

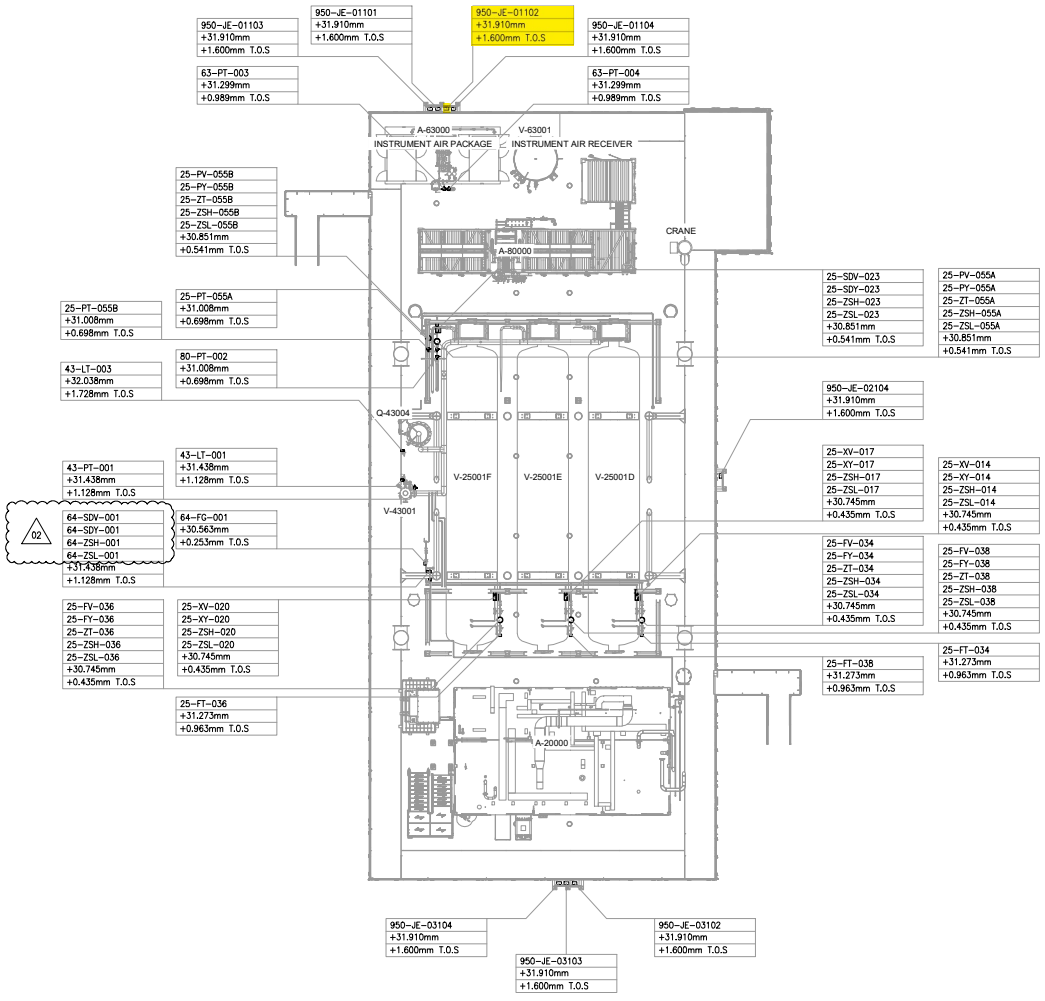
ROSETTI MARINO

TITLE :
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

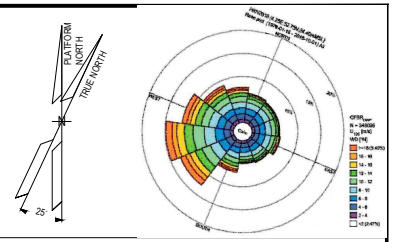
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081 REV. 01



UPPER DECK
SCALE: 1:100

VIEW EL. 29310mm to 33740mm



NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DL-40081

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

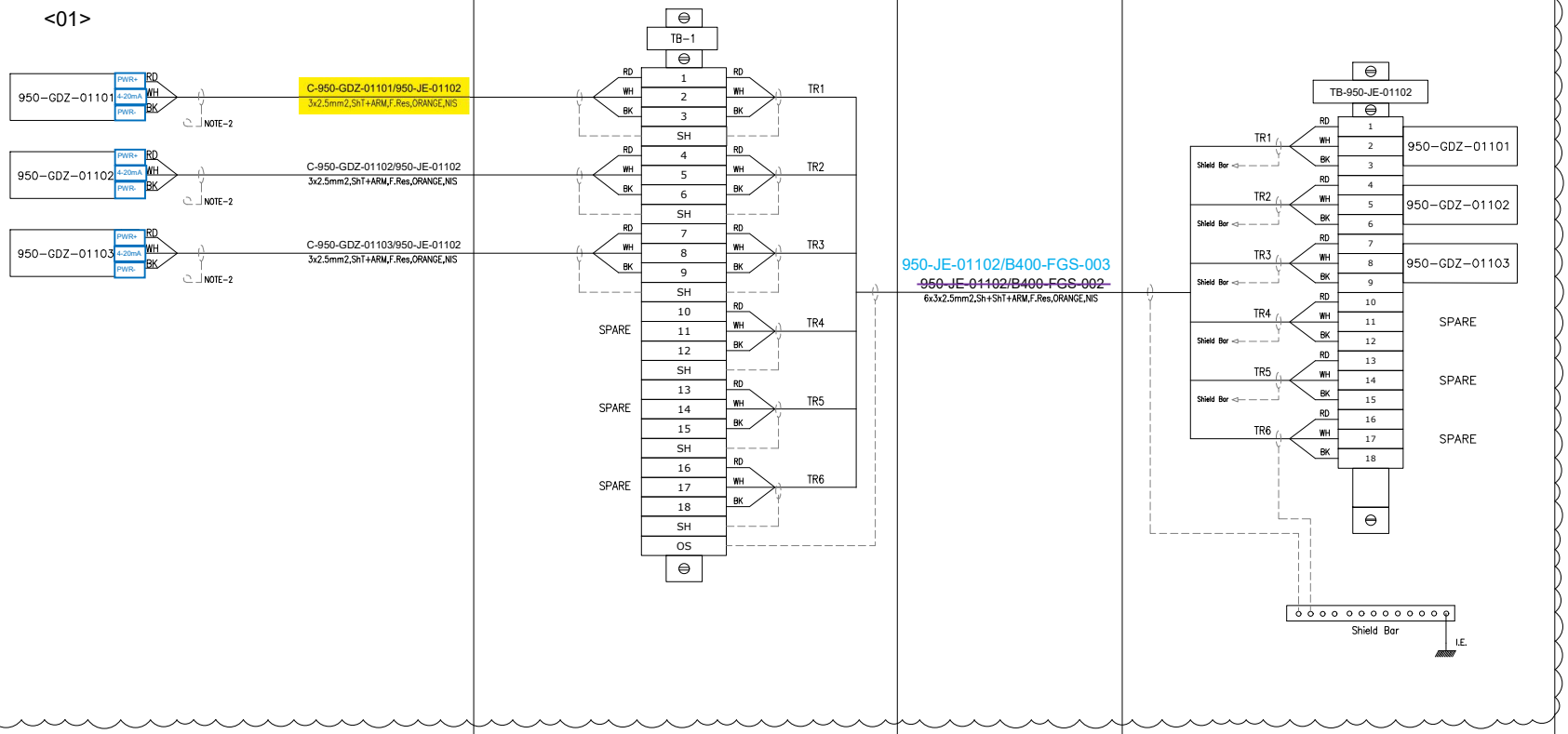
TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT-UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

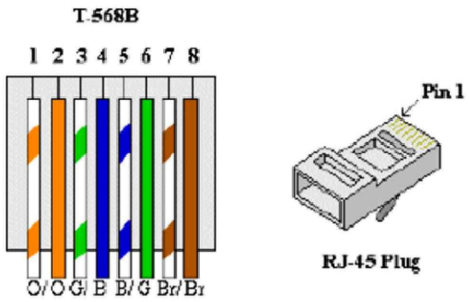
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016		SHEET 031 / REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015 REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:

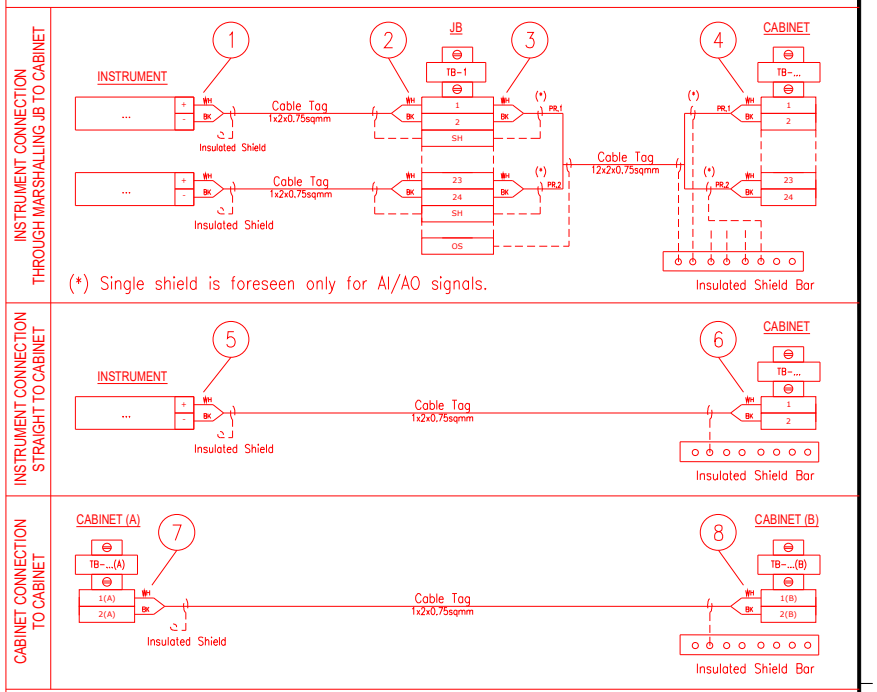


8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

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4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

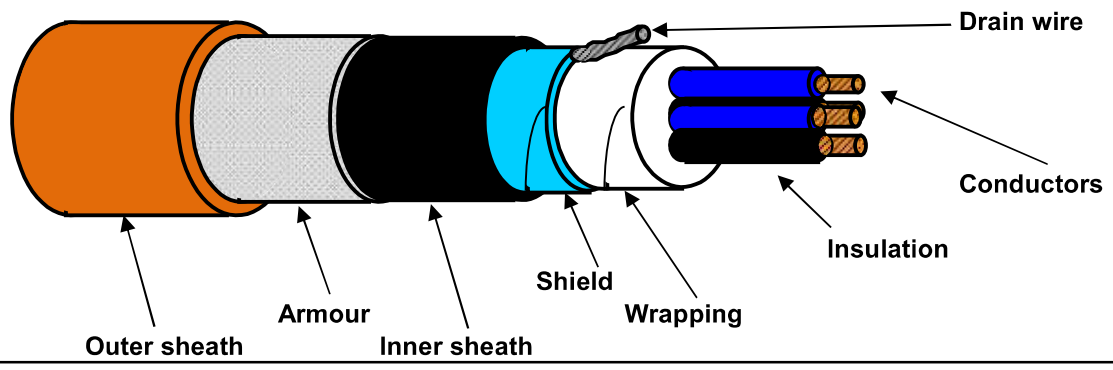
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-GDZ-01101/950-JE-01102	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-GDZ-01101	Gas Detector	Upper Deck	950-JE-01102	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				I-MCT-U09 / U-SEC-20E / U-SEC-20D

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-GDZ-01102/950-JE-01102 : GAS DETECTOR / MARSHALLING PCS			Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)			Module	UD	
TASK	code	C10000265	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity	CCK	Discipline	Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-GDZ-01102	To	950-JE-01102		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	PL
6	Check bending radius is within the specified limits.	PL
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0,2	Ω
	SCREEN		0,2	Ω
	EARTH		NA	Ω
	ARMr		0,2	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

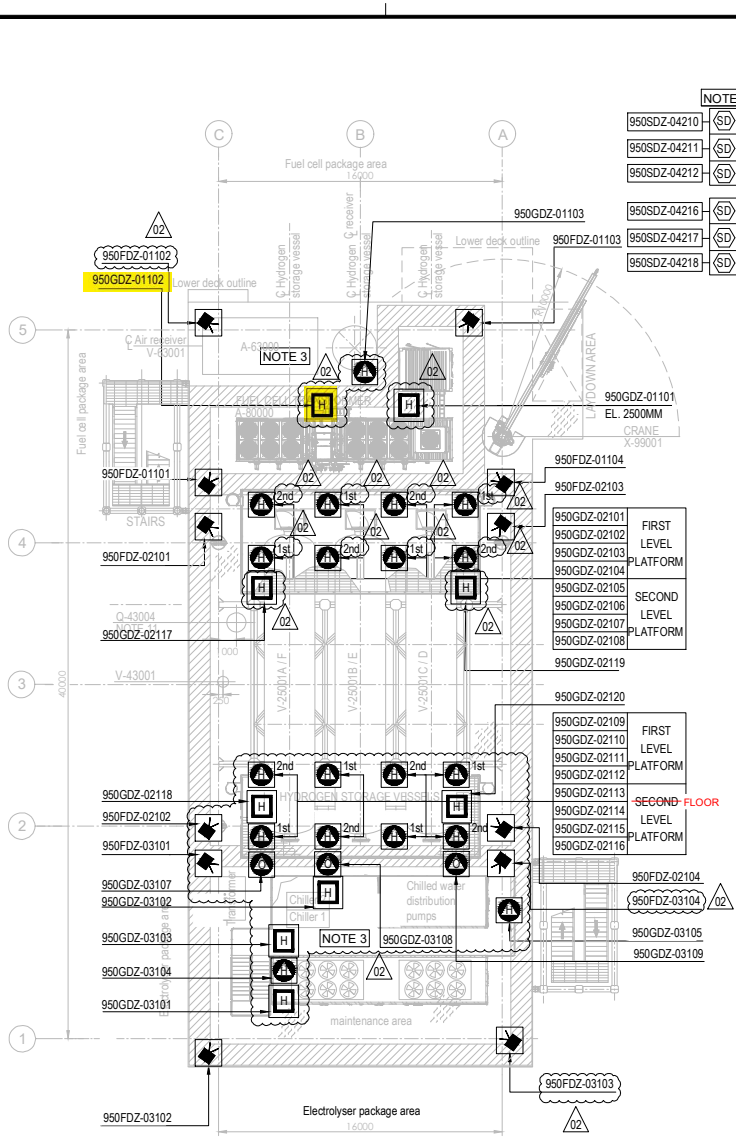
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000679

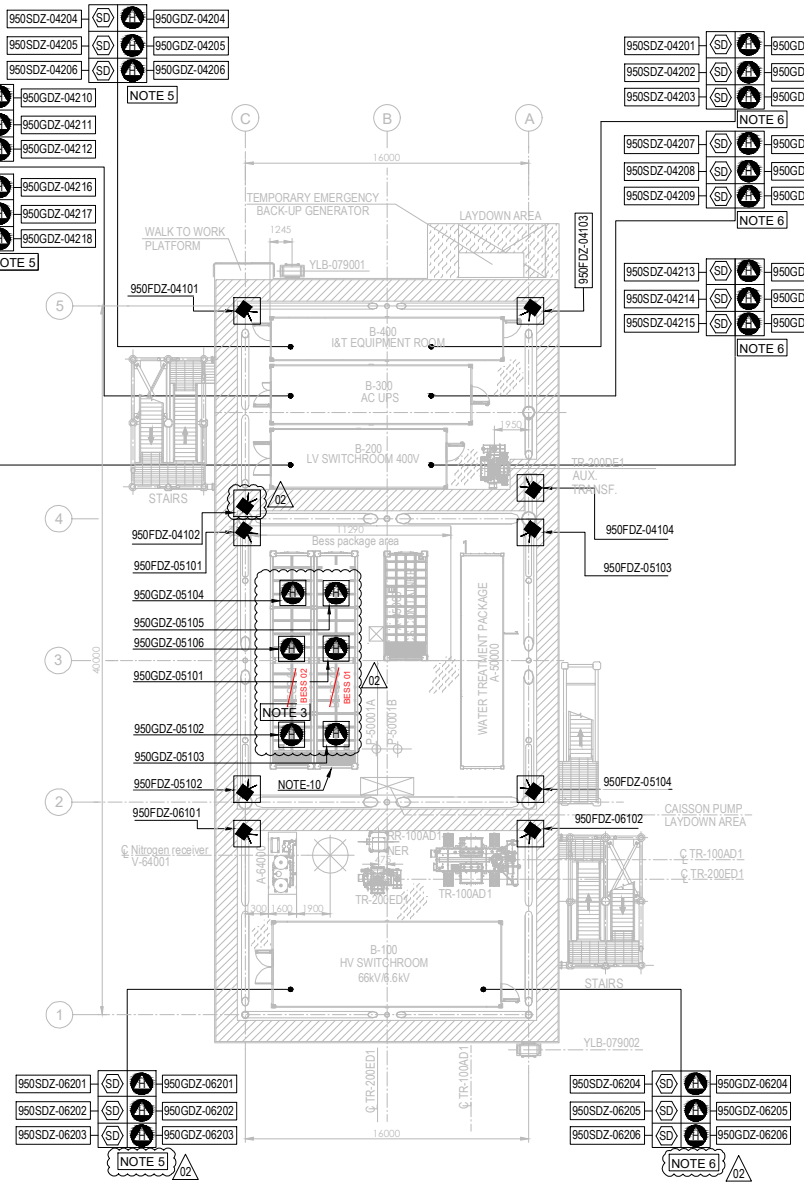
Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-23	2024-12-27	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-23T09:00:05.171Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-27T17:12:57.335Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

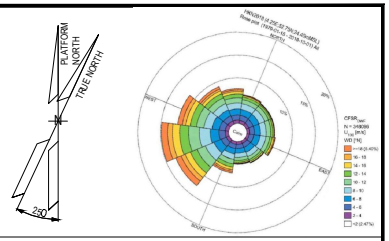


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS, TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

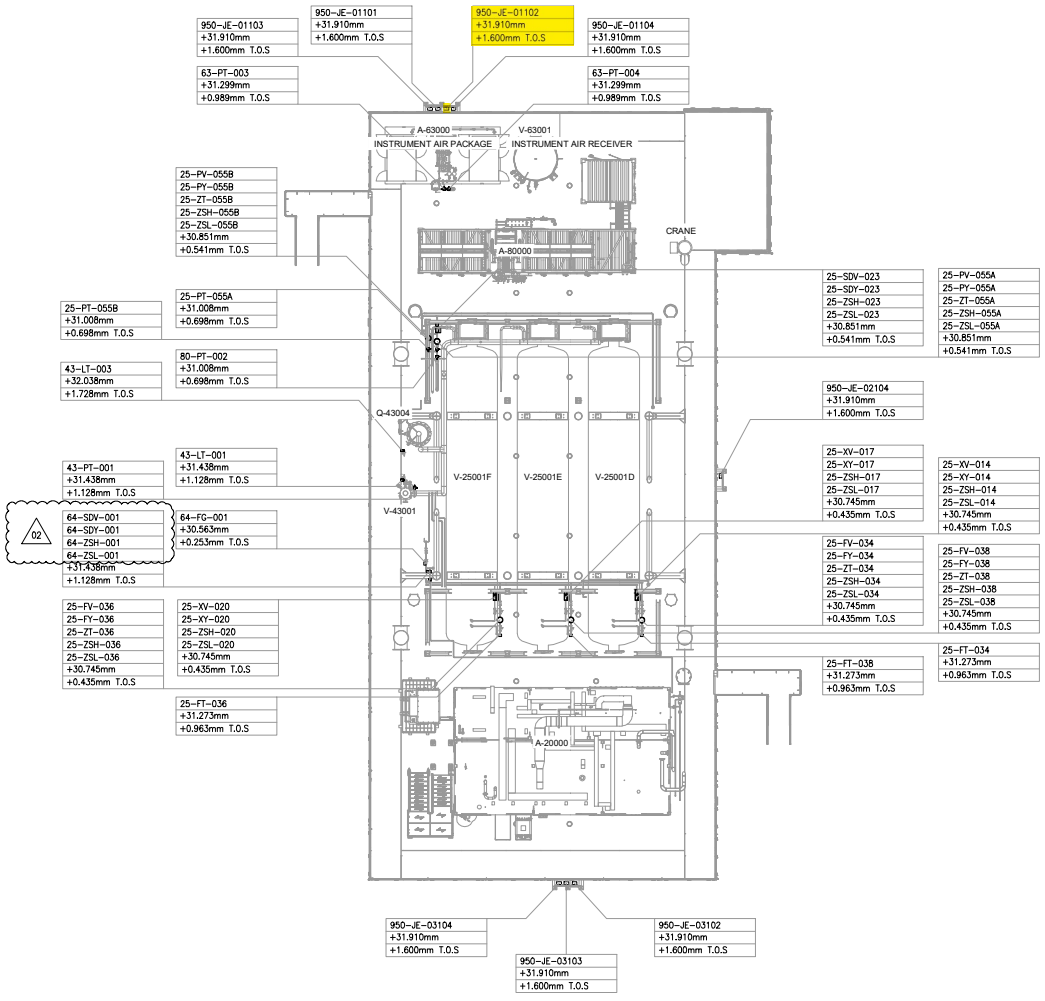
TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

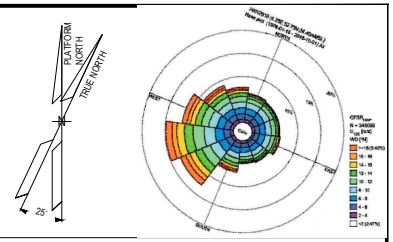
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081 REV. 01



UPPER DECK
SCALE: 1:100

VIEW EL. 29310mm to 33740mm



NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DL-40081

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

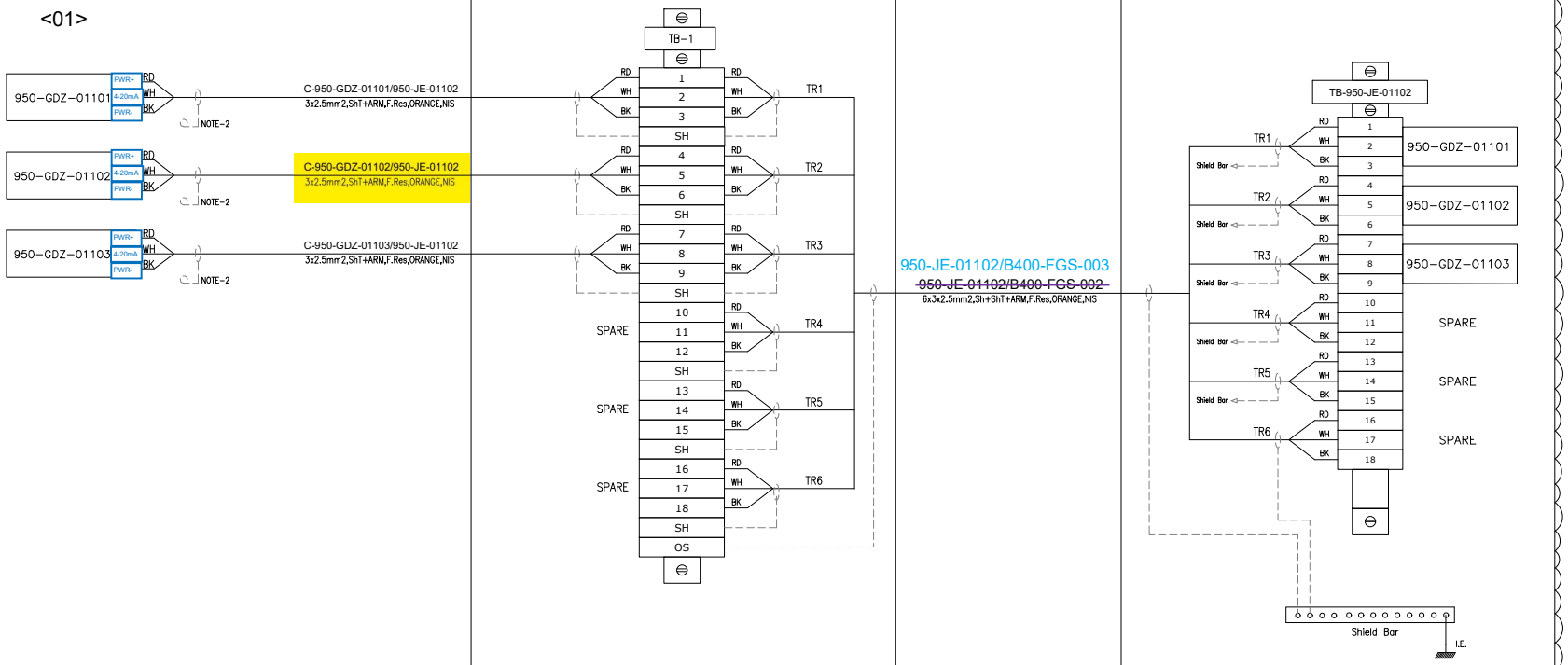
TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT-UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

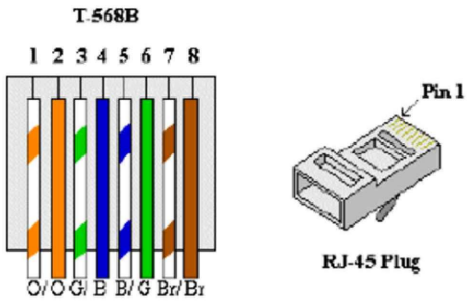
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016		SHEET 031 / REV. 01

File Name : 123A90–DDL–IN–DG–40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015 REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:

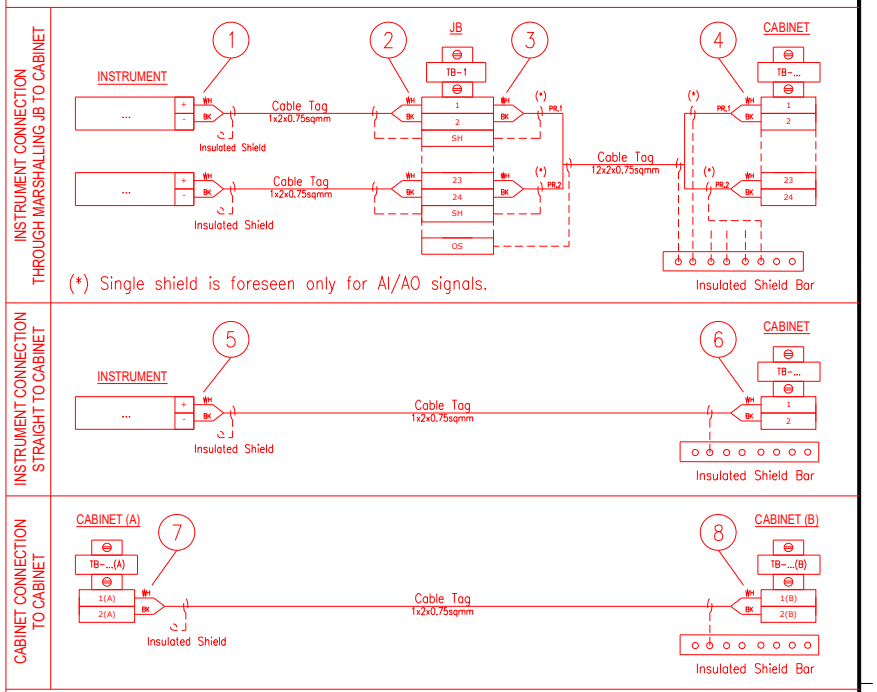


8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

I.E.	- GREEN —— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW —— P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

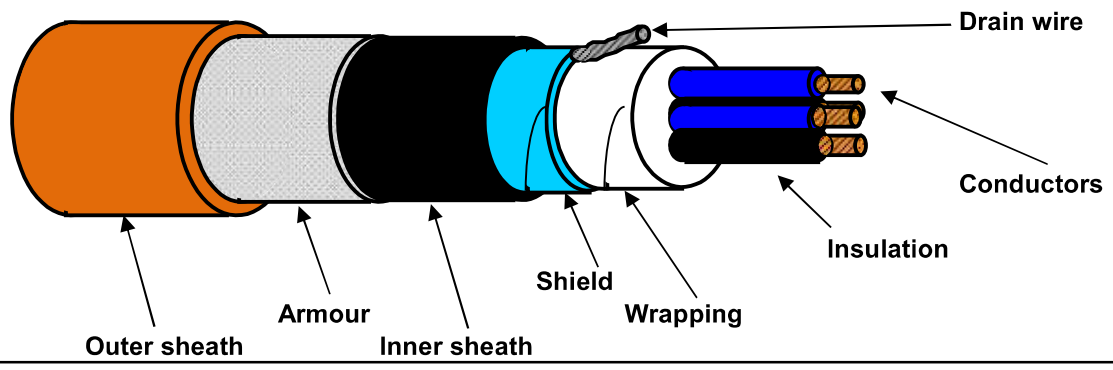
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-GDZ-01102/950-JE-01102	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-GDZ-01102	Gas Detector	Upper Deck	950-JE-01102	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				I-MCT-U07 / U-SEC-20E / U-SEC-20D

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-GDZ-01103/950-JE-01102 : GAS DETECTOR / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000266		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 — Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X3X2,5 mm2	Color	ORANGE
From	950-GDZ-01103		To	950-JE-01102	

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	PL
6	Check bending radius is within the specified limits.	PL
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	PL
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,2	Ω
	SCREEN	0,2	Ω
	EARTH	NA	Ω
	ARMr	0,2	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

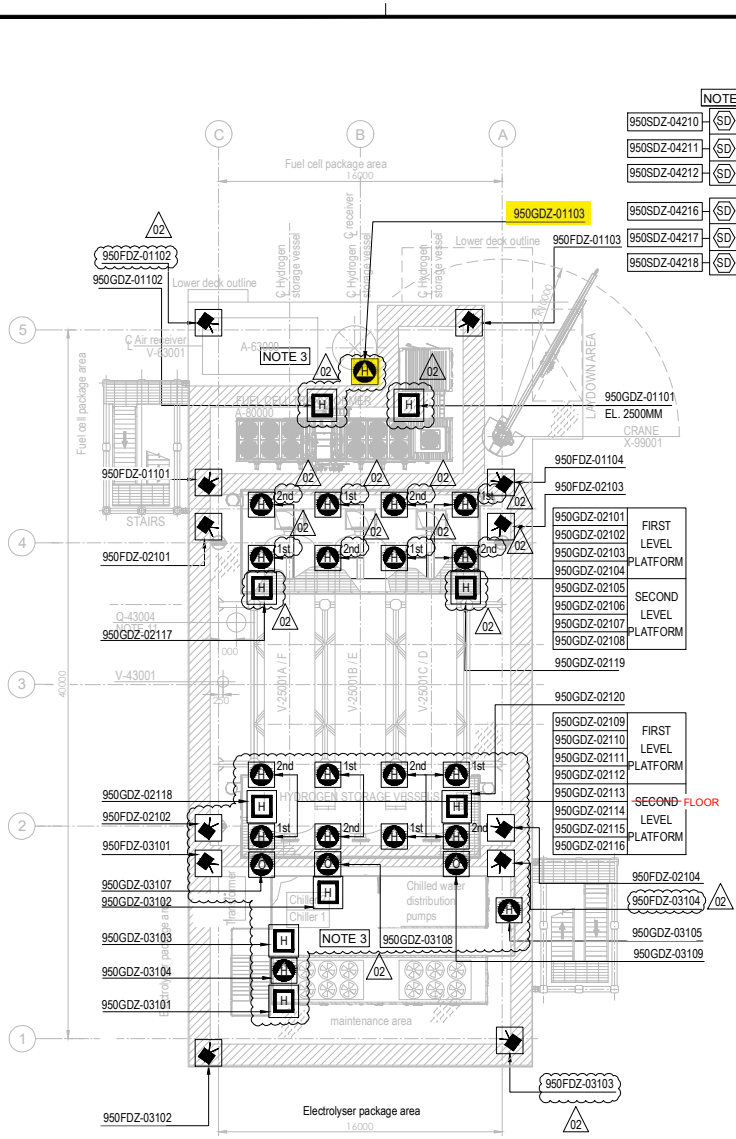
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments

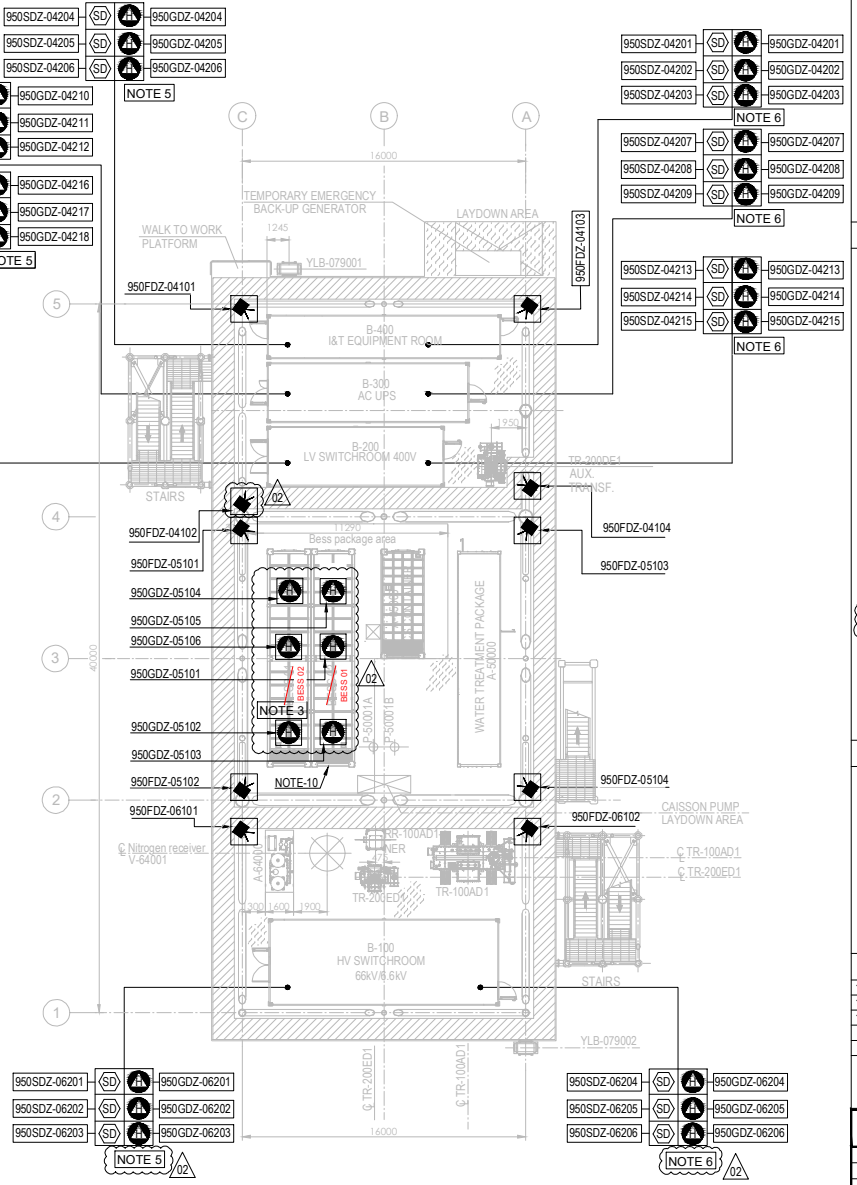
Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-23	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-23T09:00:21.016Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-24T10:34:07.154Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

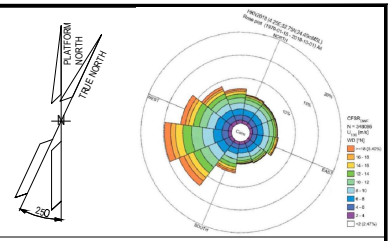
REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

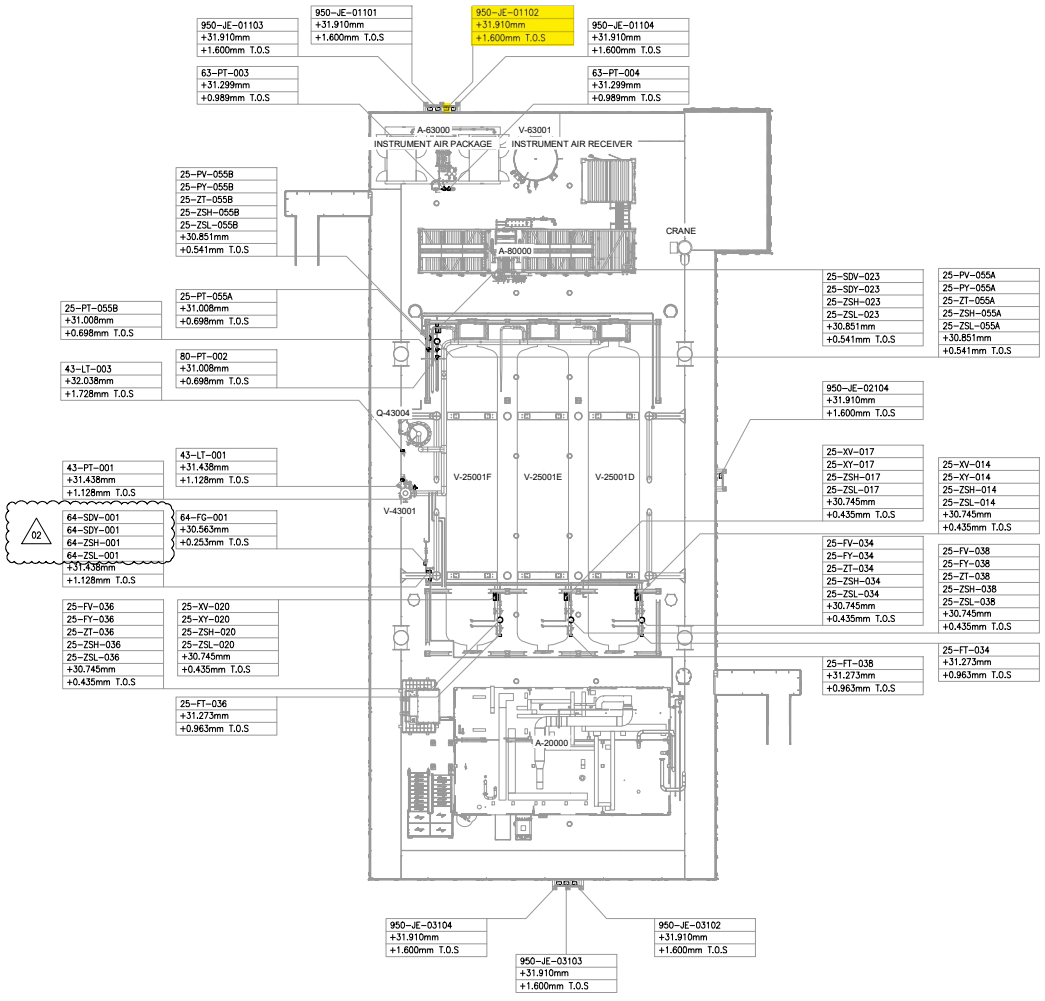
TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

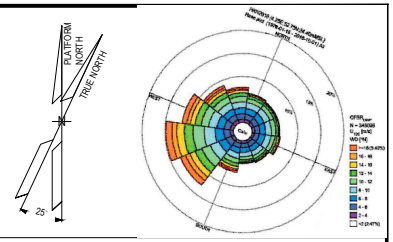
File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081 REV. 01



UPPER DECK
SCALE: 1:100

VIEW EL. 29310mm to 33740mm



NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DL-40081

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

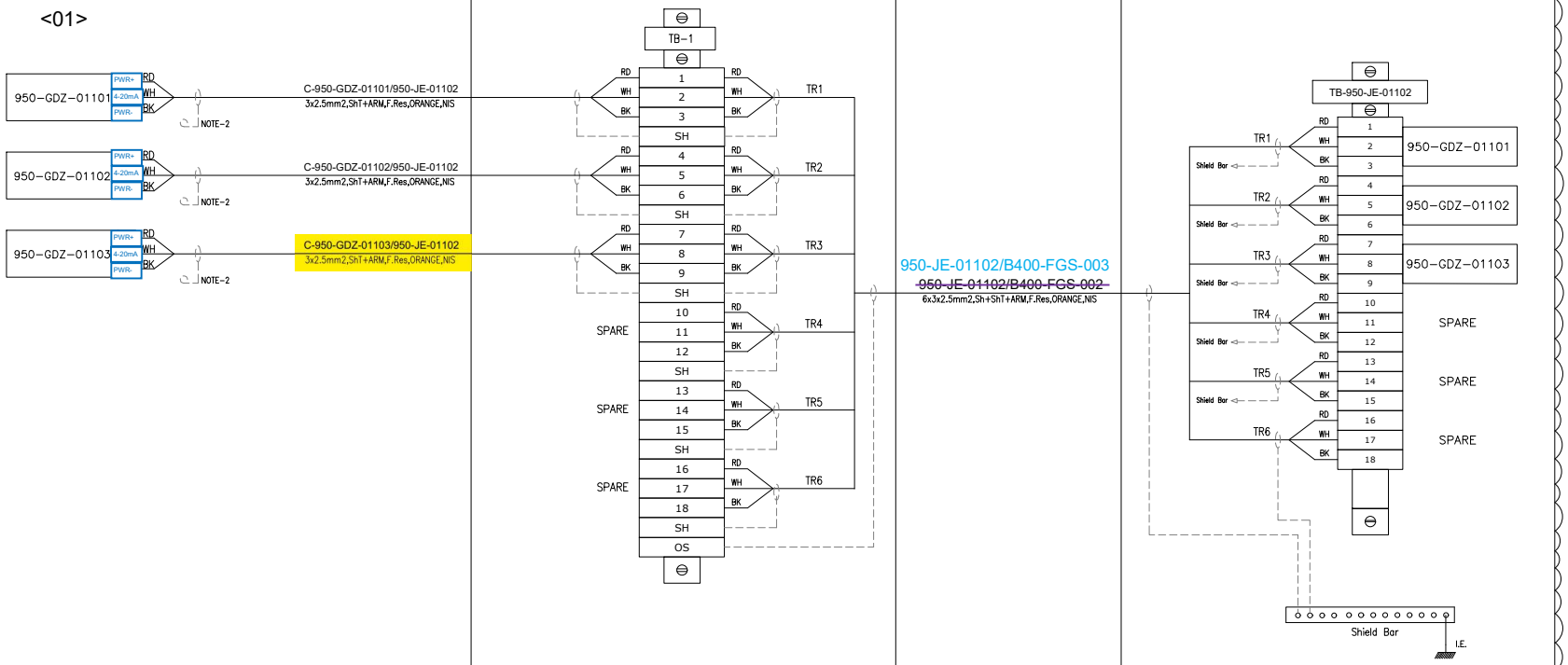
TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT-UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016 REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01102	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01102

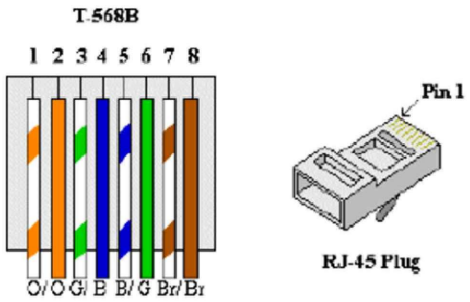
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DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 031	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015 REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:

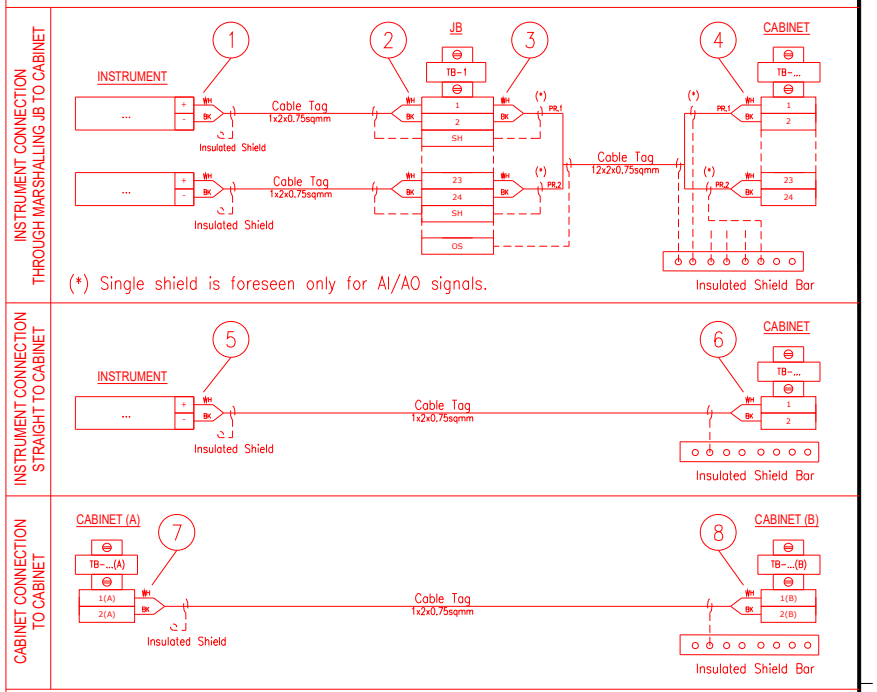


8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

I.E.	- GREEN —— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW —— P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

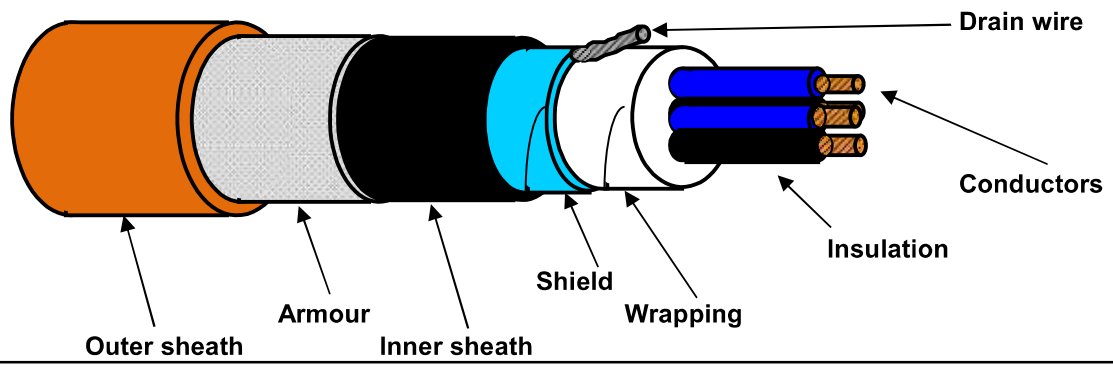
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DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X3X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Red - White - Black**	
Triad Assembling :	Not required	
Triad Wrapping:	Not required	
Drain wire :	Not required	
Triad Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	7/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X3X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,9 ± 10%) mm	
Over armour diameter :	(12,1 ± 10%) mm	
Outer diameter :	(14,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 60 μH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-GDZ-01103/950-JE-01102	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-GDZ-01103	Gas Detector	Upper Deck	950-JE-01102	AI JB to FGS	Upper Deck	SMICV14-1X3X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x3x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				I-MCT-U08 / U-SEC-20E / U-SEC-20D

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-MFA-01101/950-JE-01103	: MANUAL FIRE ALARM / MARSHALLING PCS	Dwg	123A90-DDL-IN-LIS-40091		
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD		
TASK	code	C10000294	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10

Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X2X0,75 mm2	Color	ORANGE
From	950-MFA-01101	To	950-JE-01103		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	PL
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	1,1	Ω
	SCREEN	1,1	Ω
	EARTH	NA	Ω
	ARMr	1,1	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

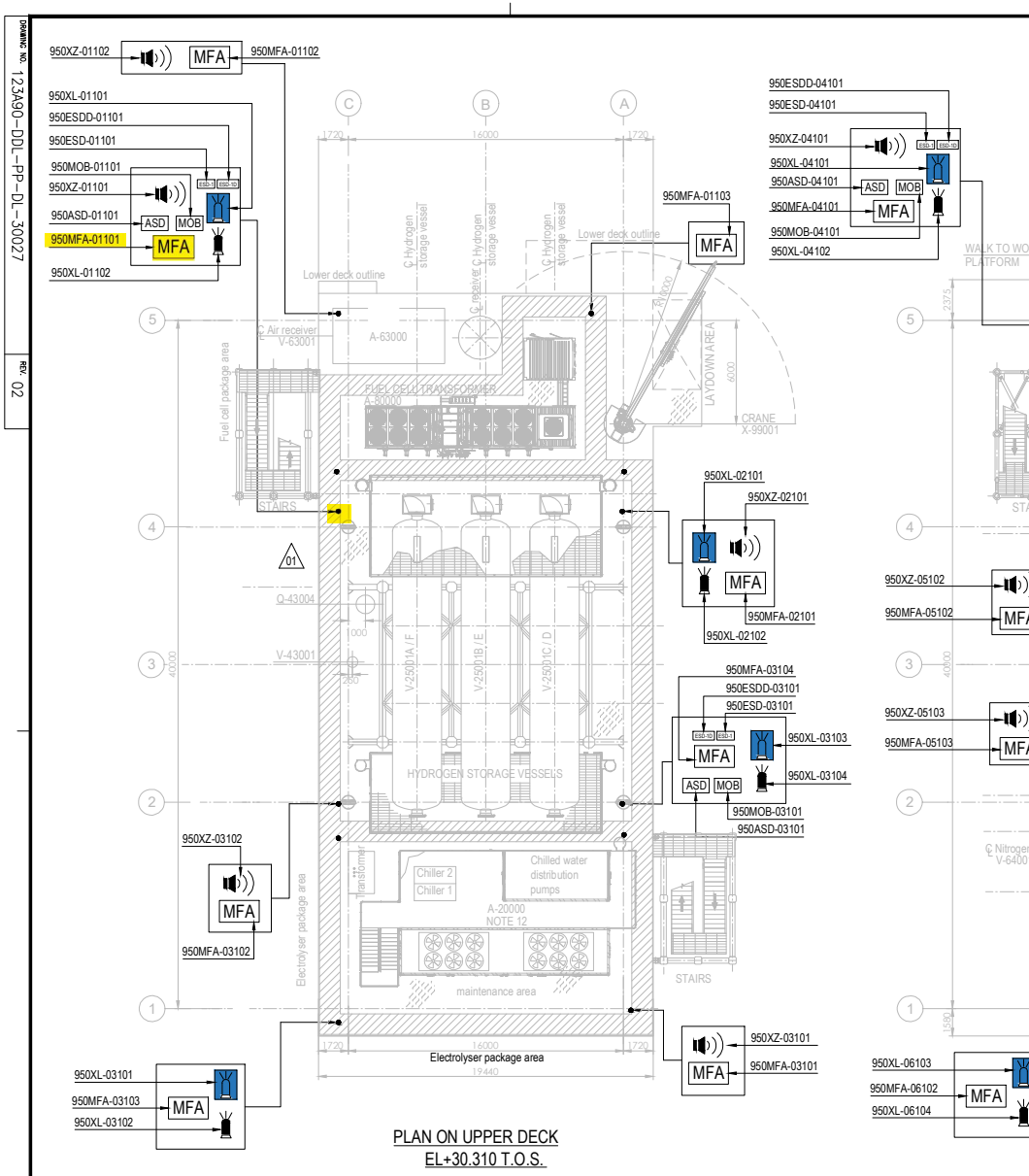
TESTING INSTRUMENTS USED

TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: 10/07/2024

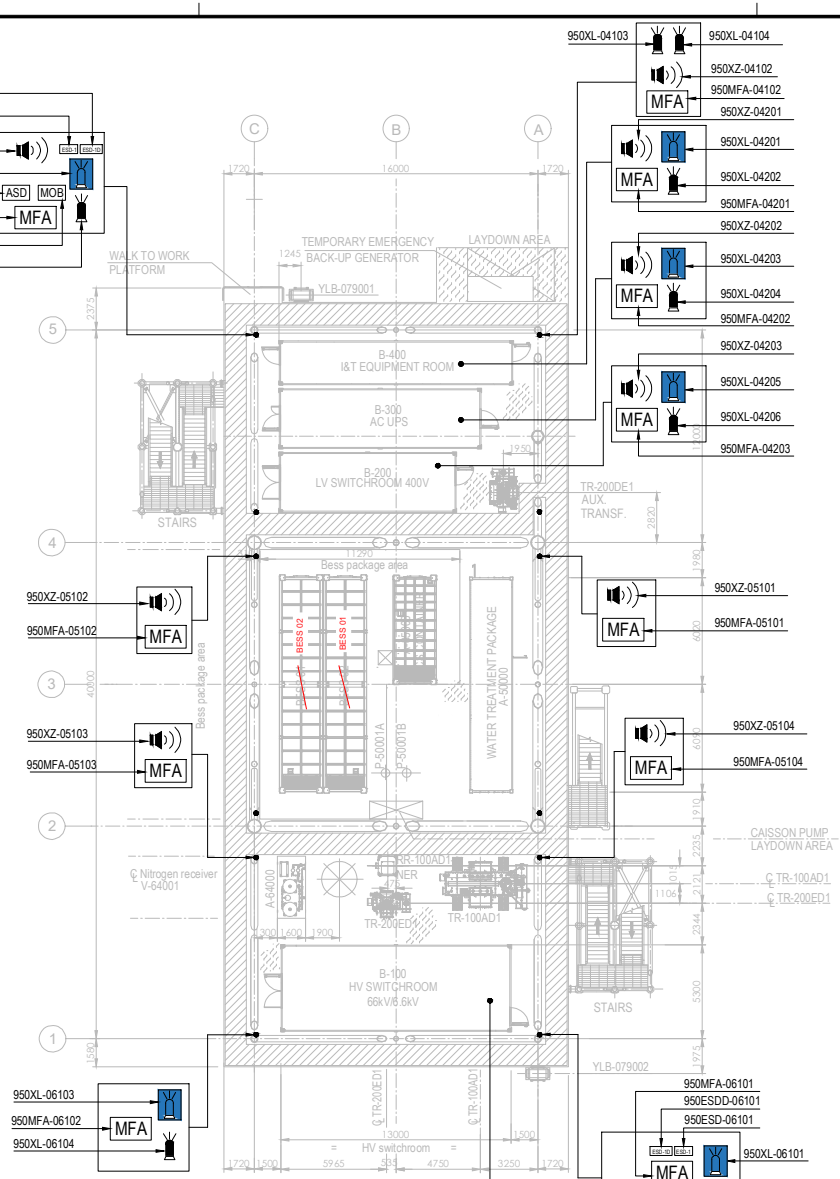
Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Luca Mussi	
Date	2024-12-19	2024-12-23	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-19T12:26:29.575Z	PROVERLIS Digitaly signed by Luca Mussi 2024-12-23T16:56:18.284Z	

DRAWING NO. 123A90-DDL-PP-DL-30027 REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

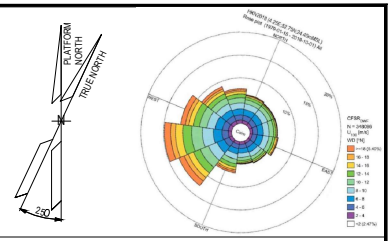


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

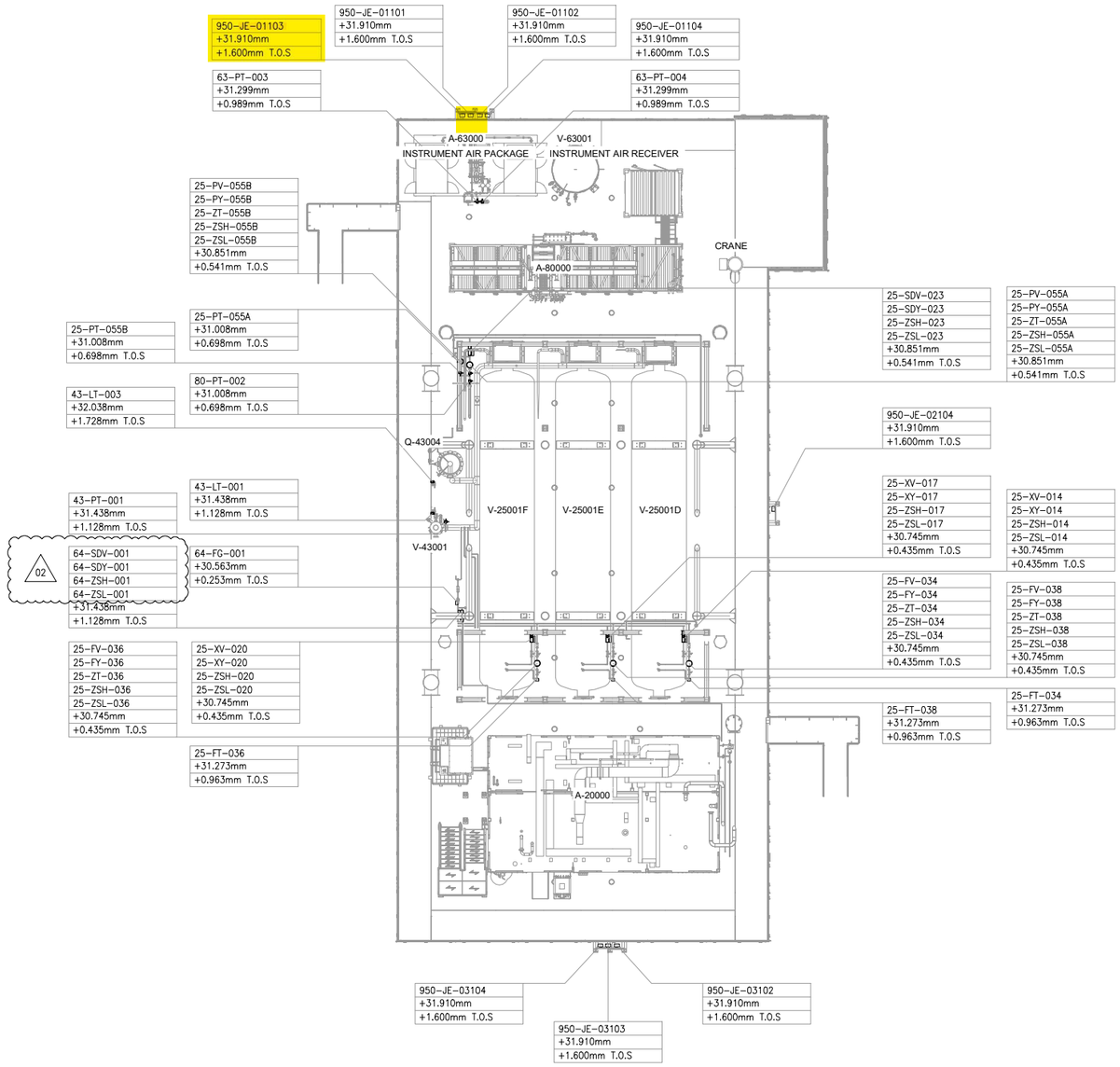
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

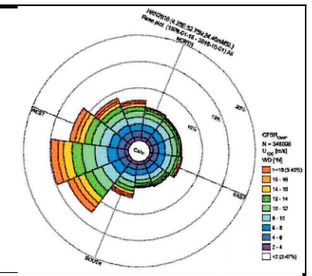


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40081**
REV.: 2_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24

A1 | DRAWING NO. 123A90-DDL-IN-DL-40081 | SHEET 001 | REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1, 8) WH, BK — NOTE-2
C-950-MFA-01101/950-JE-01103
~~C-950-MFA-01101/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01102 (1, 8) WH, BK — NOTE-2
C-950-MFA-01102/950-JE-01103
~~C-950-MFA-01102/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01103 (1, 8) WH, BK — NOTE-2
C-950-MFA-01103/950-JE-01103
~~C-950-MFA-01103/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

WH	1	WH
BK	2	BK — PR1
	SH	
WH	3	WH
BK	4	BK — PR2
	SH	
WH	5	WH
BK	6	BK — PR3
	SH	
SPARE	7	WH
	8	BK — PR4
	SH	
SPARE	9	WH
	10	BK — PR5
	SH	
SPARE	11	WH
	12	BK — PR6
	SH	
	OS	

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1 — Shield Bar	WH 1	
	BK 2	950-MFA-01101
PR2 — Shield Bar	WH 3	
	BK 4	950-MFA-01102
PR3 — Shield Bar	WH 5	
	BK 6	950-MFA-01103
PR4 — Shield Bar	WH 7	
	BK 8	SPARE
PR5 — Shield Bar	WH 9	
	BK 10	SPARE
PR6 — Shield Bar	WH 11	
	BK 12	SPARE

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40016

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	032	01

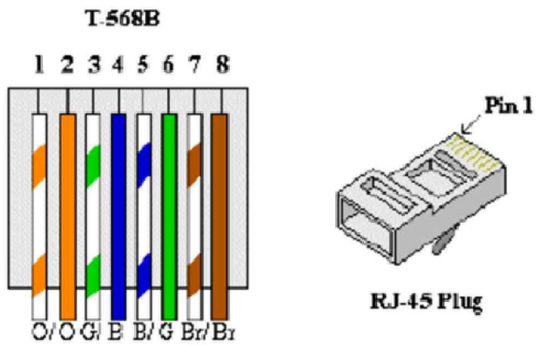
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



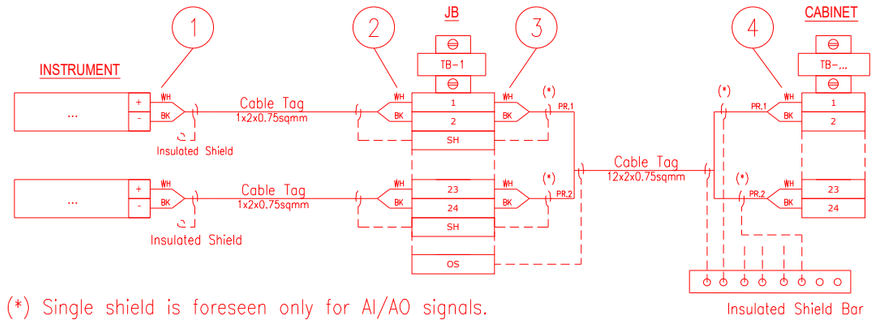
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

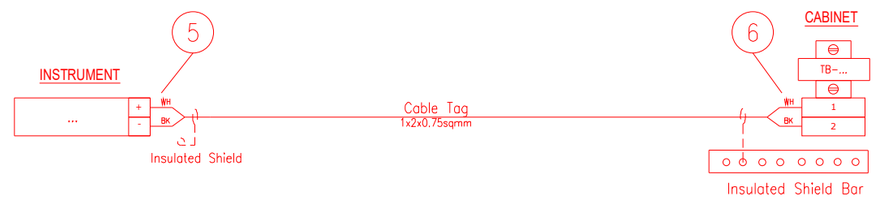
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

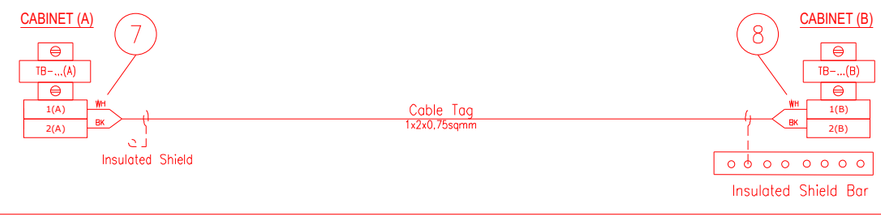
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

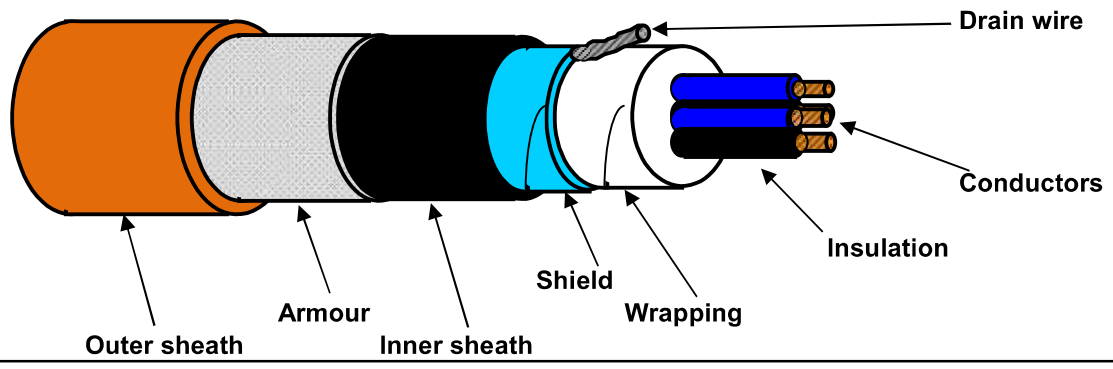
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-MFA-01101/950-JE-01103	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-MFA-01101	Manual Fire Alarm	Upper Deck	950-JE-01103	DI JB to FGS	Upper Deck	SMICV08-1X2X0,75	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange	M20S	T2_M20S_Double			T2_M20S_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm	
Cores colour code :	**White - Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	10/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(8,5 ± 10%) mm	
Over armour diameter :	(9,3 ± 10%) mm	
Outer diameter :	(11,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 26 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 25 µH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-MFA-01102/950-JE-01103	: MANUAL FIRE ALARM / MARSHALLING PCS		Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10000295	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X2X0,75 mm2	Color	ORANGE
From	950-MFA-01102	To	950-JE-01103		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0.3	Ω
	SCREEN		0.3	Ω
	EARTH		NA	Ω
	ARMr		0.3	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

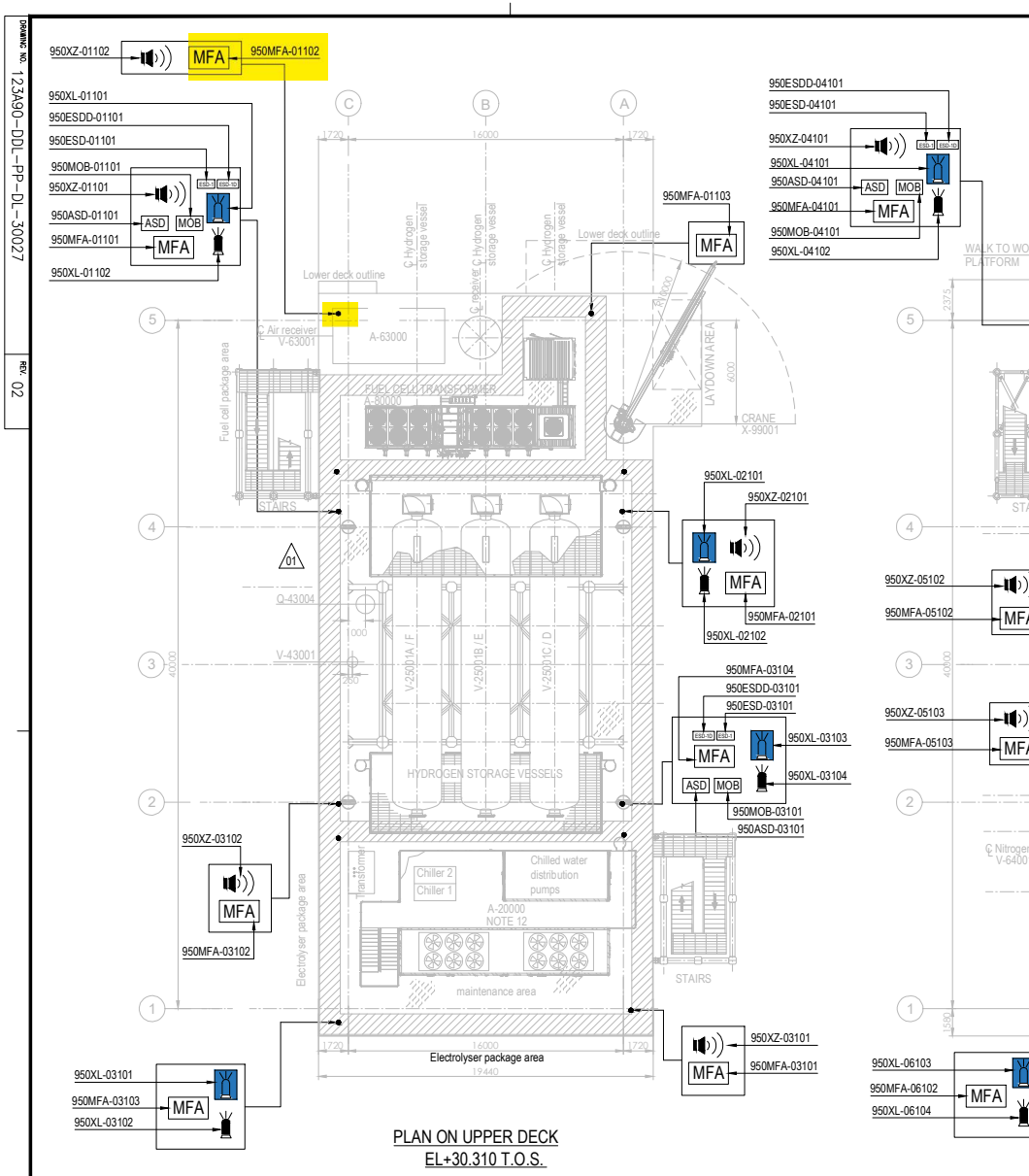
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Andrea Andreani	
Date	2024-12-19	2024-12-24	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-19T12:26:50.973Z	PROVERLIS Digitaly signed by Andrea Andreani 2024-12-24T11:51:00.529Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



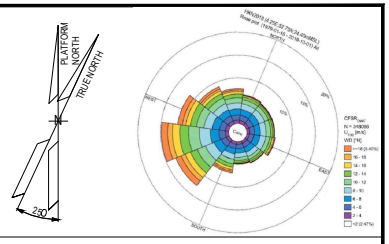
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

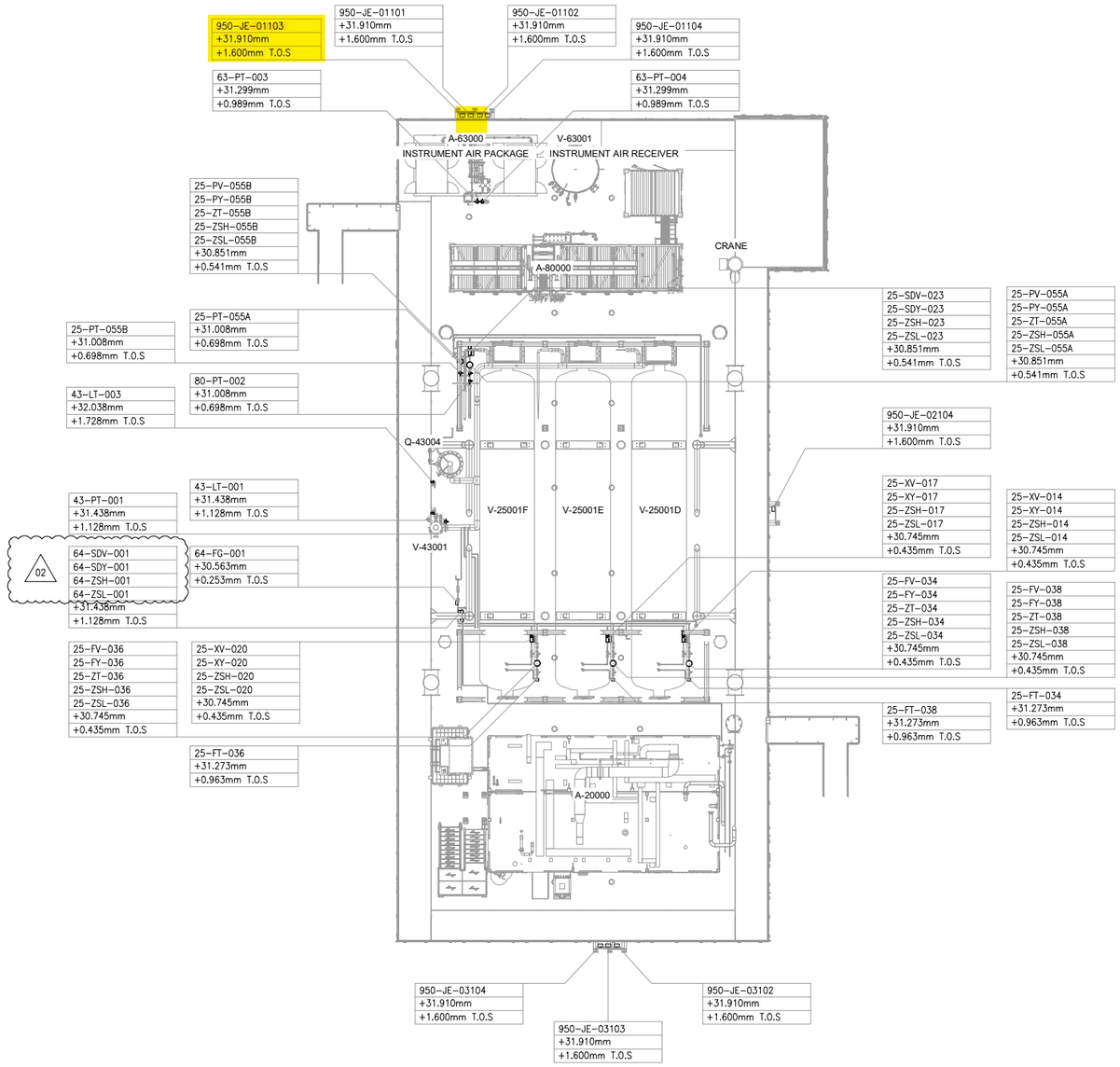
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

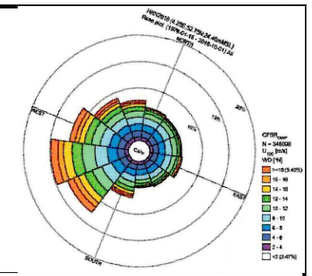


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40081**
REV.: 2_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24

A1 | DRAWING NO. 123A90-DDL-IN-DL-40081 | SHEET 001 | REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01101/950-JE-01103
~~C-950-MFA-01101/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01102 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01102/950-JE-01103
~~C-950-MFA-01102/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01103 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01103/950-JE-01103
~~C-950-MFA-01103/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

WH / BK	1	PR1
	2	
	SH	
WH / BK	3	PR2
	4	
	SH	
WH / BK	5	PR3
	6	
	SH	
SPARE	7	PR4
	8	
	SH	
SPARE	9	PR5
	10	
	SH	
SPARE	11	PR6
	12	
	SH	
	OS	

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1 — Shield Bar	1	950-MFA-01101
	2	
PR2 — Shield Bar	3	950-MFA-01102
	4	
PR3 — Shield Bar	5	950-MFA-01103
	6	
PR4 — Shield Bar	7	SPARE
	8	
PR5 — Shield Bar	9	SPARE
	10	
PR6 — Shield Bar	11	SPARE
	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 032	REV. 01

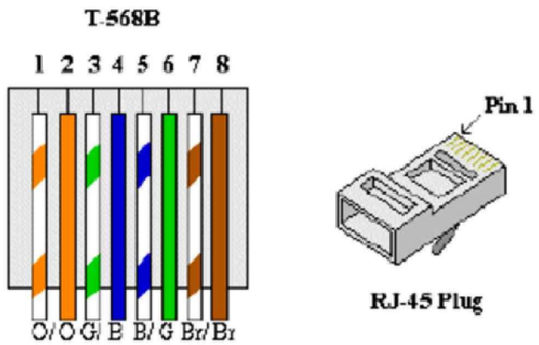
File Name : 123A90–DDL–IN–DG–40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



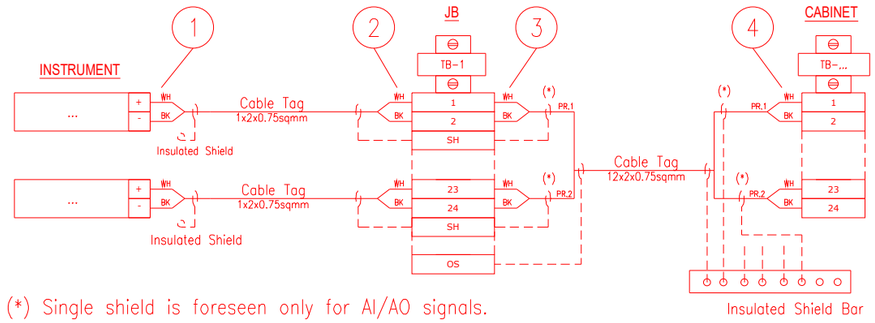
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

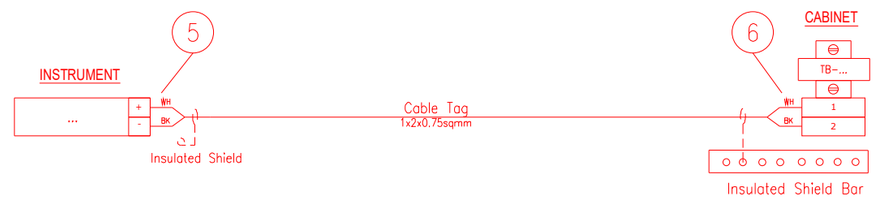
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

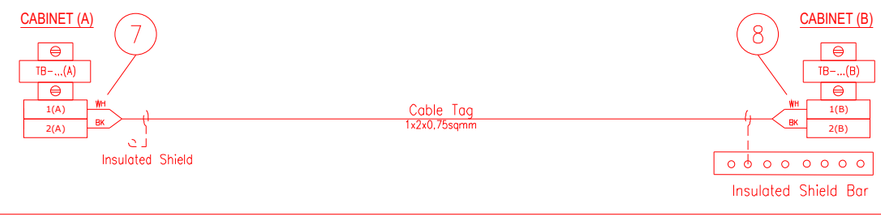
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

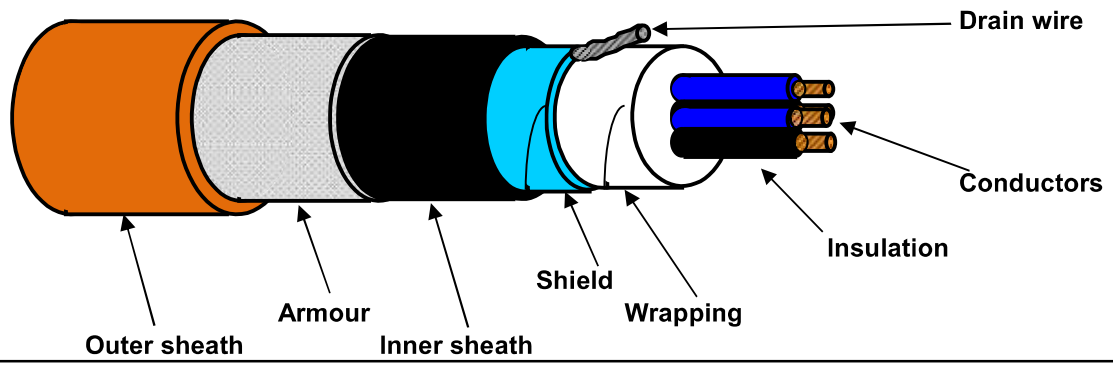
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-MFA-01102/950-JE-01103	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-MFA-01102	Manual Fire Alarm	Upper Deck	950-JE-01103	DI JB to FGS	Upper Deck	SMICV08-1X2X0,75	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange	M20S	T2_M20S_Double			T2_M20S_Double				U-SEC-20C

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm	
Cores colour code :	**White - Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	10/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(8,5 ± 10%) mm	
Over armour diameter :	(9,3 ± 10%) mm	
Outer diameter :	(11,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 26 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 25 µH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also by such outsiders in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	C-950-MFA-01103/950-JE-01103 : MANUAL FIRE ALARM / MARSHALLING PCS			Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)			Module	UD	
TASK	code	C10000296	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X2X0,75 mm2	Color	ORANGE
From	950-MFA-01103	To	950-JE-01103		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	PL
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0,3	Ω
	SCREEN		0,3	Ω
	EARTH		NA	Ω
	ARMr		0,3	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

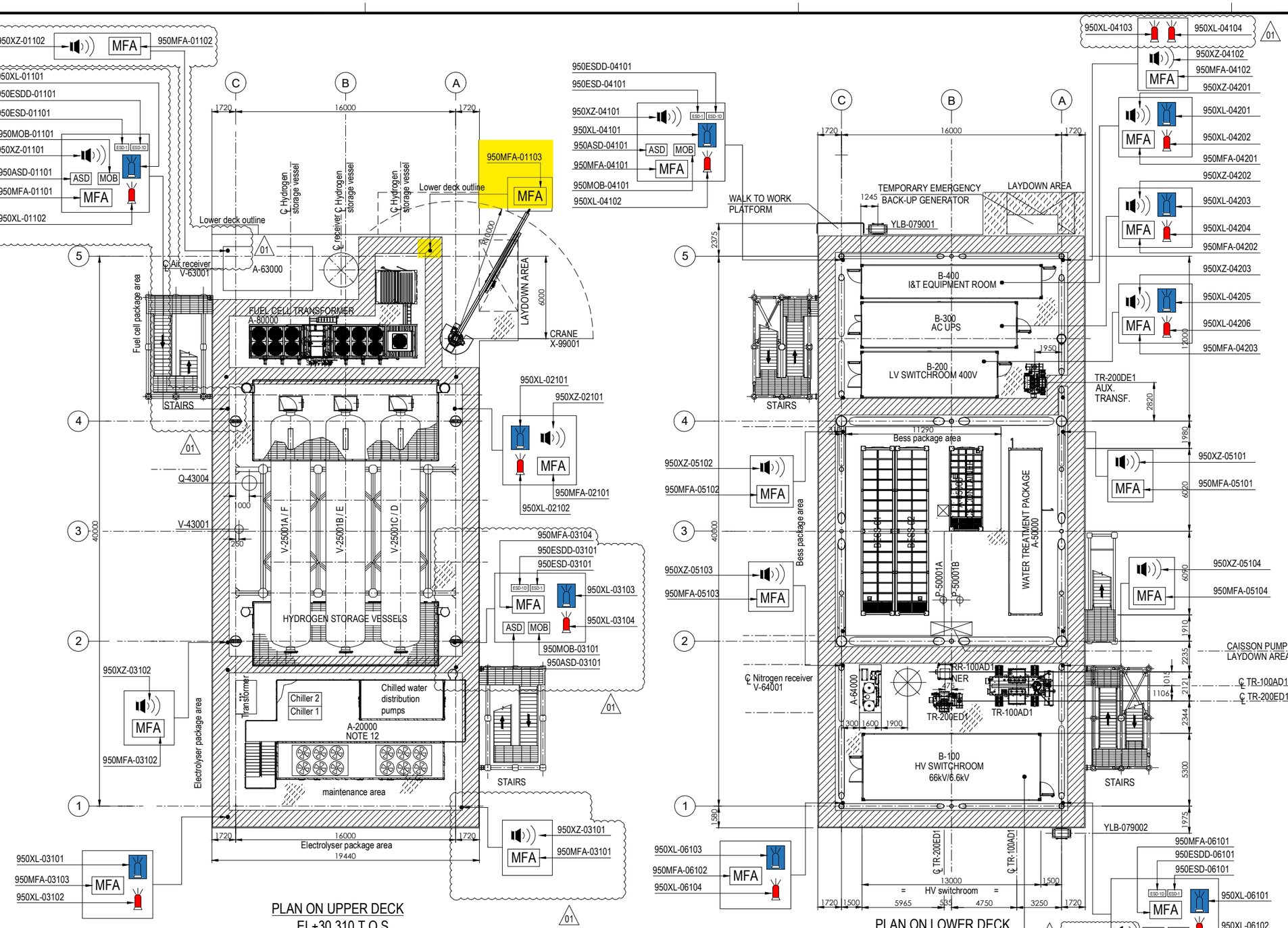
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Alessio Polo	
Date	2024-11-22	2024-12-05	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-22T10:24:20.221Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-05T13:08:43.084Z	

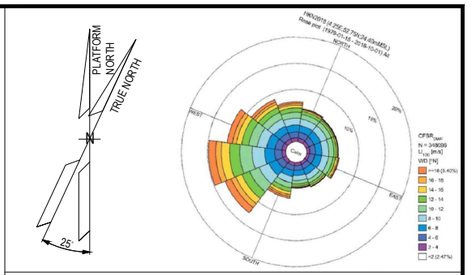
DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 01



PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.

01 5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
1_B	18/09/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
01 123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

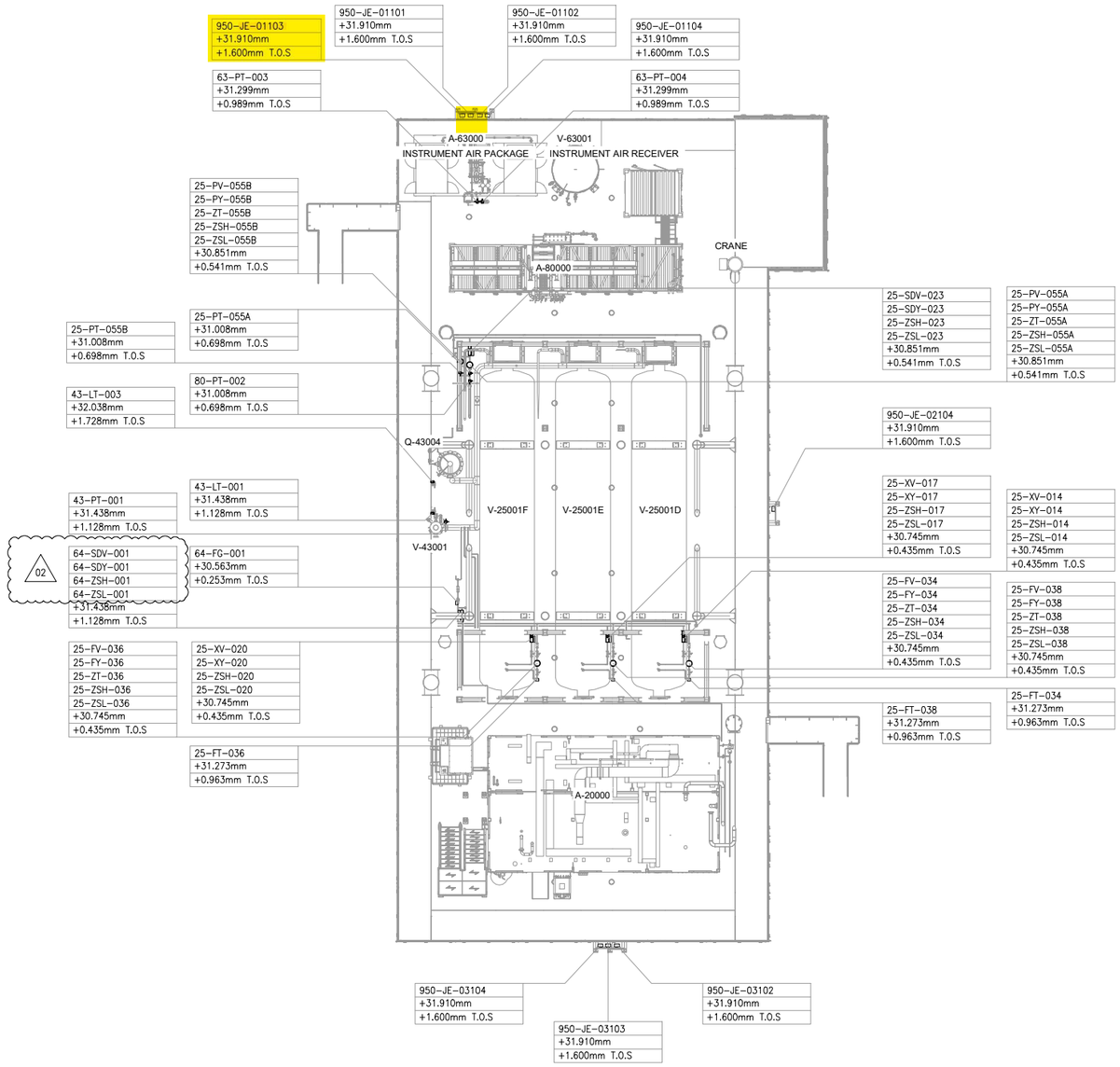
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 10/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 01

File Name : 123A90-DDL-SAF-DL-30027 Rev.01

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

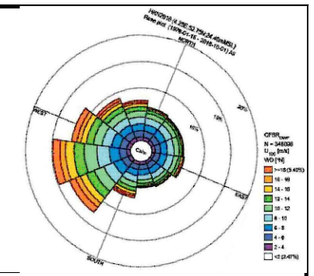


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24

A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1 / 8) WH BK — NOTE-2

C-950-MFA-01101/950-JE-01103
~~C-950-MFA-01101/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01102 (1 / 8) WH BK — NOTE-2

C-950-MFA-01102/950-JE-01103
~~C-950-MFA-01102/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01103 (1 / 8) WH BK — NOTE-2

C-950-MFA-01103/950-JE-01103
~~C-950-MFA-01103/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

WH	1	WH	PR1
BK	2	BK	
	SH		
WH	3	WH	PR2
BK	4	BK	
	SH		
WH	5	WH	PR3
BK	6	BK	
	SH		
SPARE	7	WH	PR4
	8	BK	
	SH		
SPARE	9	WH	PR5
	10	BK	
	SH		
SPARE	11	WH	PR6
	12	BK	
	SH		
	OS		

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1	1	950-MFA-01101
Shield Bar	2	
PR2	3	950-MFA-01102
Shield Bar	4	
PR3	5	950-MFA-01103
Shield Bar	6	
PR4	7	SPARE
Shield Bar	8	
PR5	9	SPARE
Shield Bar	10	
PR6	11	SPARE
	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	032	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

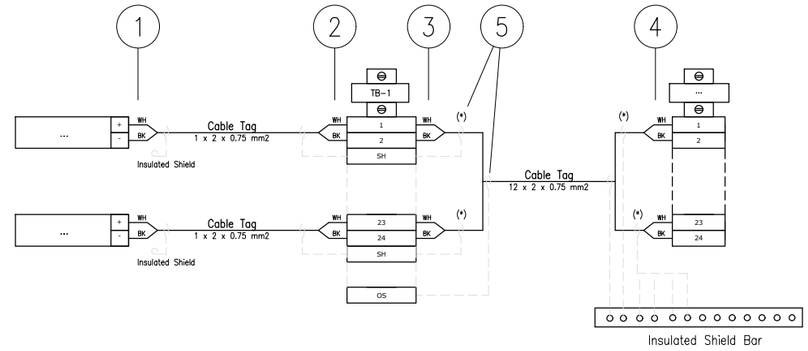
LEGENDS & SYMBOLS:

LEGEND:

I.E.	- GREEN ——— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN/YELLOW —— P.E. EARTH/BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

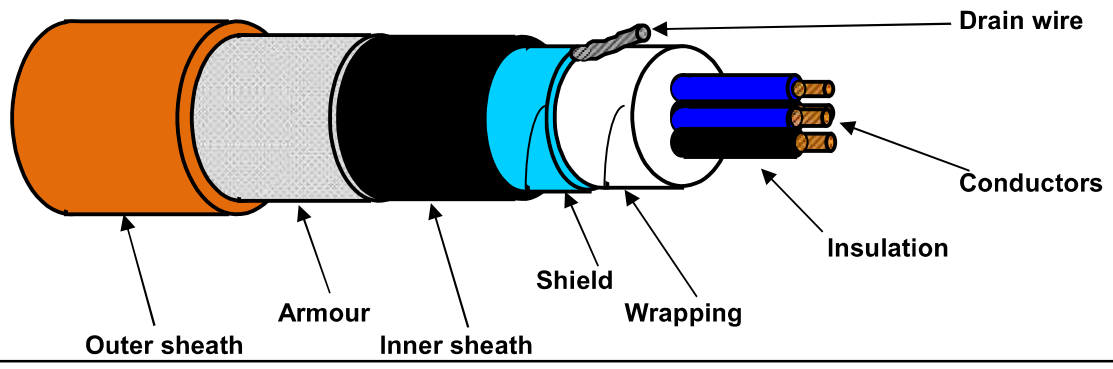
	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-MFA-01103/950-JE-01103	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-MFA-01103	Manual Fire Alarm	Upper Deck	950-JE-01103	DI JB to FGS	Upper Deck	SMICV08-1X2X0,75	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange	M20S	T2_M20S_Double			T2_M20S_Double				U-SEC-20E / U-SEC-20D

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm	
Cores colour code :	**White - Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	10/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(8,5 ± 10%) mm	
Over armour diameter :	(9,3 ± 10%) mm	
Outer diameter :	(11,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 26 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 25 µH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-XZ-01101/950-JE-01104	: SOUNDER / MARSHALLING PCS	Dwg	123A90-DDL-IN-LIS-40091		
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD		
TASK	code	C10000320	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10

Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	2X2,5 mm2	Color	ORANGE
From	950-XZ-01101	To	950-JE-01104		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	PL
12	Check gland plate for single core cables is non-ferrous.	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0,3	Ω
	SCREEN		0,3	Ω
	EARTH		NA	Ω
	ARMr		0,3	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

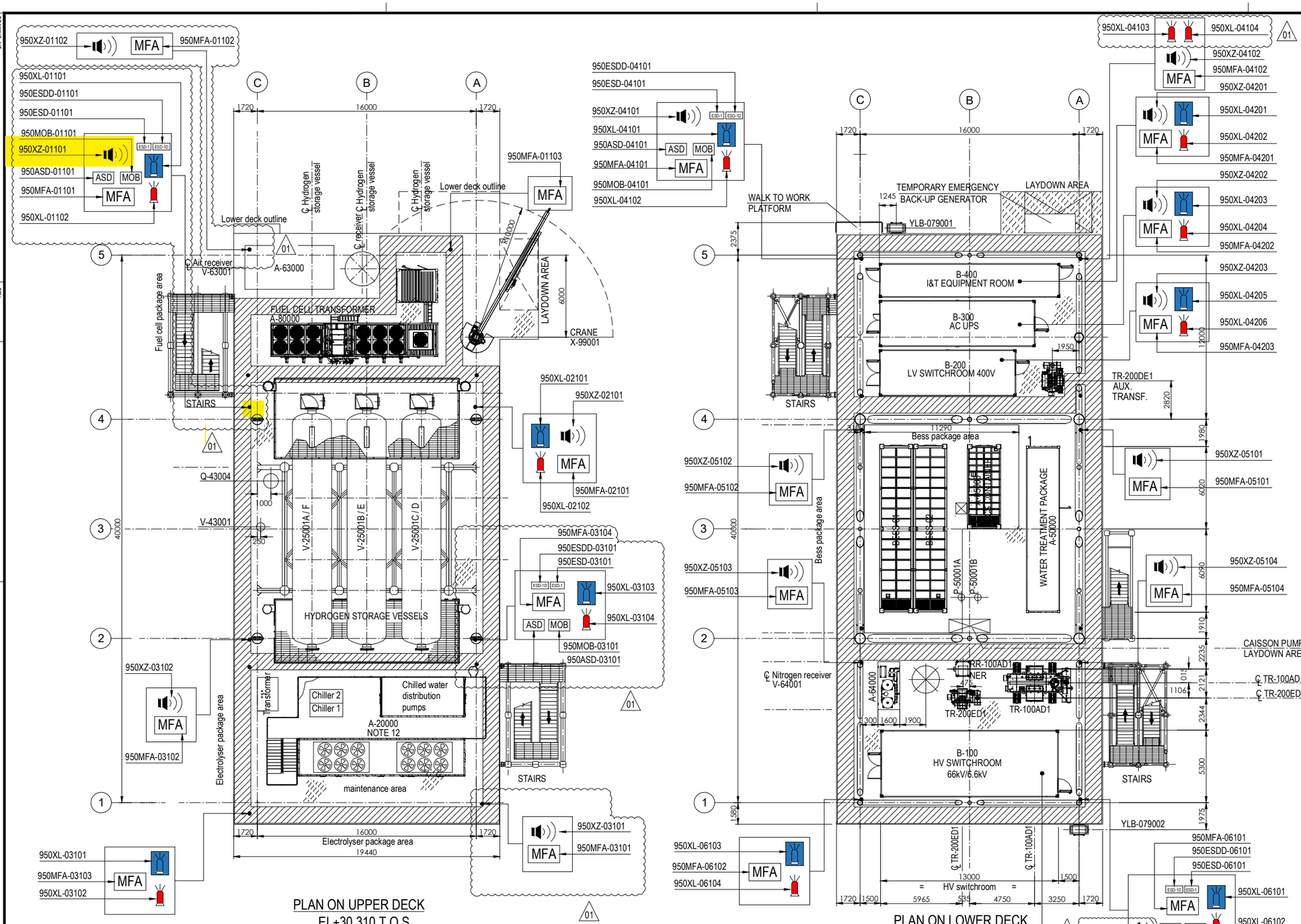
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-07	2024-12-11	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-07T07:49:56.053Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-11T15:11:59.337Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 01



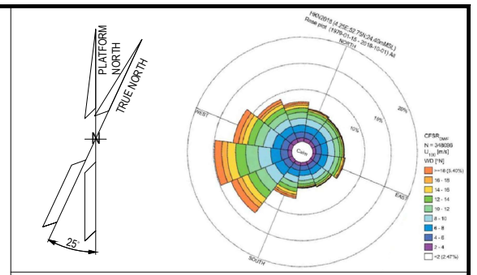
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
01. 5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION
1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
1_B	18/09/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
01 123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

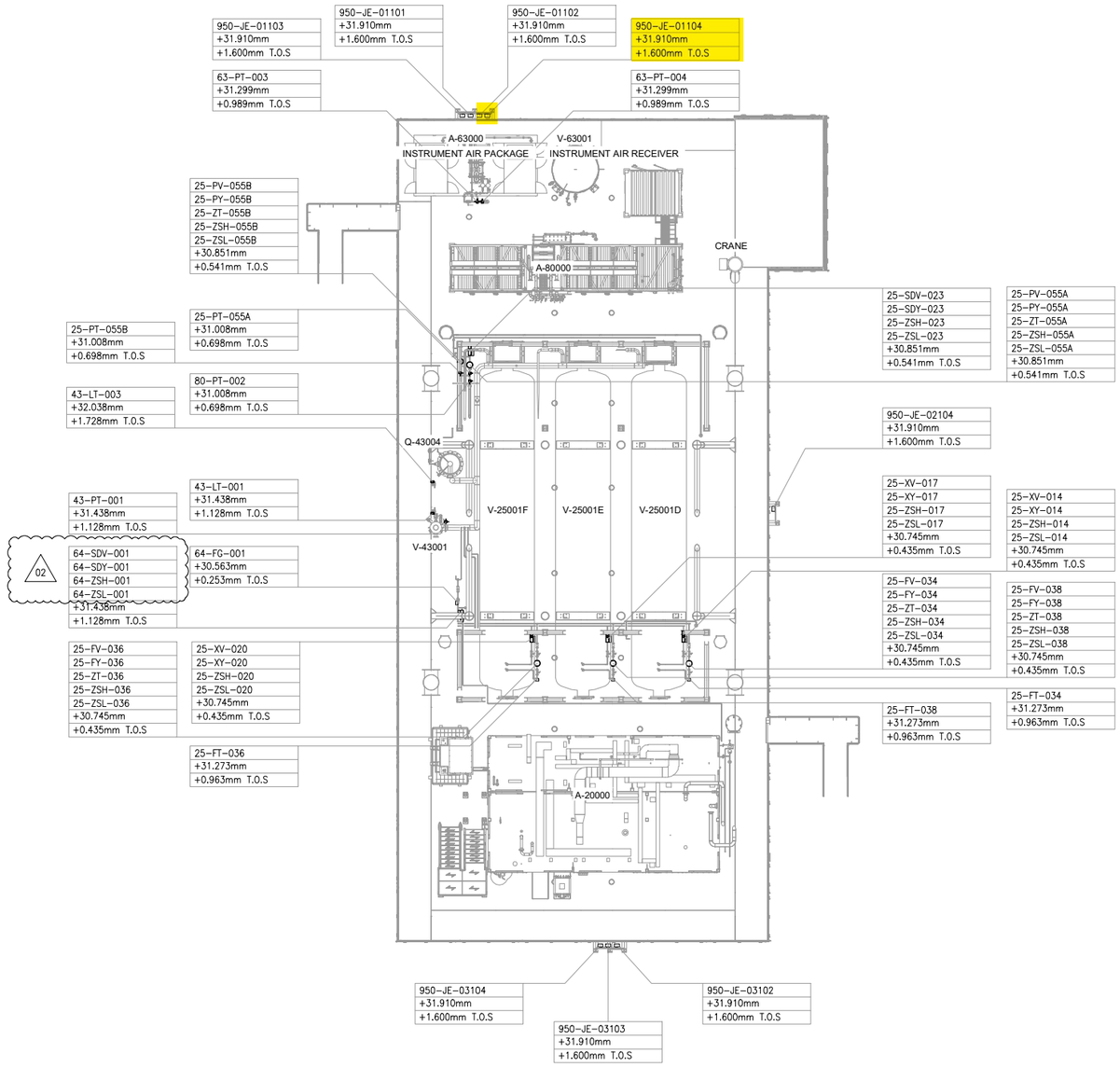
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 10/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 01

File Name : 123A90-DDL-SAF-DL-30027 Rev.01

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

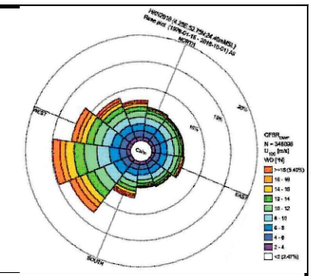


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24

A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

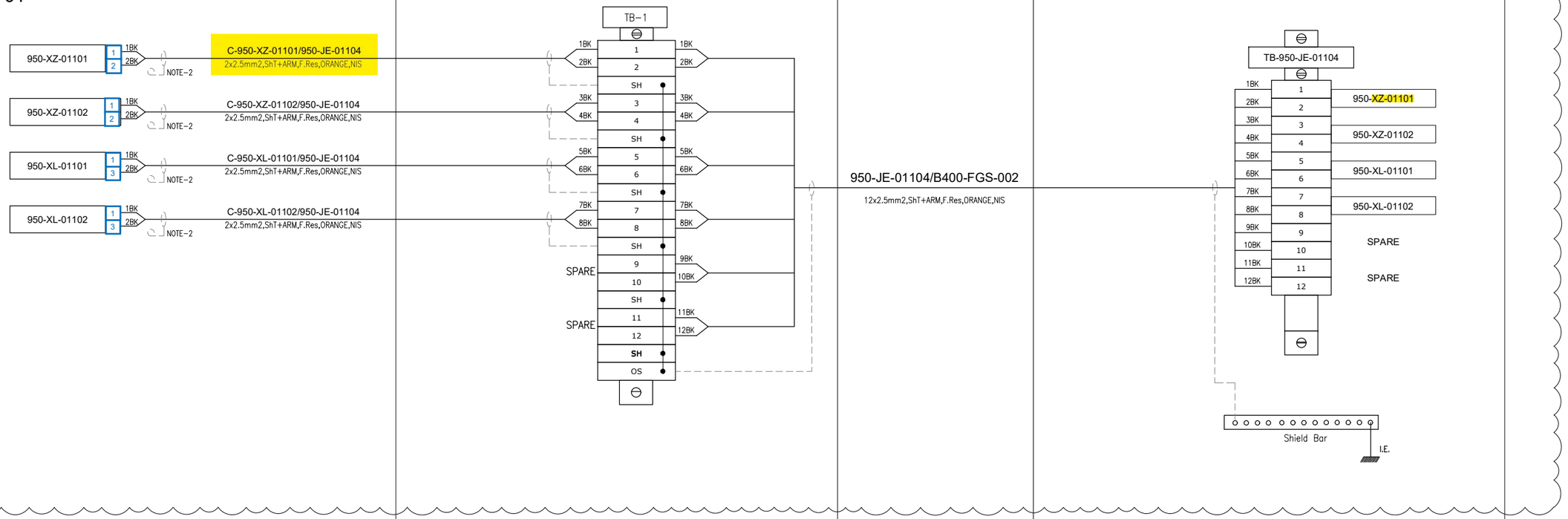
File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

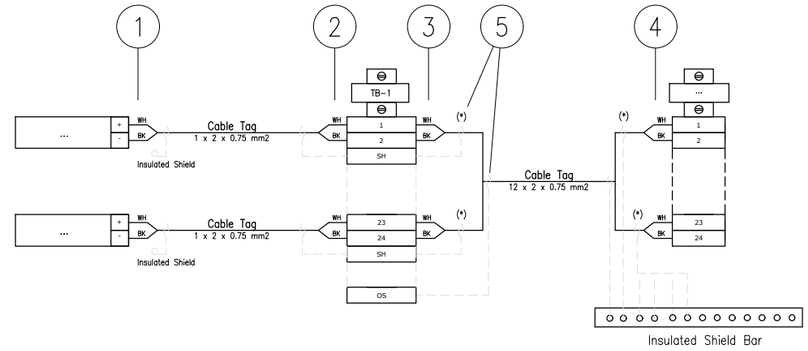
LEGENDS & SYMBOLS:

LEGEND:

I.E.	- GREEN ——— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN/YELLOW —— P.E. EARTH/BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

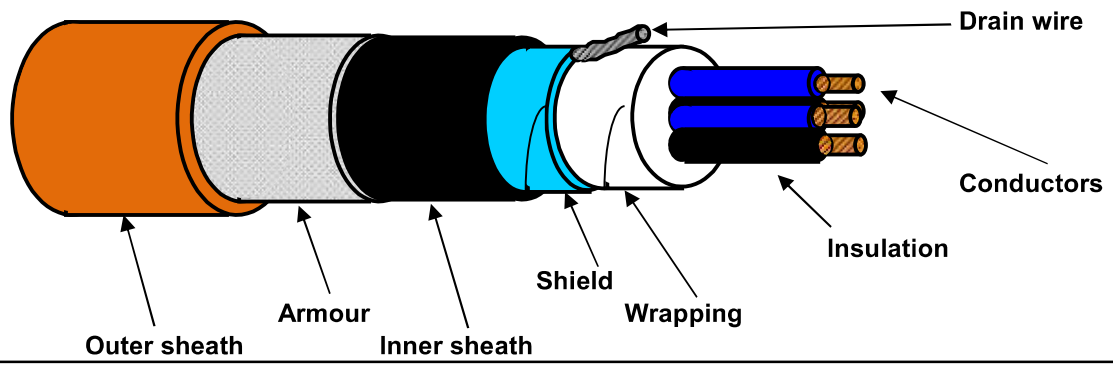
	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-XZ-01101/950-JE-01104	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-XZ-01101	Sounder	Upper Deck	950-JE-01104	DO JB to FGS	Upper Deck	SMICV12-2X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Black NUMBERED (from 1 to 2)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	8/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,3 ± 10%) mm	
Over armour diameter :	(11,5 ± 10%) mm	
Outer diameter :	(14,1 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-XZ-01102/950-JE-01104	: SOUNDER / MARSHALLING PCS	Dwg	123A90-DDL-IN-LIS-40091		
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)	Module	UD		
TASK	code	C10000321	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10

Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	2X2,5 mm2	Color	ORANGE
From	950-XZ-01102	To	950-JE-01104		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	PL
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	PL
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,2	Ω
	SCREEN	0,2	Ω
	EARTH	NA	Ω
	ARMr	0,2	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

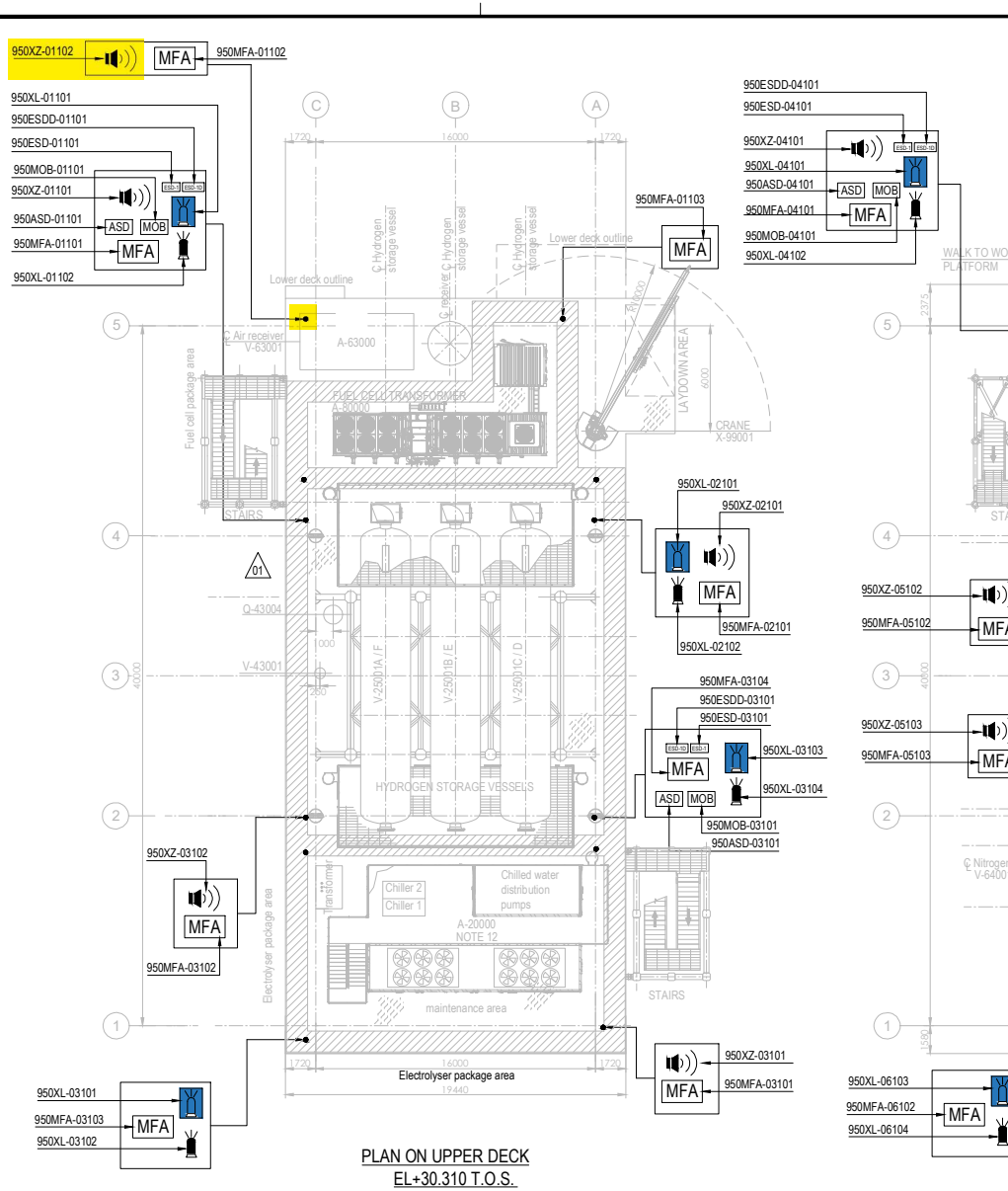
TESTING INSTRUMENTS USED

TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Giovanni Tangianu	
Date	2024-12-19	2024-12-27	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-19T12:28:10.150Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2024-12-27T16:43:17.863Z	

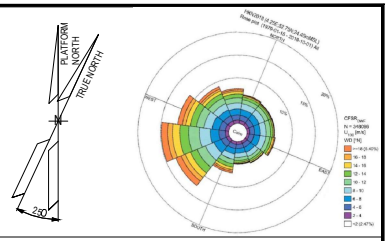
DRAWING NO. 123A90-DDL-PP-DL-30027 REV. 02



EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

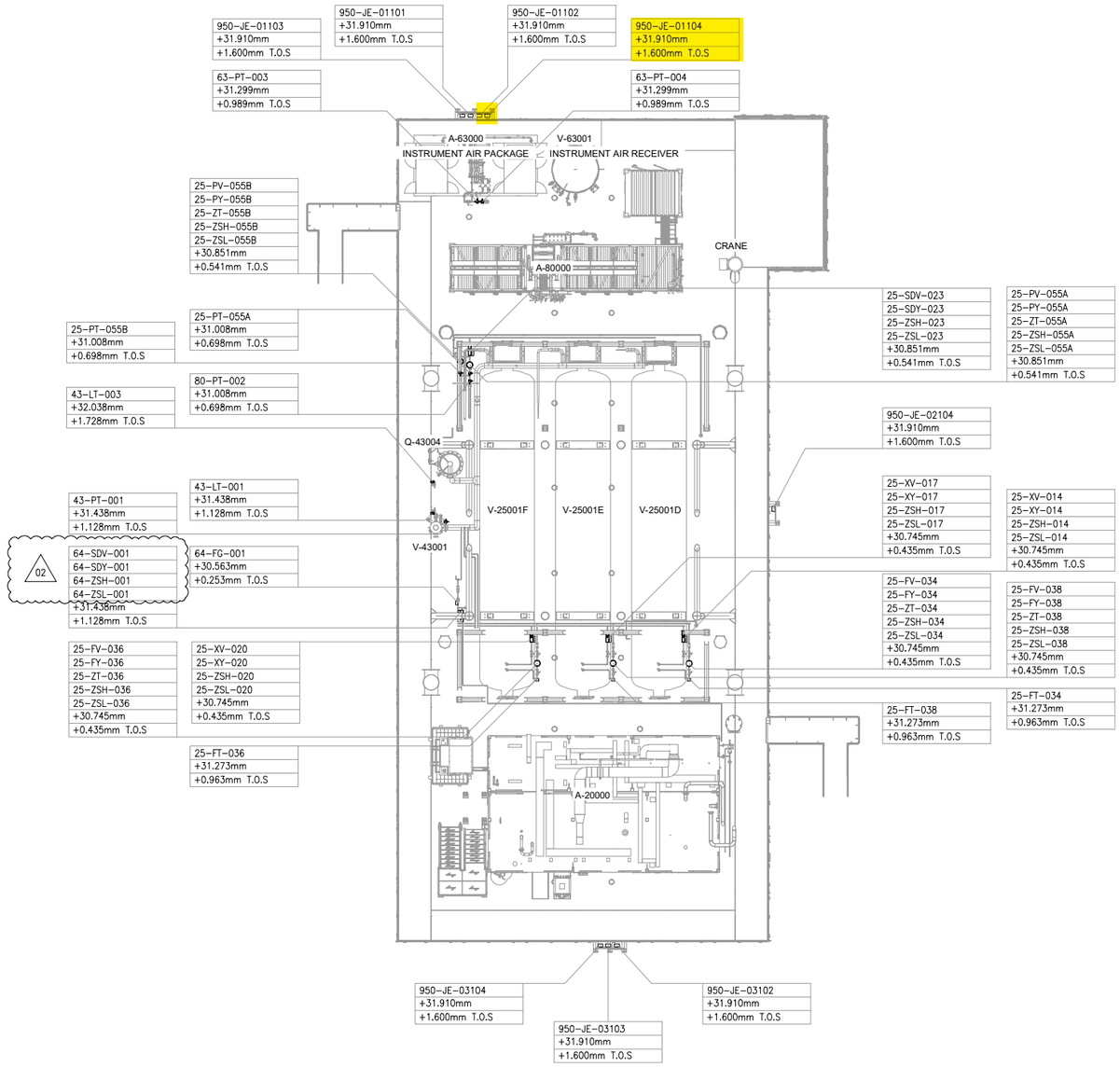
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

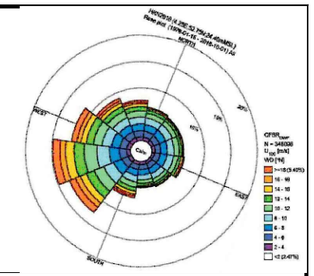


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40081**
REV.: 2_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>

950-XZ-01101 (1BK, 2BK) — NOTE-2 — C-950-XZ-01101/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XZ-01102 (1BK, 2BK) — NOTE-2 — C-950-XZ-01102/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XL-01101 (1BK, 2BK) — NOTE-2 — C-950-XL-01101/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

950-XL-01102 (1BK, 2BK) — NOTE-2 — C-950-XL-01102/950-JE-01104 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1BK	1	1BK
2BK	2	2BK
	SH	
3BK	3	3BK
4BK	4	4BK
	SH	
5BK	5	5BK
6BK	6	6BK
	SH	
7BK	7	7BK
8BK	8	8BK
	SH	
SPARE	9	9BK
	10	10BK
	SH	
SPARE	11	11BK
	12	12BK
	SH	
	OS	

950-JE-01104/B400-FGS-002

12x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01104

1BK	1	950-XZ-01101
2BK	2	
3BK	3	950-XZ-01102
4BK	4	
5BK	5	950-XL-01101
6BK	6	
7BK	7	950-XL-01102
8BK	8	
9BK	9	SPARE
10BK	10	
11BK	11	SPARE
12BK	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

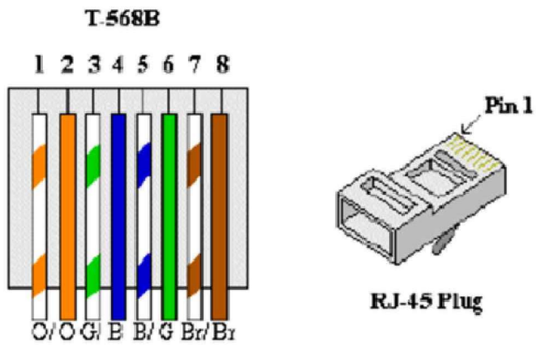
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



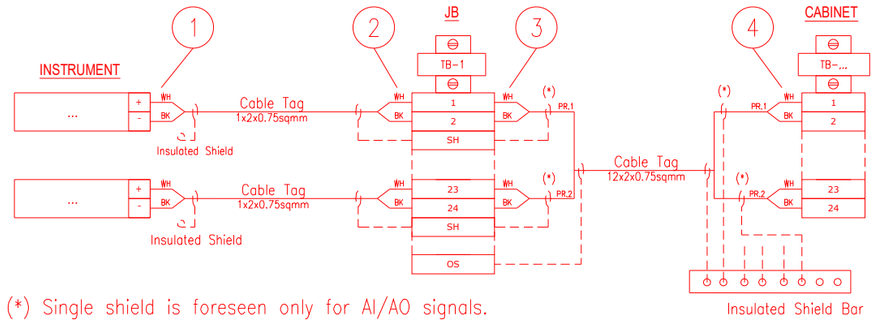
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

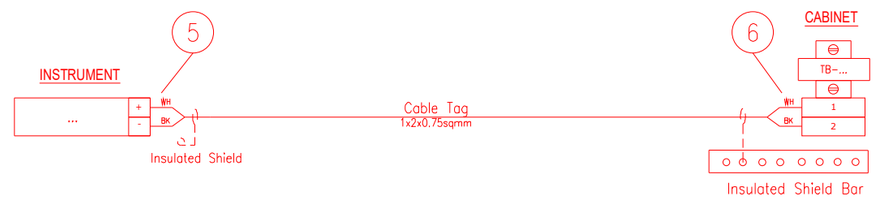
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

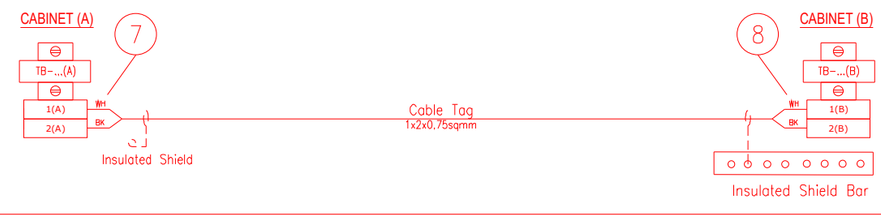
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

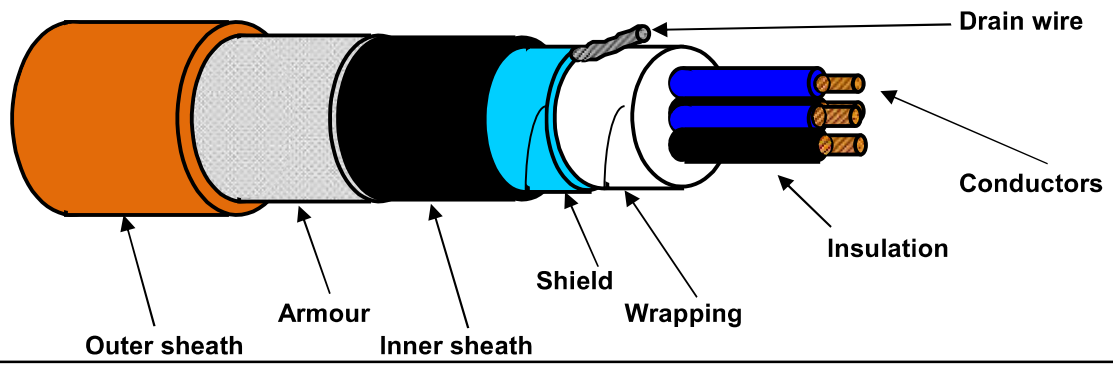
File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-XZ-01102/950-JE-01104	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-XZ-01102	Sounder	Upper Deck	950-JE-01104	DO JB to FGS	Upper Deck	SMICV12-2X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				U-SEC-20C

FLEI s.r.l.

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Black NUMBERED (from 1 to 2)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	8/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,3 ± 10%) mm	
Over armour diameter :	(11,5 ± 10%) mm	
Outer diameter :	(14,1 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-950-XL-01101/950-JE-01104 : BEACON / MARSHALLING PCS			Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)			Module	UD	
TASK	code	C10000322	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity	CCK	Discipline	Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	2X2,5 mm2	Color	ORANGE
From	950-XL-01101	To	950-JE-01104		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	PL
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		0,3	Ω
	SCREEN		0,3	Ω
	EARTH		NA	Ω
	ARMr		0,3	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

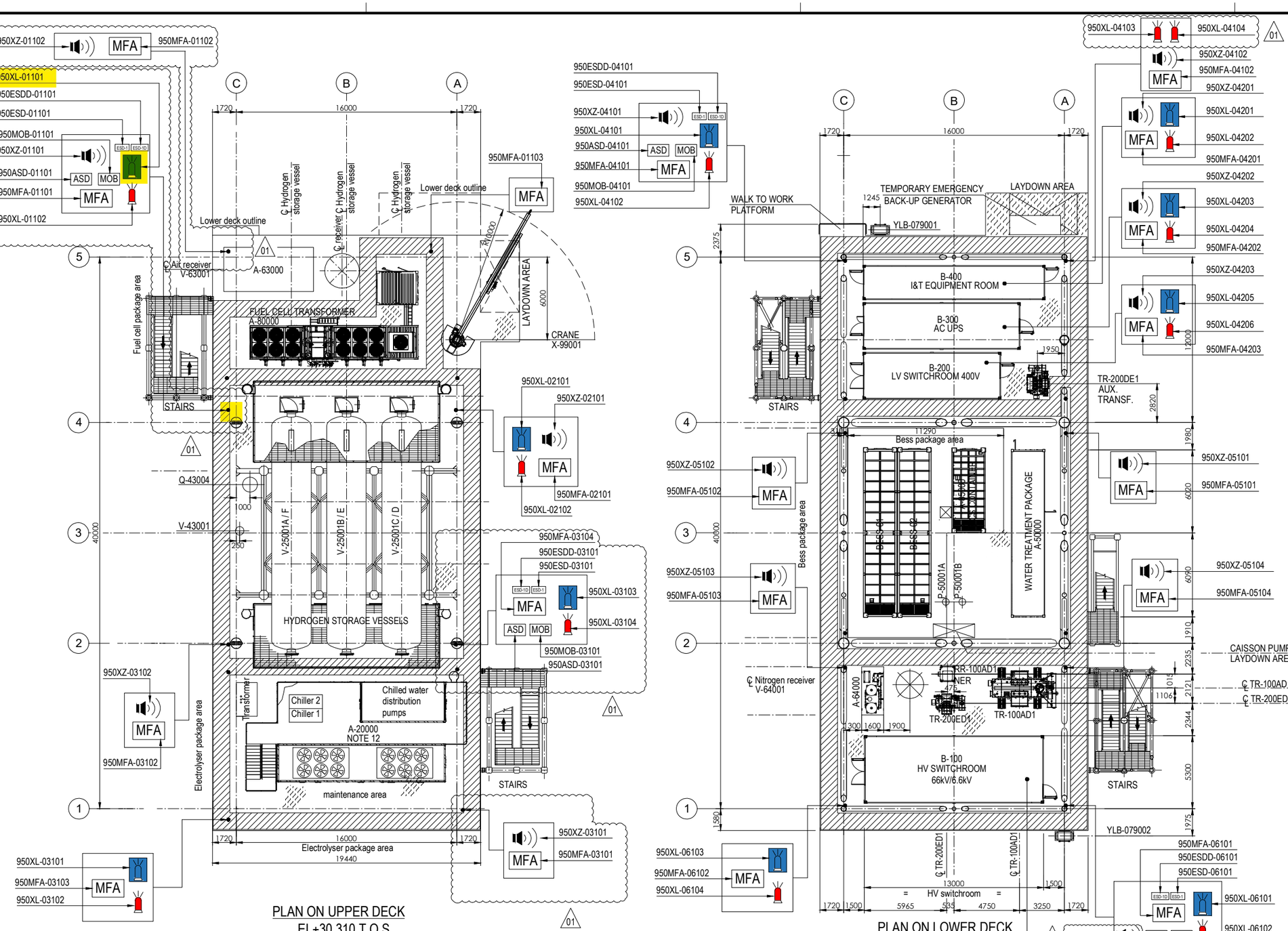
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000682

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-07	2024-12-12	
Signature	Digitaly signed by Francesco Zucca 2024-12-07T07:50:09.076Z	Digitaly signed by Alessio Polo 2024-12-12T17:38:50.275Z	

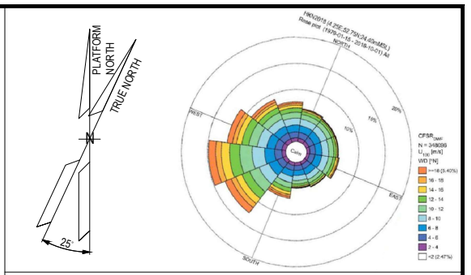
DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 01



PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.

01 5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
1_B	18/09/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
01 123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

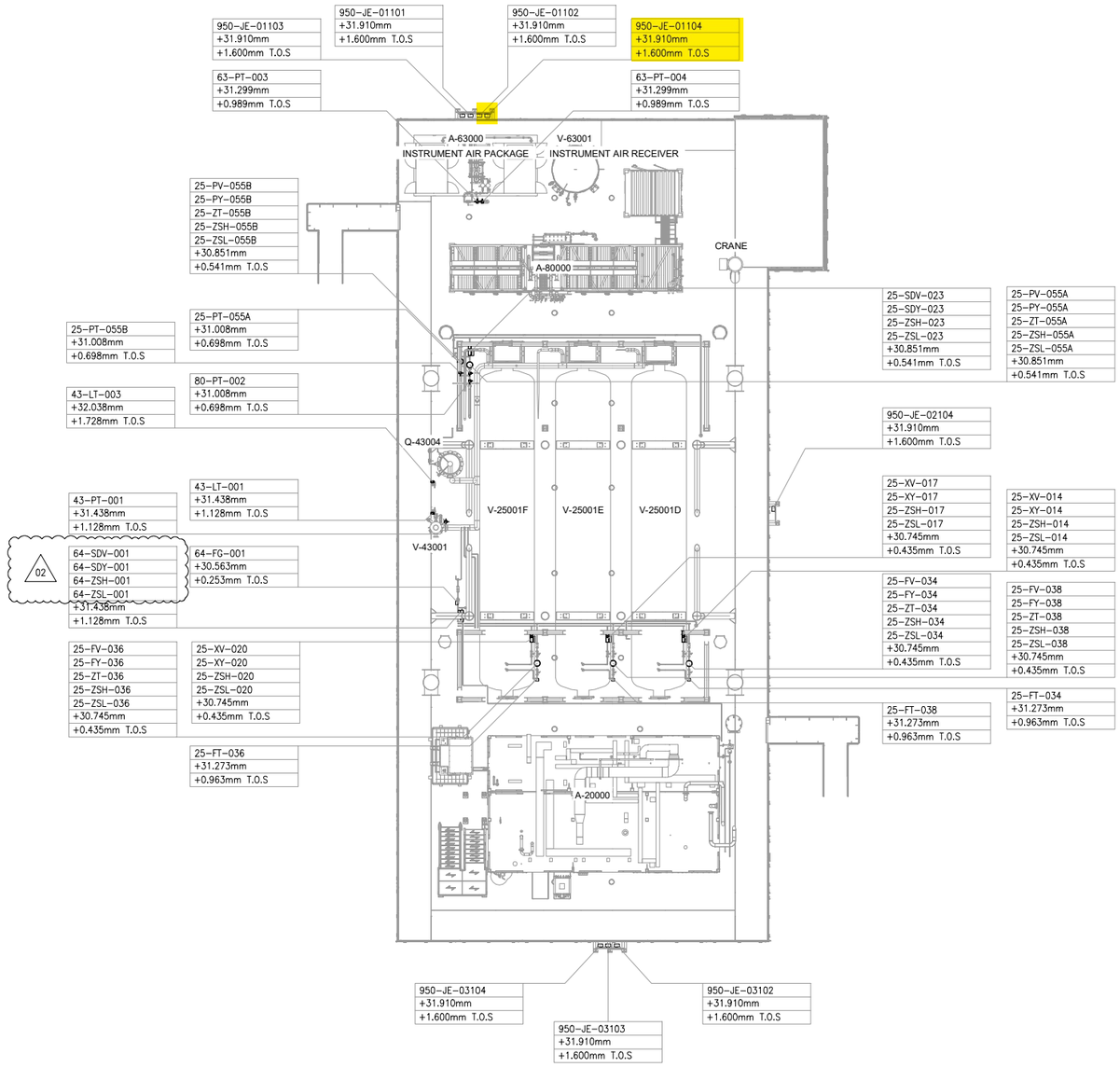
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE	10/07/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027		SHEET 002	REV. 01

File Name : 123A90-DDL-SAF-DL-30027 Rev.01

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

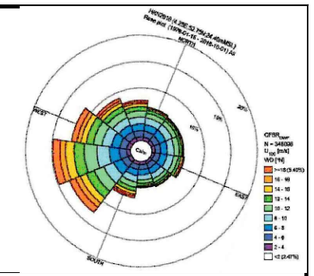


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DL-40081**

REV.:	DATE:	SIGNATURE:
2_A	07/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24

A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

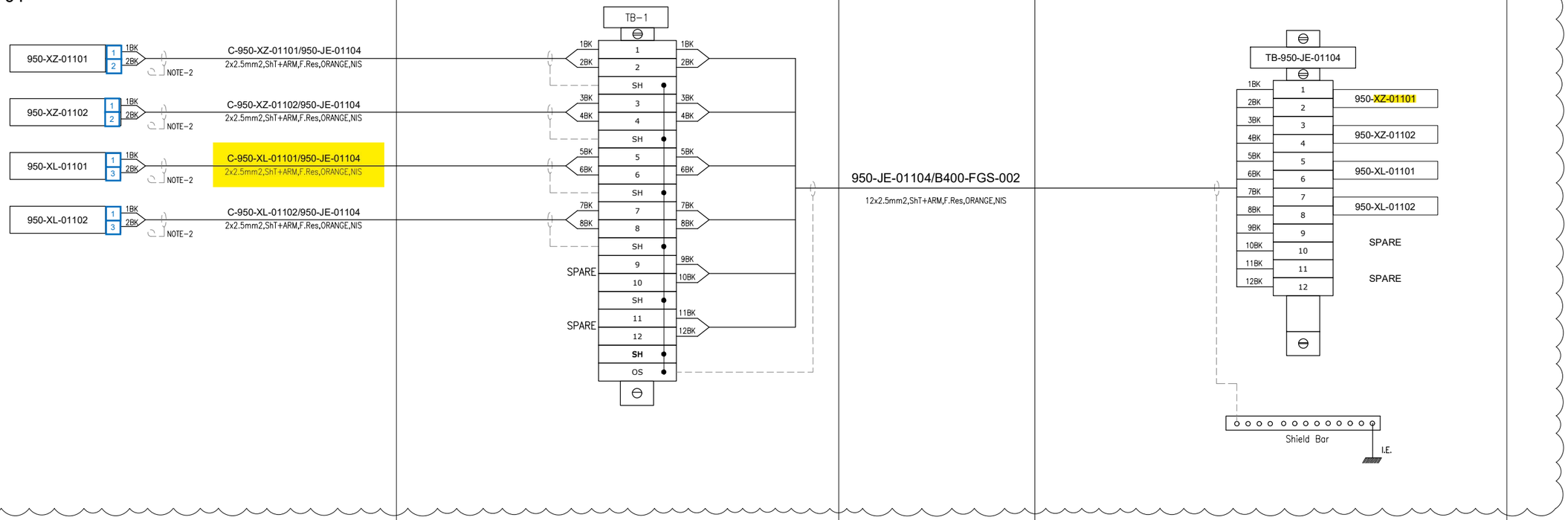
File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

6. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

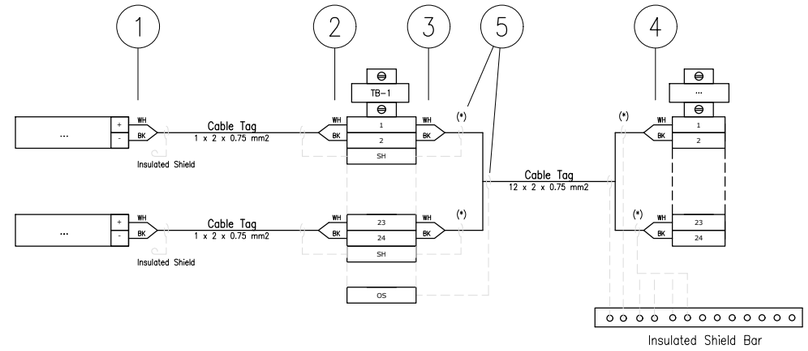
LEGENDS & SYMBOLS:

LEGEND:

I.E.	- GREEN ——— INSTRUMENT SIGNAL EARTH
P.E.	- GREEN/YELLOW —— P.E. EARTH/BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

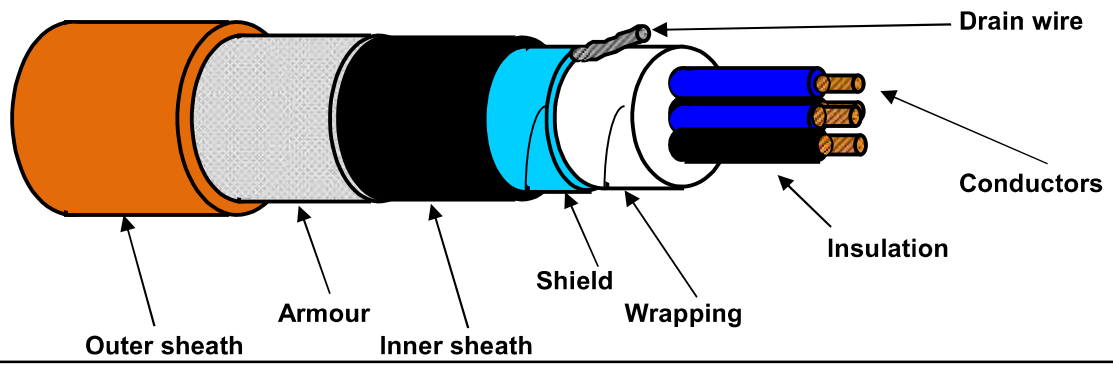
	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-XL-01101/950-JE-01104	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-XL-01101	Flash Beacon (Amber)	Upper Deck	950-JE-01104	DO JB to FGS	Upper Deck	SMICV12-2X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Black NUMBERED (from 1 to 2)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	8/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,3 ± 10%) mm	
Over armour diameter :	(11,5 ± 10%) mm	
Outer diameter :	(14,1 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	C-950-XL-01102/950-JE-01104 : BEACON / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	70-10 : F&G Devices FZ-01 (Fuel Cell Area)				Module	UD
TASK	code	C10000323		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10 Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	2X2,5 mm2	Color	ORANGE
From	950-XL-01102		To	950-JE-01104	

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	OK
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	PL
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	0,3	Ω
	SCREEN	0,3	Ω
	EARTH	N/A	Ω
	ARMr	0,3	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

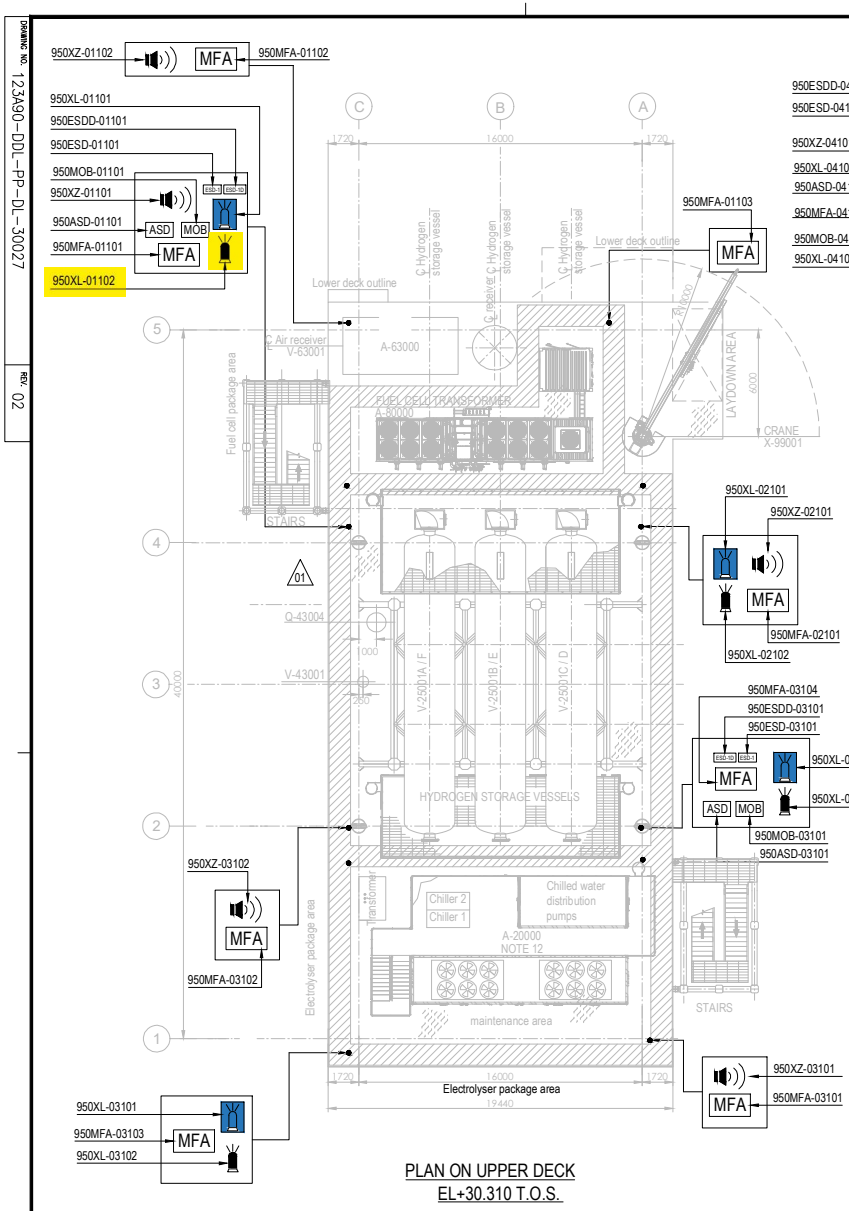
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-12	2024-12-13	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-12T17:07:47.565Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-13T10:54:52.801Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



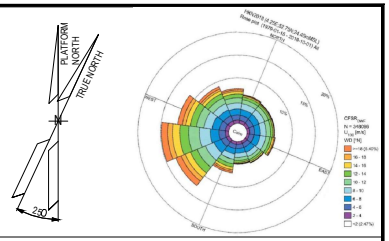
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

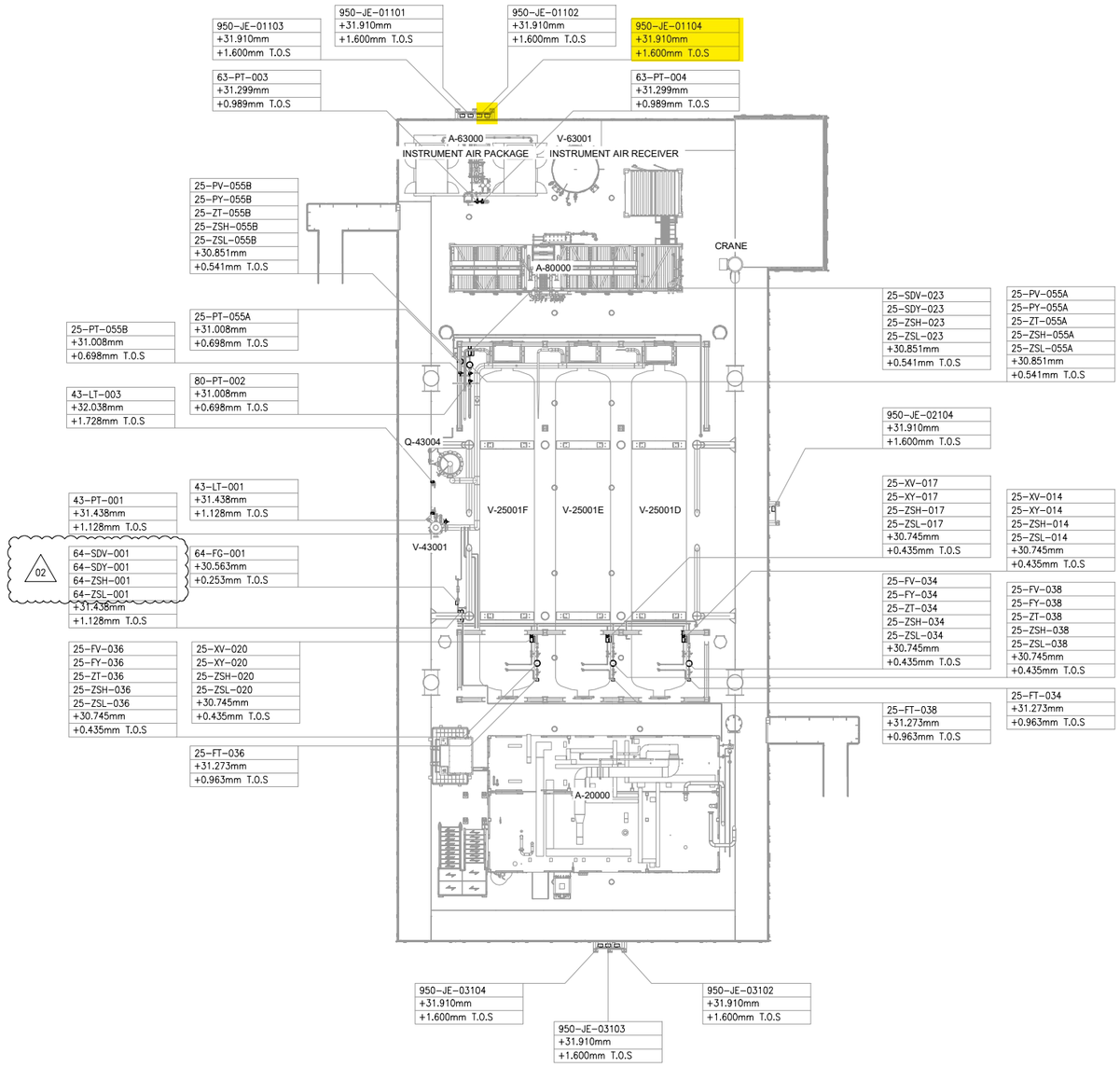
F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123A90-DDL-IN-DL-40081

REV. 01

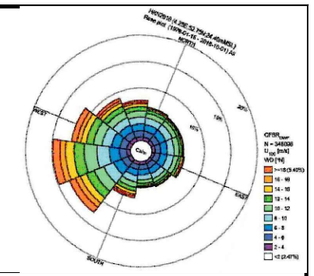


UPPER DECK

SCALE: 1:100

VIEW EL. 29310mm to 33740mm





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DRAWING IS VALID ONLY FOR INSTRUMENT LOCATION LAYOUT.

LEGEND

- INSTRUMENT JUNCTION BOX
- ELECTRONIC INSTRUMENT
- CONTROL / ON-OFF VALVE

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-IN-DL-40080	INSTRUMENT LAYOUT - LOWER DECK
123A90-DDL-IN-LIS-40091	INSTRUMENT CABLE LIST
123A90-DDL-IN-DG-40015	INSTRUMENT-CCS WIRING DIAGRAMS
123A90-DDL-IN-DG-40016	INSTRUMENT-SAFETY SYSTEM WIRING DIAGRAMS
123A90-DDL-IN-DL-40083	INSTRUMENT MAIN CABLES ROUTING-LOWER DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/08/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	22/12/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40081**
REV.: 2_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT LOCATION LAYOUT–UPPER DECK
TOS EL. 30.310M

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 04/10/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40081	SHEET 001	REV. 02

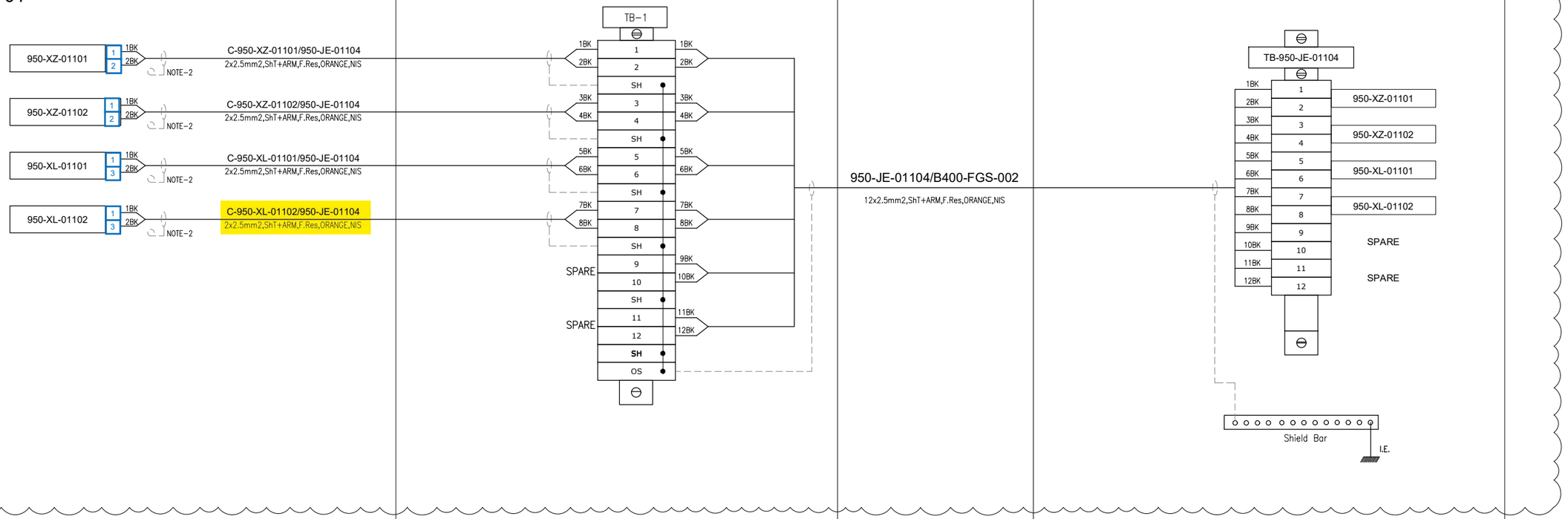
File Name : 123A90-DDL-IN-DL-40081 REV01.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

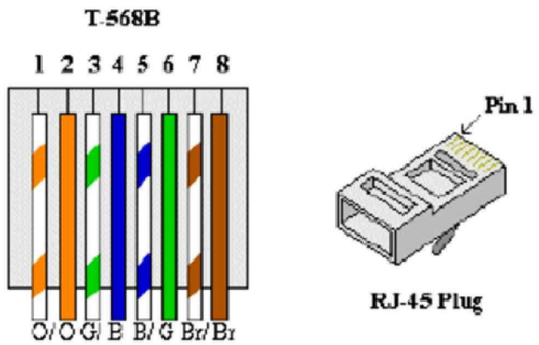
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



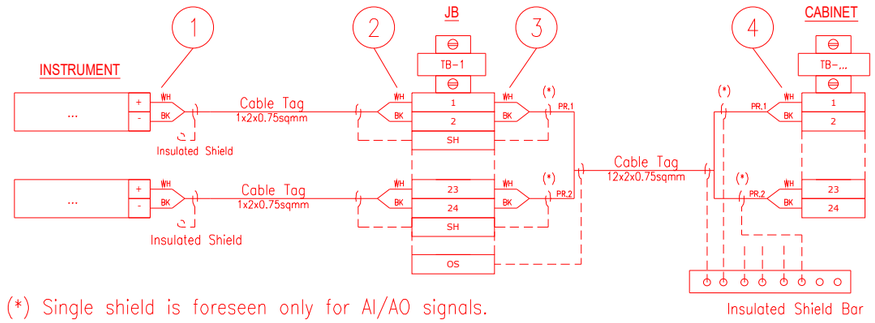
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

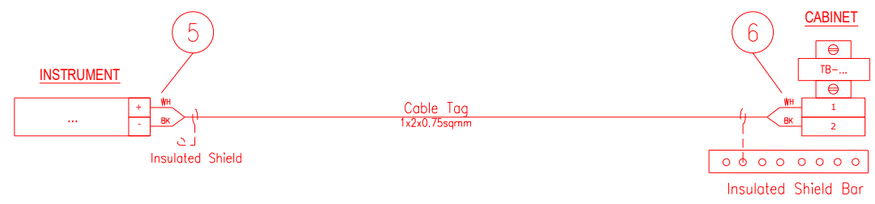
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

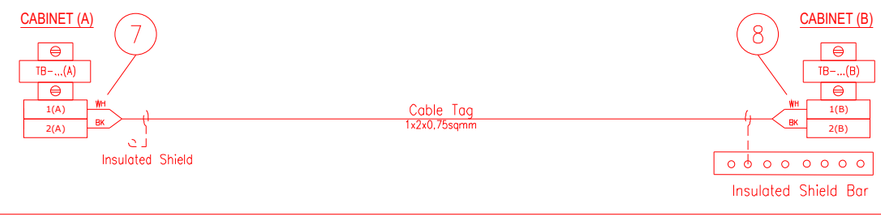
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

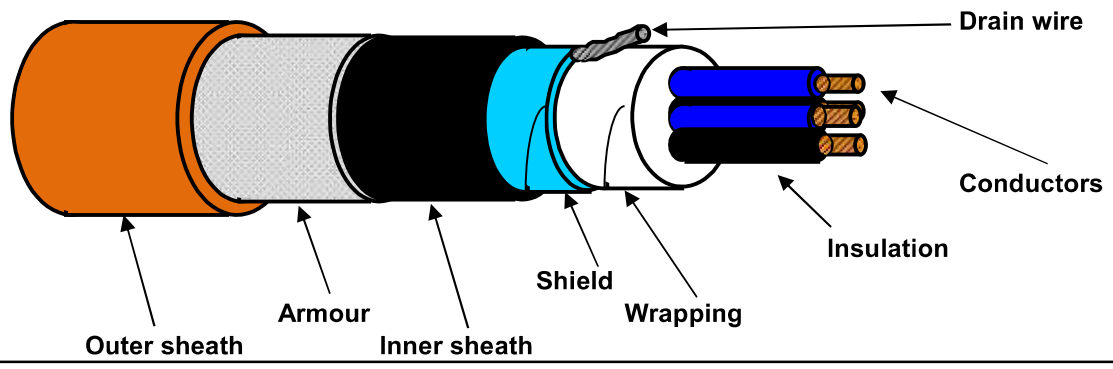
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

FLEI s.r.l.

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Black NUMBERED (from 1 to 2)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	8/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,3 ± 10%) mm	
Over armour diameter :	(11,5 ± 10%) mm	
Outer diameter :	(14,1 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-950-XL-01102/950-JE-01104	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						950-XL-01102	Flash Beacon (Red)	Upper Deck	950-JE-01104	DO JB to FGS	Upper Deck	SMICV12-2X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange	M20	T2_M20_Double			T2_M20_Double				U-SEC-20B / U-SEC-20A / U-SEC-20C

ITEM	Tag	950-FDZ-01103	: Flame Detector - FZ-01 Fuel Cell PK Area		Dwg	123A90-DDL-SAF-DL-30027	
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)		Module	UD	
TASK	code	C10000971	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Instrumental	Form	CJX43	Fire Detector

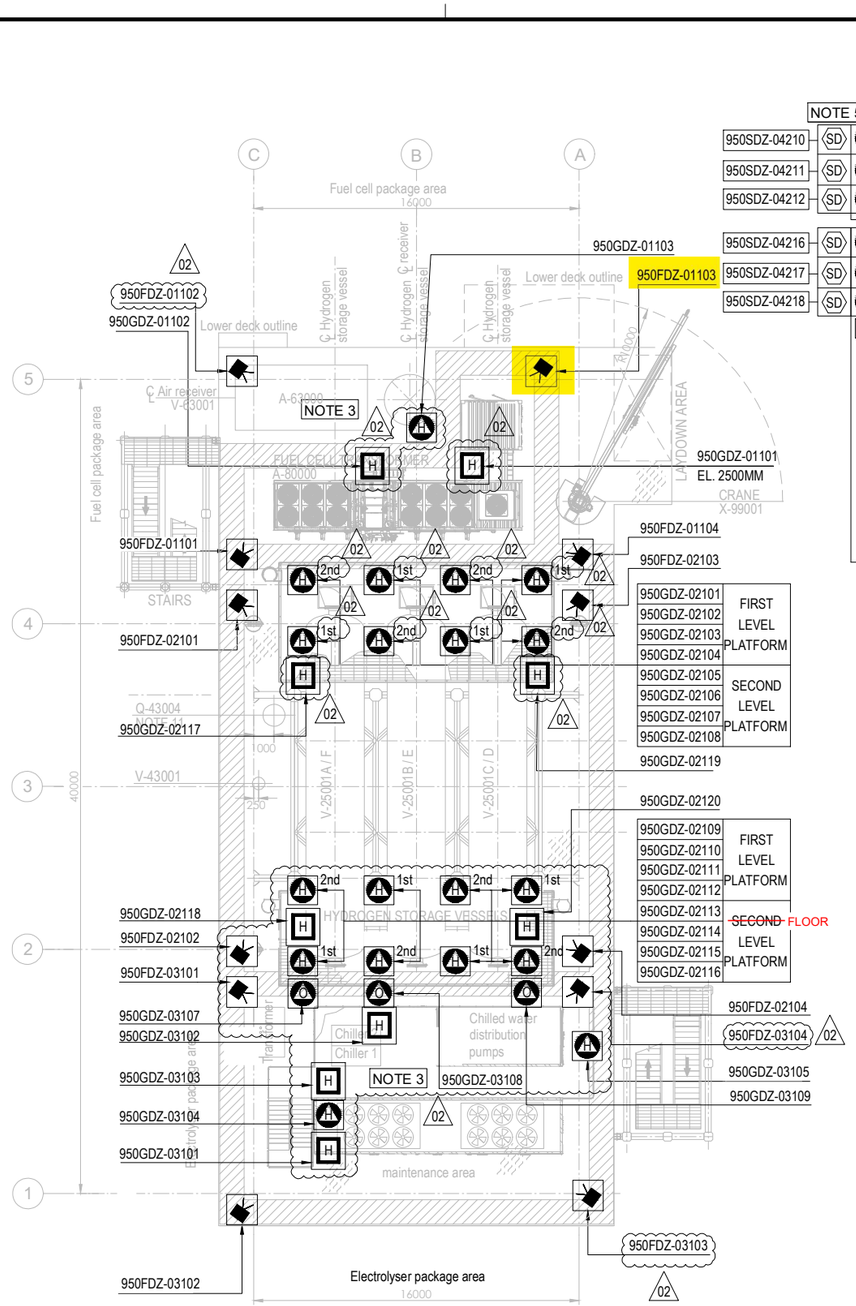
1	Check for mechanical damage.	OK
2	Check installed equipment is suitable and conforms to specification.	OK
3	Check installation conforms to F&G detection layout drawings.	PL
4	Check test facility is installed.	NA
5	Check sensor activation lamp is visible.	NA
6	Check remote annunciator is installed (where required).	NA
7	Check identification (tag number, tag plates).	PL
8	Check supporting and protection against vibrations.	PL
9	Check accessibility conforms to specifications, with platforming where necessary.	OK
10	Check calibration certificate (where applicable).	NA
11	Check electrical connections.	OK
12	Check earthing connections.	PL
13	If required produce Red Line Mark Up for "AS BUILT"	

Comments

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Alessio Polo	
Date	2024-12-02	2024-12-05	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-02T07:06:48.850Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-05T12:58:02.337Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



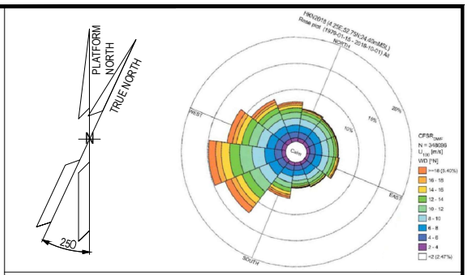
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
H	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 950GDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

RD, WH, BK

NOTE-2

C-950-FDZ-01101/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01102/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01103/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

C-950-FDZ-01104/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

1, 2, 3, SH, 4, 5, 6, SH, 7, 8, 9, SH, 10, 11, 12, SH, 13, SPARE, 14, 15, SH, 16, SPARE, 17, 18, SH, OS

TR1, TR2, TR3, TR4, TR5, TR6

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

950-FDZ-01101

950-FDZ-01102

950-FDZ-01103

950-FDZ-01104

SPARE

SPARE

Shield Bar

I.E.

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

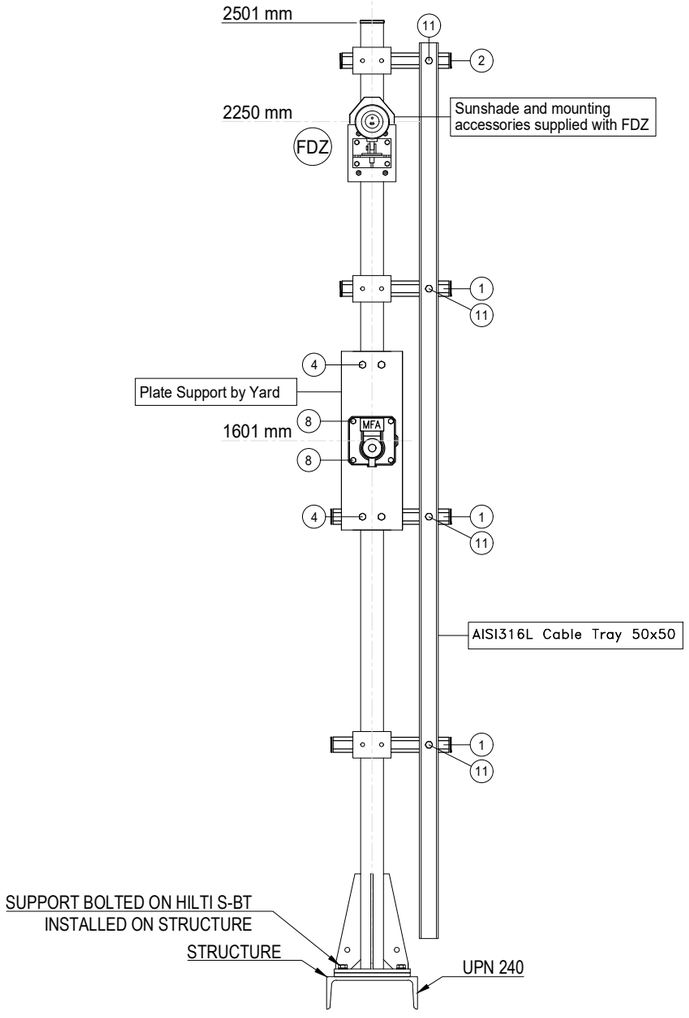
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	123A90–DDL–IN–DG–40016	030	01

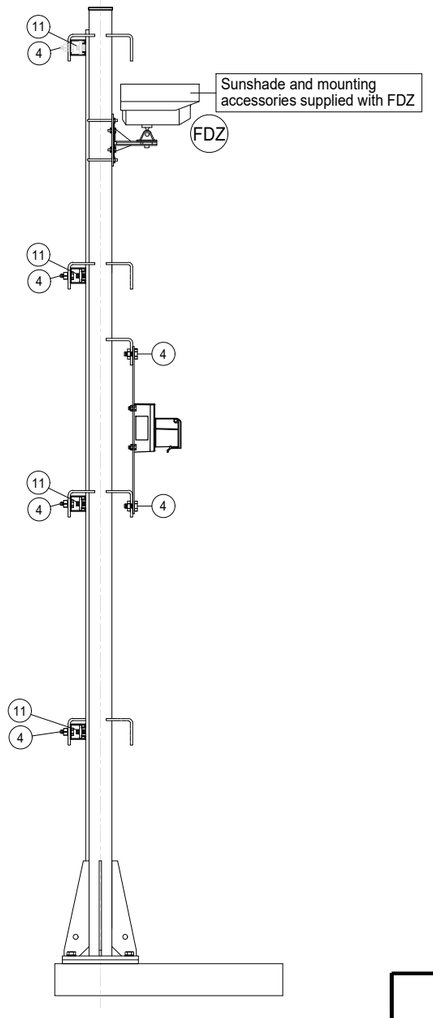
File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-09

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00





POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	4m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	10
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	4

POLE	ITEM	DESCRIPTION	TAGNAME
1	FDZ	FLAME DETECTOR	950-FDZ-01103
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01103

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_G	03/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

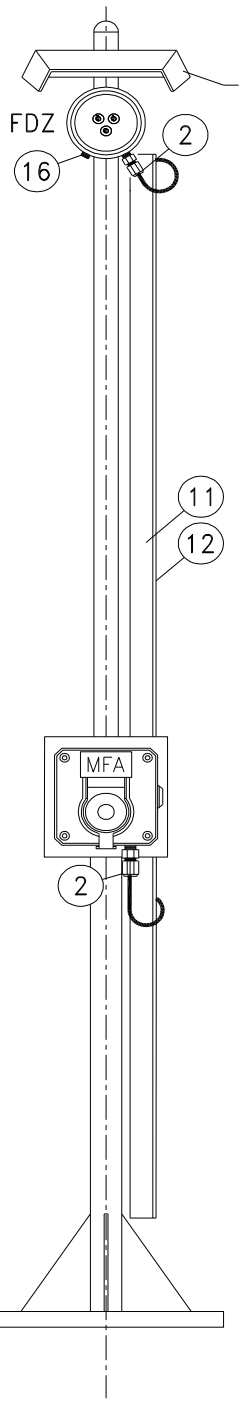
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 028	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-FDZ-01103
	950-MFA-01103

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_E	03/12/24	G.Randi

ROSETTI MARINO SpA

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	2

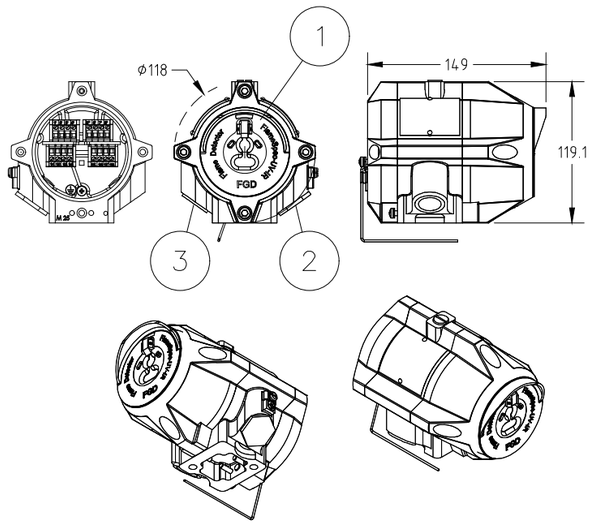
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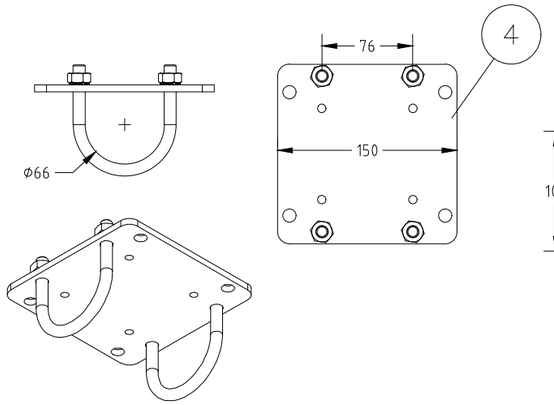
FLAME DETECTOR / 2" PIPE MOUNTING

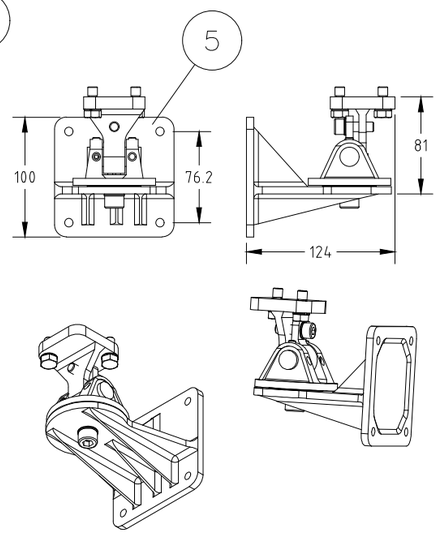
ITEM	DESCRIPTIONS	NR
1	Flame Detector, FGD FlameSpec FLS-UV-IR-AS11	1
2	Reducer M25 - M20 Ex d AISI 316	1
3	Stop Plug M25 Ex d AISI 316	1
4	2 inch Mounting Kit, FGD F107X0050.00	1
5	Tilt Assy, FGD F110X0090.00	1
6	Weather Shield, FGD F107X0240.00	1
7	Stainless Steel Name Plate	
8		
9		
10		

INSTALLATION QUANTITY

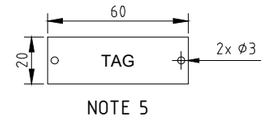
22





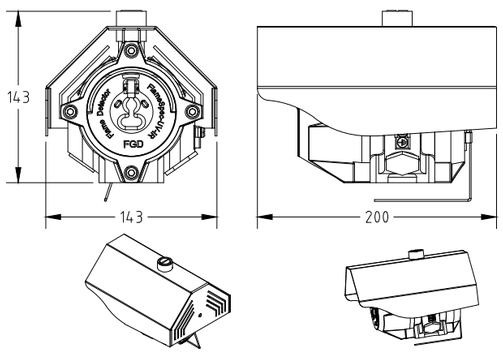


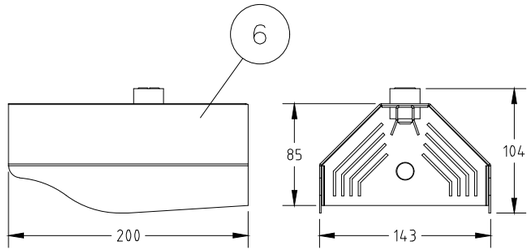
7 STAINLESS STEEL NAME PLATE DETAILS

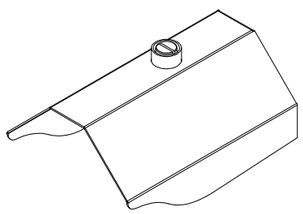


NOTE 5

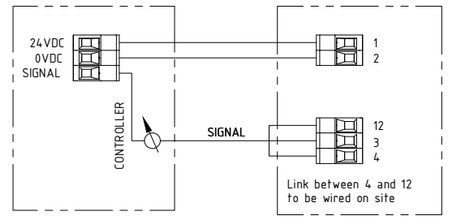
GA WEATHER SHIELD AND DETECTOR



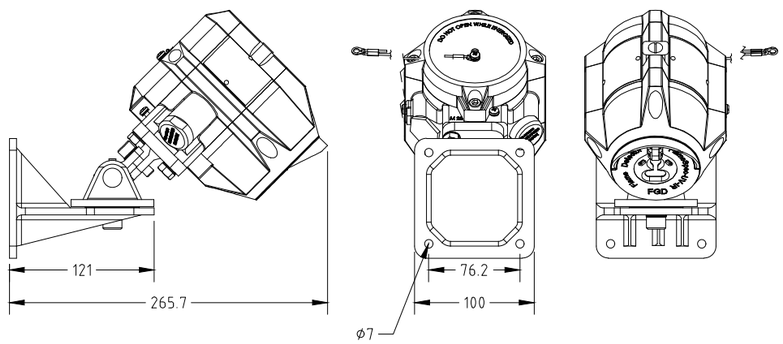




CONTROL CABINET — DETECTOR



INSTALLATION SCHEME



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR / 2" PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-FDZ-01101
2	950-FDZ-01102
3	950-FDZ-01103
4	950-FDZ-01104
5	950-FDZ-02101
6	950-FDZ-02102
7	950-FDZ-02103
8	950-FDZ-02104
9	950-FDZ-03101
10	950-FDZ-03102
11	950-FDZ-03103
12	950-FDZ-03104
13	950-FDZ-04101
14	950-FDZ-04102
15	950-FDZ-04103
16	950-FDZ-04104
17	950-FDZ-05101
18	950-FDZ-05102
19	950-FDZ-05103
20	950-FDZ-05104
21	950-FDZ-06101
22	950-FDZ-06103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	014	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR

POS.	TAG NUMBER	SERVICE
1	950-FDZ-01101	FZ-01 FUEL CELL PK AREA
2	950-FDZ-01102	FZ-01 FUEL CELL PK AREA
3	950-FDZ-01103	FZ-01 FUEL CELL PK AREA
4	950-FDZ-01104	FZ-01 FUEL CELL PK AREA
5	950-FDZ-02101	FZ-02 H2 STORAGE VESSELS AREA
6	950-FDZ-02102	FZ-02 H2 STORAGE VESSELS AREA
7	950-FDZ-02103	FZ-02 H2 STORAGE VESSELS AREA
8	950-FDZ-02104	FZ-02 H2 STORAGE VESSELS AREA
9	950-FDZ-03101	FZ-03 ELECTROLYZER PK AREA
10	950-FDZ-03102	FZ-03 ELECTROLYZER PK AREA
11	950-FDZ-03103	FZ-03 ELECTROLYZER PK AREA
12	950-FDZ-03104	FZ-03 ELECTROLYZER PK AREA
13	950-FDZ-04101	FZ-04 B-400/B-300/B-200 AREA
14	950-FDZ-04102	FZ-04 B-400/B-300/B-200 AREA
15	950-FDZ-04103	FZ-04 B-400/B-300/B-200 AREA
16	950-FDZ-04104	FZ-04 B-400/B-300/B-200 AREA
17	950-FDZ-05101	FZ-05 BESS AREA
18	950-FDZ-05102	FZ-05 BESS AREA
19	950-FDZ-05103	FZ-05 BESS AREA
20	950-FDZ-05104	FZ-05 BESS AREA
21	950-FDZ-06101	FZ-06 B-100 AREA
22	950-FDZ-06103	FZ-06 B-100 AREA

File: 1724000821-IN-DS-00004-02.xlsx
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FlameSpec
UV-IR
UV-IR Flame Detector



The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 ft^2 (0.1m^2) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)	Avrg Resp.Time (s)
N-Heptane	1 x 1 ft.	Extreme	98 (30)	2.0
N-Heptane	1 x 1 ft.	High	75 (23)	1.7
N-Heptane	1 x 1 ft.	Medium	49 (15)	1.0
N-Heptane	1 x 1 ft.	Low	16 (5)	1.0
Gasoline	2 x 2 ft.	Extreme	197 (60)	3.3
Gasoline	1 x 1 ft.	Extreme	98 (30)	1.8
Gasoline	1 x 1 ft.	Medium	49 (15)	1.3
Methane	32-in Plume	Extreme	59 (18)	1.4
Methane	32-in Plume	Medium	30 (9)	0.9
LPG	32-in Plume	Extreme	75 (23)	1.2
LPG	32-in Plume	High	56 (17)	1.6
LPG	32-in Plume	Medium	33 (10)	1.2
LPG	32-in Plume	Low	13 (4)	1.2
Diesel	1 x 1 ft.	Extreme	75 (23)	2.6
Diesel	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Extreme	75 (23)	3.3
JP5	1 x 1 ft.	High	56 (17)	1.8
JP5	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Low	16 (5)	1.2
Kerosene	1 x 1 ft.	Extreme	75 (23)	1.8
Kerosene	1 x 1 ft.	Medium	36 (11)	0.9
Methanol	1 x 1 ft.	Extreme	52 (16)	0.8
Methanol	1 x 1 ft.	High	43 (13)	3.2
Methanol	1 x 1 ft.	Medium	30 (9)	1.3
Methanol	1 x 1 ft.	Low	10 (3)	2.7
Ethanol	1 x 1 ft.	Extreme	62 (19)	4.1
Ethanol	1 x 1 ft.	Medium	31 (9.5)	2.9
Isopropanol	1 x 1 ft.	Extreme	75 (23)	2.2
Isopropanol	1 x 1 ft.	Medium	36 (11)	0.8
Polypropylene	1 x 1 ft.	Extreme	49 (15)	1.4
Polypropylene	1 x 1 ft.	Medium	23 (7)	0.9
Hydrogen	32-in Plume	Extreme	66 (20)	6.4
Hydrogen	32-in Plume	Medium	33 (10)	1.0
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	59 (18)	3.2
Syngas (30%CH_4:70%H_2)	32-in Plume	Medium	33 (10)	1.2

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric arc	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Arc welding	10.0 (3.0)	No Alarm	10.0 (3.0)	No Alarm
Radiation heater, 2000W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Halogen lamp (500W) non-shielded	7.0 (2.0)	No Alarm	7.0 (2.0)	No Alarm
Halogen lamp (1000W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Exhausts	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Projector led	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Solenoid bell	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
soldering iron	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric Drill	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

FIRE DETECTION	**Detection time and distance**	5ms for fast burst of explosion 1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m) < 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of view (IR detection)	90° Horizontal, 80° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	14-17 AWG (2.5–1.0 mm²)
OUTPUTS	**Relays**	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
MECHANICAL SPECIFICATIONS	**Size**	5.51 x 3.54 × 3.54" (140×90×90mm)
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	**Temperature Range**	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	Up to 99% (RH), non-condensing
	Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	**ATEX**	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C
	IECEx, INMETRO & PESO	Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx/Ex db IIC T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	EAC CU TR	1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C 1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)

ACCESSORIES	**Tilt mount, model FLS-TMO-S01**	**High vibration mounting bracket, model FLS-MIL-S01**
	Weather cover, model FLS-WCO-S01	**Flame simulator, model FLS-FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S01**
	Duct mount with window, model FLS-DMW-S01	**Duct mount for airshield, model FLS-DMX-S01**
WARRANTY	**5 years**	

FIRE & GAS DETECTION TECHNOLOGIES INC.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Specifications subject to change without notice.

FlameSpec

FLS-FSIM

Flame Simulator Family



The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

FIRE & GAS DETECTION TECHNOLOGIES INC.

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Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

Flame Simulator Family

	Simulator Kits Part Nos	FLS-FSIM-IR3-KIT	FLS-FSIM-IR3-H2-KIT	FLS-FSIM-UV-IR-KIT
	Detector type	FLS-IR3[1] FLS-IR3-HD[1]	FLS-IR3-H2 FLS-IR3-H2-HD	FLS-UV-IR FLS-UV-IR-HD
OPERATION DISTANCES	**Detector Sensitivity**	ft. m	ft. m	ft. m
	Extreme	30 9.0	30 9.0	42.5 13.0
	High	20 6.0	20 6.0	26 8.0
	Medium	10 3.0	10 3.0	20 6.0
	Low	3.3[2] 1.0[2]	3.3[2] 1.0[2]	6.6 2.0
ELECTRICAL SPECIFICATIONS	**Operating Voltage nominal, V**	3.7	3.7	3.7
	Number of activations between charging	~1000	~1000	~50
	Battery Capacity, mAh	>3000	>3000	>3000
	Charging time, hours	up to 3	up to 3	up to 3
	Indication	3 Color LED (Green, Yellow, Red)		
	All Simulator Models			
MECHANICAL SPECIFICATIONS	**Size**	3.9 x 3.9 x 7.8" (100 x 100 x 200mm)		
	Weight	3.96 lbs. (1.8 kg)		
	Simulator Enclosure Material	Painted Aluminum LM25		
ENVIRONMENTAL SPECIFICATIONS	**Ingress Protection**	IP65 (NEMA 4X)		
	Humidity	up to 99% (RH), non-condensing		
	Operating temperature	Min: −4°F (−20°C) Max: +122°F (+50°C)		
APPROVALS	**Explosion proof**	ATEX Ex II 2 G Ex db ib op is IIC T6 Gb Ex II 2 D Ex tb ib op is IIIC T85°C Db -20°C<Ta<+50°C		
ACCESSORIES included in kits	**Carrying Case**	FLS-FSIM-CASE		
	Carrying Strap	FLS-FSIM-STRAP		
	Cover Tool	FLS-FSIM-TOOL		
	Allen Key	FLS-FSIM-ALLEN		
	Battery Charger	FLS-FSIM-CHRGR		
WARRANTY	**3 Years**			

[1]not CO2L variant
[2]with collimator removed

FIRE & GAS DETECTION TECHNOLOGIES INC.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com

ITEM	Tag	950-MFA-01103	: FZ-01 MFA Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001054		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX00 Miscellaneous

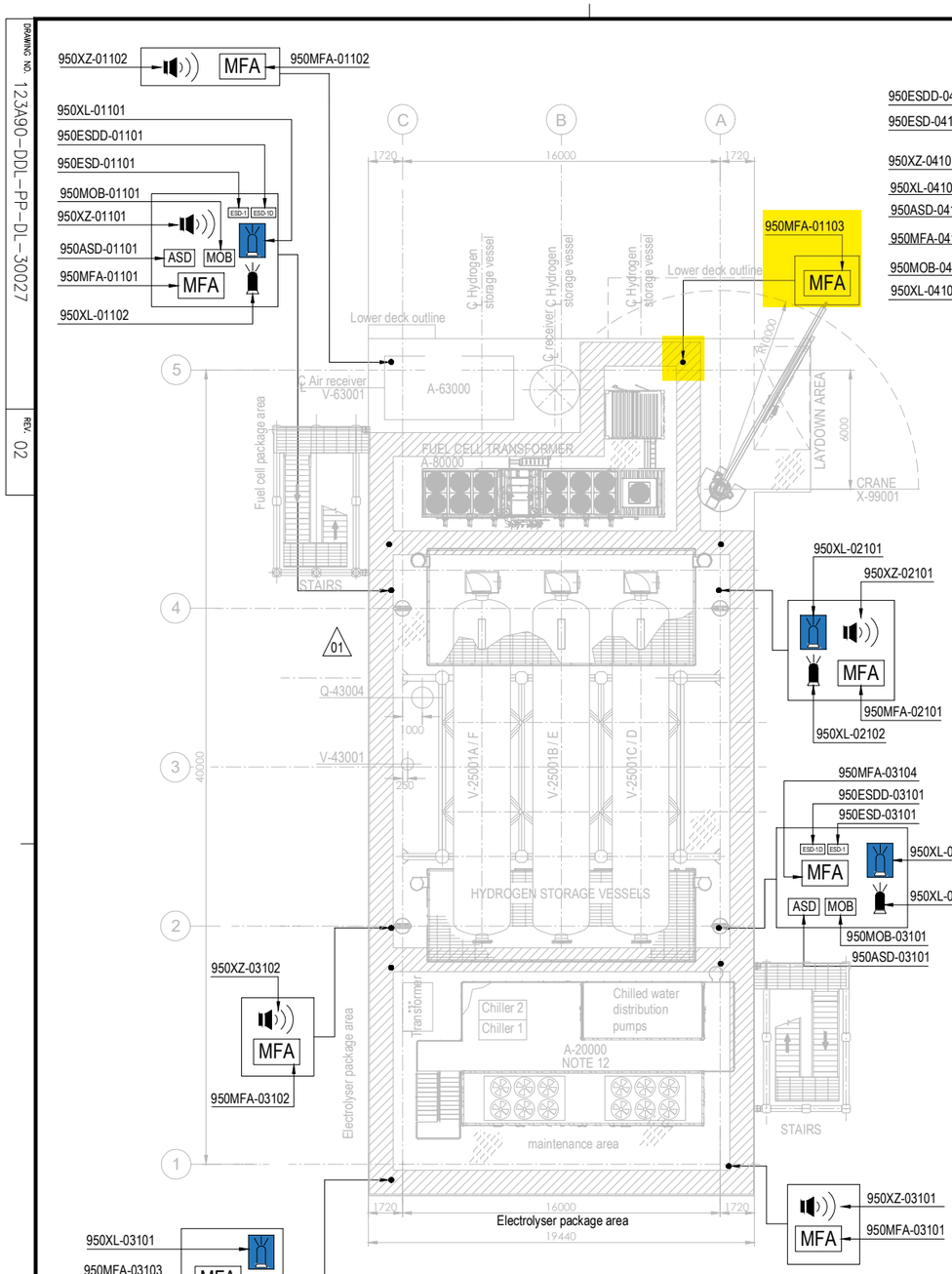
1	Check for mechanical damage.	OK
2	Check installed equipment is suitable and conforms to specification.	OK
3	Check installation conforms to P&ID and hook-up drawing.	OK
4	Check tube fittings manufacturer is the one chosen for the plant.	NA
5	Check that piping connections provide the block & bleed facility (if required).	NA
6	Check that all stop plugs are properly installed	OK
7	Check identification (tag number, tag plates).	OK
8	Check supporting and protection against vibrations.	PL
9	Check the conformity of earthing as per specification (I.P.E. or I.E.)	OK
10	If required produce Red Line Mark Up for "AS BUILT"	

Comments:

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Alessio Polo	
Date	2024-11-22	2024-12-05	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-22T17:22:59.970Z	PROVERLIS Digitaly signed by Alessio Polo 2024-12-05T13:17:50.598Z	

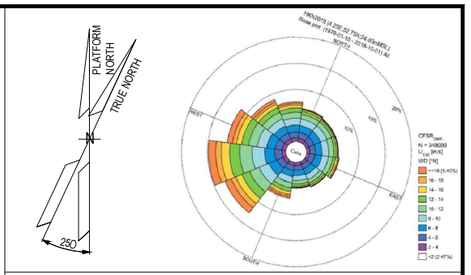
DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_C	03/12/24	G.Randi

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01101/950-JE-01103
~~C-950-MFA-01101/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01102 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01102/950-JE-01103
~~C-950-MFA-01102/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01103 (1 / 8) WH / BK — NOTE-2

C-950-MFA-01103/950-JE-01103
~~C-950-MFA-01103/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

	1	PR1
	2	
	SH	
	3	PR2
	4	
	SH	
	5	PR3
	6	
	SH	
SPARE	7	PR4
	8	
	SH	
SPARE	9	PR5
	10	
	SH	
SPARE	11	PR6
	12	
	SH	
	OS	

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1	1	950-MFA-01101
Shield Bar	2	
PR2	3	950-MFA-01102
Shield Bar	4	
PR3	5	950-MFA-01103
Shield Bar	6	
PR4	7	SPARE
Shield Bar	8	
PR5	9	SPARE
Shield Bar	10	
PR6	11	SPARE
	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_M	02/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

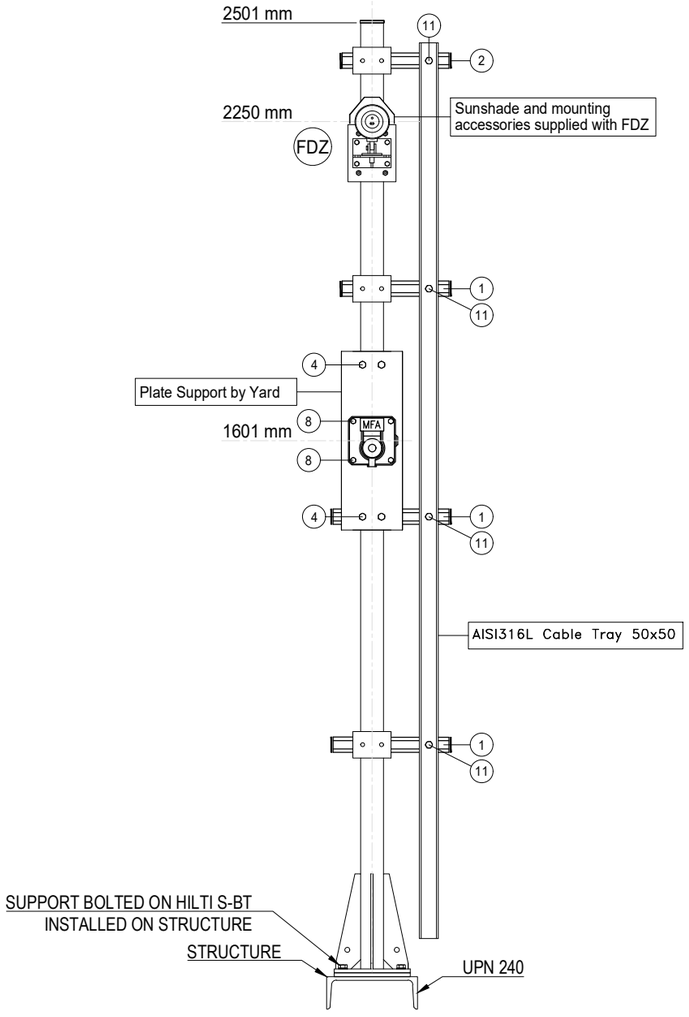
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A3	123A90–DDL–IN–DG–40016	032	01

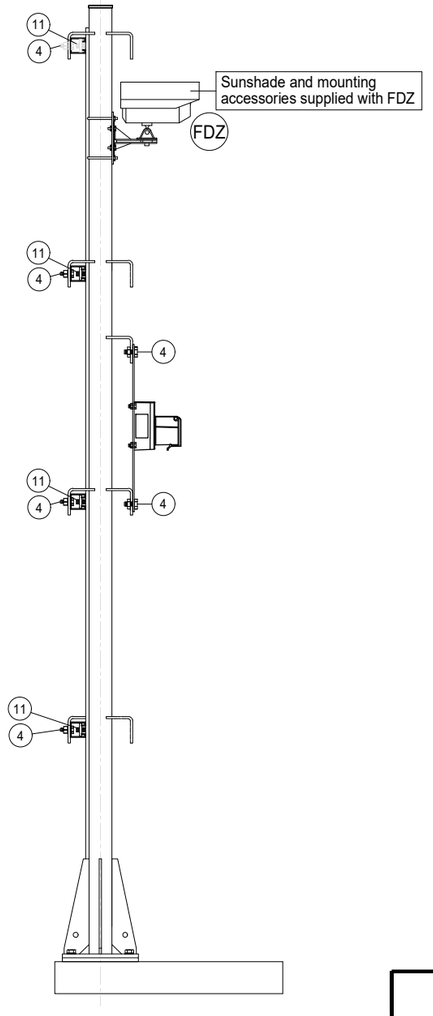
File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-09

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00





POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	4m
2	LDPE PLUG FOR U-CHANNEL 41x41	8
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	10
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	4

POLE	ITEM	DESCRIPTION	TAGNAME
1	FDZ	FLAME DETECTOR	950-FDZ-01103
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01103

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_G	03/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

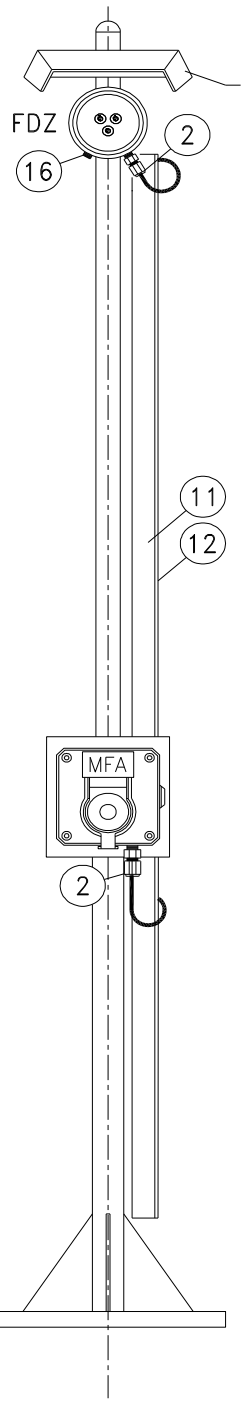
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 028	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-FDZ-01103
	950-MFA-01103

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_E	03/12/24	G.Randi

ROSETTI MARINO SpA

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details, doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	1
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	2

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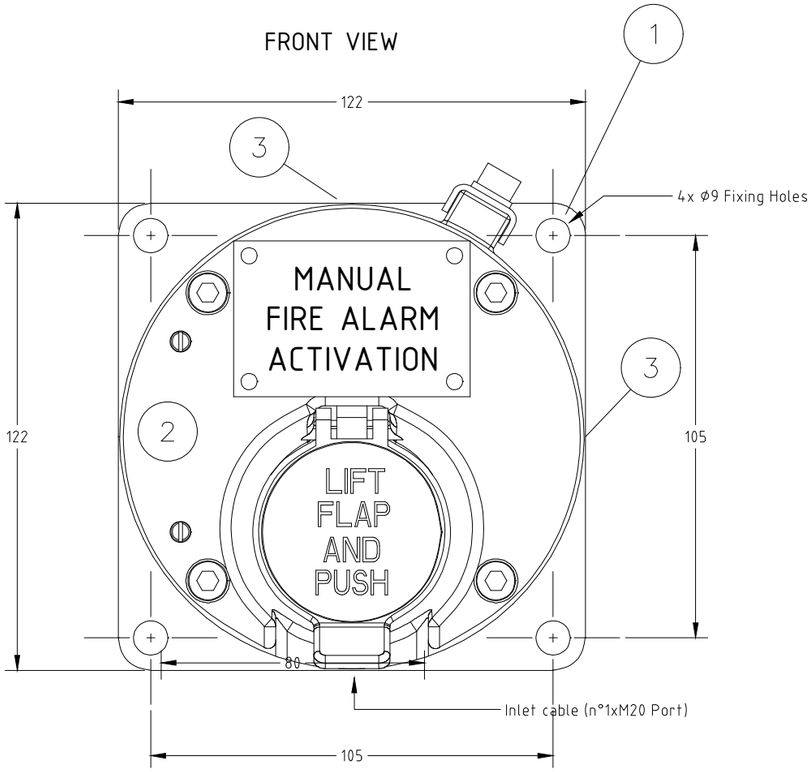
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

ITEM	DESCRIPTIONS	NR
1	Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ	1
2	Stainless Steel Name Plate	1
3	Stop Plug M20 Ex d AISI 316	2
4		
5		
6		
7		
8		
9		
10		

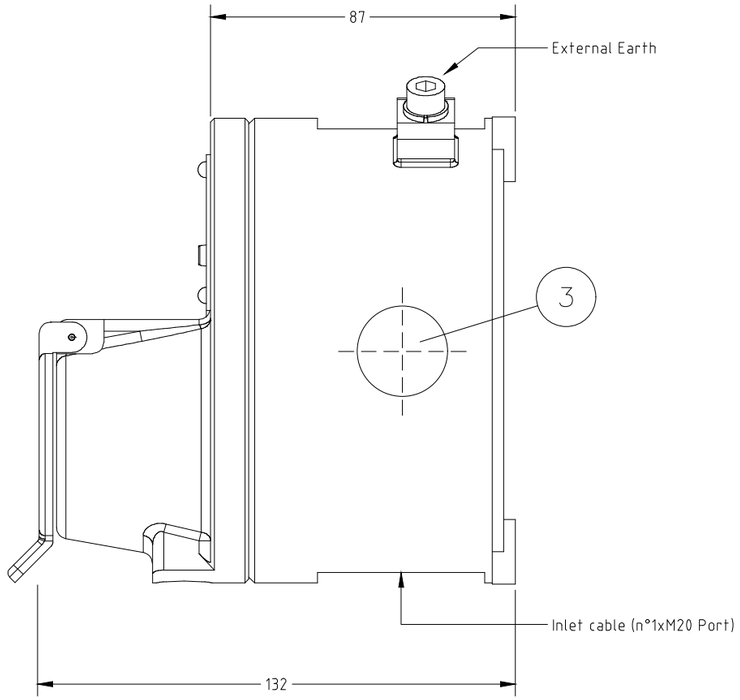
INSTALLATION QUANTITY

21

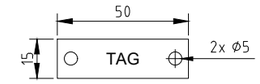
FRONT VIEW



SIDE VIEW



2 STAINLESS STEEL NAME PLATE DETAILS

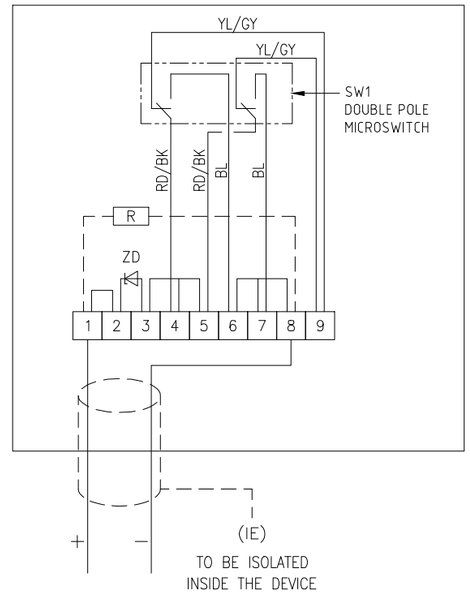


NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

POS.	TAG NUMBER
1	950-MFA-01101
2	950-MFA-01102
3	950-MFA-01103
4	950-MFA-02101
5	950-MFA-03101
6	950-MFA-03102
7	950-MFA-03103
8	950-MFA-03104
9	950-MFA-04101
10	950-MFA-04102
11	950-MFA-04201
12	950-MFA-04202
13	950-MFA-04203
14	950-MFA-05101
15	950-MFA-05102
16	950-MFA-05103
17	950-MFA-05104
18	950-MFA-06101
19	950-MFA-06102
20	950-MFA-06201
21	950-MFA-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL FIRE ALARM

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-MFA-01101	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
2	950-MFA-01102	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
3	950-MFA-01103	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
4	950-MFA-02101	FZ-02 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
5	950-MFA-03101	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
6	950-MFA-03102	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
7	950-MFA-03103	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
8	950-MFA-03104	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
9	950-MFA-04101	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
10	950-MFA-04102	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
11	950-MFA-04201	FZ-04 MFA ACTIVATION - B-400 INDOOR	MANUAL FIRE ALARM ACTIVATION
12	950-MFA-04202	FZ-04 MFA ACTIVATION - B-300 INDOOR	MANUAL FIRE ALARM ACTIVATION
13	950-MFA-04203	FZ-04 MFA ACTIVATION - B-200 INDOOR	MANUAL FIRE ALARM ACTIVATION
14	950-MFA-05101	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
15	950-MFA-05102	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
16	950-MFA-05103	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
17	950-MFA-05104	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
18	950-MFA-06101	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
19	950-MFA-06102	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
20	950-MFA-06201	FZ-06 MFA ACTIVATION - B-100 INDOOR	MANUAL FIRE ALARM ACTIVATION
21	950-MFA-07101	FZ-07 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION

File: 1724000821-IN-DS-00004-02.xlsx
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SM87BG & SM87PB manual call point range

Ex d, Ex ia, weatherproof



Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
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NG17 5FB

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March 2024

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All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

Certifications

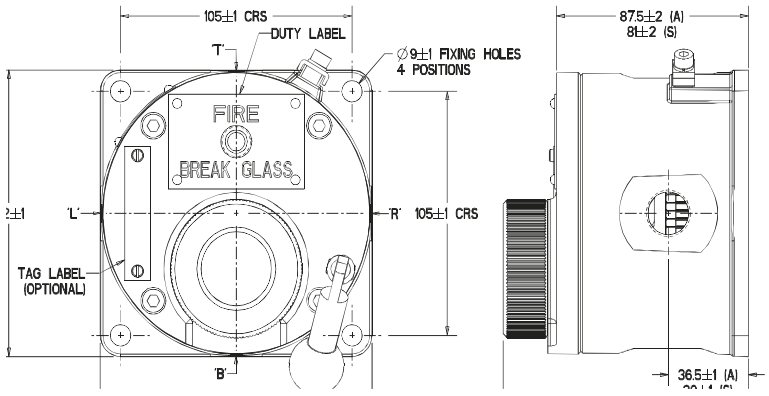
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
IECEx Ex d	Cert. no. IECEx BAS 09.0060 Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67
IECEx Ex ia	Cert. no. IECEx BAS 10.0033X Certified to: IEC60079-0, IEC60079-11, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
UL	Listing no. E186629 UL listed to Class 1, Div 1. Groups C & D. (SM87PBL)
ULC	Cert. no. 20091023-E320282 ULC certified for Class I, Zone 1 Groups C & D (SM87PBL)
CSA Explosion proof	Class 1, Div 1 & 2. Group D Ex d IIC T5/T6 Gb
CSA Intrinsically safe	Class 1, Div 1 & 2. Groups A-D
INMETRO Ex d	Ex db IIC T5/T6 Gb
Type Approvals	DNV (IEC 60945) (Stainless Steel SM87PB only)
SIL	SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453
CCC	Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C

Specifications

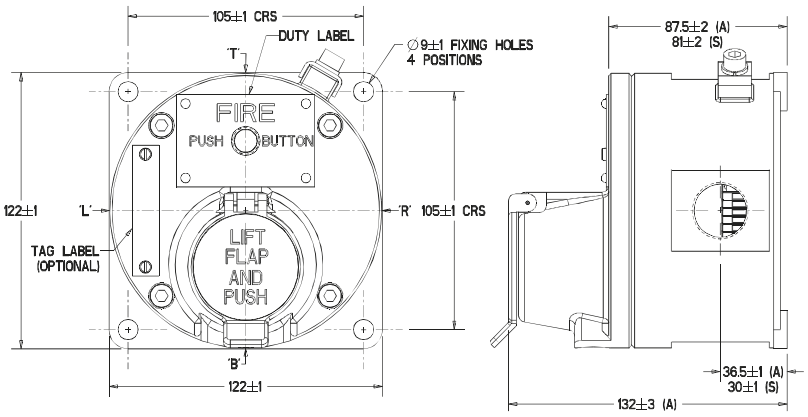
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy	
Finish	Paint finish as standard or to customer specification	
Voltage	Ex d 24V a.c./d.c. Ex ia 28V	
Rating	2A	
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)	
Optional indicator	A red high intensity LED can be fitted for alarm indication As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA	
Certified temp	Ex d* Ex ia* UL CSA Explosion proof - Class 1, Div 1 & 2. CSA - Ex d IIC CSA Intrinsically safe - Class 1, Div 1 & 2 *Note: includes ATEX, IECEx & INMETRO versions	–55°C to +70°C. –55°C to +60°C –20°C to +55°C (LED version only) –40°C to +70°C, –20°C to +55°C (LED version only) –50°C to +55°C –55°C to +70°C –50°C to +40°C
Weight	3·8 kg. steel (approx.) or 2.5 kg. alloy (approx)	
Ingress protection	IP66 & IP67. SM87PB IP68 (35m for 40 hours)	
Entries	Up to 4 x M20 or M25 ISO Ex d/Ex ia Up to 4 x ½" or ¾" NPT UL Stainless steel version comes with two entries as standard. Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side	
Terminals	Will accept up to 1·5mm² cable	
Resistor values	470R minimum (d.c. & I.S. units only)	

General arrangement drawing (all dimensions in mm)

Break glass



Push button



Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Unit	Model	Material	Certification	Entries	Duty label	Tag label	Options	Finish
SM87	PBL	S	D	1B1R	O	Y	HD	R

Material*

	Code
Stainless steel	S
Alloy	A

*UL version only available in alloy

Model*

	Code
Breakglass latching	BGL
Lift flap breakglass latching	LBGL
Push button latching key reset	PBL
Push button only momentary action	PBM

*UL and ULC versions only available in PBL model

Certification

	Code
Ex ia	I
Ex d	D
IECEx - Ex ia	IJ
IECEx - Ex d	DJ
UL	UL
ULC	UC
CSA - Intrinsically Safe	IC
CSA - Ex proof	DC
INMETRO - Ex d	DM
CCC	DQ

Entries

	Code
M20	1
M25	2
½" NPT	3
¾" NPT	4
Other	5
Position	
Top	*T
Bottom	*B
RHS	*R
LHS	*L

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

Duty label

	Code
Fire breakglass	1
Push button	2
Fire push button	3
ESDO abandon	4
Burning house logo	5
Fire/FEU	6†
Other	O*
None	N

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

Tag label

	Code
Required	Y*
Not required	N

*Please specify

Options

	Code
Not required	N
LED	A
Resistor series	G*
Resistor EOL	H*
Diode	D*
3 pole c/o switch	T
4 pole c/o switch	F

*Please specify

Finish

	Code
Red	R
Blue	B
Yellow	Y
Yellow/black stripes	X
Special	S*

*Please specify

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	950-FDZ-01102	: Flame Detector - FZ-01 Fuel Cell PK Area			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001502		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental Form CJX43		Fire Detector

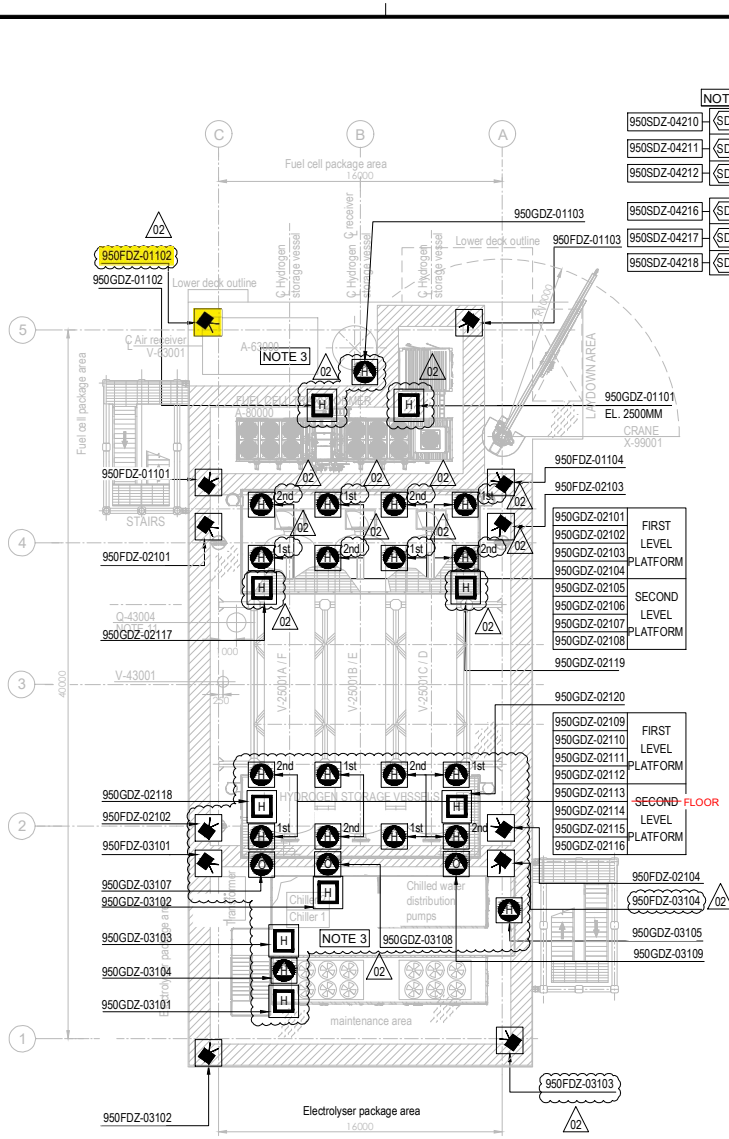
1	Check for mechanical damage.	OK
2	Check installed equipment is suitable and conforms to specification.	OK
3	Check installation conforms to F&G detection layout drawings.	OK
4	Check test facility is installed.	NA
5	Check sensor activation lamp is visible.	NA
6	Check remote annunciator is installed (where required).	OK
7	Check identification (tag number, tag plates).	OK
8	Check supporting and protection against vibrations.	PL
9	Check accessibility conforms to specifications, with platforming where necessary.	OK
10	Check calibration certificate (where applicable).	NA
11	Check electrical connections.	OK
12	Check earthing connections.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

Comments

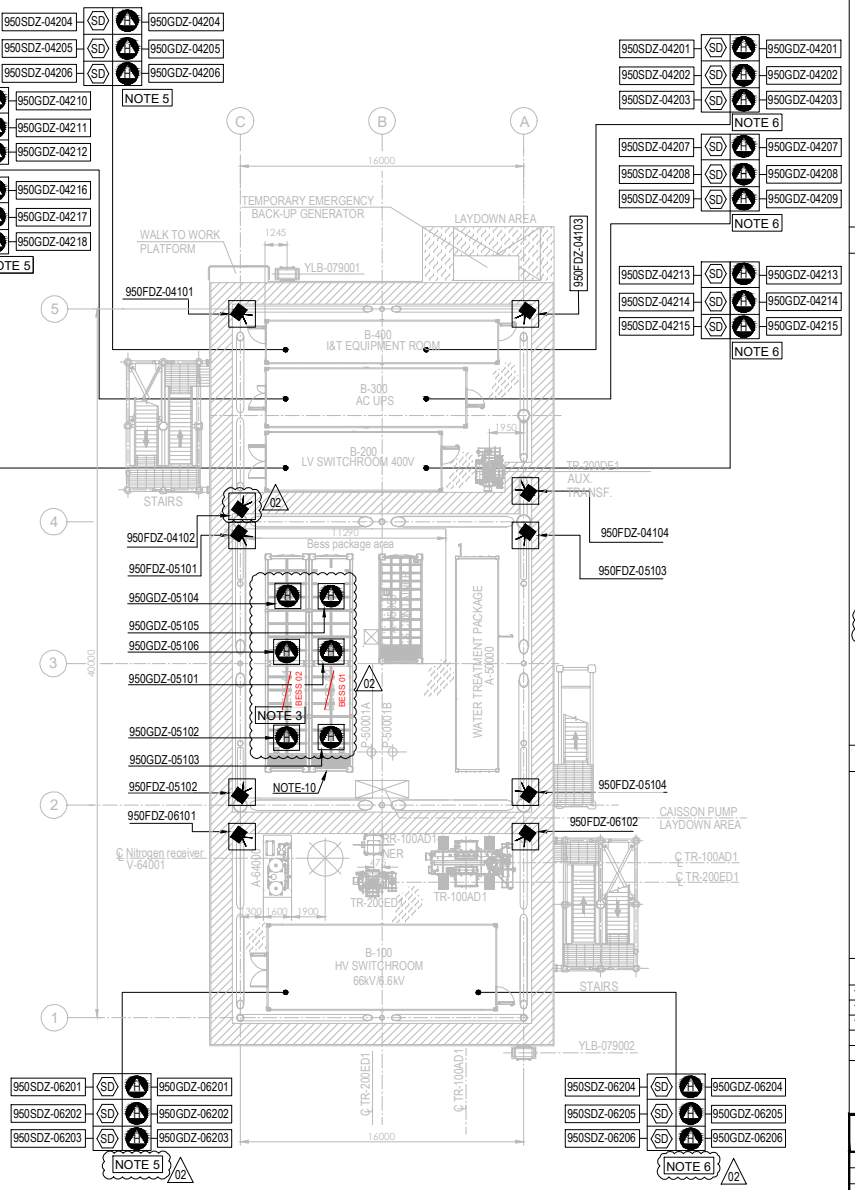
	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Andrea Andreani	
Date	2025-01-04	2025-01-13	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-04T10:50:44.627Z	PROVERLIS Digitaly signed by Andrea Andreani 2025-01-13T13:21:41.561Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



PLAN ON UPPER DECK
EL+30.310 T.O.S.

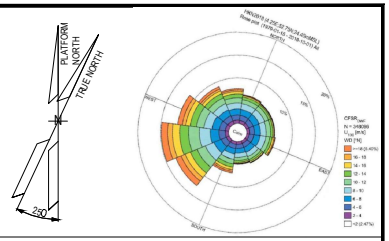


PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-80000	FUEL CELL	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-85000	BESS	V-63001	AIR RECEIVER
A-50000	WATER TREATMENT PACKAGE	V-64001	NITROGEN RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	X-99001	CRANE
Q-43004	HYDROGEN VENT		
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		
TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV		

SYMBOL	DESCRIPTION	QTY.
	UV-IR FLAME DETECTOR (FDZ)	22
	POINT SOURCE HYDROGEN DETECTOR (GDZ)	46
SD	SMOKE DETECTOR (SDZ)	24
	POINT SOURCE OXYGEN DETECTOR (GDZ)	3
H	ULTRA SONIC HYDROGEN DETECTOR (GDZ)	9



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. 02
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. F&G LAYOUTS FOR I&T EQUIPMENT ROOM, AC UPS, LV SWITCH ROOM AND HV/MV SWITCHROOM CONTAINERS LOCATED AT DOOR ENTRANCE OF EACH ROOM (2003) AND START ABANDON.
6. SMOKE DETECTORS (2003) AND POINT SOURCE HYDROGEN DETECTORS (2003) TO BE PROVIDED AROUND HVAC INLET AREAS AND UPON CONFIRMED DETECTION CLOSE DAMPERS TO ROOMS.
7. ULTRASONIC H2 DETECTORS TO BE LOCATED NEAR VALVE ACCESS PLATFORMS FOR H2 STORAGE VESSELS. 02
8. POINT SOURCE H2 DETECTORS TO BE LOCATED ON VALVE ACCESS PLATFORM FOR H2 STORAGE VESSELS.
9. EXACT LOCATION OF F&G DETECTORS AND DEVICES IS SHOWN IN THE 3D MODEL.
10. LOCATION OF THE 6 SENSOR (950GDZ-05101/102/103/104/105/106) AT CEALING ABOVE BESS ROOF, TO AVOID GAS ACCUMULATION AT POCKETS
11. DETECTORS 95OGDZ-02117/02118/02119/02120 ARE LOCATED NEAR XV VALVES AT H2 STORAGE VESSEL MANIFOLDS. 02

ELEVATION
FDZ = 2.0m El.
GDZ = 2.5m El. INSIDE THE COTAINER
SDZ = 2.0m El.

12. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 001	REV. 02

File Name : 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD

INSTRUMENTS

JUNCTION BOX

950-JE-01101

MULTICABLE

No.

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET

~~B400-FGS-002~~

B400-FGS-003

<01>

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01101

RD
WH
BK

NOTE-2

C-950-FDZ-01101/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01102

RD
WH
BK

NOTE-2

C-950-FDZ-01102/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01103

RD
WH
BK

NOTE-2

C-950-FDZ-01103/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

Note: link between terminals 3, 4 and 12 to be wired on site

950-FDZ-01104

RD
WH
BK

NOTE-2

C-950-FDZ-01104/950-JE-01101
3x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

RD WH BK	1	RD WH BK TR1
	2	
	3	
	SH	
RD WH BK	4	RD WH BK TR2
	5	
	6	
	SH	
RD WH BK	7	RD WH BK TR3
	8	
	9	
	SH	
RD WH BK	10	RD WH BK TR4
	11	
	12	
	SH	
SPARE	13	RD WH BK TR5
	14	
	15	
	SH	
SPARE	16	RD WH BK TR6
	17	
	18	
	SH	
	OS	

950-JE-01101/B400-FGS-003

~~950-JE-01101/B400-FGS-002~~

6x3x2.5mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01101

TR1 RD WH BK	1	
Shield Bar	2	950-FDZ-01101
	3	
TR2 RD WH BK	4	
Shield Bar	5	950-FDZ-01102
	6	
TR3 RD WH BK	7	
Shield Bar	8	950-FDZ-01103
	9	
TR4 RD WH BK	10	
Shield Bar	11	950-FDZ-01104
	12	
TR5 RD WH BK	13	
Shield Bar	14	SPARE
	15	
TR6 RD WH BK	16	
	17	SPARE
	18	

Shield Bar

I.E.

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01101

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

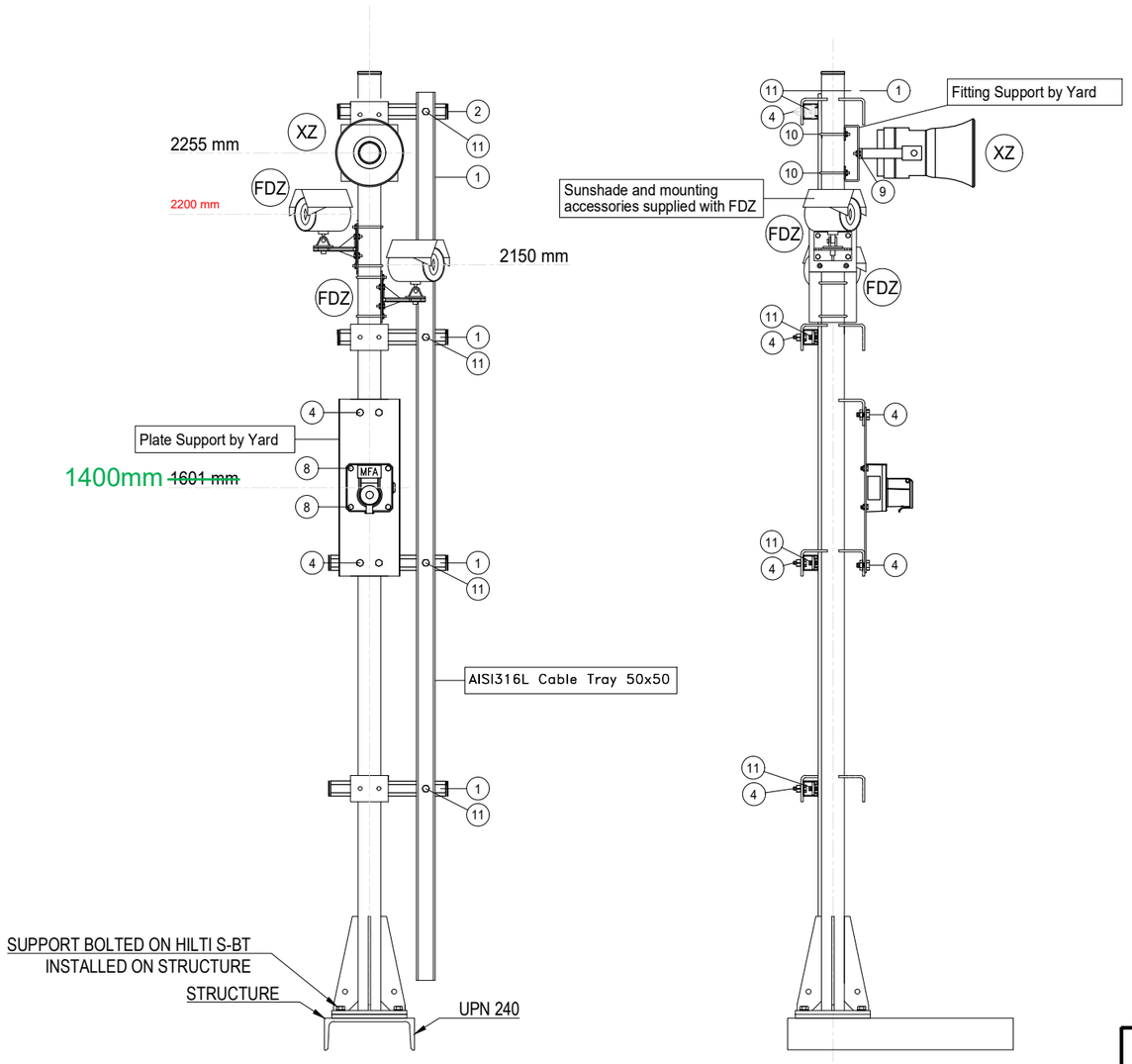
	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	030	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-05

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	5m
2	LDPE PLUG FOR U-CHANNEL 41x41	10
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	12
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	4

POLE	ITEM	DESCRIPTION	TAGNAME
1	FDZ	FLAME DETECTOR	950-FDZ-01102
	FDZ	FLAME DETECTOR	~~950-FDZ-02101~~
	XZ	SOUNDER	950-XZ-01102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01102
2	FDZ	FLAME DETECTOR	950-FDZ-02102
	FDZ	FLAME DETECTOR	950-FDZ-03101
	XZ	SOUNDER	950-XZ-03102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03102
3	FDZ	FLAME DETECTOR	950-FDZ-03103
	FDZ	FLAME DETECTOR	~~950-FDZ-02104~~ 950-FDZ-02102
	XZ	SOUNDER	950-XZ-03101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_I	20/12/24	V.Ramponi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

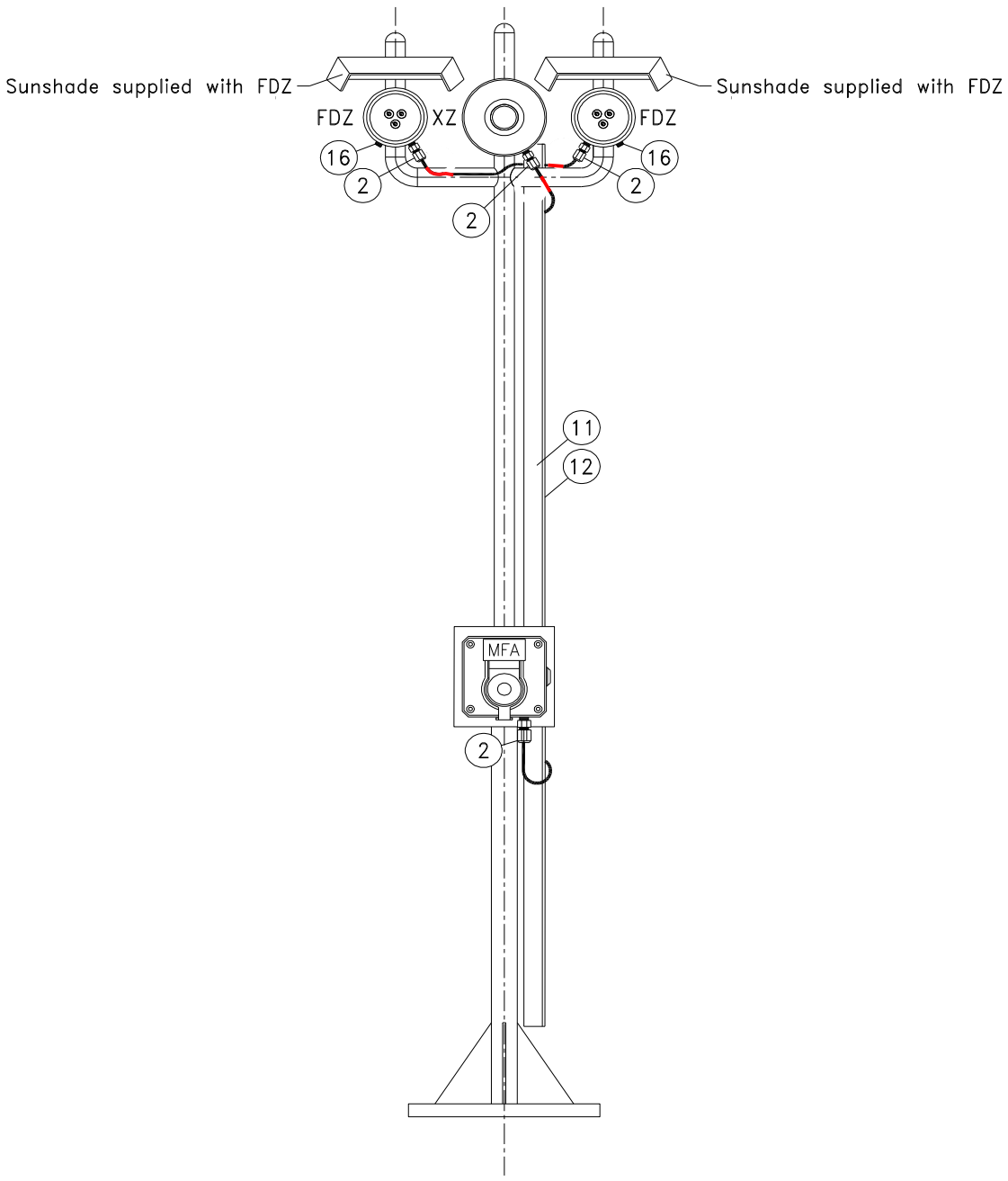
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 024	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-FDZ-01102
	950-XZ-01102
	~~950-FDZ-02101~~
	950-MFA-01102
2	950-FDZ-02102
	950-XZ-03102
	950-FDZ-03101
	950-MFA-03102
3	950-FDZ-03103
	950-XZ-03101
	950-FDZ-02104
	950-MFA-03101

NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_G	20/12/24	V.Ramponi

ROSETTI MARINO SpA

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	2
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	4

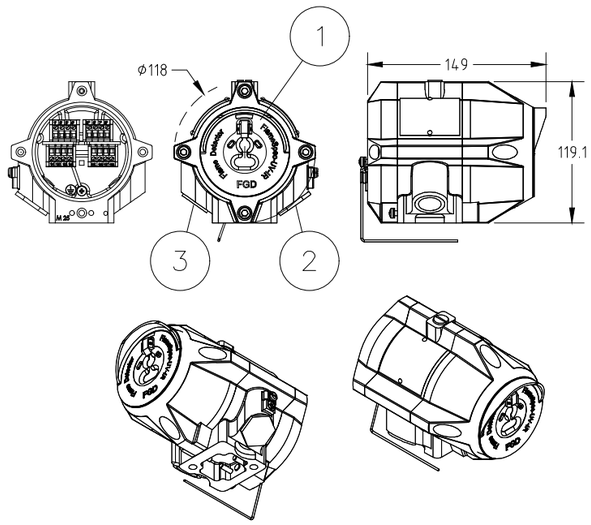
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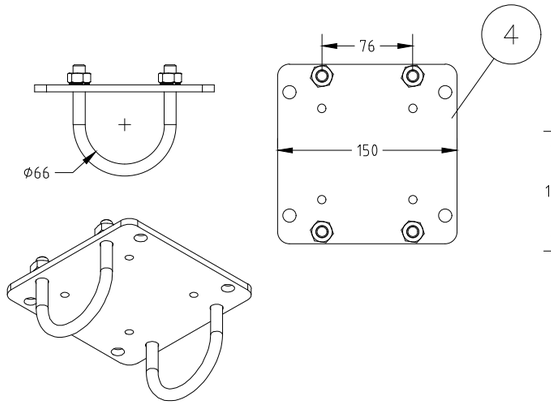
FLAME DETECTOR / 2" PIPE MOUNTING

ITEM	DESCRIPTIONS	NR
1	Flame Detector, FGD FlameSpec FLS-UV-IR-AS11	1
2	Reducer M25 - M20 Ex d AISI 316	1
3	Stop Plug M25 Ex d AISI 316	1
4	2 inch Mounting Kit, FGD F107X0050.00	1
5	Tilt Assy, FGD F110X0090.00	1
6	Weather Shield, FGD F107X0240.00	1
7	Stainless Steel Name Plate	
8		
9		
10		

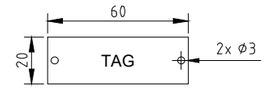
INSTALLATION QUANTITY

22



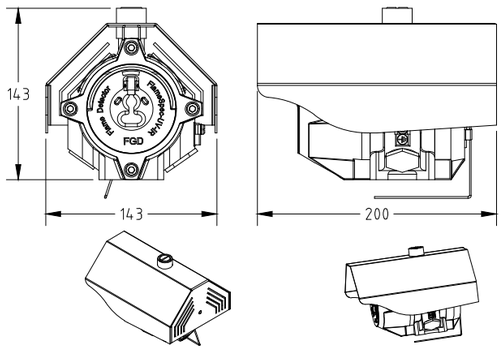


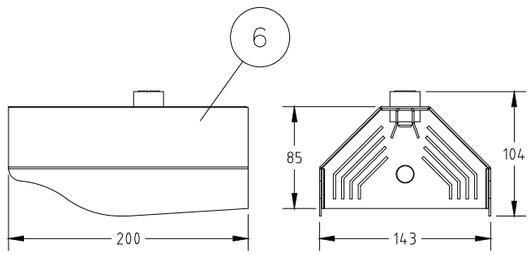
7 STAINLESS STEEL NAME PLATE DETAILS

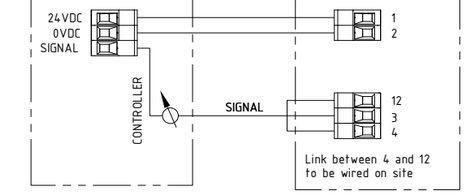


NOTE 5

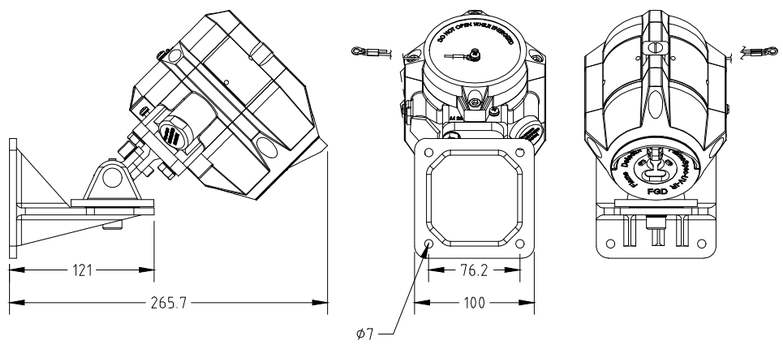
GA WEATHER SHIELD AND DETECTOR







INSTALLATION SCHEME



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 013

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR / 2" PIPE MOUNTING – TAG

POS.	TAG NUMBER
1	950-FDZ-01101
2	950-FDZ-01102
3	950-FDZ-01103
4	950-FDZ-01104
5	950-FDZ-02101
6	950-FDZ-02102
7	950-FDZ-02103
8	950-FDZ-02104
9	950-FDZ-03101
10	950-FDZ-03102
11	950-FDZ-03103
12	950-FDZ-03104
13	950-FDZ-04101
14	950-FDZ-04102
15	950-FDZ-04103
16	950-FDZ-04104
17	950-FDZ-05101
18	950-FDZ-05102
19	950-FDZ-05103
20	950-FDZ-05104
21	950-FDZ-06101
22	950-FDZ-06103

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
FLAME DETECTOR / 2" PIPE MOUNTING – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1724000821-IN-DA-00003	014	02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

FLAME DETECTOR

POS.	TAG NUMBER	SERVICE
1	950-FDZ-01101	FZ-01 FUEL CELL PK AREA
2	950-FDZ-01102	FZ-01 FUEL CELL PK AREA
3	950-FDZ-01103	FZ-01 FUEL CELL PK AREA
4	950-FDZ-01104	FZ-01 FUEL CELL PK AREA
5	950-FDZ-02101	FZ-02 H2 STORAGE VESSELS AREA
6	950-FDZ-02102	FZ-02 H2 STORAGE VESSELS AREA
7	950-FDZ-02103	FZ-02 H2 STORAGE VESSELS AREA
8	950-FDZ-02104	FZ-02 H2 STORAGE VESSELS AREA
9	950-FDZ-03101	FZ-03 ELECTROLYZER PK AREA
10	950-FDZ-03102	FZ-03 ELECTROLYZER PK AREA
11	950-FDZ-03103	FZ-03 ELECTROLYZER PK AREA
12	950-FDZ-03104	FZ-03 ELECTROLYZER PK AREA
13	950-FDZ-04101	FZ-04 B-400/B-300/B-200 AREA
14	950-FDZ-04102	FZ-04 B-400/B-300/B-200 AREA
15	950-FDZ-04103	FZ-04 B-400/B-300/B-200 AREA
16	950-FDZ-04104	FZ-04 B-400/B-300/B-200 AREA
17	950-FDZ-05101	FZ-05 BESS AREA
18	950-FDZ-05102	FZ-05 BESS AREA
19	950-FDZ-05103	FZ-05 BESS AREA
20	950-FDZ-05104	FZ-05 BESS AREA
21	950-FDZ-06101	FZ-06 B-100 AREA
22	950-FDZ-06103	FZ-06 B-100 AREA

File: 1724000821-IN-DS-00004-02.xlsx
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FlameSpec
UV-IR
UV-IR Flame Detector



The FlameSpec UV-IR will detect fires and explosions extremely quickly, thereby allowing mitigation steps to be initiated more rapidly to limit event escalation.

Introduction

The FlameSpec-UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as hydrogen and methane/hydrogen mixed fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

Key Benefits

- High immunity to false alarm
- High sensitivity – up to 100 ft. (30m) for a 1 ft^2 (0.1m^2) n-heptane pan fire.
- Hydrocarbon and non-hydrocarbon flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High speed (<0.5s) model [X5] available for compliance with NFPA 33.
- Four sensitivity levels.
- Universal outputs, 3 and 4 wire, 4-20 mA sink / source, Fire, Auxiliary and Fault Relays. RS485 port using Modbus RTU.
- Event logger – alarms, faults and other relevant events are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual self-test of window cleanliness and overall detector operation.
- Dirty optics warning for preventive maintenance needs.
- HART® 7, for configuration & maintenance - option available.
- Window heater to avoid condensation and icing.
- Stainless steel tilt mount with horizontal and vertical adjustment.
- Functional safety - SIL 2 capable - option available.
- Detect high UV (sparks and arcs) or IR levels via auxiliary relay and 4-20mA.

Fire and Gas Detection Technologies Inc. | 4222 E. La Palma Ave. Anaheim, CA 92807 USA
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F110V0010.08 • May 2023

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Response Characteristics

Fuel	Size	Sensitivity	Distance ft. (m)	Avrg Resp.Time (s)
N-Heptane	1 x 1 ft.	Extreme	98 (30)	2.0
N-Heptane	1 x 1 ft.	High	75 (23)	1.7
N-Heptane	1 x 1 ft.	Medium	49 (15)	1.0
N-Heptane	1 x 1 ft.	Low	16 (5)	1.0
Gasoline	2 x 2 ft.	Extreme	197 (60)	3.3
Gasoline	1 x 1 ft.	Extreme	98 (30)	1.8
Gasoline	1 x 1 ft.	Medium	49 (15)	1.3
Methane	32-in Plume	Extreme	59 (18)	1.4
Methane	32-in Plume	Medium	30 (9)	0.9
LPG	32-in Plume	Extreme	75 (23)	1.2
LPG	32-in Plume	High	56 (17)	1.6
LPG	32-in Plume	Medium	33 (10)	1.2
LPG	32-in Plume	Low	13 (4)	1.2
Diesel	1 x 1 ft.	Extreme	75 (23)	2.6
Diesel	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Extreme	75 (23)	3.3
JP5	1 x 1 ft.	High	56 (17)	1.8
JP5	1 x 1 ft.	Medium	36 (11)	1.2
JP5	1 x 1 ft.	Low	16 (5)	1.2
Kerosene	1 x 1 ft.	Extreme	75 (23)	1.8
Kerosene	1 x 1 ft.	Medium	36 (11)	0.9
Methanol	1 x 1 ft.	Extreme	52 (16)	0.8
Methanol	1 x 1 ft.	High	43 (13)	3.2
Methanol	1 x 1 ft.	Medium	30 (9)	1.3
Methanol	1 x 1 ft.	Low	10 (3)	2.7
Ethanol	1 x 1 ft.	Extreme	62 (19)	4.1
Ethanol	1 x 1 ft.	Medium	31 (9.5)	2.9
Isopropanol	1 x 1 ft.	Extreme	75 (23)	2.2
Isopropanol	1 x 1 ft.	Medium	36 (11)	0.8
Polypropylene	1 x 1 ft.	Extreme	49 (15)	1.4
Polypropylene	1 x 1 ft.	Medium	23 (7)	0.9
Hydrogen	32-in Plume	Extreme	66 (20)	6.4
Hydrogen	32-in Plume	Medium	33 (10)	1.0
Syngas (30%CH_4:70%H_2)	32-in Plume	Extreme	59 (18)	3.2
Syngas (30%CH_4:70%H_2)	32-in Plume	Medium	33 (10)	1.2

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft. (m)	Response	Distance ft. (m)	Response
Sunlight, Direct, Reflected		No Alarm		No Alarm
Incandescent frosted glass light, 300W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Fluorescent, 70W (3x23.3W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric arc	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Arc welding	10.0 (3.0)	No Alarm	10.0 (3.0)	No Alarm
Radiation heater, 2000W	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Halogen lamp (500W) non-shielded	7.0 (2.0)	No Alarm	7.0 (2.0)	No Alarm
Halogen lamp (1000W)	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Mercury vapor lamp 160Wx3	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Exhausts	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Projector led	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Solenoid bell	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
soldering iron	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm
Electric Drill	2.0 (0.5)	No Alarm	2.0 (0.5)	No Alarm

FlameSpec UV-IR

UV-IR Flame Detector

Model: FLS-UV-IR

FIRE DETECTION	**Detection time and distance**	5ms for fast burst of explosion 1s for 1 ft² (0.1m²) n-heptane pan fire at 0–50 ft. (0–15m) < 2s for 1 ft² (0.1m²) n-heptane pan fire at 50–100 ft. (15–30m)
	Sensitivity Range	4 sensitivity ranges: Extreme, High, Medium, Low
	Field of view (IR detection)	90° Horizontal, 80° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 120mA 180mA all systems in operation (including window heater)
	Electrical Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5
	Wiring	14-17 AWG (2.5–1.0 mm²)
OUTPUTS	**Relays**	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0 (option available)
	Indication	Tri-color LED (Green, Yellow, Red)
	Modbus	RTU compatible on RS-485
MECHANICAL SPECIFICATIONS	**Size**	5.51 x 3.54 × 3.54" (140×90×90mm)
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	**Temperature Range**	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	Up to 99% (RH), non-condensing
	Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P
APPROVALS	**ATEX**	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C
	IECEx, INMETRO & PESO	Ex db IIC T5 Gb -50°C≤Ta≤75°C Ex db IIC T4 Gb -50°C≤Ta≤85°C
	FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 Class I, Zone 1, AEx/Ex db IIC T4 Gb T4 -50°C≤Ta≤85°C T5 -50°C≤Ta≤75°C
	EAC CU TR	1Ex d IIC T5 Gb or 1Ex de IIC T5 Gb and Ex tb IIIC T95°C Db -55°C≤Ta≤75°C 1Ex d IIC T4 Gb or 1Ex de IIC T4 Gb and Ex tb IIIC T105°C Db -55°C≤Ta≤85°C
	Performance	ANSI FM 3260 EN 54-10
	Functional safety	Certified SIL2 capable, per IEC 61508:2010 High & Low demand (option available)

ACCESSORIES	**Tilt mount, model FLS-TMO-S01**	**High vibration mounting bracket, model FLS-MIL-S01**
	Weather cover, model FLS-WCO-S01	**Flame simulator, model FLS-FSIM-UV-IR-KIT**
	2" & 3" pole mount adapter, model FLS-PMA-S23	**Airshield, model FLS-ASD-S01**
	Duct mount with window, model FLS-DMW-S01	**Duct mount for airshield, model FLS-DMX-S01**
WARRANTY	**5 years**	

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Specifications subject to change without notice.

FlameSpec

FLS-FSIM

Flame Simulator Family



The FlameSpec Flame Simulator range provides fast and convenient detector verification in the field.

Introduction

Flame simulators are often used by industry to perform detector testing during commissioning and periodic system testing. FlameSpec simulators differ from many competing products because they test the active sensors and detection algorithms of the devices without using “bypass” techniques to trick the detector into responding.

The FSIM range is lightweight, simple to use and has a modern ergonomic design. Suitable for use in hazardous areas, the FSIM-IR3 has an extended trigger distance of up to 30 feet (10 meters) from the detector.

Three FSIM models are available, depending on the FlameSpec Detector to be tested, IR3, IR3-H2 and UV-IR.

Key Benefits

- Tests the active sensors and detection algorithms, without using “bypass” techniques.
  - No tricks, detector performance assured.
- Works from distance up to 30 feet (10 meters).
  - Reduces the need for scaffolding.
- Hazardous area use approved.
  - Hot work permits not needed required.
- Lightweight and simple to use.
  - More than 1,000 activations between charges.
- Includes carrying strap, protective storage case, battery charger and operating instructions.
- Easy to transport & supplied with everything needed.
- Complementary to FlameSpec Detector inbuilt test features.
  - Enables full end to end (loop) system test.

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Tel: (+1) 714-671-8500 | support@fg-detection.com

Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

Flame Simulator Family

	Simulator Kits Part Nos	FLS-FSIM-IR3-KIT	FLS-FSIM-IR3-H2-KIT	FLS-FSIM-UV-IR-KIT
	Detector type	FLS-IR3[1] FLS-IR3-HD[1]	FLS-IR3-H2 FLS-IR3-H2-HD	FLS-UV-IR FLS-UV-IR-HD
OPERATION DISTANCES	**Detector Sensitivity**	ft. m	ft. m	ft. m
	Extreme	30 9.0	30 9.0	42.5 13.0
	High	20 6.0	20 6.0	26 8.0
	Medium	10 3.0	10 3.0	20 6.0
	Low	3.3[2] 1.0[2]	3.3[2] 1.0[2]	6.6 2.0
ELECTRICAL SPECIFICATIONS	**Operating Voltage nominal, V**	3.7	3.7	3.7
	Number of activations between charging	~1000	~1000	~50
	Battery Capacity, mAh	>3000	>3000	>3000
	Charging time, hours	up to 3	up to 3	up to 3
	Indication	3 Color LED (Green, Yellow, Red)		
	All Simulator Models			
MECHANICAL SPECIFICATIONS	**Size**	3.9 x 3.9 x 7.8" (100 x 100 x 200mm)		
	Weight	3.96 lbs. (1.8 kg)		
	Simulator Enclosure Material	Painted Aluminum LM25		
ENVIRONMENTAL SPECIFICATIONS	**Ingress Protection**	IP65 (NEMA 4X)		
	Humidity	up to 99% (RH), non-condensing		
	Operating temperature	Min: −4°F (−20°C) Max: +122°F (+50°C)		
APPROVALS	**Explosion proof**	ATEX Ex II 2 G Ex db ib op is IIC T6 Gb Ex II 2 D Ex tb ib op is IIIC T85°C Db -20°C<Ta<+50°C		
ACCESSORIES included in kits	**Carrying Case**	FLS-FSIM-CASE		
	Carrying Strap	FLS-FSIM-STRAP		
	Cover Tool	FLS-FSIM-TOOL		
	Allen Key	FLS-FSIM-ALLEN		
	Battery Charger	FLS-FSIM-CHRGR		
WARRANTY	**3 Years**			

[1]not CO2L variant
[2]with collimator removed

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ROSETTI MARINO

CROSSWIND

ITEM	Tag	950-MFA-01102	: FZ-01 MFA Activation			Dwg	123A90-DDL-SAF-DL-30027
	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001543		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental Form CJX00		Miscellaneous

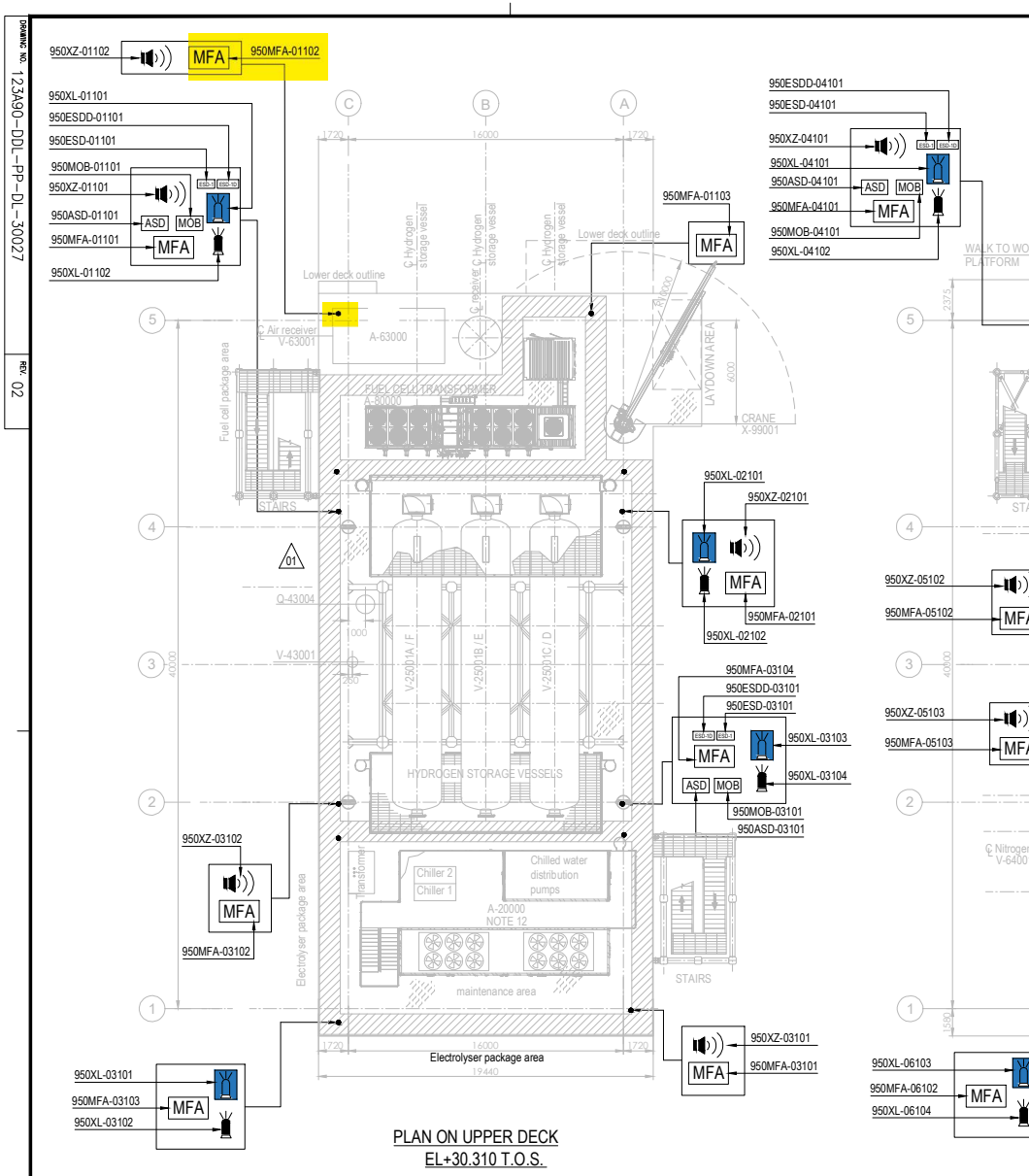
1	Check for mechanical damage.	OK
2	Check installed equipment is suitable and conforms to specification.	OK
3	Check installation conforms to P&ID and hook-up drawing.	OK
4	Check tube fittings manufacturer is the one chosen for the plant.	NA
5	Check that piping connections provide the block & bleed facility (if required).	NA
6	Check that all stop plugs are properly installed	OK
7	Check identification (tag number, tag plates).	OK
8	Check supporting and protection against vibrations.	PL
9	Check the conformity of earthing as per specification (I.P.E. or I.E.)	OK
10	If required produce Red Line Mark Up for "AS BUILT"	

Comments:

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (ROSETTI MARINO)	
Name	Michele Tartaglia	Andrea Andreani	
Date	2024-12-20	2024-12-24	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2024-12-20T12:49:59.210Z	PROVERLIS Digitaly signed by Andrea Andreani 2024-12-24T11:47:06.443Z	

DRAWING NO. 123A90-DDL-PP-DL-30027

REV. 02



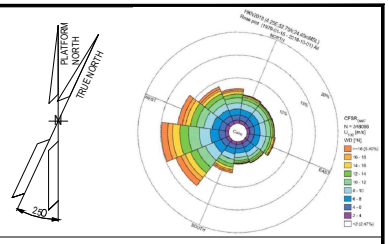
PLAN ON UPPER DECK
EL+30.310 T.O.S.

PLAN ON LOWER DECK
EL+23.310 T.O.S.

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-SAF-DL-30027**

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01103	No.	MARSHALLING CABINET ~~B400-FGS-002~~ B400-FGS-003

<01>

950-MFA-01101 (1 WH, 8 BK) — NOTE-2
C-950-MFA-01101/950-JE-01103
~~C-950-MFA-01101/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01102 (1 WH, 8 BK) — NOTE-2
C-950-MFA-01102/950-JE-01103
~~C-950-MFA-01102/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

950-MFA-01103 (1 WH, 8 BK) — NOTE-2
C-950-MFA-01103/950-JE-01103
~~C-950-MFA-01103/950-JE-01103~~
*1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS

TB-1

WH/BK	1	PR1
	2	
	SH	
WH/BK	3	PR2
	4	
	SH	
WH/BK	5	PR3
	6	
	SH	
SPARE	7	PR4
	8	
	SH	
SPARE	9	PR5
	10	
	SH	
SPARE	11	PR6
	12	
	SH	
	OS	

950-JE-01103/B400-FGS-003
~~950-JE-01103/B400-FGS-002~~
6x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-950-JE-01103

PR1 (Shield Bar)	1	950-MFA-01101
	2	
PR2 (Shield Bar)	3	950-MFA-01102
	4	
PR3 (Shield Bar)	5	950-MFA-01103
	6	
PR4 (Shield Bar)	7	SPARE
	8	
PR5 (Shield Bar)	9	SPARE
	10	
PR6 (Shield Bar)	11	SPARE
	12	

Shield Bar — I.E.

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01103

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

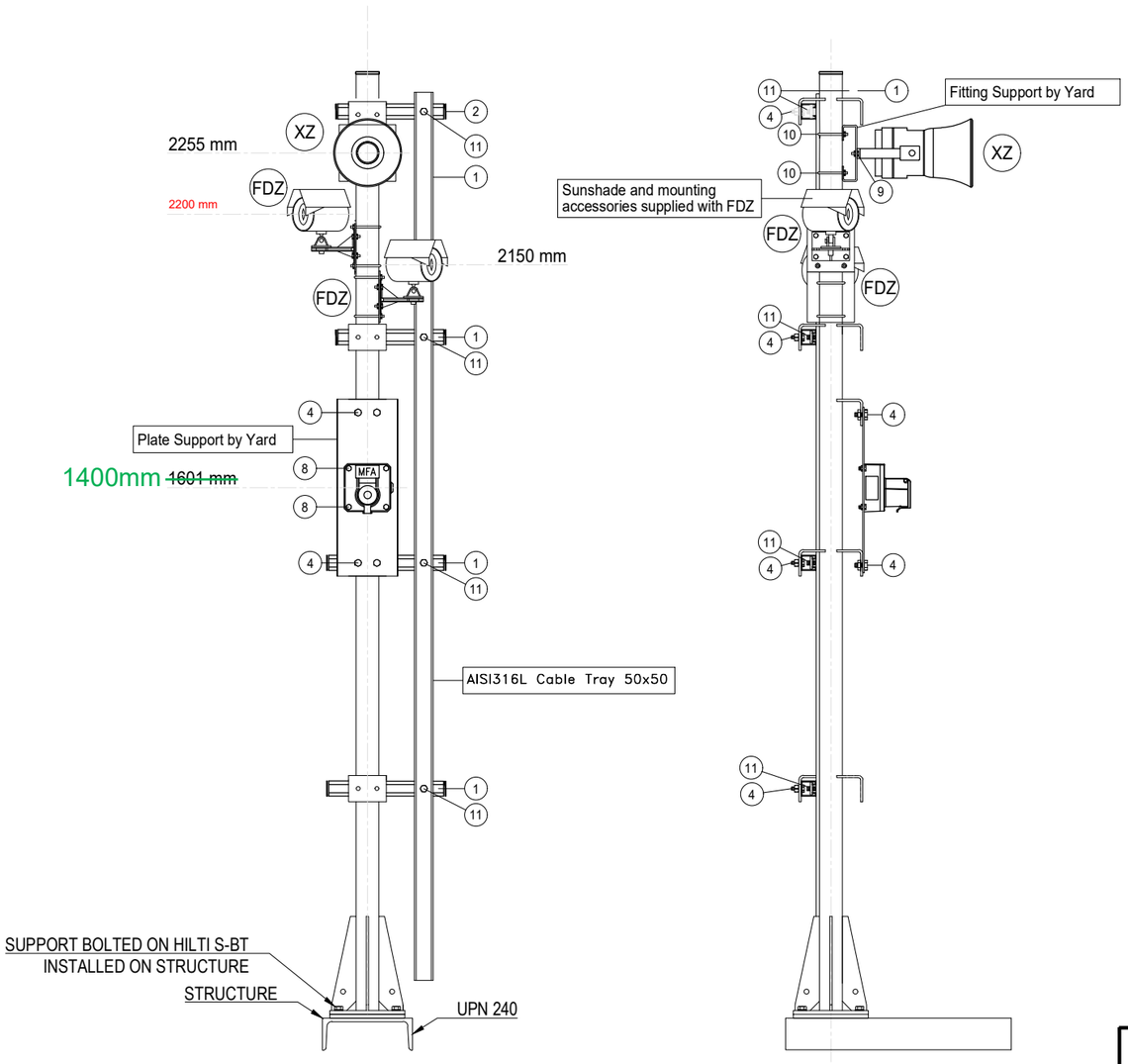
	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	032	01

File Name : 123A90–DDL–IN–DG–40016_Rev.01

FGS-05

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	5m
2	LDPE PLUG FOR U-CHANNEL 41x41	10
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	12
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	4

POLE	ITEM	DESCRIPTION	TAGNAME
1	FDZ	FLAME DETECTOR	950-FDZ-01102
	FDZ	FLAME DETECTOR	~~950-FDZ-02101~~
	XZ	SOUNDER	950-XZ-01102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01102
2	FDZ	FLAME DETECTOR	950-FDZ-02102
	FDZ	FLAME DETECTOR	950-FDZ-03101
	XZ	SOUNDER	950-XZ-03102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03102
3	FDZ	FLAME DETECTOR	950-FDZ-03103
	FDZ	FLAME DETECTOR	~~950-FDZ-02104~~ 950-FDZ-02102
	XZ	SOUNDER	950-XZ-03101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03101

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

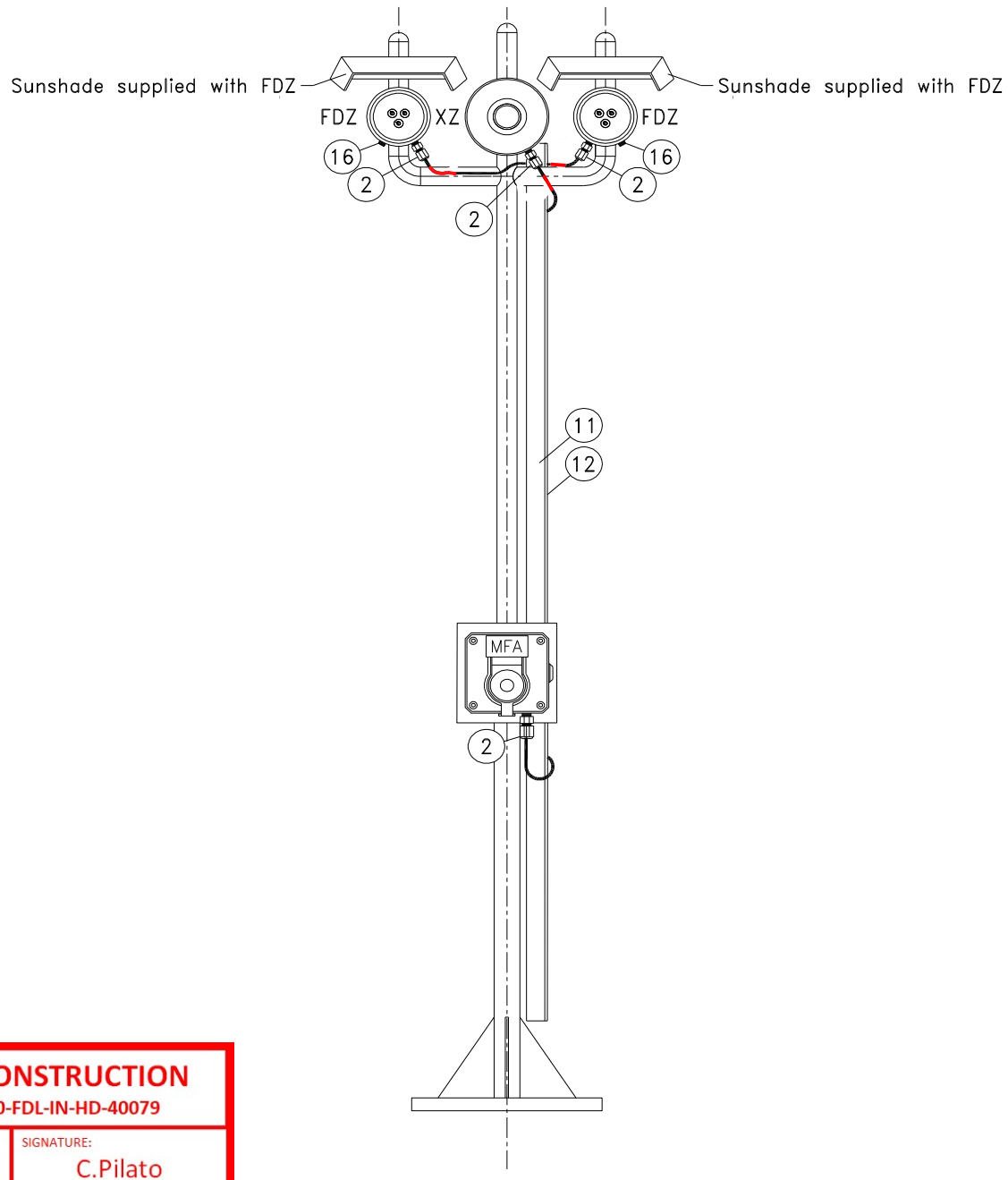
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 024	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-FDZ-01102
	950-XZ-01102
	~~950-FDZ-02101~~
	950-MFA-01102
2	950-FDZ-02102
	950-XZ-03102
	950-FDZ-03101
	950-MFA-03102
3	950-FDZ-03103
	950-XZ-03101
	950-FDZ-02104
	950-MFA-03101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_F	12/12/24	C.Pilato

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NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	2
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	4

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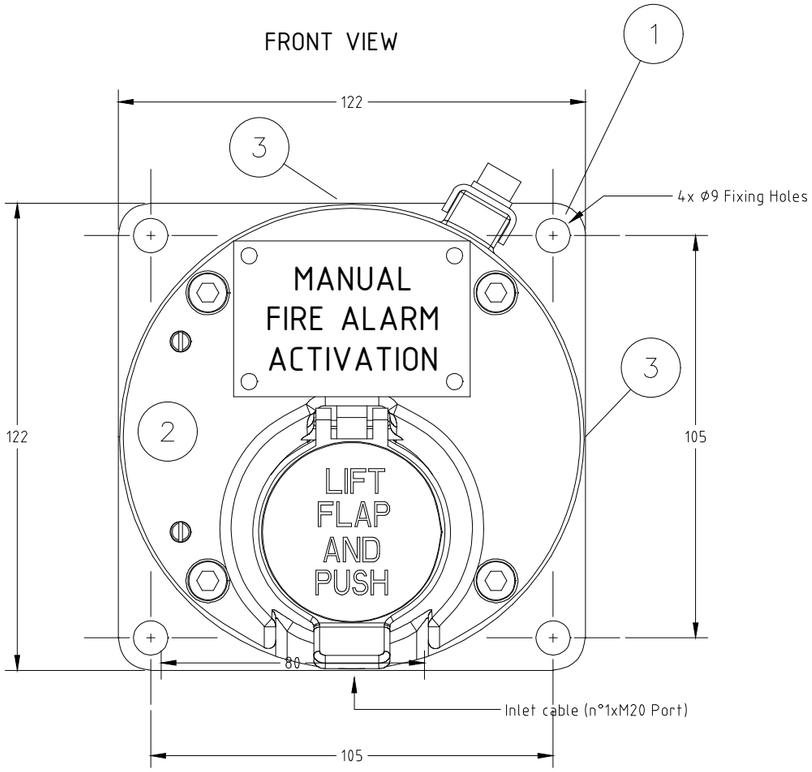
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

ITEM	DESCRIPTIONS	NR
1	Manual Call Point (Manual Fire Alarm) (Red), MEDC SM87PBLSD1B1ROYHDRZ	1
2	Stainless Steel Name Plate	1
3	Stop Plug M20 Ex d AISI 316	2
4		
5		
6		
7		
8		
9		
10		

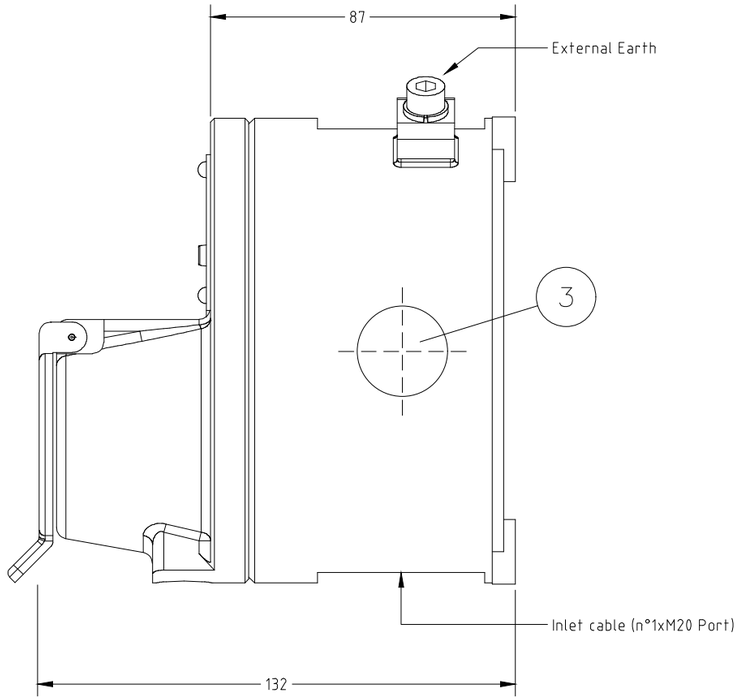
INSTALLATION QUANTITY

21

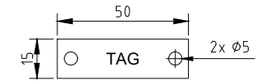
FRONT VIEW



SIDE VIEW



2 STAINLESS STEEL NAME PLATE DETAILS

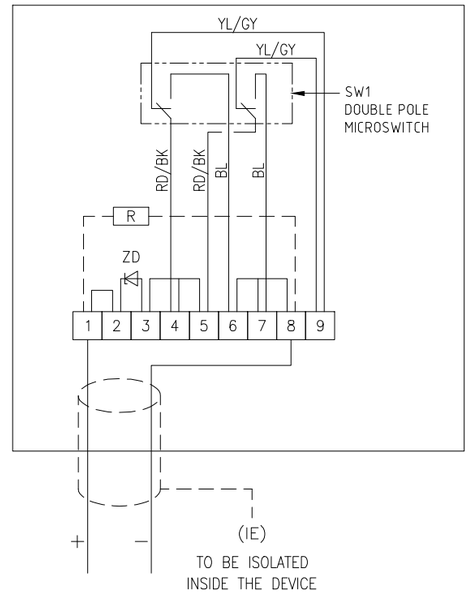


NOTE 5

WIRING

TERMINAL STRIP

ZD= ZENER 1N5339B 5.6V
R= 36 KOhm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 015 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

POS.	TAG NUMBER
1	950-MFA-01101
2	950-MFA-01102
3	950-MFA-01103
4	950-MFA-02101
5	950-MFA-03101
6	950-MFA-03102
7	950-MFA-03103
8	950-MFA-03104
9	950-MFA-04101
10	950-MFA-04102
11	950-MFA-04201
12	950-MFA-04202
13	950-MFA-04203
14	950-MFA-05101
15	950-MFA-05102
16	950-MFA-05103
17	950-MFA-05104
18	950-MFA-06101
19	950-MFA-06102
20	950-MFA-06201
21	950-MFA-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
MANUAL CALL POINT (MANUAL FIRE ALARM) (RED) – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000821-IN-DA-00003 | SHEET 016 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

MANUAL FIRE ALARM

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-MFA-01101	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
2	950-MFA-01102	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
3	950-MFA-01103	FZ-01 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
4	950-MFA-02101	FZ-02 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
5	950-MFA-03101	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
6	950-MFA-03102	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
7	950-MFA-03103	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
8	950-MFA-03104	FZ-03 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
9	950-MFA-04101	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
10	950-MFA-04102	FZ-04 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
11	950-MFA-04201	FZ-04 MFA ACTIVATION - B-400 INDOOR	MANUAL FIRE ALARM ACTIVATION
12	950-MFA-04202	FZ-04 MFA ACTIVATION - B-300 INDOOR	MANUAL FIRE ALARM ACTIVATION
13	950-MFA-04203	FZ-04 MFA ACTIVATION - B-200 INDOOR	MANUAL FIRE ALARM ACTIVATION
14	950-MFA-05101	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
15	950-MFA-05102	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
16	950-MFA-05103	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
17	950-MFA-05104	FZ-05 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
18	950-MFA-06101	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
19	950-MFA-06102	FZ-06 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION
20	950-MFA-06201	FZ-06 MFA ACTIVATION - B-100 INDOOR	MANUAL FIRE ALARM ACTIVATION
21	950-MFA-07101	FZ-07 MFA ACTIVATION	MANUAL FIRE ALARM ACTIVATION

File: 1724000821-IN-DS-00004-02.xlsx
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SM87BG & SM87PB manual call point range

Ex d, Ex ia, weatherproof



Overview

These manual fire alarm, emergency shutdown break-glass and pushbutton units have been designed for the most arduous environmental conditions.

The units are both easy to install and maintain. Intrinsically safe Ex ia and flameproof Ex d versions of each model are available.

A choice of either stainless steel or alloy makes the range suitable for either the offshore or onshore industries. Stainless steel, one of the most durable materials available on the market, is both hard wearing and corrosion resistant, increasing the life of products in harsh environments and therefore reducing maintenance costs.

Features

- Zone 0, Zone 1 and Zone 2 use*
- ATEX certified
- UL listed for USA and Canada (SM87PBL only). Class I, Div 1, Groups C & D
- ULC certified (SM87PBL only) for Class I, Zone 1 Groups C & D
- CSA certified
- IECEx certified
- Brazilian (INMETRO) certified
- Russian Fire certified
- PESO certified (Ex d only)
- SIL 2 certified (SM87PB only)
- IP66 and IP67
- DNV type approval (IEC 60945) (SM87PB only)
- Certified temperature: –55°C to +70°C*
- Stainless steel or marine grade alloy
- Robust yet lightweight
- Easy to maintain

*Model dependent

ATEX IECEx cULus LISTED ULC INMETRO CSA DNV·GL MARITIME CCC

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All other trademarks are property of their respective owners.

Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

Certifications

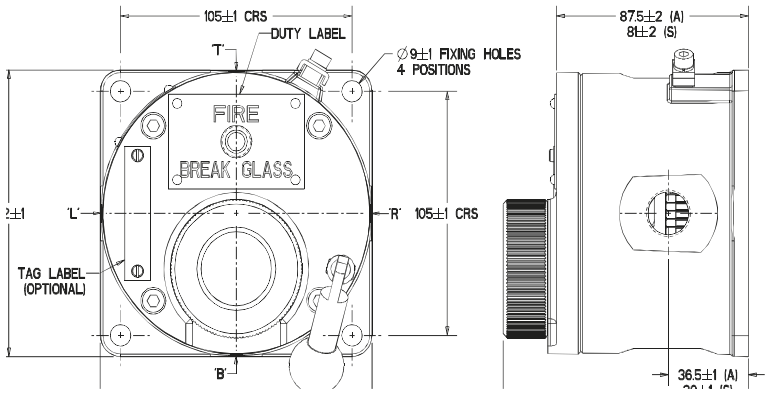
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
IECEx Ex d	Cert. no. IECEx BAS 09.0060 Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°/T100°C Db. IP66/IP67
IECEx Ex ia	Cert. no. IECEx BAS 10.0033X Certified to: IEC60079-0, IEC60079-11, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da
UL	Listing no. E186629 UL listed to Class 1, Div 1. Groups C & D. (SM87PBL)
ULC	Cert. no. 20091023-E320282 ULC certified for Class I, Zone 1 Groups C & D (SM87PBL)
CSA Explosion proof	Class 1, Div 1 & 2. Group D Ex d IIC T5/T6 Gb
CSA Intrinsically safe	Class 1, Div 1 & 2. Groups A-D
INMETRO Ex d	Ex db IIC T5/T6 Gb
Type Approvals	DNV (IEC 60945) (Stainless Steel SM87PB only)
SIL	SM87PB only - SIL2 Certification to IEC61508. Cert no. 20151118-4786827453
CCC	Ex d IIC T5/T6 Gb, Ex tD A21 IP66/IP67 T85°C/T100°C

Specifications

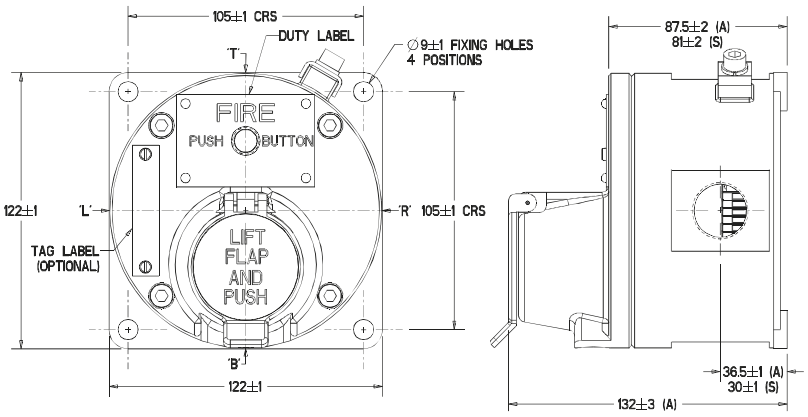
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy	
Finish	Paint finish as standard or to customer specification	
Voltage	Ex d 24V a.c./d.c. Ex ia 28V	
Rating	2A	
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)	
Optional indicator	A red high intensity LED can be fitted for alarm indication As standard the LED is not provided with over current protection. The forward current (If) should be limited to 20mA	
Certified temp	Ex d* Ex ia* UL CSA Explosion proof - Class 1, Div 1 & 2. CSA - Ex d IIC CSA Intrinsically safe - Class 1, Div 1 & 2 *Note: includes ATEX, IECEx & INMETRO versions	–55°C to +70°C. –55°C to +60°C –20°C to +55°C (LED version only) –40°C to +70°C, –20°C to +55°C (LED version only) –50°C to +55°C –55°C to +70°C –50°C to +40°C
Weight	3·8 kg. steel (approx.) or 2.5 kg. alloy (approx)	
Ingress protection	IP66 & IP67. SM87PB IP68 (35m for 40 hours)	
Entries	Up to 4 x M20 or M25 ISO Ex d/Ex ia Up to 4 x ½" or ¾" NPT UL Stainless steel version comes with two entries as standard. Units ordered with a single entry ordering code are supplied with 2x entries inc. plug on the opposite side	
Terminals	Will accept up to 1·5mm² cable	
Resistor values	470R minimum (d.c. & I.S. units only)	

General arrangement drawing (all dimensions in mm)

Break glass



Push button



Both the Ex ia units and the Ex d units have the same external appearance. Also the internal components are identical throughout the range. Each unit can be wired for either NO, NC or CO contacts to customer specification

Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Unit	Model	Material	Certification	Entries	Duty label	Tag label	Options	Finish
SM87	PBL	S	D	1B1R	O	Y	HD	R

Material*

	Code
Stainless steel	S
Alloy	A

*UL version only available in alloy

Model*

	Code
Breakglass latching	BGL
Lift flap breakglass latching	LBGL
Push button latching key reset	PBL
Push button only momentary action	PBM

*UL and ULC versions only available in PBL model

Certification

	Code
Ex ia	I
Ex d	D
IECEx - Ex ia	IJ
IECEx - Ex d	DJ
UL	UL
ULC	UC
CSA - Intrinsically Safe	IC
CSA - Ex proof	DC
INMETRO - Ex d	DM
CCC	DQ

Entries

	Code
M20	1
M25	2
½" NPT	3
¾" NPT	4
Other	5
Position	
Top	*T
Bottom	*B
RHS	*R
LHS	*L

*Prefix position with size code i.e. 1T1B = M20 Top and Bottom

Duty label

	Code
Fire breakglass	1
Push button	2
Fire push button	3
ESDO abandon	4
Burning house logo	5
Fire/FEU	6†
Other	O*
None	N

*Please specify
†This option must be used when ordering a red callpoint for ULC Fire Alarm applications

Tag label

	Code
Required	Y*
Not required	N

*Please specify

Options

	Code
Not required	N
LED	A
Resistor series	G*
Resistor EOL	H*
Diode	D*
3 pole c/o switch	T
4 pole c/o switch	F

*Please specify

Finish

	Code
Red	R
Blue	B
Yellow	Y
Yellow/black stripes	X
Special	S*

*Please specify

ROSETTI MARINO — CROSSWIND

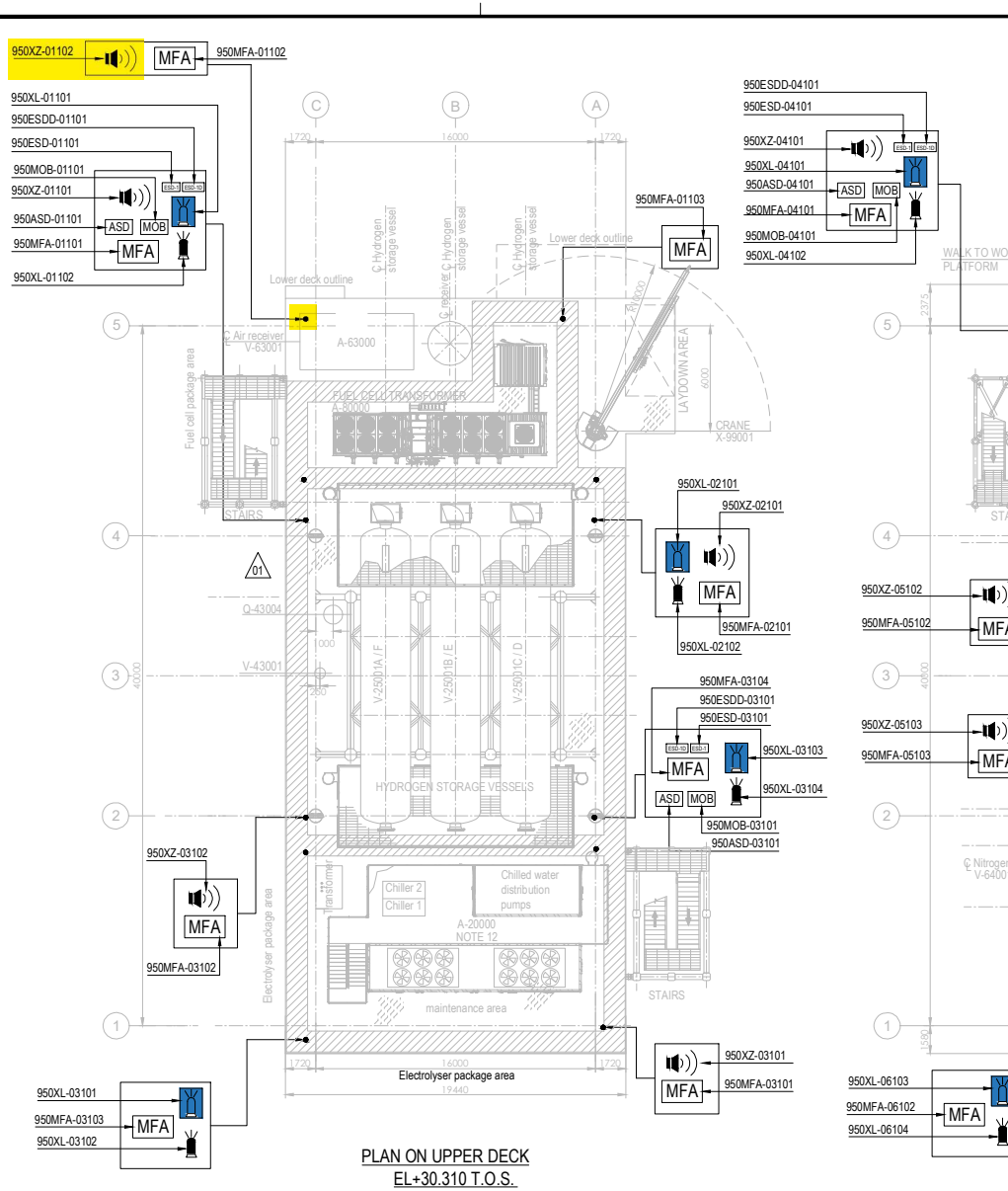
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	S/Sys	70-10	: F&G Devices FZ-01 (Fuel Cell Area)			Module	UD
TASK	code	C10001556		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental Form CJX00		Miscellaneous

1	Check for mechanical damage.	OK
2	Check installed equipment is suitable and conforms to specification.	OK
3	Check installation conforms to P&ID and hook-up drawing.	OK
4	Check tube fittings manufacturer is the one chosen for the plant.	OK
5	Check that piping connections provide the block & bleed facility (if required).	NA
6	Check that all stop plugs are properly installed	OK
7	Check identification (tag number, tag plates).	OK
8	Check supporting and protection against vibrations.	OK
9	Check the conformity of earthing as per specification (I.P.E. or I.E.)	PL
10	If required produce Red Line Mark Up for "AS BUILT"	

Comments:

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Giovanni Tangianu	
Date	2024-12-19	2024-12-27	
Signature	Digitaly signed by Francesco Zucca 2024-12-19T12:30:32.393Z	Digitaly signed by Giovanni Tangianu 2024-12-27T16:27:20.665Z	

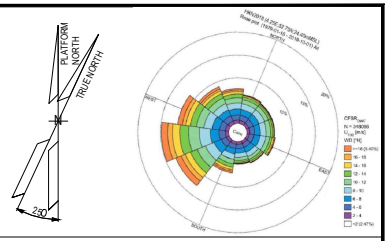
DRAWING NO. 123A90-DDL-PP-DL-30027 REV. 02



EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-63000	INSTRUMENT AIR PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
A-80000	FUEL CELL	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
A-85000	BESS	RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
A-50000	WATER TREATMENT PACKAGE	V-63001	AIR RECEIVER
P-50001A/B	SEAWATER LIFT PUMPS	V-64001	NITROGEN RECEIVER
Q-43004	HYDROGEN VENT	X-99001	CRANE
A-64000	NITROGEN SYSTEM		
V-25001A-F	HYDROGEN STORAGE VESSELS		
V-43001	HYDROGEN VENT KO DRUM		
YLB-079001/2	LIFE RAFTS		
B-100	HV/MV SWITCHROOM 66kV/6.6kV		
B-200	LV SWITCHROOM 400V		
B-300	AC UPS EQUIPMENT ROOM		
B-400	I&T EQUIPMENT ROOM		

SYMBOL	DESCRIPTION	QTY.	SYMBOL	DESCRIPTION	QTY.
	SOUNDER (XZ)	11		FIRE BEACON (XL) COLOR: RED	8
MOB	MAN OVER BOARD (MOB)	4		FLAMMABLE GAS RELEASE BEACON (XL) COLOR: AMBER	8
ASD	ABANDON SHUTDOWN (ASD)	4	ESD-1	ESD-1 PUSH BUTTON (ESD)	4
MFA	MANUAL FIRE ALARM (MFA)	16	ESD-1D	ESD-1D PUSH BUTTON (ESDD)	4



NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. VENDOR TO DEFINE AND SUPPLY ALL FIRE & GAS DETECTORS TO BE USED IN FUEL CELL, ELECTROLYSER AND BESS. TO BE IN COMPLIANCE WITH PROJECT REQUIREMENTS. THESE WILL BE SHOWN IN THE NEXT REVISON OF THE DOCUMENT.
4. PERSONNEL EXPECTED TO USE HANDHELD HYDROGEN AND LOW OXYGEN DETECTORS WHEN WORKING IN CONFINED SPACES ENTRY.
5. DETAIL LOCATION IS SHOWN IN THE 3D MODEL.
6. COMPLETE TAG IS ALWAYS "950-" (I.E. 950MFA-04203 IS 950-MFA-04203)

ELEVATION

1. ALL BUTTONS ARE 1.5M TOP
2. SOUNDERS AND BEACON ARE 2.4/2.5M

HOLDS

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-SAF-DL-30027

REV.:	DATE:	SIGNATURE:
2_D	12/12/24	C.Pilato

ROSETTI MARINO SpA

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-SAF-RE-30020	FERA REPORT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	23/10/24	ECA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/07/24	MMA	CCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/02/24	MMA	CCA	DLO	ISSUE FOR APPROVAL (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

F & G DETECTORS LAYOUT - LOWER & UPPER DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN	CHECKED C. CARACCIOLO	APPROVED D. LO STERZO	DATE 23/10/24
A1	DRAWING NO. 123A90-DDL-SAF-DL-30027	SHEET 002	REV. 02

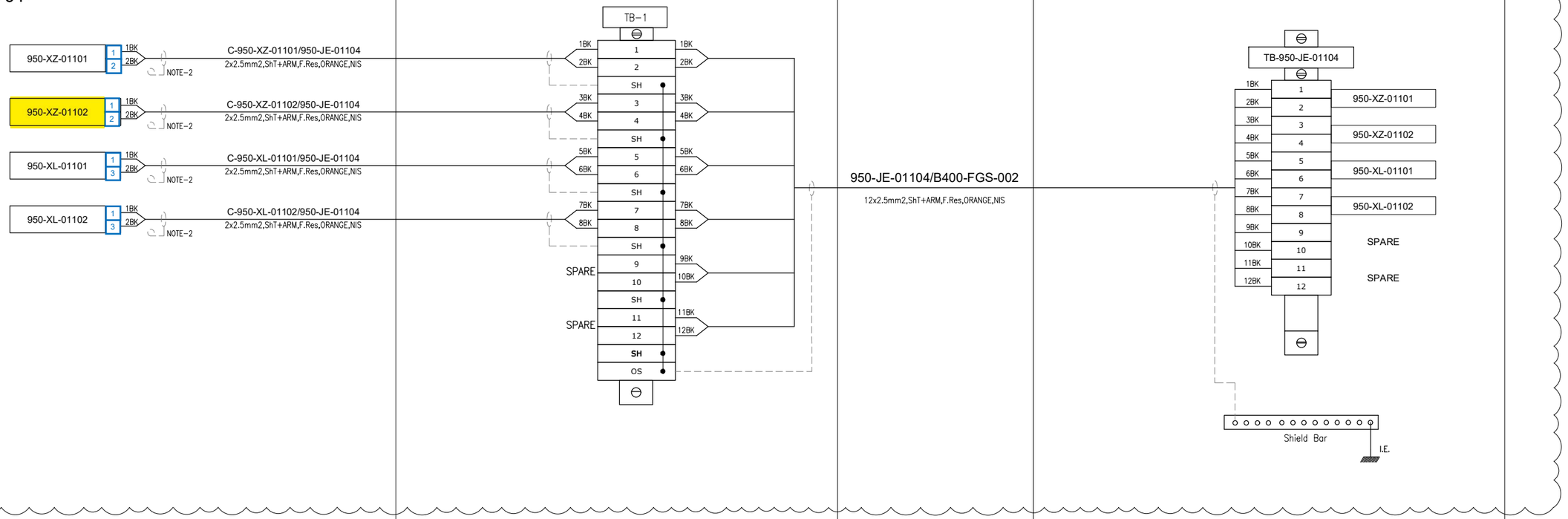
File Name : - 123A90-DDL-SAF-DL-30027 Rev.02

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		MULTICABLE	I&T EQUIPMENT ROOM (ITER)
INSTRUMENTS	JUNCTION BOX 950-JE-01104	No.	MARSHALLING CABINET B400-FGS-002

<01>



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_N	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
INSTRUMENT–FGS WIRING DIAGRAMS
950–JE–01104

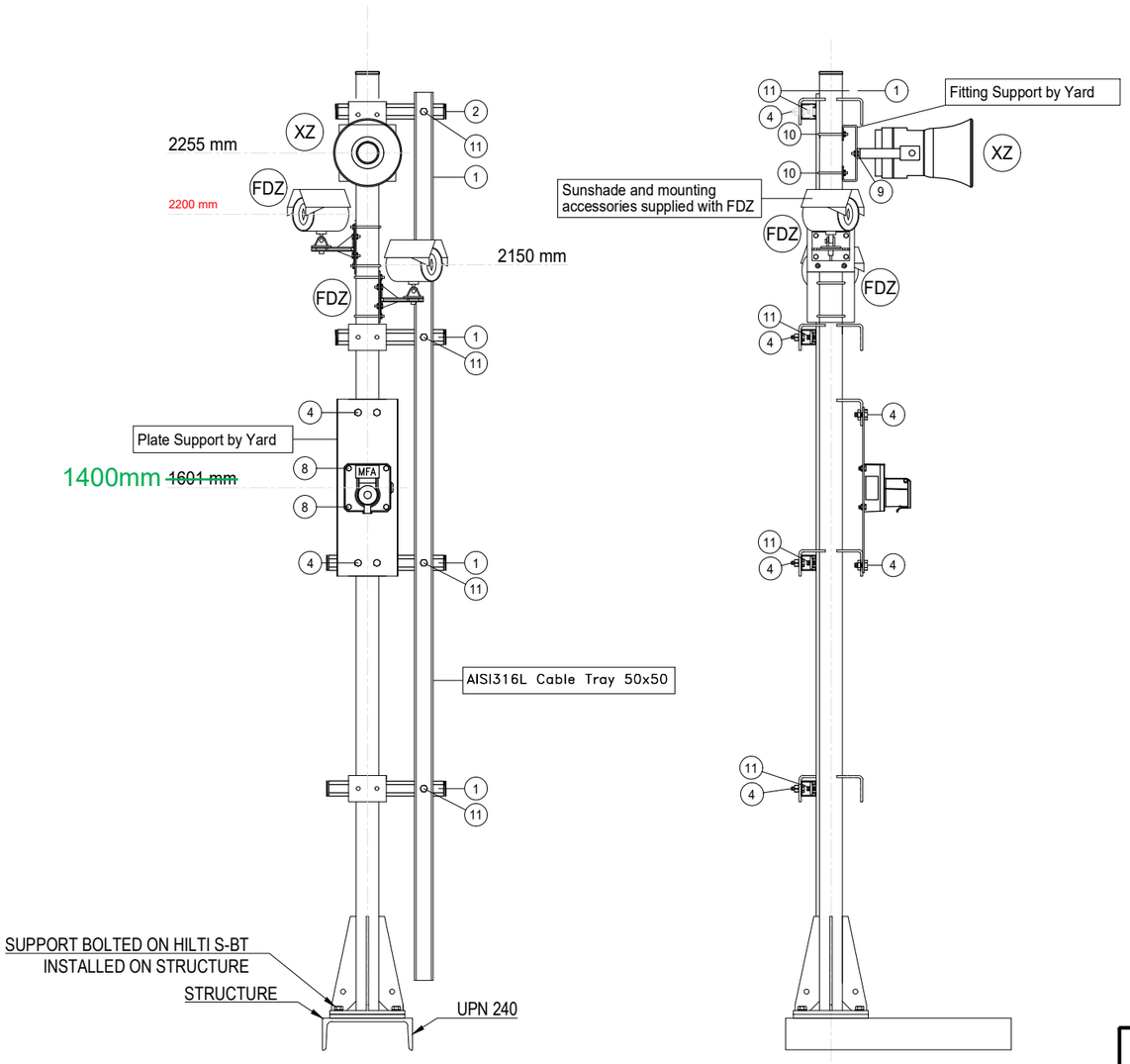
CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024
A3	DRAWING NO. 123A90–DDL–IN–DG–40016	SHEET 064	REV. 01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

FGS-05

DRAWING NO. 123A90-DDL-IN-DD-40017

REV. 00



POS.	DESCRIPTION	Q.TY
1	AISI 316L U-CHANNEL 41x41	5m
2	LDPE PLUG FOR U-CHANNEL 41x41	10
4	AISI 316L BOLT M10x35 + NUT M10 + WASHER M10	12
8	AISI 316L BOLT M8x35 + NUT M8 + WASHER M8	4
~~9~~	~~AISI 316L BOLT M6x35 + NUT M6 + WASHER M6~~	2
10	AISI 316L 2" U BOLT M8+ N.2 NUT M8 + N.2 WASHER M8 1	2
11	AISI 316L SPRING NUT M6 FOR U-CHANNEL 41X41 + BOLT M6 + WASHER M6	4

POLE	ITEM	DESCRIPTION	TAGNAME
1	FDZ	FLAME DETECTOR	950-FDZ-01102
	FDZ	FLAME DETECTOR	~~950-FDZ-02101~~
	XZ	SOUNDER 1	950-XZ-01102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-01102
2	FDZ	FLAME DETECTOR	950-FDZ-02102
	FDZ	FLAME DETECTOR	950-FDZ-03101
	XZ	SOUNDER	950-XZ-03102
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03102
3	FDZ	FLAME DETECTOR	950-FDZ-03103
	FDZ	FLAME DETECTOR 1	~~950-FDZ-02104~~ 950-FDZ-02102
	XZ	SOUNDER	950-XZ-03101
	MFA	MANUAL CALL POINT CONNECTED TO FGS	950-MFA-03101

NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	02/09/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	11/07/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DD-40017**

REV.:	DATE:	SIGNATURE:
1_H	06/12/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

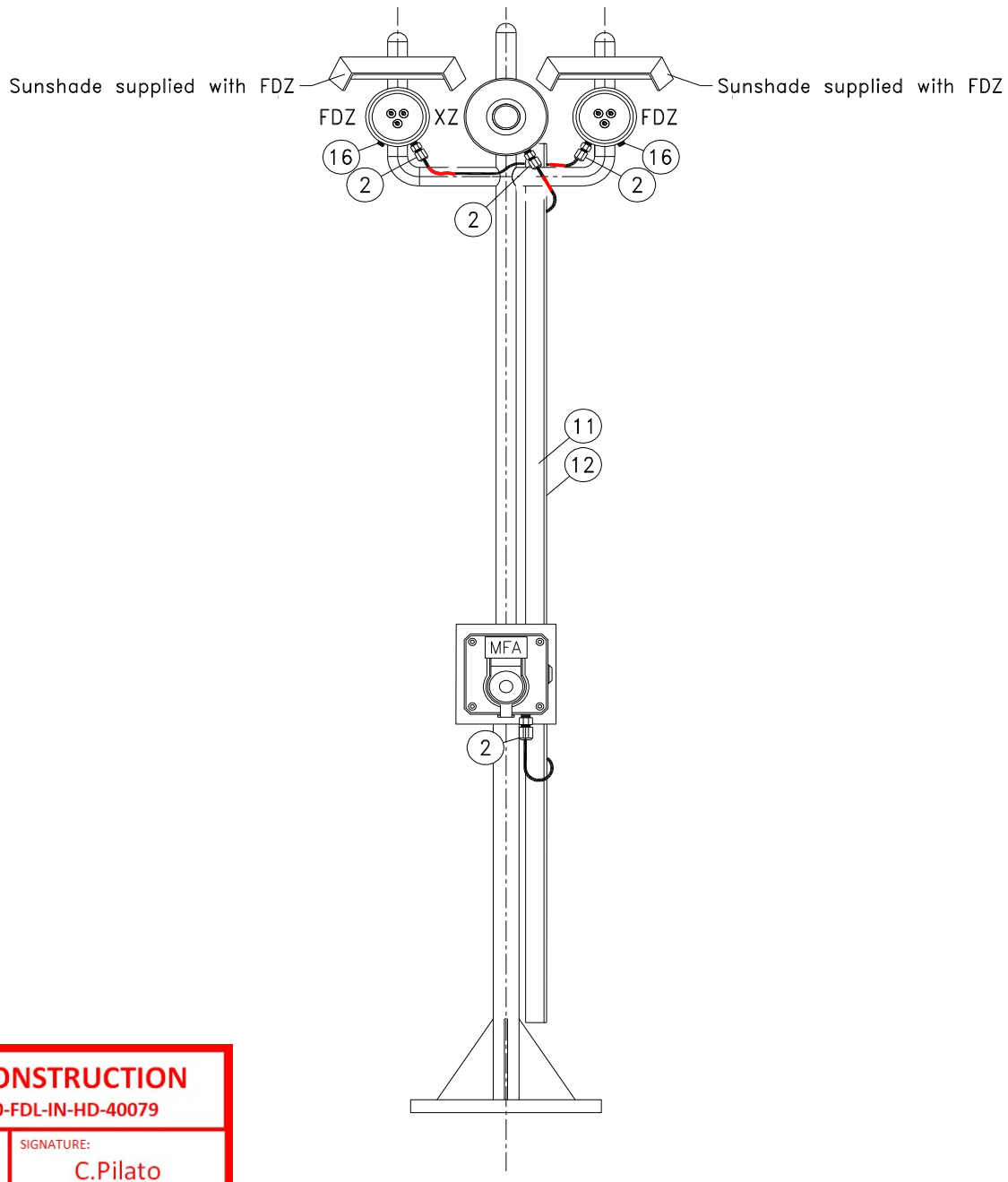
TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT INSTALLATION DETAILS
FIRE & GAS DEVISES ON POLE

CONTRACT NO./TITLE			SCALE /
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 11/07/2024

A3	DRAWING NO. 123A90-DDL-IN-DD-40017	SHEET 024	REV. 01

ELECTRICAL HOOK-UP FOR FIRE & GAS DEVICES



INSTRUMENT TAG	
1	950-FDZ-01102
	950-XZ-01102
	~~950-FDZ-02101~~
	950-MFA-01102
2	950-FDZ-02102
	950-XZ-03102
	950-FDZ-03101
	950-MFA-03102
3	950-FDZ-03103
	950-XZ-03101
	950-FDZ-02104
	950-MFA-03101

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-HD-40079**

REV.:	DATE:	SIGNATURE:
2_F	12/12/24	C.Pilato

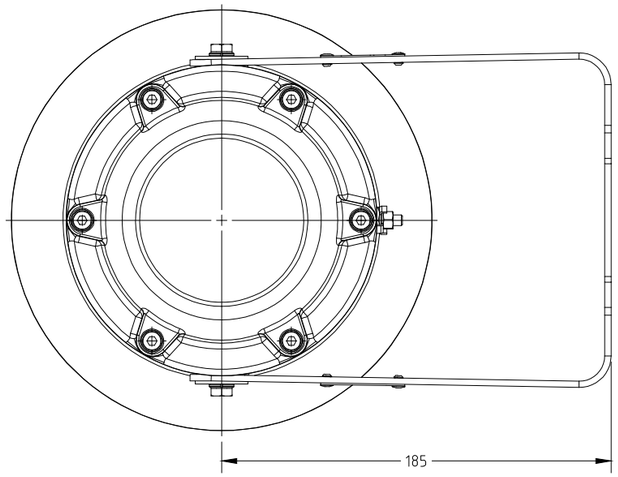
ROSETTI MARINO SpA

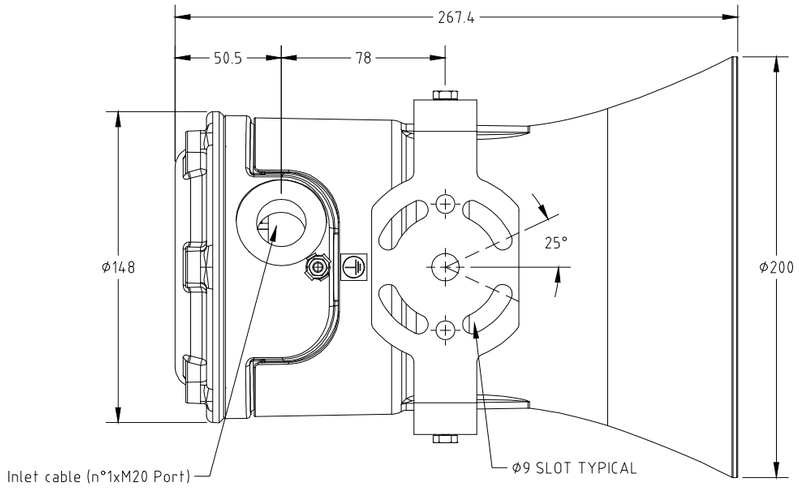
NOTE: Mechanical support is only indicative in this drawing, for real mehanical support refer to Instrument Installation Details doc. n. 123A90-DDL-IN-DD-40017 - Instrument Installation Details

POS.	NORM/STD CODE	DESCRIPTION	SIZE/ CONNECTION TYPE	Q.TY
12		Cover for cable tray, FRP, Grey Color	50 W x 10 H x 5 THK	3 mt
11		Perforated cable tray, FRP, Grey Color	50 W x 50 H x 5 THK	3 mt
16		Nickel Plated Brass Plug Ex-d/e IIC (or IIB + H2) T1	M25	2
2		Nickel Plated Brass Double Compression Cable Gland Ex-d/e IIC (or IIB + H2) T1	M20	4

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SOUNDER





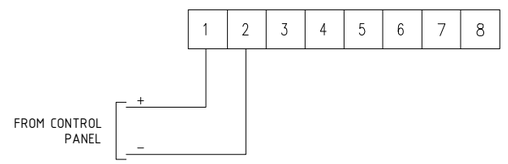
ITEM	DESCRIPTIONS	NR
1	Sounder, MEDC DM3BMSD048DT1BNR	1
2		
3		
4		
5		
6		
7		
8		
9		
10		

INSTALLATION QUANTITY

17

NOTE:
DUTY LABEL: EMERGENCY SHUTDOWN ALARM

WIRING



FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 023

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

SOUNDER – TAG

POS.	TAG NUMBER
1	950-XZ-01101
2	950-XZ-01102
3	950-XZ-02101
4	950-XZ-03101
5	950-XZ-03102
6	950-XZ-04101
7	950-XZ-04102
8	950-XZ-04201
9	950-XZ-04202
10	950-XZ-04203
11	950-XZ-05101
12	950-XZ-05102
13	950-XZ-05103
14	950-XZ-05104
15	950-XZ-06101
16	950-XZ-06201
17	950-XZ-07101

FORES ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	10/10/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/09/24	DB	MO	SM	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	DB	MO	SM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
GENERAL ARRANGEMENT
SOUNDER – TAG

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000821-IN-DA-00003

SHEET 024

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000821-IN-DA-00003 Rev. 02

SOUNDER

POS.	TAG NUMBER	SERVICE	DUTY LABEL
1	950-XZ-01101	FZ-01 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
2	950-XZ-01102	FZ-01 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
3	950-XZ-02101	FZ-02 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
4	950-XZ-03101	FZ-03 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
5	950-XZ-03102	FZ-03 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
6	950-XZ-04101	FZ-04 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
7	950-XZ-04102	FZ-04 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
8	950-XZ-04201	FZ-04 SOUNDER ACT. - B-400 INDOOR	EMERGENCY SHUTDOWN ALARM
9	950-XZ-04202	FZ-04 SOUNDER ACT. - B-300 INDOOR	EMERGENCY SHUTDOWN ALARM
10	950-XZ-04203	FZ-04 SOUNDER ACT. - B-200 INDOOR	EMERGENCY SHUTDOWN ALARM
11	950-XZ-05101	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
12	950-XZ-05102	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
13	950-XZ-05103	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
14	950-XZ-05104	FZ-05 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
15	950-XZ-06101	FZ-06 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM
16	950-XZ-06201	FZ-06 SOUNDER ACT. - B-100 INDOOR	EMERGENCY SHUTDOWN ALARM
17	950-XZ-07101	FZ-07 SOUNDER ACTIVATION	EMERGENCY SHUTDOWN ALARM

File: 1724000821-IN-DS-00004-02.xlsx
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DB3BM sounders range up to 116dB

Ex d, weatherproof



Overview

The DB3BM is a high power explosion proof sounder, introduced as a replacement for the current DB1 / DB1H with improved functionality and performance. Certified for use in a wide range of temperatures from -60°C to +85°C the Ex enclosure is manufactured in either marine grade alloy or stainless steel with a rugged thermoplastic flare providing a corrosion free and aesthetically pleasing product.

Capable of producing 116 dB @ 1m and with a range of pre-recorded tones, the DB3BM includes an integral volume control which is ideal when a lower output is required.

The unit is provided with versatile control options allowing compatibility with a wide range of control methods and PLCs.

The standard DC unit provides 3 tone stages, each stage has 28 tones available which can be independently selected. The unit can be controlled by reversing the polarity of the power supply (2 stage) or providing a common negative and switching between multiple positive supplies.

The DB3BM proves its versatility by additionally being able to work with a common positive supply and switching the negatives. The tone stages of the DB3BM can also be controlled via voltage free contacts provided by a control panel.

The flexibility of the range continues with a wide range of supply voltages. The short flare option is a worthy addition to the range offering a high SPL in a compact unit.

Features

- UKEX / ATEX / IECEx
  Ex db IIC T4/T5/T6 Gb
  Ex tb IIIC T4/T5/T6 Db
- Certified temperature: –60°C to +85°C
- IP66 & IP67 (terminal only)
- Up to 116 dB output @ 1 m
- Integral volume control
- 28 tones, user selectable
- 3 stage unit remotely switchable
- Tones can be programmed to customer's specification
- DC supply voltage between 12 V and 48 V
- End of line resistor option
- Sounder & beacon combination units available, for further details contact MEDC
- Ex enclosure – marine grade alloy or stainless steel
- Flare - high impact thermoplastic polyester
- Stainless steel mounting bracket and cover screws
- Mounting bracket has ratchet facility as standard
- Swivel bracket standard on Stainless steel unit, optional on Alloy units



Stainless steel body, short flare version

ATEX IECEx UKCA

Eaton
Unit B, Sutton Parkway
Oddicroft Lane
Sutton in Ashfield
United Kingdom
NG17 5FB

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Powering Business Worldwide

All specifications, dimensions, weights and tolerances are nominal (typical) and Eaton reserve the right to vary all data without prior notice.
No liability is accepted for any consequence of use.

Certifications

ATEX Ex db	Cert. no. UL 21 ATEX02559X. Certified to: EN IEC 60079-0, EN 60079-1, 31 Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db, IP66 (IP65 short flare)
IECEx Ex db	Cert. no. IECEx ULD 21.0017X. Certified to: IEC60079-0,1,31 Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db, IP66 (IP65 short flare)
UKEX Ex db	Cert. no. UL21UKEX2209X. Certified to: EN IEC 60079-0, EN 60079-1, 31 Ex II 2GD, Ex db IIC T3/T4/T5/T6 Gb, Ex tb IIIC T200°C/T135°C/T100°C/T85°C Db IP66 (IP65 short flare)
Safe Area	EN 61010-1, EN 60529, EN61000-6

Specifications

Material	Ex enclosure – marine grade alloy or stainless steel Flare - flame retardant, high impact, UV stable, thermoplastic polyester (UV stability tested to ISO 4892 part 3) Hardware - bracket, fixings and captive cover screws in 316 stainless steel
Fire retardancy	Outer flare - thermoplastic polyester. V0 flammability rating
Finish	Body – alloy: painted black. Stainless steel: painted black. Flare - natural black, natural red or painted as specified
Voltage	DC: 12 - 48 V. AC: Up to 254 V. if using EOL resistor/s the maximum power dissipation must be limited to 3 W.
Weight	Alloy - 4.4 kg, stainless steel 8.35 kg based on long flare DC unit
Ingress protection	IP66 & IP67 (terminal only). IP65 short flare
Entries	Up to 2 x M20 or M25 or ½"or ¾" NPT. Blanking plug available
Terminals	AC: 4 x 1.5mm² (loop in / out power), 3 x 2.5mm² (tone selection) (standard unit only) DC: 8 x 2.5mm² (8 for loop in / out power and tone selection) (standard unit only)
Mounting arrangement	Stainless steel bracket with ratchet facility, optional swivel bracket available. Swivel standard on stainless steel unit
Labels	Optional duty and tag labels available
Tone information	28 tones per stage. Additional custom tones available (contact MEDC) Suitable for use with 200 Hz tones
Relative Humidity	99% Non-condensing

Tone activation and selection

Voltage	Unit	No.of stages	Tone activation	Tone selection
DC	Standard	1	Apply power	1 x DIP switch
		2	Reverse polarity	2 x DIP switches
			Common -ve with 2 +ve supplies	2 x DIP switches
			*Common +ve with 2 -ve supplies	2 x DIP switches
		3	Common -ve with 3 +ve supplies	3 x DIP switches
	Alternative tone activation (Option M)	2	*Common -ve with 2 +ve supplies	2 x DIP switches
		3	Common +ve with 3 -ve supplies	3 x DIP switches
	Alternative tone activation (remote) (Option R)	1-5	Volt free activation (remote switching)	1 x DIP switch for stage 1. Tone pre-selected for subsequent stages
AC	Standard	1	Apply power	1 x DIP switch
	Alternative tone activation (remote) (Option R)	1-2	Volt free activation (remote switching)	1 x DIP switch for stage 1. Tone preselected for the 2nd stage

*Reverse polarity line monitoring can be used with common positive or negative switching to give up to 2 operational stages and a 3rd monitoring connection. An EOL resistor can be fitted as shown in the technical manual. All connection details are shown in the technical manual.

Current consumption: Based on a continuous 970Hz tone

Voltage	Current for IIC unit	Current for IIIC unit
12 Vdc	700 mA	716 mA
24 Vdc	329 mA	339 mA
48 Vdc	171 mA	173 mA
110 Vac	115 mA	122 mA
120 Vac	106 mA	113 mA
220 Vac	59 mA	63 mA
230 Vac	52 mA	55 mA
240 Vac	55 mA	58 mA
254 Vac	59 mA	63 mA

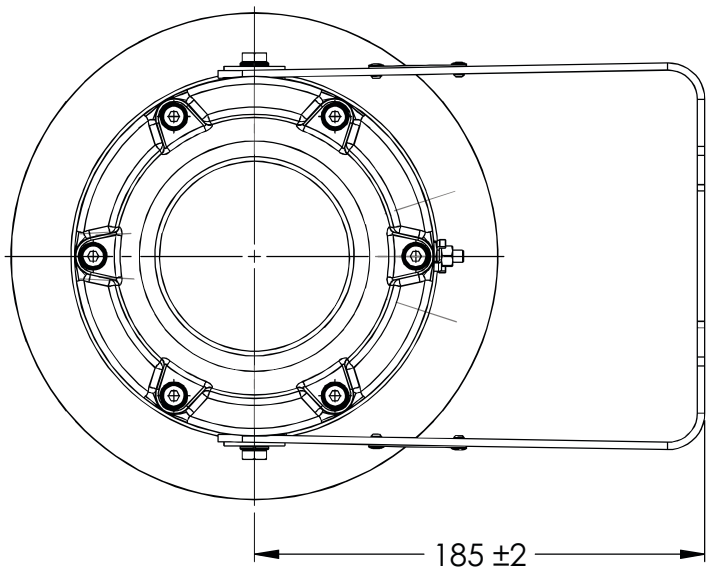
Certified temperature	Ex d/UL min	Max
	-60°C	+85°C

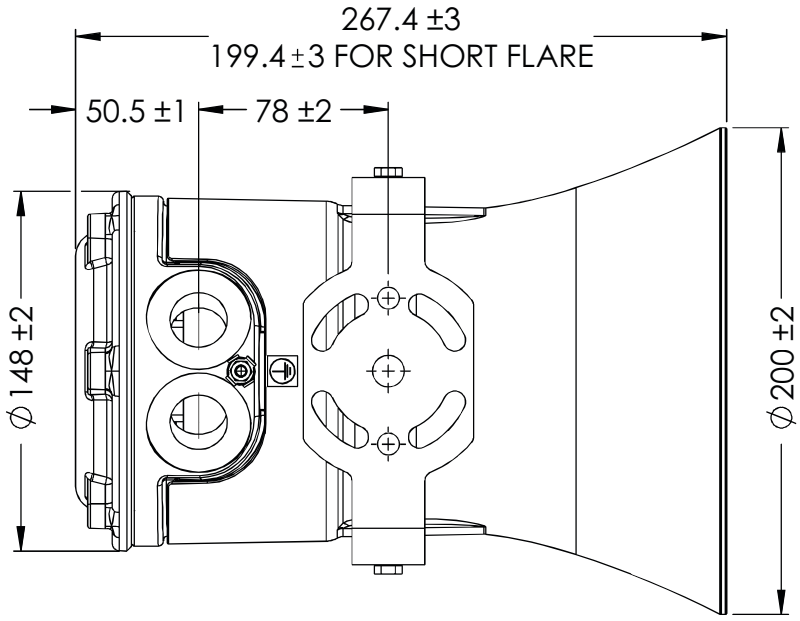
Operating temperature at launch (DC Only): -40 °C min +85 °C max
-55 °C as standard to follow. Please contact MEDC for low temperature options

Max output (dB) 1400Hz @ 1m	Short Flare	Long Flare
	113 dB	116 dB

For Labels and Entries select any option as required. For Options select either (N) None or (E) EOL as required
Tolerance +/-3dB. Please see the technical manual for tone specific SPL values

General arrangement drawing (all dimensions in mm)





Ordering requirements

The following code is designed to help in selection of the correct unit. Build up the reference number by inserting the code for each component into the appropriate box

Model

DB3BM

Material

S

Finish	Code
Alloy	A
Stainless Steel	S

Ex Certification

D

Ex Certification	Code
UKEX/ATEX Ex d	D
IECEx Ex d	J
Weatherproof	W

Voltage

048

Voltage	Code
12-48 Vdc	048‡
110 Vac	110
120 Vac	120*
220 Vac	220
230 Vac	230
240 Vac	240*
254 Vac	254

*Complies with UL regulated power supply requirements

Labels

DT

Labels	Code
None	N
Duty	D*
Tag	T*

*Please specify

Entries

1B

Entries	Code
1 x M20	1B
2 x M20	2B
2 x M20 inc 1 x plug	2BP
1 x ½"NPT	1C
2 x ½" NPT	2C
2 x ½" NPT inc 1 x plug	2CP
1 x M25	1D
2 x M25	2D
2 x M25 inc 1x plug	2DP
1 x ¾" NPT	1E
2 x ¾" NPT	2E
2 x ¾" NPT inc 1x plug	2EP

Options

N

Options	Code
None	N
Swivel bracket	B‡
EOL	E*
Alternative tone activation	M**
Volt free activation (remote)	R**
Short flare	S
Custom tones (not std 27)	TΔ

‡ Alloy only - stainless steel has swivel as standard
*Specify value max power dissipation is 3W
**These options cannot be selected together
ΔSpecify details

Finish

R (RAL 3020)

Finish	Code
Natural black	N
Natural red	R
Yellow	Y
Grey	G
Blue	B
Special	S*

*Please specify

Section 7 MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE

NOT APPLICABLE

Section 8 MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE

NOT APPLICABLE

Section 9 MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE

NOT APPLICABLE

Section 10 MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE

NOT APPLICABLE

Section 11 MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE

NOT APPLICABLE

Section 12 FAT / VENDOR REPORTS

NOT APPLICABLE

Section 13 MECHANICAL COMPLETION CHANGES / MARK-UPS

NOT APPLICABLE