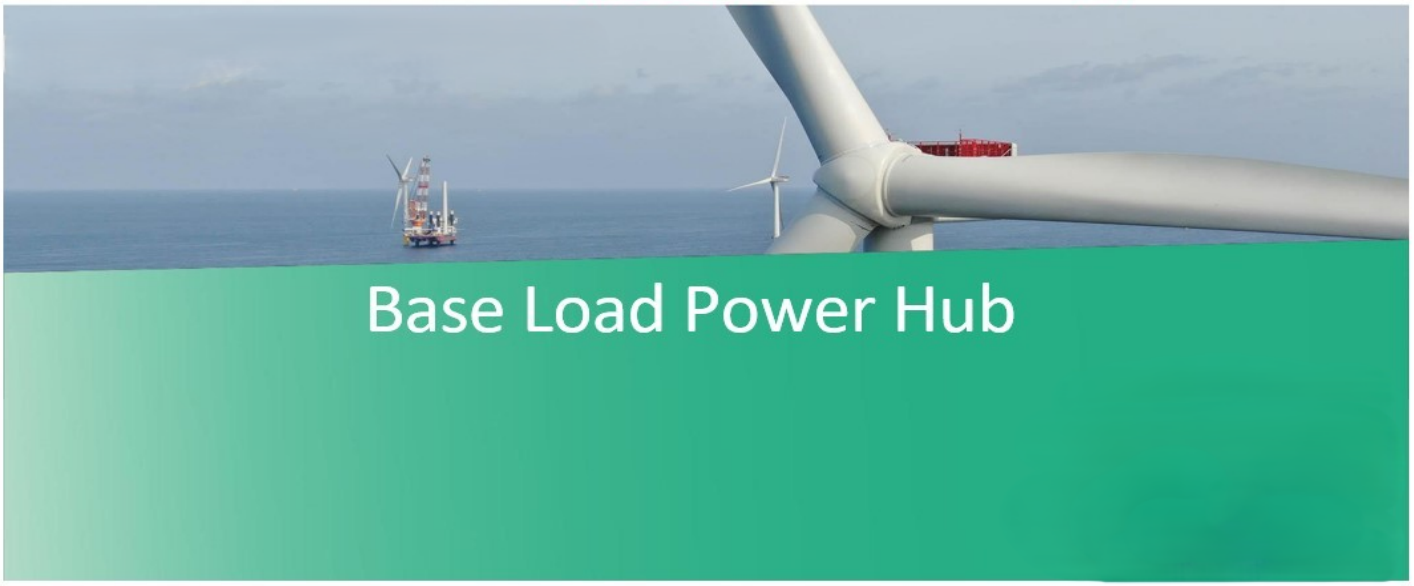
CROSSWIND

ROSETTI MARINO

PROVERUS

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



COMMISSIONING 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

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

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

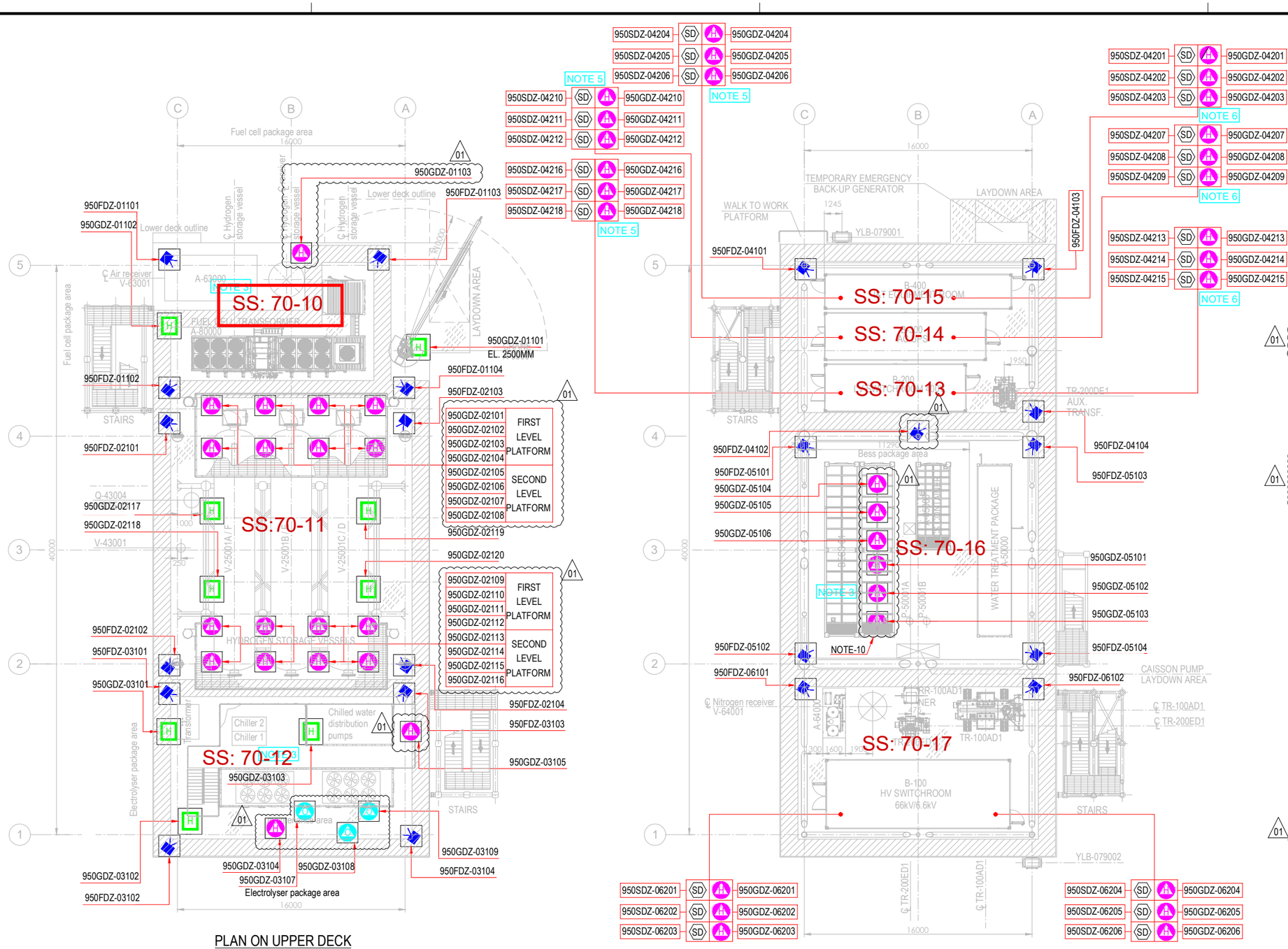
1. *SUB-SYSTEM DEFINITION*	OK
1.1 Sub-System Description / Boundary Limit Drawings	
2. *READY FOR OPERATION CERTIFICATE*	OK
2.1 Achievement Of Ready for Operation Certificate (RFO)	
2.2 Exception Punch Lists (per discipline)	
2.3 “As-Commissioned” P&ID’s / SLD’s / D&ID’s / C&E’s	
3. *CONSOLIDATED PUNCH LISTS*	OK
3.1 Cleared and Residual Items (sorted by discipline)	
4. *FUNCTIONAL TESTS SHEETS*	OK
4.1 Electrical functional test sheets index	
4.2 Electrical “As-Commissioned” interconnection diagrams	
4.3 Instrumentation Functional Test Sheets Index	
4.4 Instrumentation “As-Commissioned” interconnection diagrams	
4.5 Telecommunication Functional Test Sheets Index	
4.6 Telecommunication “As-Commissioned” I.C.D. / TSLD’s	
5. *SITE / OPERATIONAL:*	OK
5.1 Operational Test Procedure	
5.2 Operational Test Certificates	
6. *PIPING AND VESSEL PREPARATION*	NA
6.1 Final Mechanical / Vessel Inspection Checks Index	
6.2 Leak Test / Drying / Inerting Test Sheets Index	
6.3 Chemical Loading & First Fill records Index	
6.4 Chemical Cleaning Reports and Records Index	
6.5 Lubrication Schedule	
7. *VENDORS*	NA
7.1 Vendor Package Summary Index	
7.2 SAT Procedure with associated punch list and reference (Front Page)	
7.3 Vendor Spares & Special Tools lists references	
7.4 Vendor Data / Operations / Maintenance Manuals References	
8. *LIST OF MODIFICATIONS*	NA
8.1 List of changes initiated during the WORKSITE Commissioning phase pertaining to the relevant Sub-System will be incorporated in this section with relevant references (with location and position of blinds/spades, isolation LO & LC valves, list of electrical isolation status, and remaining inhibits and overrides)	
9. *SUPPORTING DOCUMENTS*	NA
9.1 Other supporting documents (as applicable)	

	Contractor Commissioning Site Leader	Company Commissioning Site Leader
Name	Anthony Iveson	Martin Taylor
Date	2025-04-25	2025-04-25
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-25T09:01:26.690Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-25T10:40:53.009Z

Section 1 SUB-SYSTEM DEFINITION

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

REV. 00



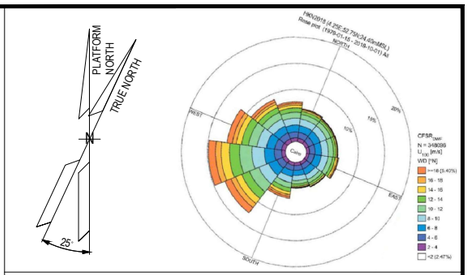
PLAN ON UPPER DECK
EL+30.310 T.O.S.

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

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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 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Operation (RFO) Certificate

COMPLETE	●	PARTIAL	

Revision:	1		Issued on:	2025-04-09	

System:	70	/	Safety and Facility Systems
SubSystem:	70-10	/	F&G Devices FZ-01 (Fuel Cell Area)

We hereby confirm that all Mechanical Completion (MC) and Pre-Commissioning/Commissioning (Pre-Comm./Comm.) activities for the above-mentioned System/Sub-System have been successfully completed in accordance with project specifications, relevant standards and contractual requirements. The System/Sub-System has been tested and verified to ensure readiness for operation. Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.

Mechanical Completion: All required MC activities have been completed and approved
Pre-Commissioning & Commissioning: All required Pre-Comm. and Comm. activities and OTPs have been completed and approved (Status Index attached)
Punch List: All Punch items categorized as A and B have been cleared (PL report attached)
Documentation: As-built documentation and Commissioning dossier has been completed, reviewed and approved

PUNCH LIST	PENDING POINTS
Note: All Category "A" and "B" Items must be cleared prior to issuance of the Ready For Operation (RFO) Certificate	B '0

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Martin Taylor
Date	2025-04-12	2025-04-24
Signature	Digitaly signed by Anthony Iveson 2025-04-12T12:34:21.829Z	Digitaly signed by Martin Taylor 2025-04-24T11:38:53.720Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & process: COMM

Instrumental	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	C10003154	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01102	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003153	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01103	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003152	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01104	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003151	FJ04F	100	2025-01-30	RFO 1
950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10003133	FJ04L	100	2025-02-11	RFO 1
950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10003132	FJ04L	100	2025-02-11	RFO 1
950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	ONSHORE	C10003131	FJ04G	100	2025-02-11	RFO 1
950-MFA-01101	FZ-01 MFA Activation	ONSHORE	C10004411	FJ04PB_FGS	100	2025-02-11	RFO 1
950-MFA-01102	FZ-01 MFA Activation	ONSHORE	C10004412	FJ04PB_FGS	100	2025-02-11	RFO 1
950-MFA-01103	FZ-01 MFA Activation	ONSHORE	C10004413	FJ04PB_FGS	100	2025-02-11	RFO 1
950-XL-01101	FZ-01 Gas Beacon Activation	ONSHORE	C10004436	FJ04FB	100	2025-01-30	RFO 1
950-XL-01102	FZ-01 Fire Beacon Activation	ONSHORE	C10004437	FJ04FB	100	2025-01-30	RFO 1
950-XZ-01101	FZ-01 Sounder Activation	ONSHORE	C10004460	FJ04MS	100	2025-02-11	RFO 1
950-XZ-01102	FZ-01 Sounder Activation	ONSHORE	C10004461	FJ04MS	100	2025-02-11	RFO 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	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

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	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

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
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

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
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

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
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

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
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

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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
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

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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	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

Section 2.2 Exception Punch Lists (per discipline)

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PUNCH LIST REPORT

NO DATA AVAILABLE

Section 2.3 “As-Commissioned” P&ID's / SLD's / D&ID's / C&E's

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

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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

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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
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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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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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

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	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

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:

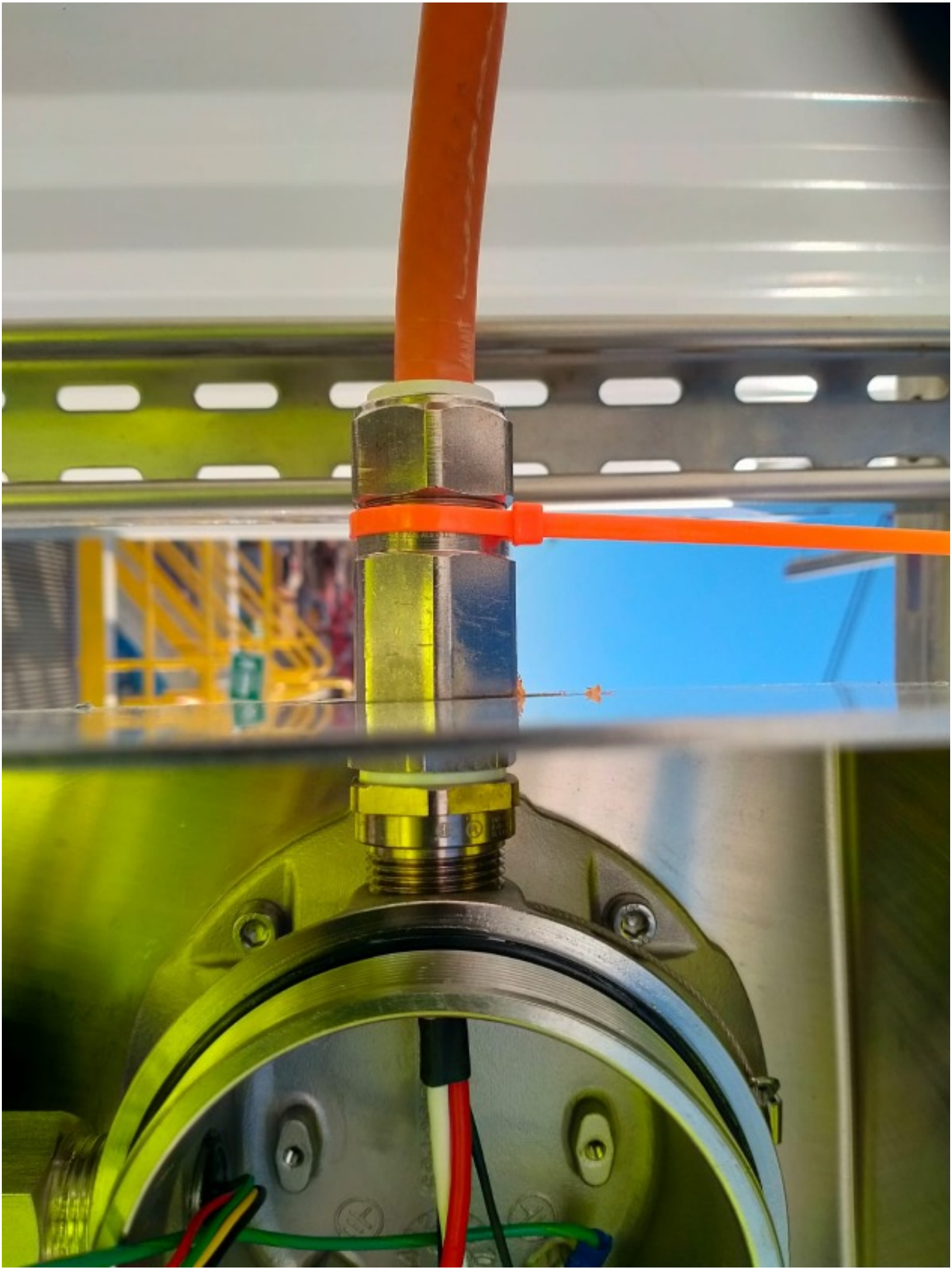
6- CLEARANCE APPROVAL

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

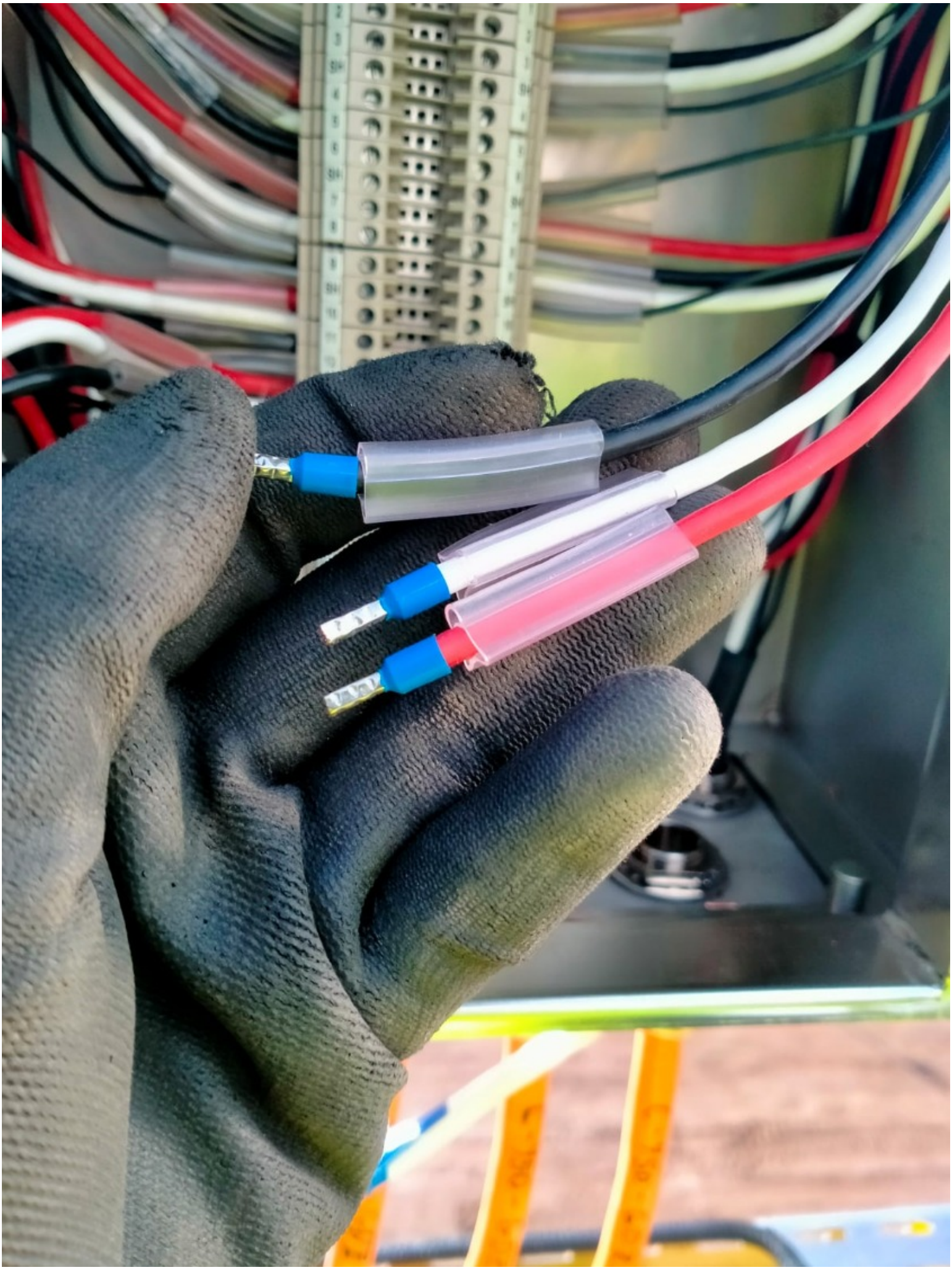
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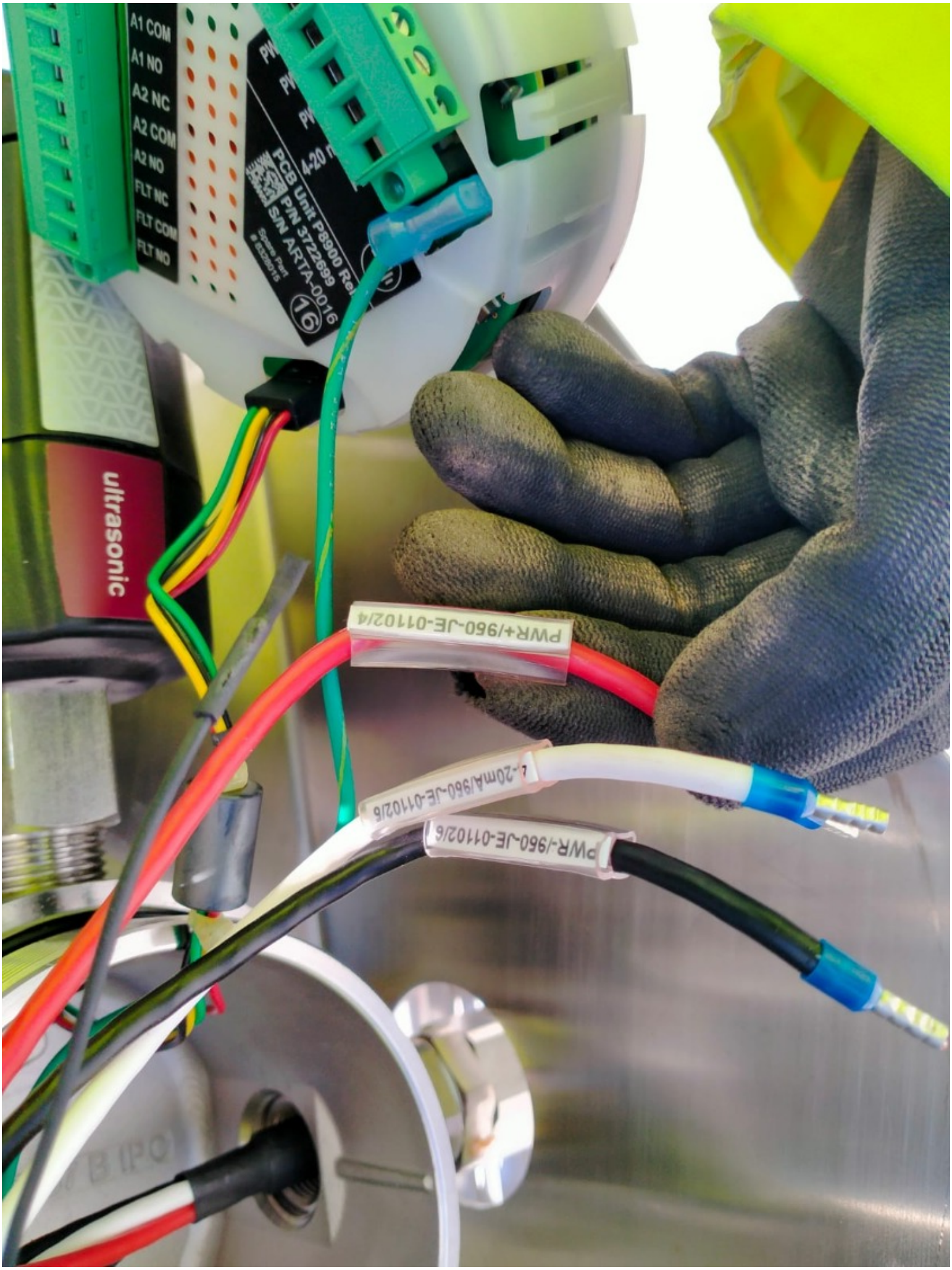
6- CLEARANCE APPROVAL

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

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

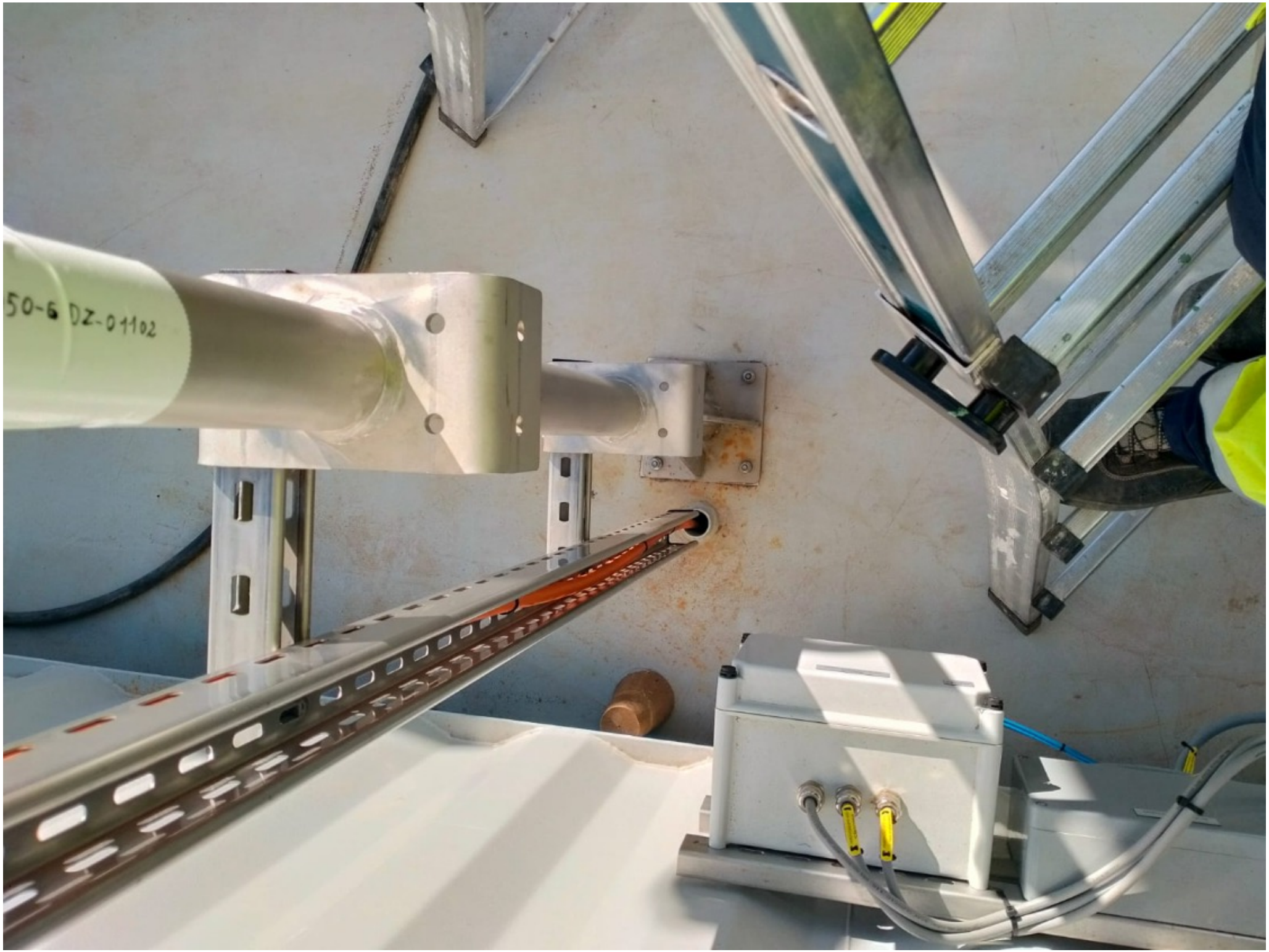
Signature:

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

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

.

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

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

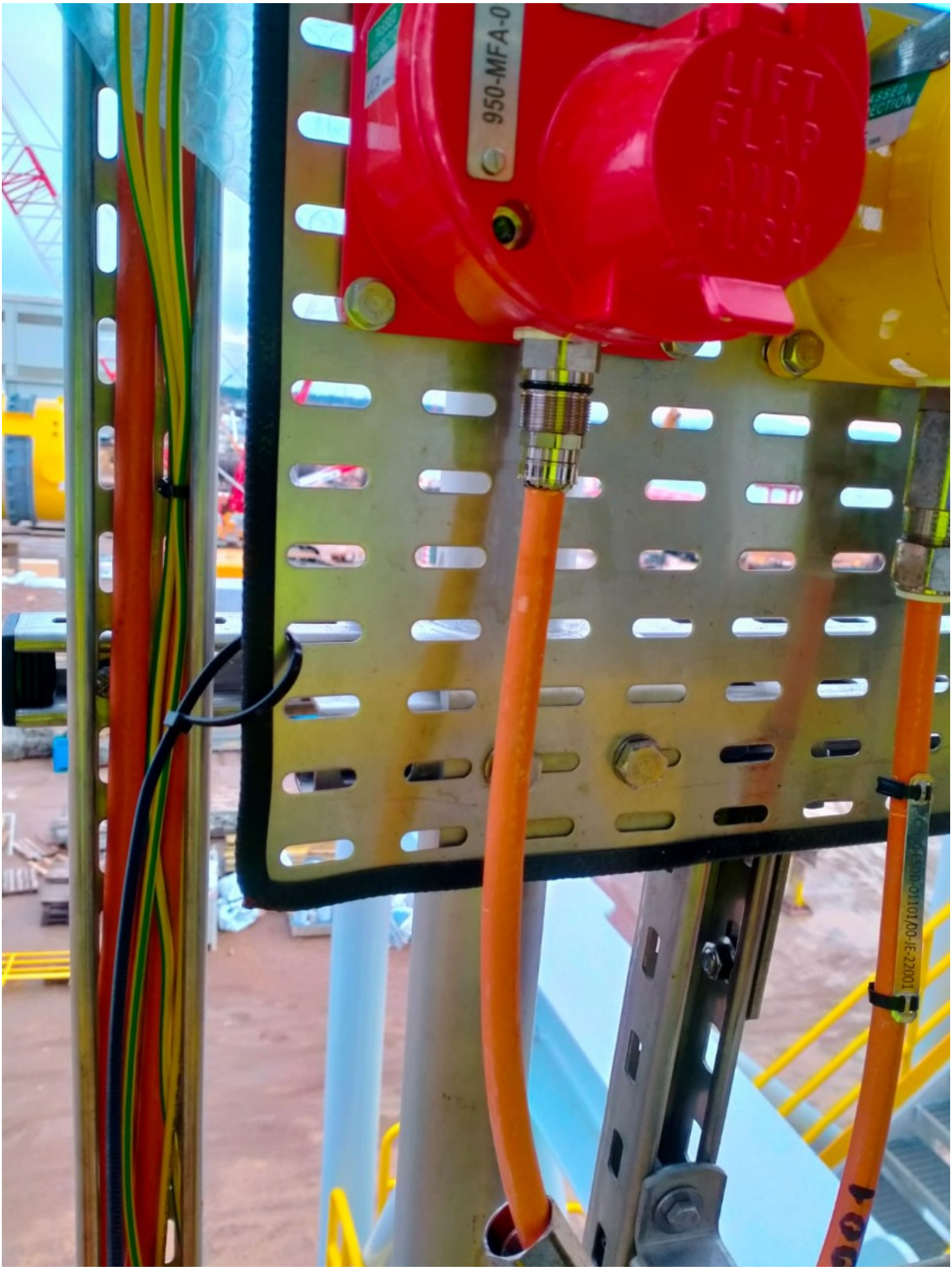
Signature:

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

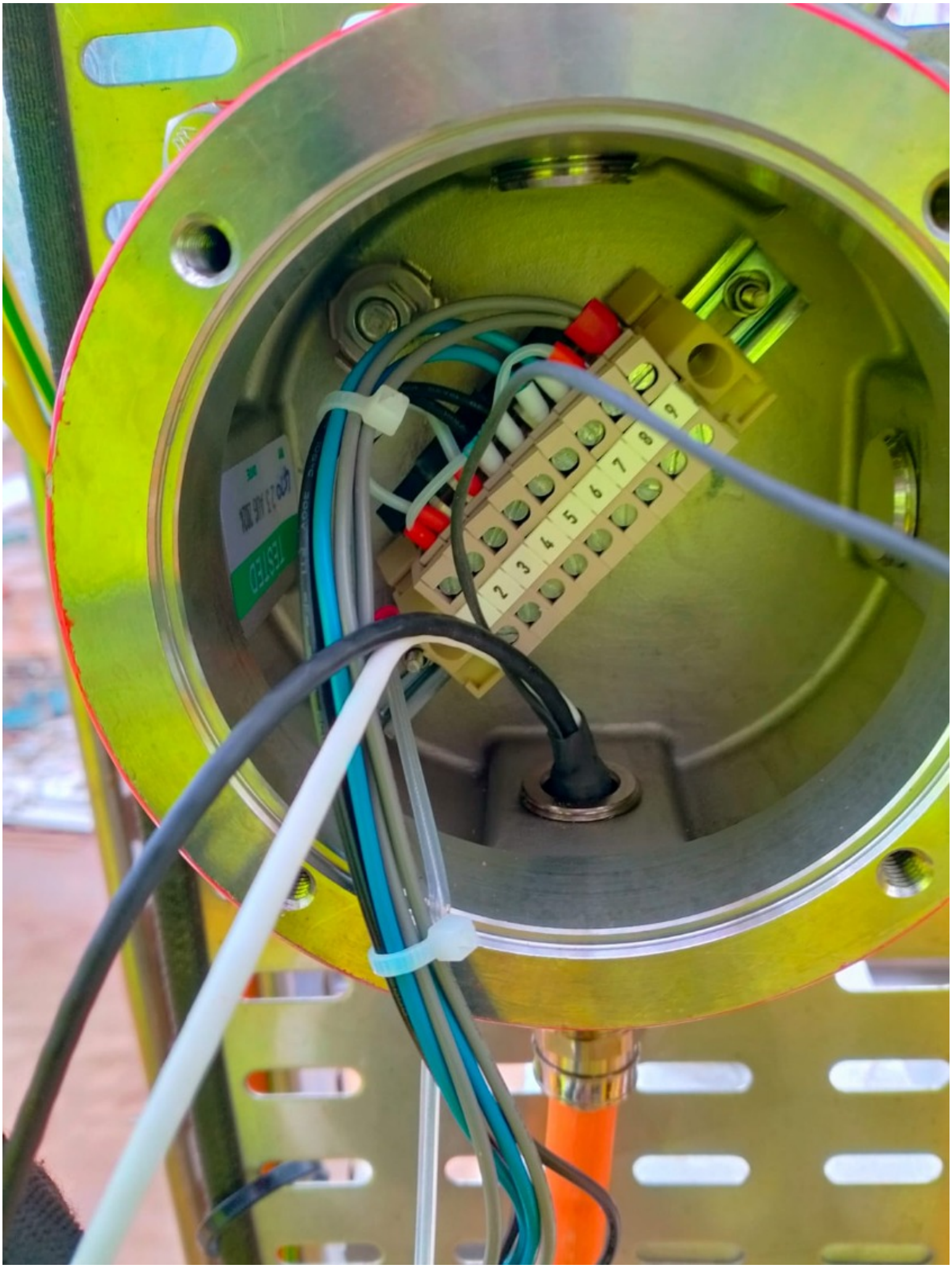
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


2
3
4
5
6
7
8

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

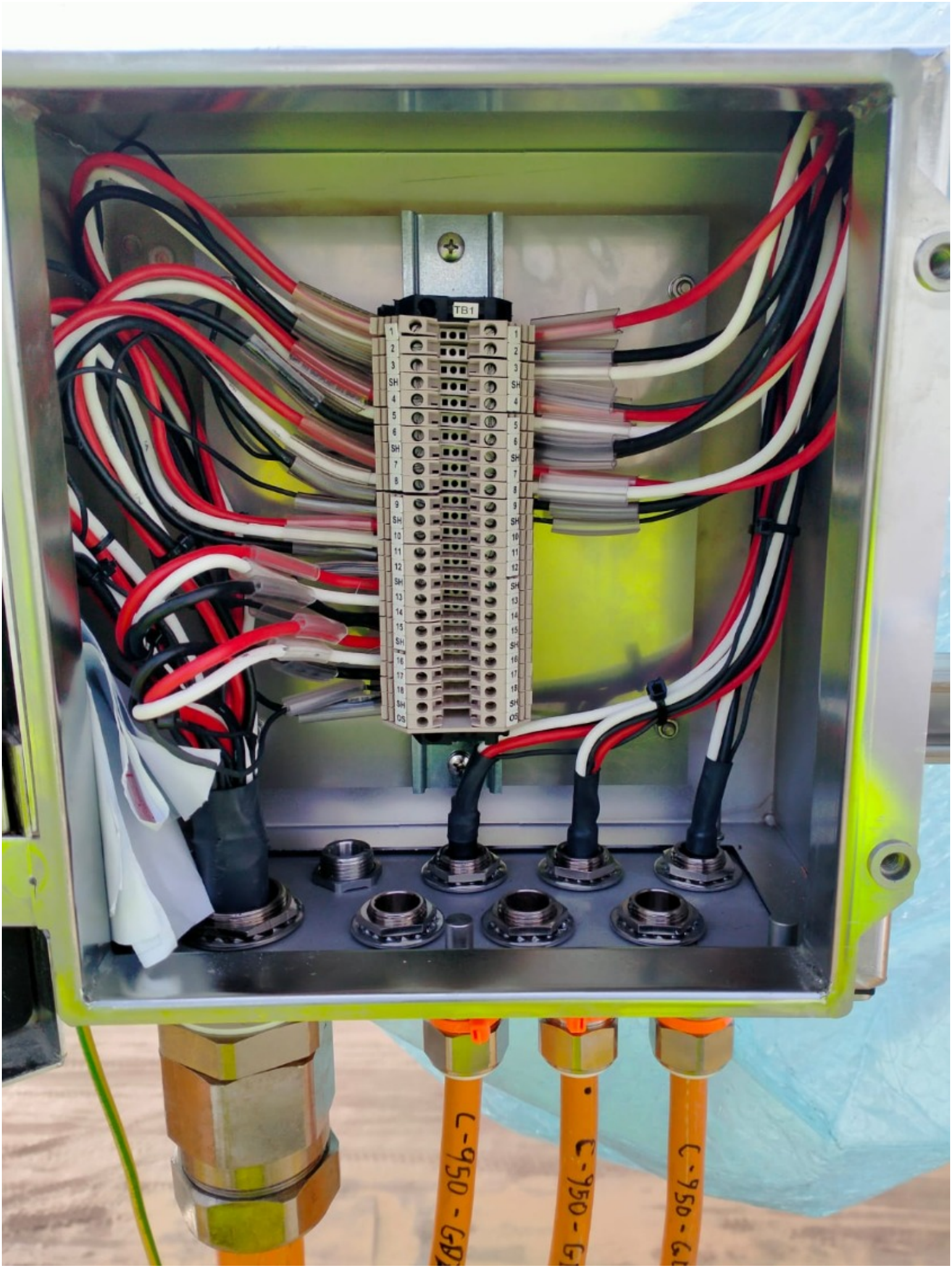
Signature:

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

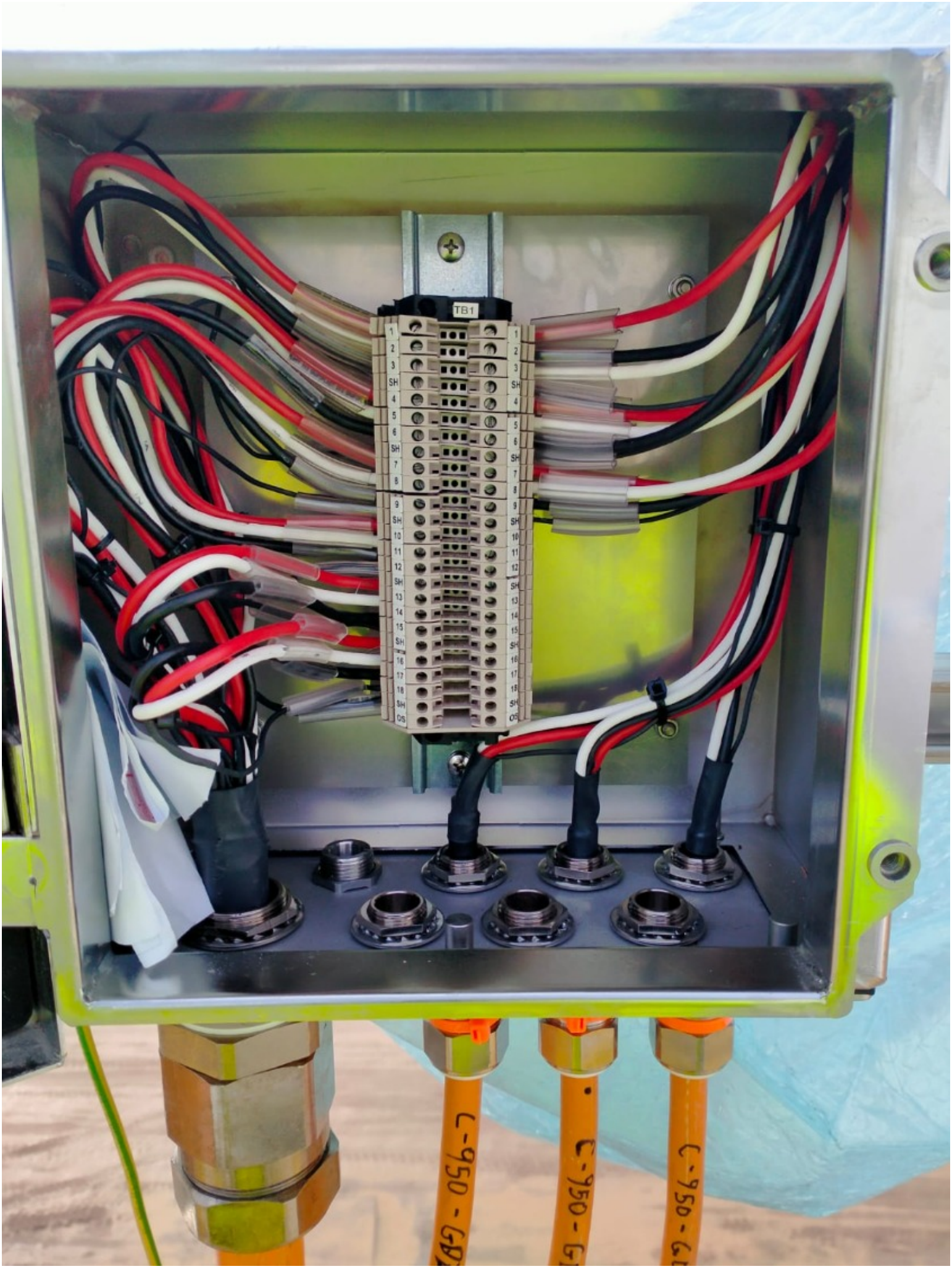
Signature:

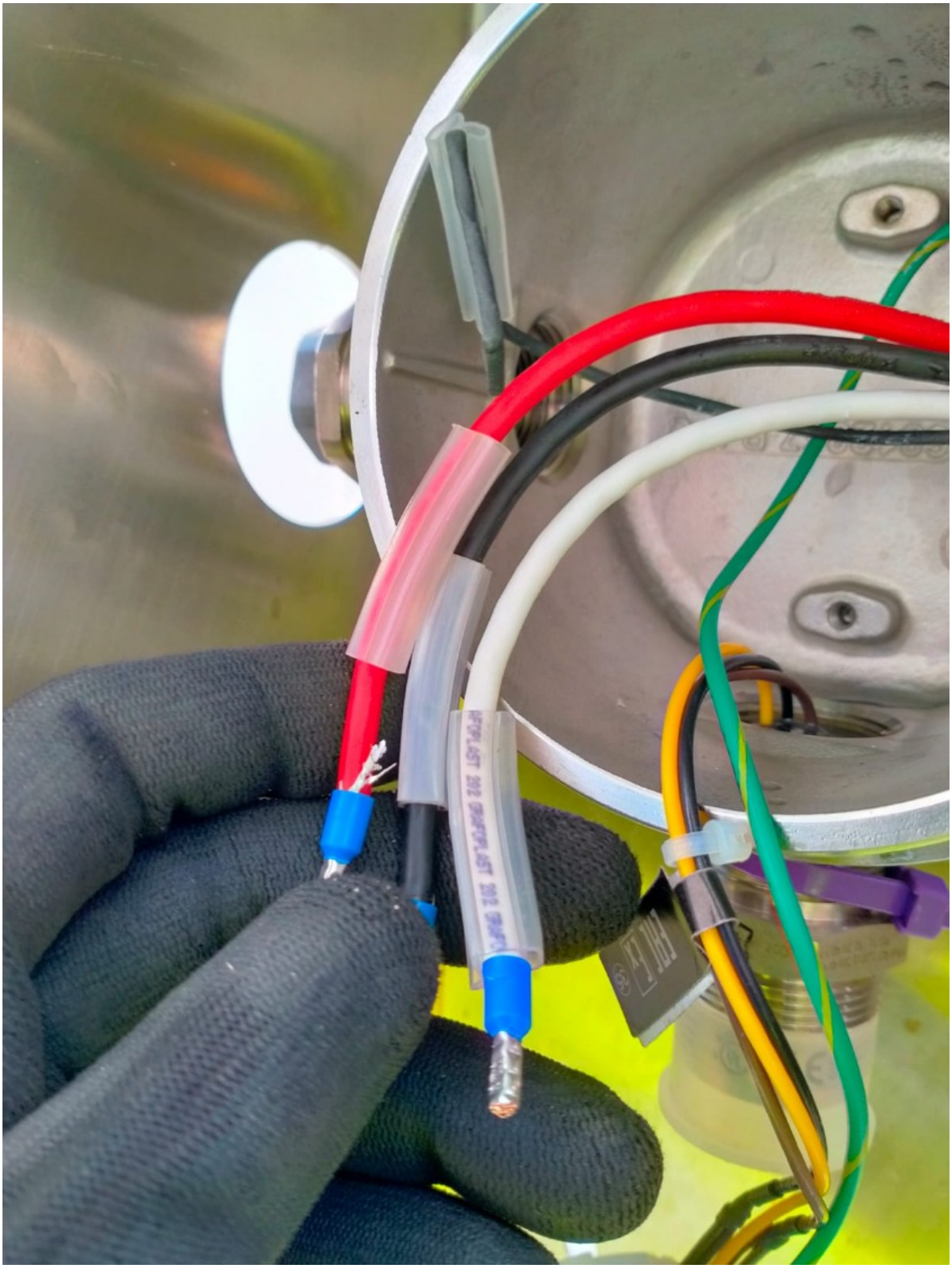
6- CLEARANCE APPROVAL

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

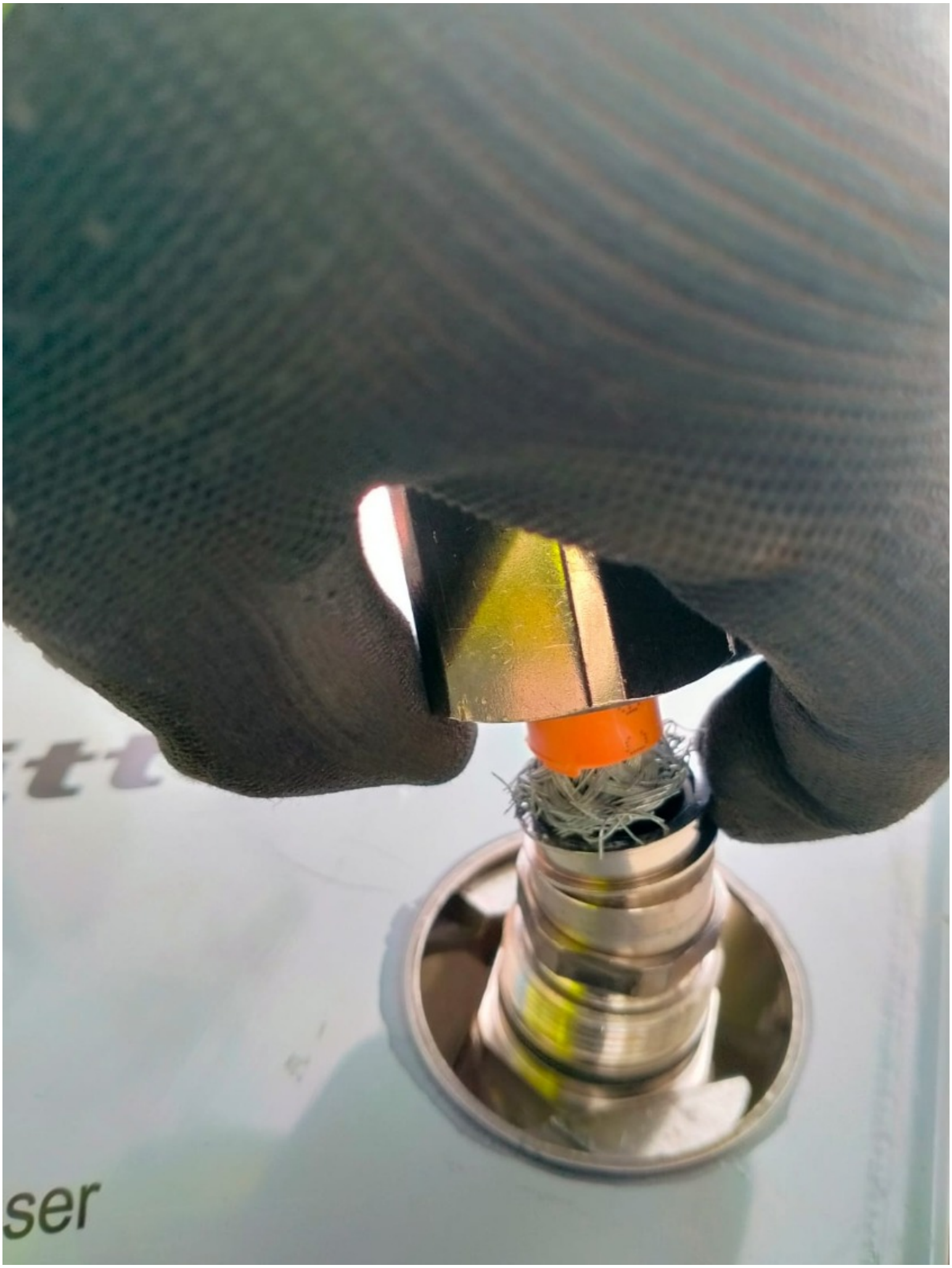
Done .

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:

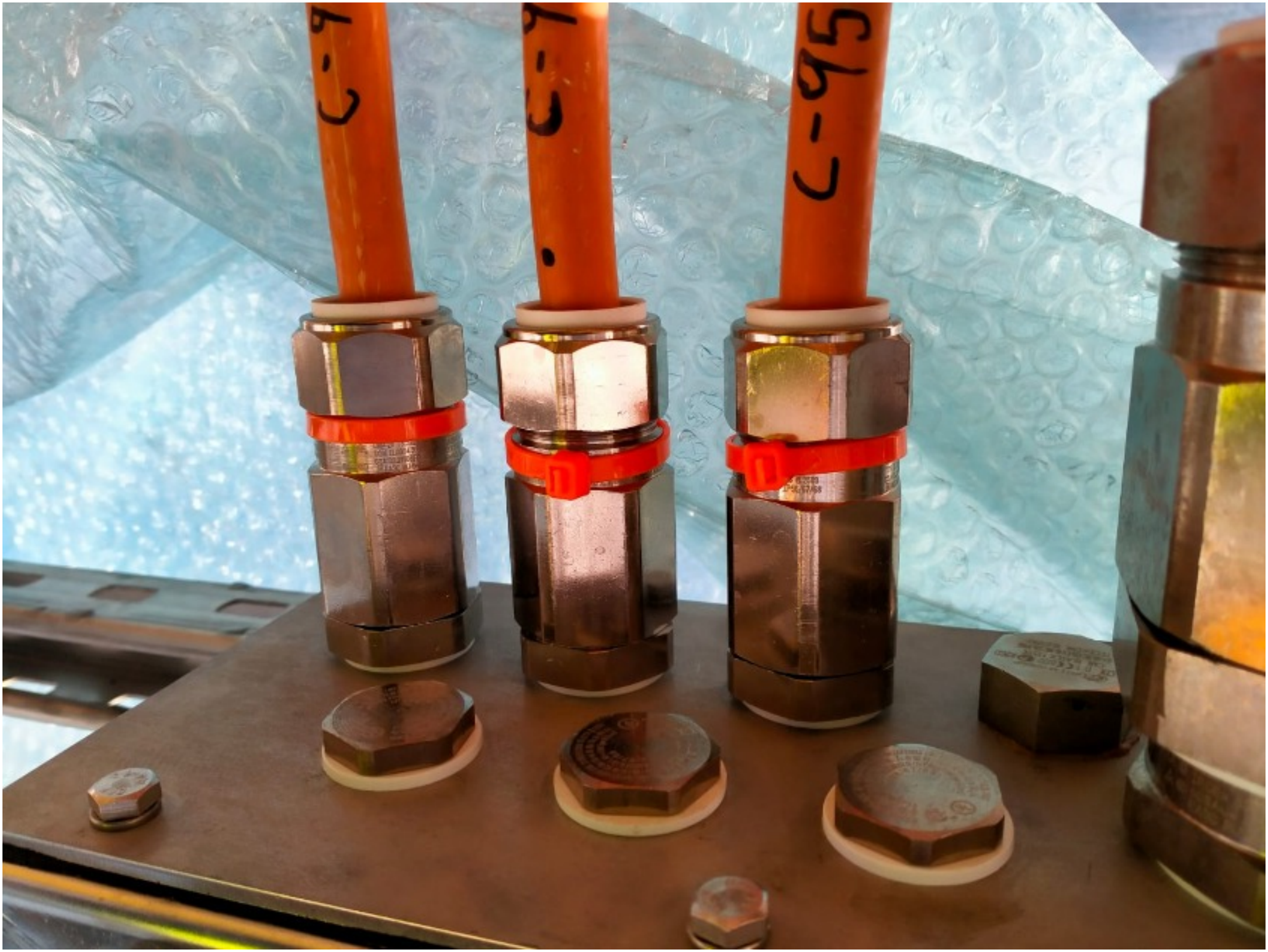
6- CLEARANCE APPROVAL

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:

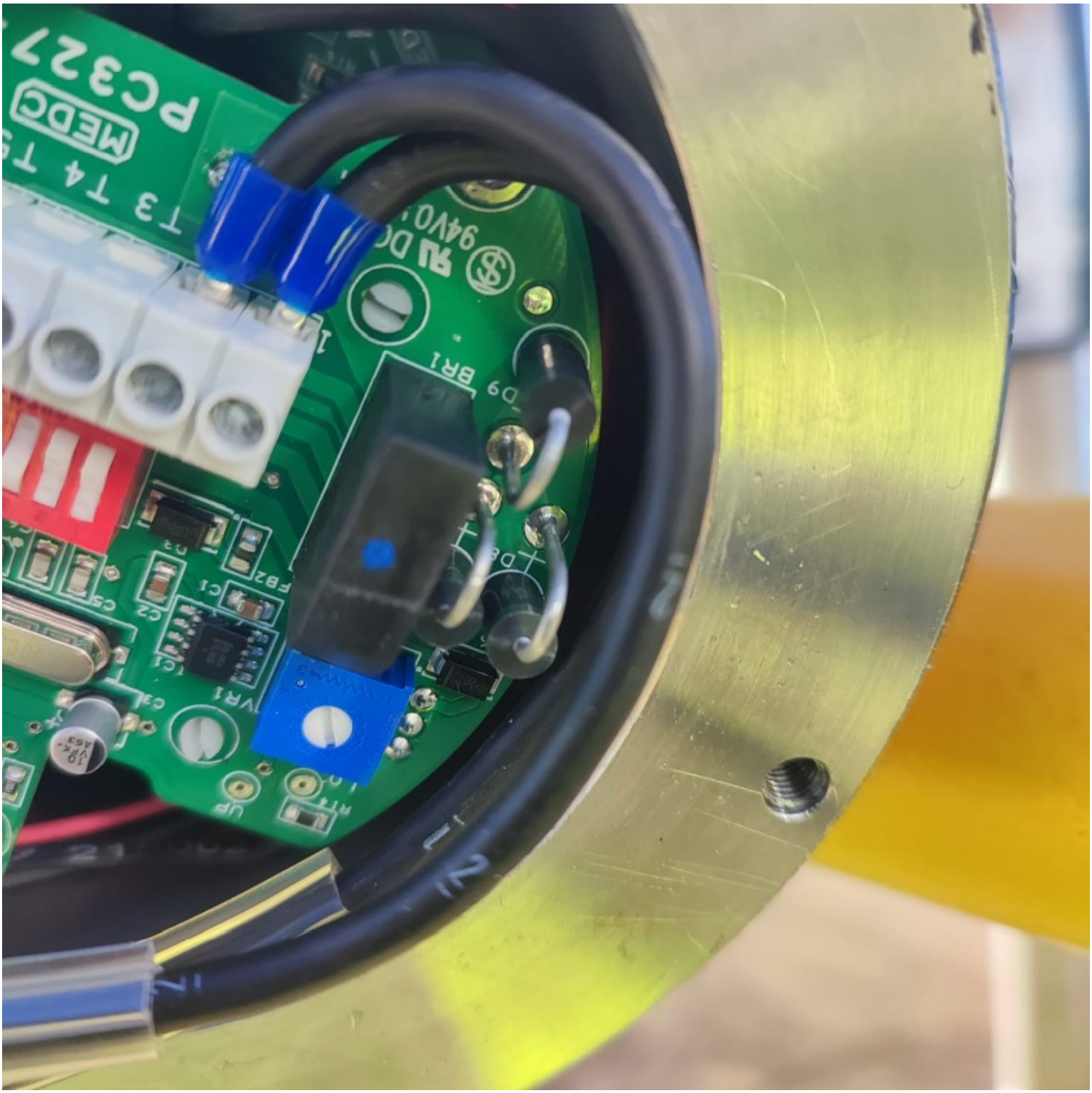
5 - CLEARANCE CHECK

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

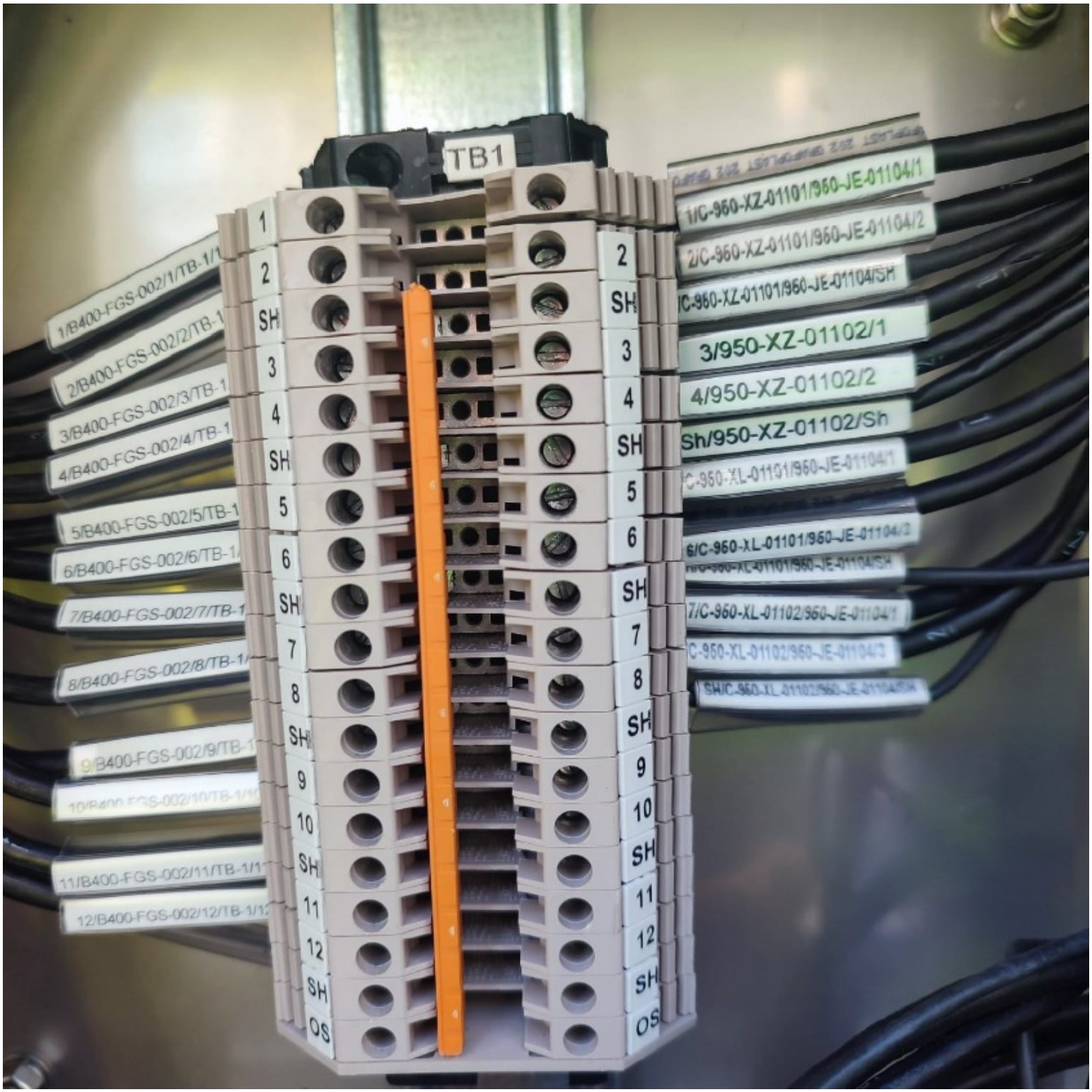
Signature:

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

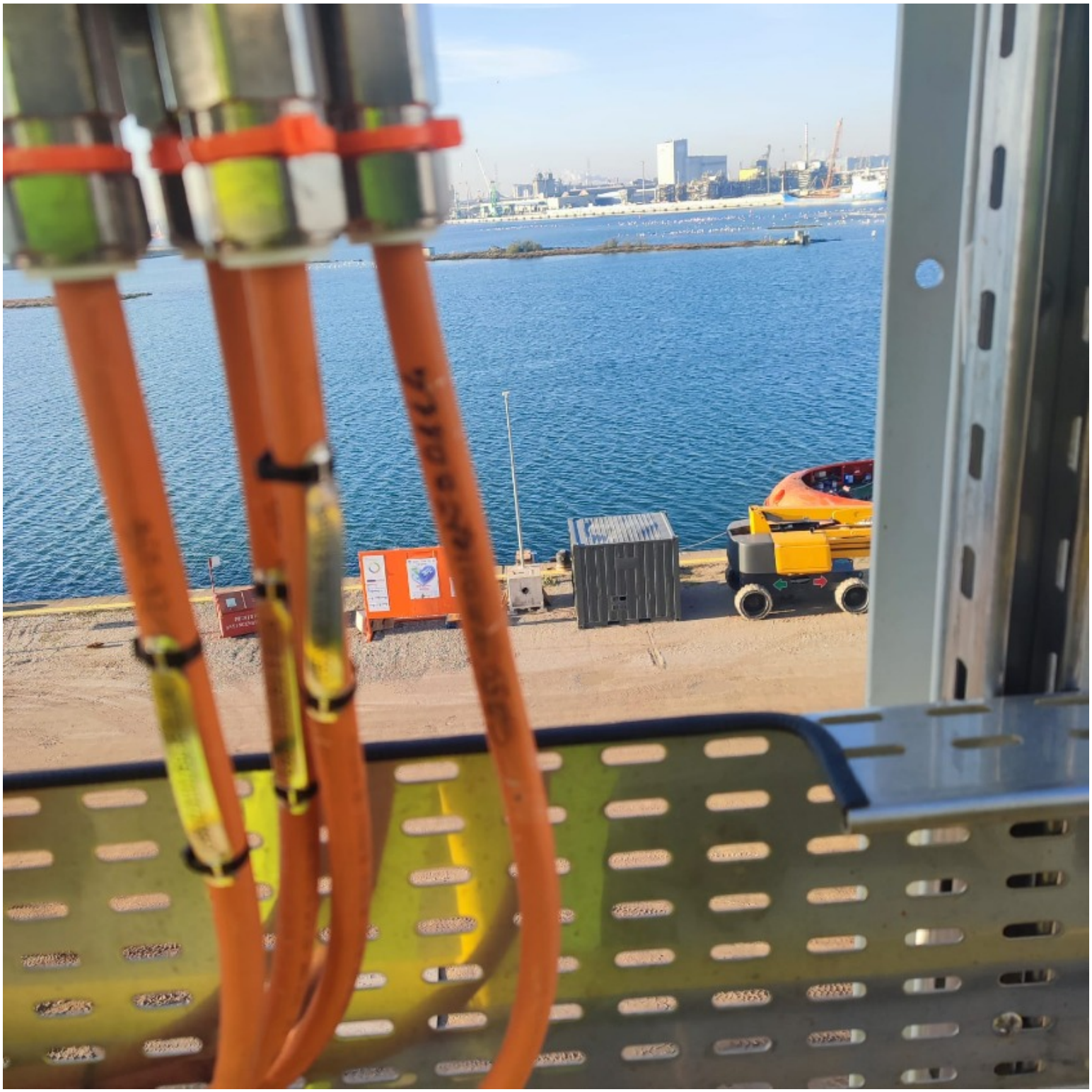
Signature

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

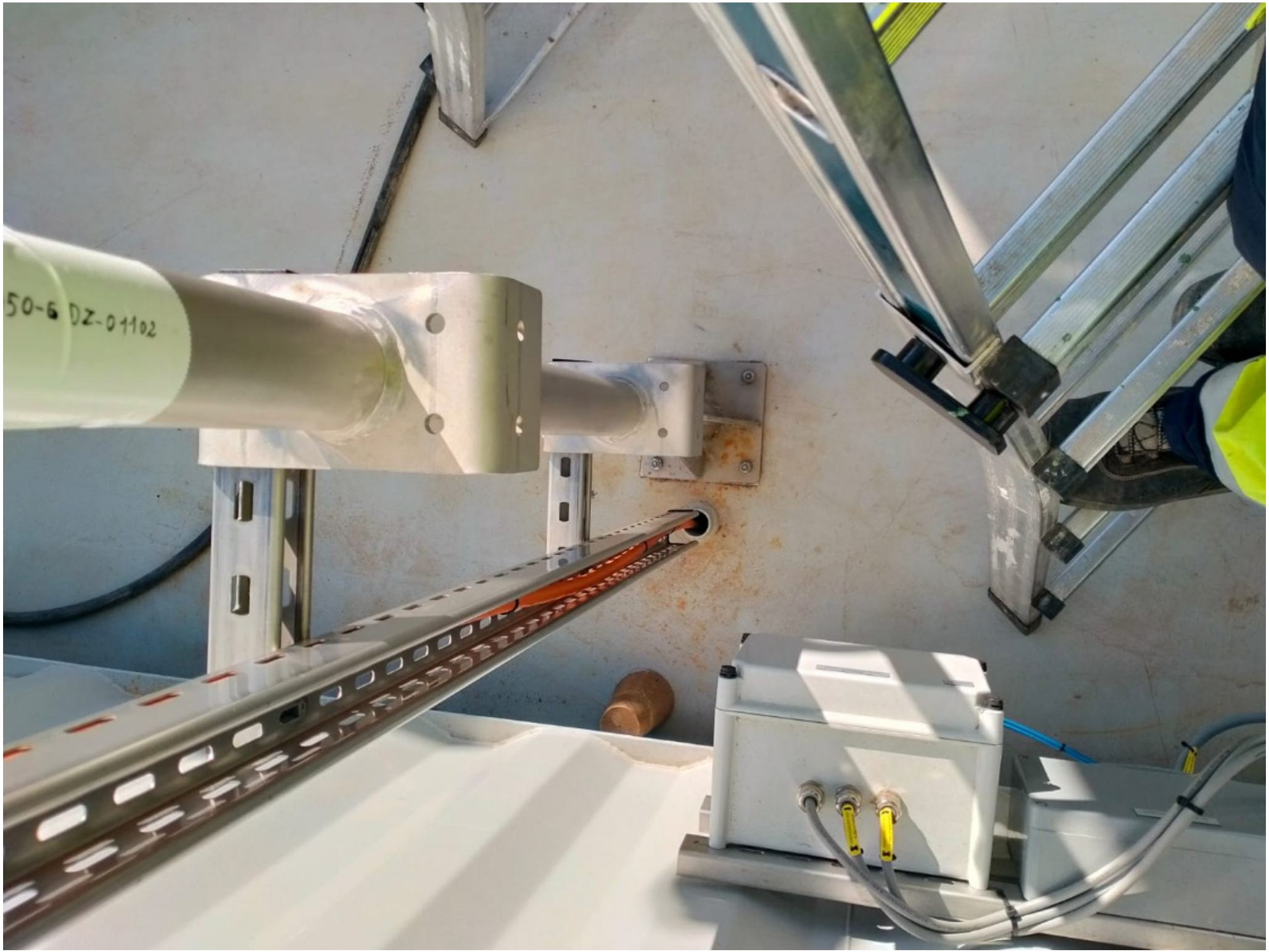
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


50-6 DZ-01102

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

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

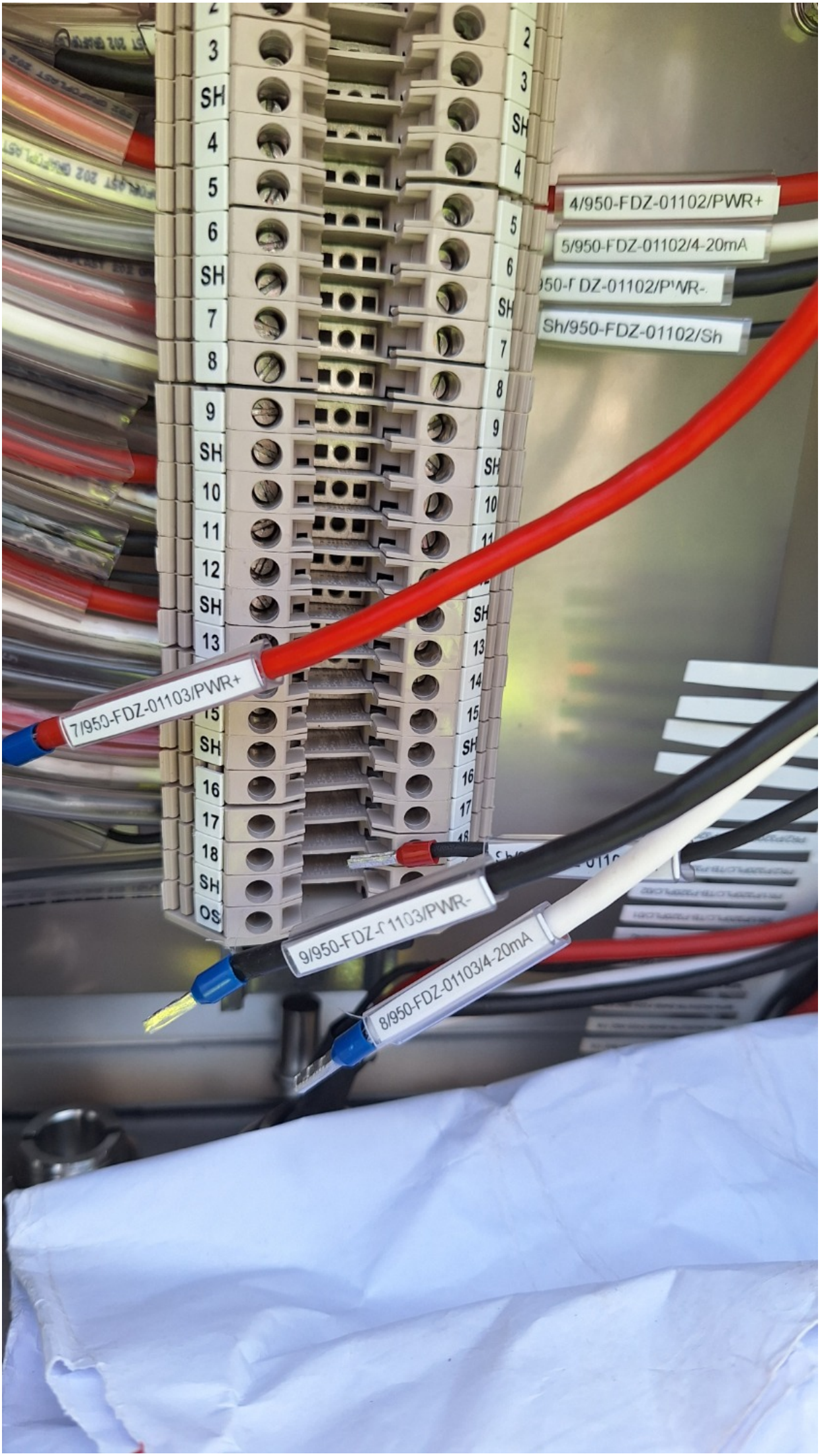
DONE

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

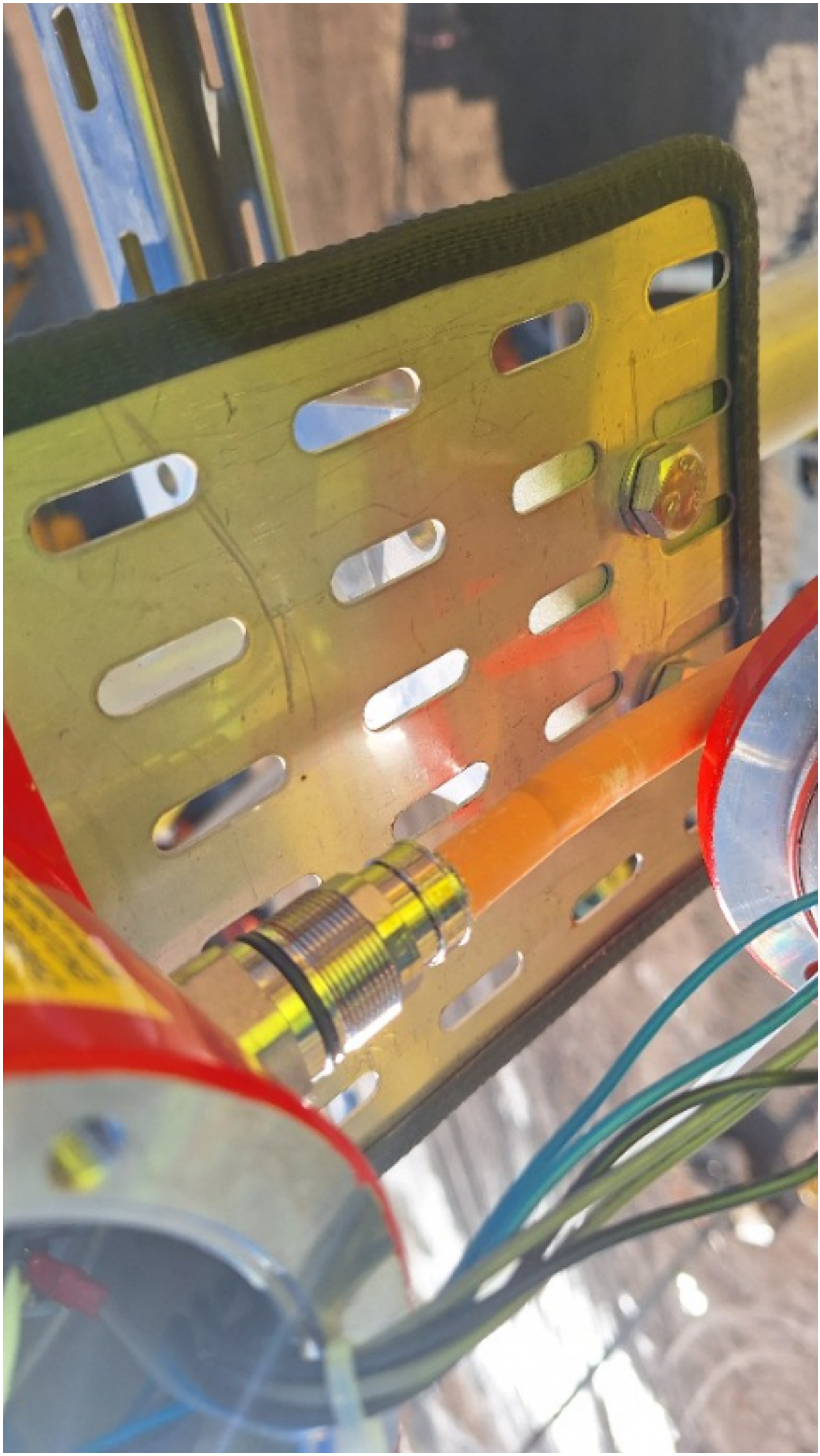
Signature:

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:

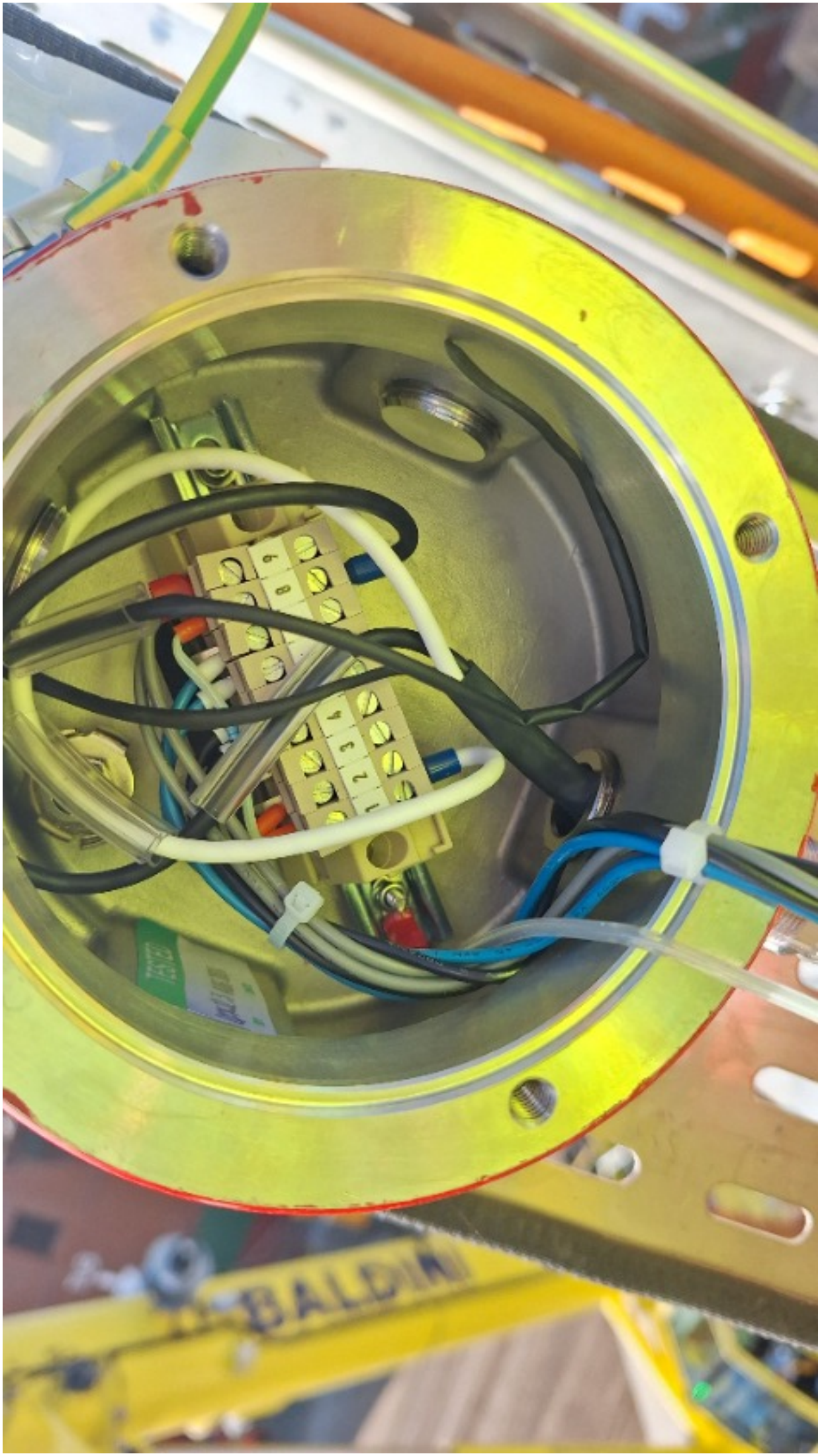
5 - CLEARANCE CHECK

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

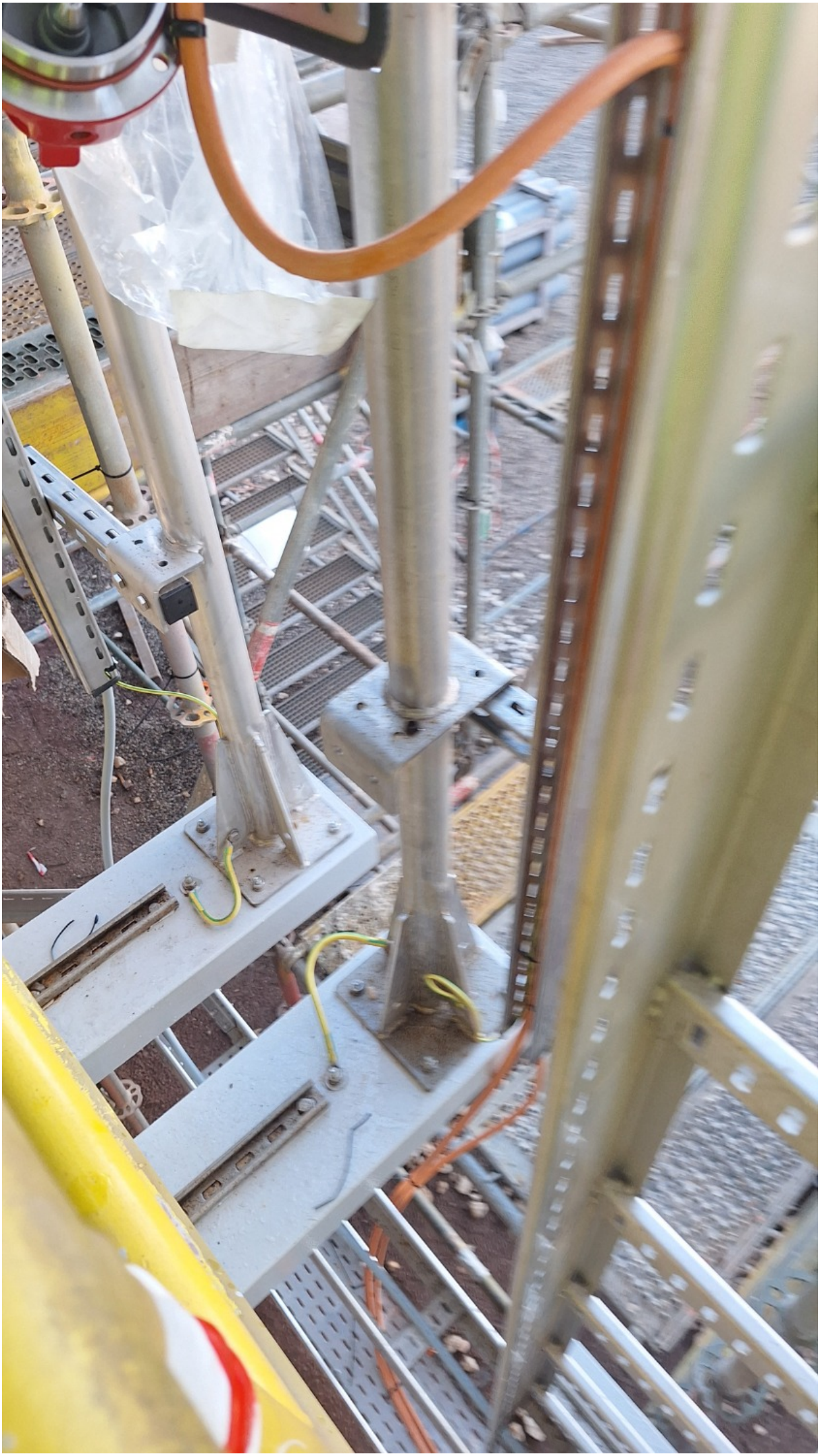
Signature:

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:

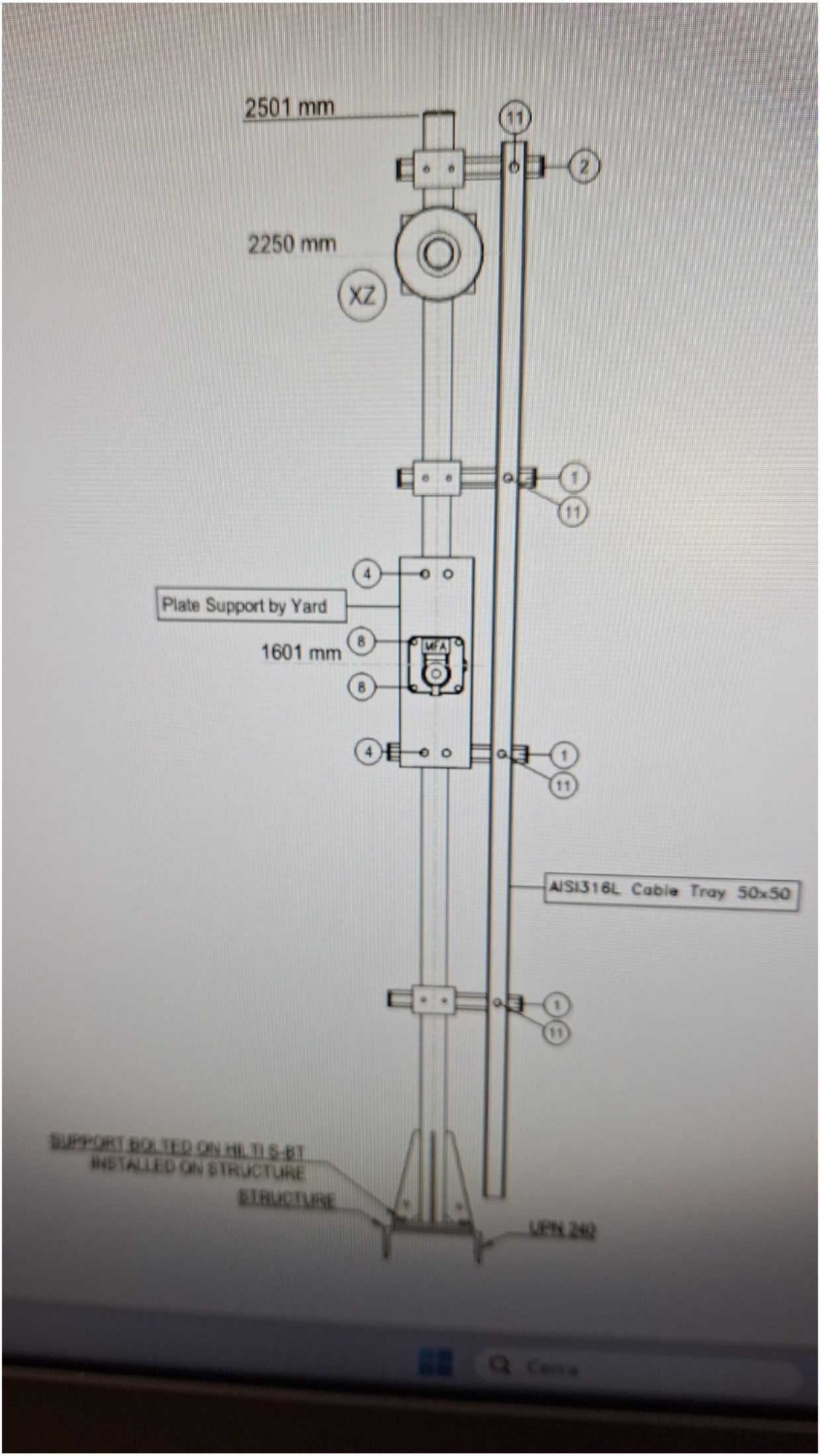
5 - CLEARANCE CHECK

RLMU DONE

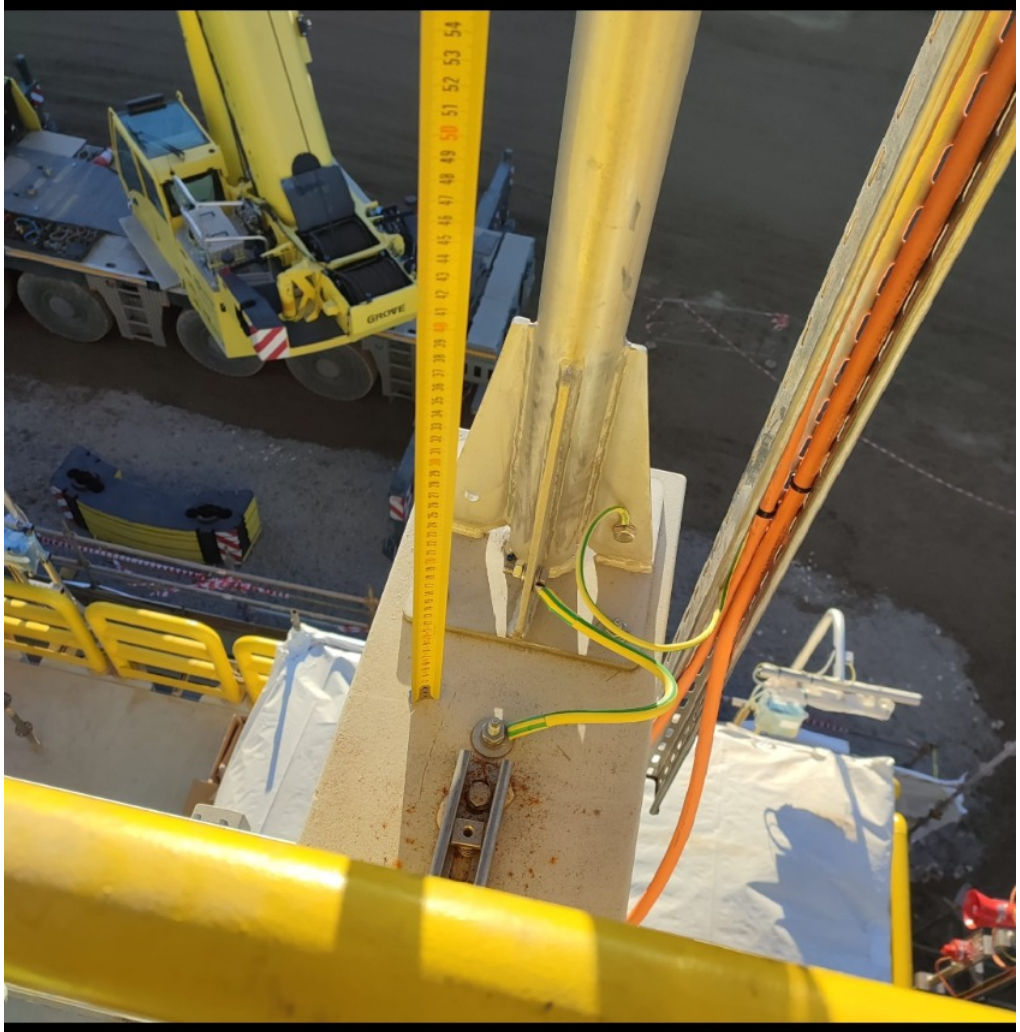
Name: Eleonora Carotenuto
Date: 2024-12-27
Signature:

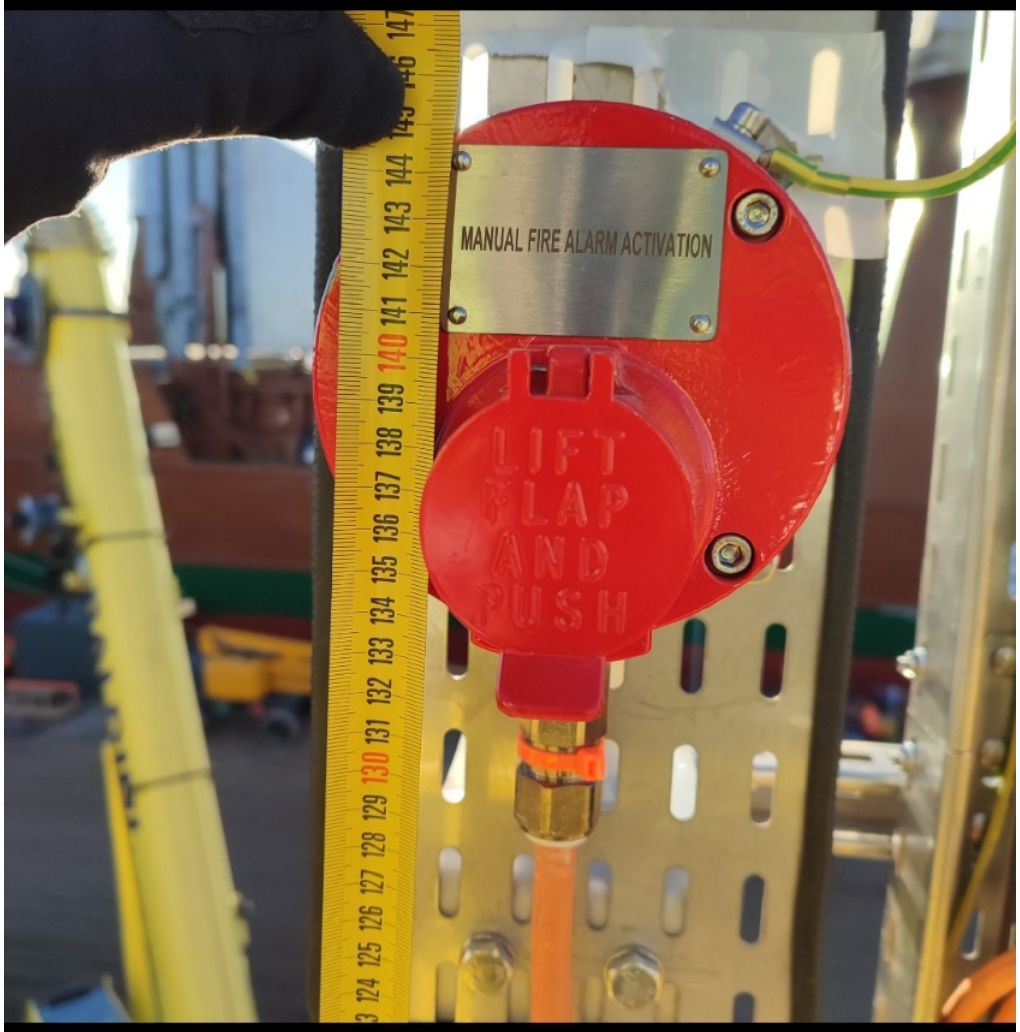
6- CLEARANCE APPROVAL

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:

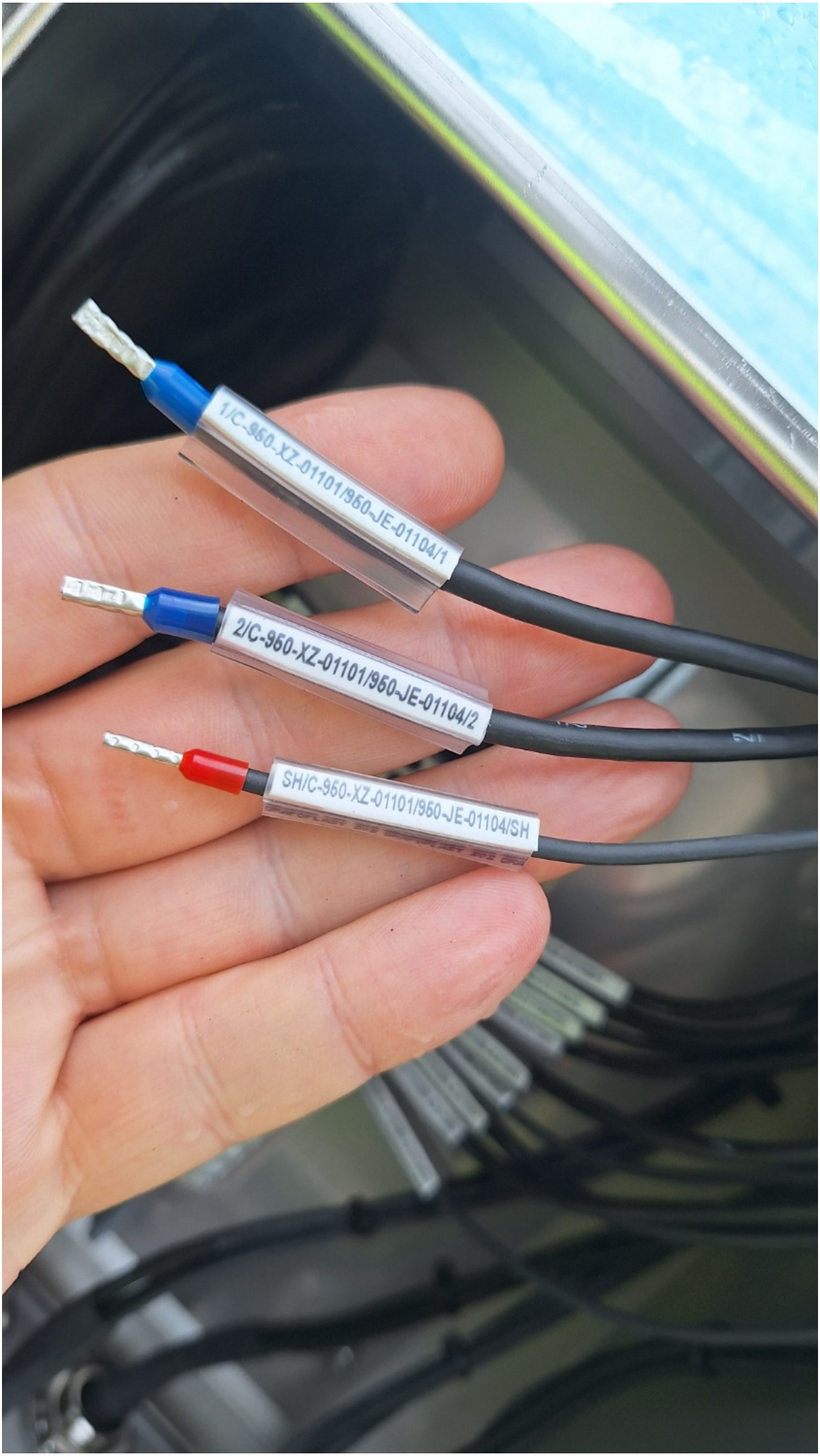
5 - CLEARANCE CHECK

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

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
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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OS

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:



Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

NOT APPLICABLE

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.3 Instrumentation functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 70-10 & 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-01101	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003154	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01102	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003153	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01103	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003152	FJ04F	100	2025-01-30	RFO 1
950-FDZ-01104	Flame Detector - FZ-01 Fuel Cell PK Area	ONSHORE	C10003151	FJ04F	100	2025-01-30	RFO 1
950-GDZ-01101	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10003133	FJ04L	100	2025-02-11	RFO 1
950-GDZ-01102	H2 GD FZ-01 Fuel Cell PK Area	ONSHORE	C10003132	FJ04L	100	2025-02-11	RFO 1
950-GDZ-01103	H2 GD FZ-03 Electrolyzer PK Area	ONSHORE	C10003131	FJ04G	100	2025-02-11	RFO 1
950-MFA-01101	FZ-01 MFA Activation	ONSHORE	C10004411	FJ04PB_FGS	100	2025-02-11	RFO 1
950-MFA-01102	FZ-01 MFA Activation	ONSHORE	C10004412	FJ04PB_FGS	100	2025-02-11	RFO 1
950-MFA-01103	FZ-01 MFA Activation	ONSHORE	C10004413	FJ04PB_FGS	100	2025-02-11	RFO 1
950-XL-01101	FZ-01 Gas Beacon Activation	ONSHORE	C10004436	FJ04FB	100	2025-01-30	RFO 1
950-XL-01102	FZ-01 Fire Beacon Activation	ONSHORE	C10004437	FJ04FB	100	2025-01-30	RFO 1
950-XZ-01101	FZ-01 Sounder Activation	ONSHORE	C10004460	FJ04MS	100	2025-02-11	RFO 1
950-XZ-01102	FZ-01 Sounder Activation	ONSHORE	C10004461	FJ04MS	100	2025-02-11	RFO 1

ROSETTI MARINO | CROSSWIND

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	C10003131	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form FJ04G	Gas Detection

Loop Tag: 950-GDZ-01103 TDSL rev.: 123A90-FDL-IN-DG-40014 rev.1A

Cabinet: B400-FGS-001 Rack: 04 Slot: 01 Channel: 16

Gas Detection Type: TEXS GTL (Infrared open path gas transmitter): GT (gas transmitter): XTR 0510

Thresholds: Gas Alarm - H 5% LEL Gas Confirmed - HH 10%LEL

Scale and Unit: 0-100% LEL

Calibration checking (following bottle at disposal):

Physical value on transmitter:	0%	5%	10%
ICSS Display:	0%	5%	10%

Checking of Dirty Optical ●

Checking of Invalidity ●

Checking of Maintenance Inhibition ●

Comments:

	Performed by	☑ WITNESS ☐ REVIEW	☑ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	John Mackillop
Date	2025-02-08	2025-02-08	2025-02-11
Signature	Digitaly signed by Laurentiu Grozavu 2025-02-08T13:41:10.556Z	Digitaly signed by Giandonato Delmissier 2025-02-08T22:23:36.355Z	Digitaly signed by John Mackillop 2025-02-11T05:28:41.322Z

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.

Dräger Nederland B.V.
Marine & Offshore
Beurtschipperstraat 1
NL-3194 DK Hoogvliet-RT
Telephone :+31(0)10-2952710
Web: www.draeger-mo.nl
E-mail: service-mo.sd.nl@draeger.com

Calibration Certificate: Gas Detector Polytron 8200 H2

Certificaat: Gas Detector Polytron 8200 H2

Date *Datum*	Validity [months] *Geldigheid [maanden]*	Vessel / Installation *Scheepsnaam / Installatie*	Certificate No *Certificaat Nr*
28-06-2024	**12**	**Base Load Power Hub (BLPH)**	**PR.23.034.0 - CS-24002463**

The gas detectors are inspected and calibrated as described in this certificate. The used calibration gasses are traceable according to (inter)national standards.
De gasdetectoren zijn geïnspecteerd en gekalibreerd zoals beschreven in dit certificaat. De gebruikte kalibratiegassen zijn traceerbaar vorlgens de (inter)nationale standaards..

950-GDZ-06203	Dräger	Dräger: Polytron 8200	ARTB-1639	FC4576993	N/A	N/A	New Delivery
950-GDZ-06204	Dräger	Dräger: Polytron 8200	ARTB-1637	FC4576994	N/A	N/A	New Delivery
950-GDZ-06205	Dräger	Dräger: Polytron 8200	ARTB-0204	FC4576995	N/A	N/A	New Delivery
950-GDZ-06206	Dräger	Dräger: Polytron 8200	ARSD-0466	FC4576996	N/A	N/A	New Delivery
950-GDZ-03104	Dräger	Dräger: Polytron 8200	ARTB-1624	FC4576997	N/A	N/A	New Delivery
950-GDZ-03105	Dräger	Dräger: Polytron 8200	ARTB-1630	FC4576998	N/A	N/A	New Delivery
950-GDZ-01103	Dräger	Dräger: Polytron 8200	ARTB-0194	FC4576999	N/A	N/A	New Delivery
xxx-xxx-xxxxx	Dräger	Dräger: Polytron 8200	ARTB-0185	FC4577000	N/A	N/A	New Delivery

Sensor type	Zero gas	Calibration setting
EC	H2	Detection range 0-100% LEL H2

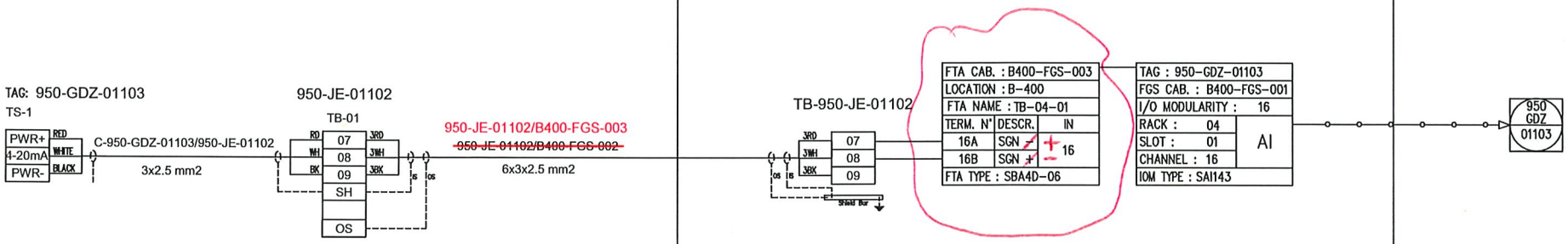
DRÄGER MARINE & OFFSHORE
SIGNED BY: K. VAN DISSEL

PO# : 123A90

Signed by: .....

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



L Grogan
24/01/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-GDZ-01103
FZ-01 H2 DETECTOR IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 204	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

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	C10003132	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04L	Leak Detection

Loop Tag:	950-GDZ-01102			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	02	Slot:	03	Channel:	13
Output Signal:	mA						
Calibration Range:	0-100%	Unit:	dB	Minimum:	55 dB	Maximum:	110 dB

Threshold: Fire Alarm - H: 57,75 dB — Fire Alarm - HH: 60,5 dB

Checking of location ●

Checking of invalidity

Checking of Maintenance inhibition ●

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
8900 UGLD Calibration and bump test kit	P.N. 8328042		

Comments: Instrument model : ETR 0521

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	John Mackillop
Date	2025-02-08	2025-02-08	2025-02-11
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-02-08T12:33:58.005Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-08T22:24:17.934Z	PROVERLIS Digitaly signed by John Mackillop 2025-02-11T05:28:54.531Z

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

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Dräger Safety AG & Co. KGaA
Revalstraße 1
D - 23560 Lübeck
Germany

Dräger

Factory Calibration Certificate

Kalibrierzertifikat

Product / Produkt:	Polytron 8900 UGLD d S 4-20/HART relay
Part Number / Sachnummer:	8328030
Serial Number / Seriennummer:	ARTA-1688

Sound Pressure Level / Schallpegel:	96,0 dB
Max. Deviation / max. Abweichung:	± 3 dB

The calibration was performed consistent with procedure described in instructions for use.
Die Kalibrierung erfolgte äquivalent zu dem in der Gebrauchsanweisung beschriebenen Verfahren.

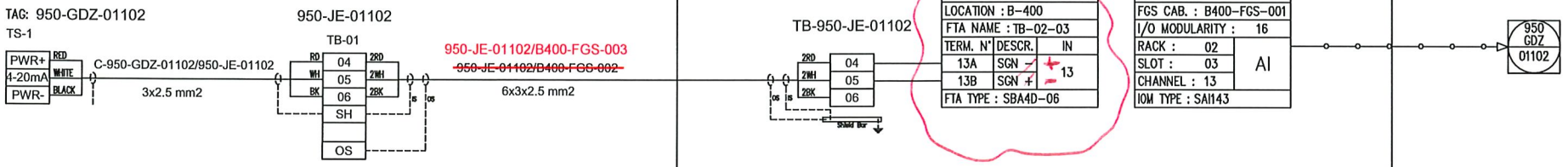
Date of Calibration / Datum der Kalibrierung: 31.01.2024

This Certificate was generated automatically and is valid without signature.
Dieses Zertifikat wurde automatisch generiert und ist ohne Unterschrift gültig.

The calibration was done in accordance to the Dräger Quality System, certified by the German TÜV to meet ISO 9001.
Die Durchführung der Kalibrierung erfolgt nach den Vorgaben des Dräger Qualitätssystems und entspricht den Anforderungen der ISO 9001 Zertifizierung.

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



L Grazzani
24/01/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV.: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-GDZ-01102
FZ-01 H2 DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 203	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

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	C10003133	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04L	Leak Detection

Loop Tag:	950-GDZ-01101			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	02	Slot:	01	Channel:	11
Output Signal:	mA						
Calibration Range:	0-100%	Unit:	dB	Minimum:	55 dB	Maximum:	110 dB

Threshold: Fire Alarm - H: 57,75 dB — Fire Alarm - HH: 60,5 dB

Checking of location ●

Checking of invalidity

Checking of Maintenance inhibition ●

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
8900 UGLD Calibration and bump test kit	P.N. 8328042		

Comments: Instrument model : ETR 0521

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	John Mackillop
Date	2025-02-08	2025-02-08	2025-02-11
Signature	Digitaly signed by Laurentiu Grozavu 2025-02-08T12:33:46.255Z	Digitaly signed by Giandonato Delmissier 2025-02-08T22:24:41.172Z	Digitaly signed by John Mackillop 2025-02-11T05:29:51.613Z

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.

Dräger Safety AG & Co. KGaA
Revalstraße 1
D - 23560 Lübeck
Germany

Factory Calibration Certificate

Kalibrierzertifikat

Product / Produkt:	Polytron 8900 UGLD d S 4-20/HART relay
Part Number / Sachnummer:	8328030
Serial Number / Seriennummer:	ARTA-1684

Sound Pressure Level / Schallpegel:	96,0 dB
Max. Deviation / max. Abweichung:	± 3 dB

The calibration was performed consistent with procedure described in instructions for use.
Die Kalibrierung erfolgte äquivalent zu dem in der Gebrauchsanweisung beschriebenen Verfahren.

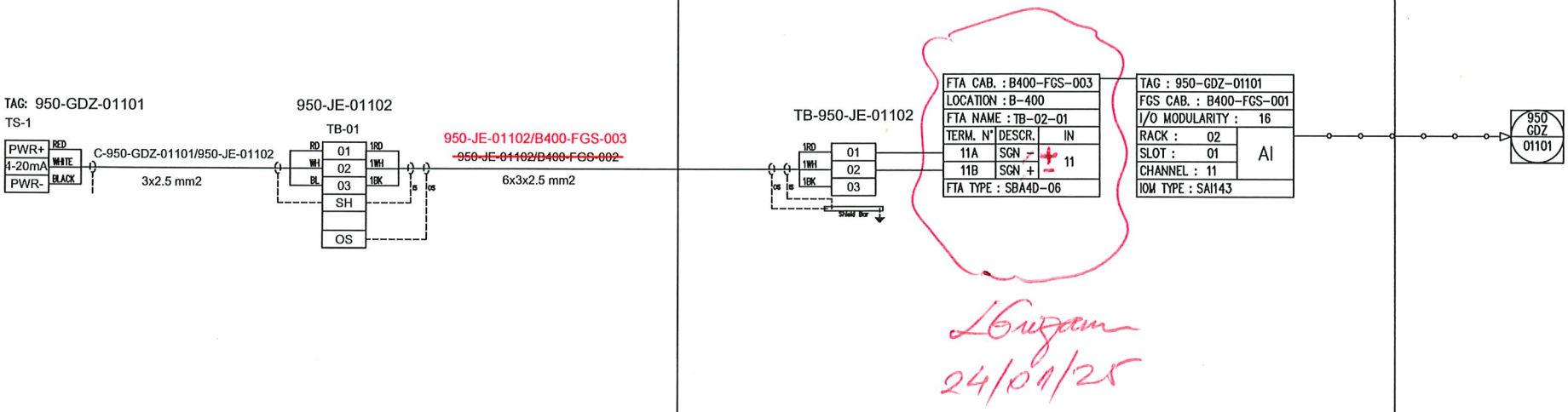
Date of Calibration / Datum der Kalibrierung: 31.01.2024

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The calibration was done in accordance to the Dräger Quality System, certified by the German TÜV to meet ISO 9001.
Die Durchführung der Kalibrierung erfolgt nach den Vorgaben des Dräger Qualitätssystems und entspricht den Anforderungen der ISO 9001 Zertifizierung.

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



L Grigoni
24/01/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV.: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-GDZ-01101
FZ-01 H2 DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 202	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

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	C10003151	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04F	Fire Detection

Loop Tag:	950-FDZ-01101			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	03	Slot:	03	Channel:	05
Output Signal:	mA						

Threshold: Fire Alarm - H | Fire Alarm - HH: 20 mA

Checking of Dirty optical ●

Checking of invalidity ●

Checking of Maintenance inhibition

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
FLS-FSIM-UV-IR	1544		

Comments:

	Performed by	● WITNESS ☐ REVIEW	● WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Laurentiu Grozavu 2025-01-29T06:50:04.677Z	Digitaly signed by Giandonato Delmissier 2025-01-29T08:50:53.814Z	Digitaly signed by Jamie McAllister 2025-01-30T06:48:08.514Z

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**	

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 and Gas Detection Technologies Inc. | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

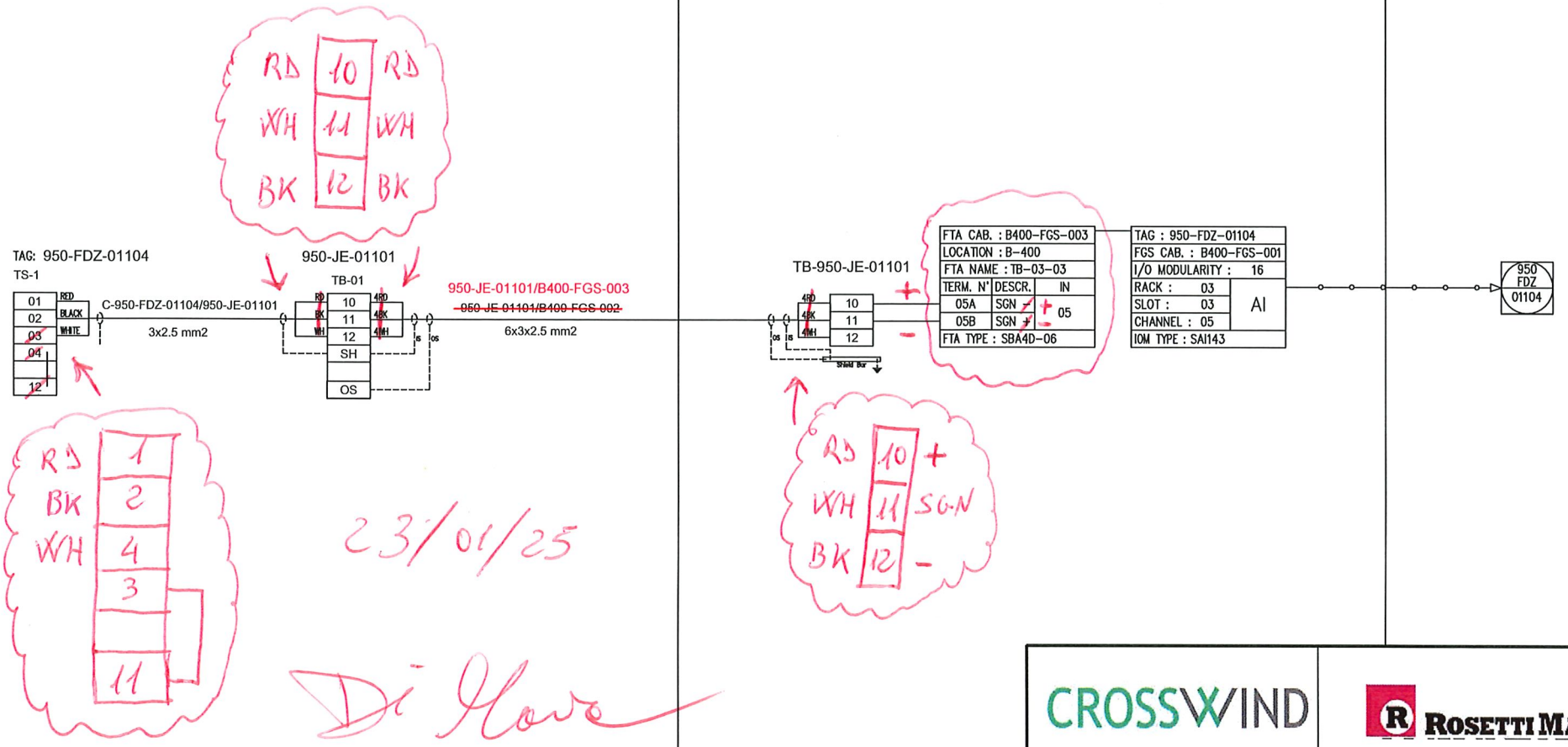
Flame Simulator Family

	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

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-FDZ-01104
FZ-01 FLAME DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 180	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV01

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	C10003152	Location: Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity: FTS	Discipline: Instrumental	Form: FJ04F		Fire Detection

Loop Tag:	950-FDZ-01103			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	03	Slot:	01	Channel:	05
Output Signal:	mA						

Threshold: Fire Alarm - H [ ] Fire Alarm - HH [20 mA]

Checking of Dirty optical [●]

Checking of invalidity [●]

Checking of Maintenance inhibition [ ]

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
FLS-FSIM-UV-IR	1544		

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Laurentiu Grozavu 2025-01-29T06:50:50.189Z	Digitaly signed by Giandonato Delmissier 2025-01-29T08:51:17.463Z	Digitaly signed by Jamie McAllister 2025-01-30T07:23:37.029Z

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.

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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**	

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

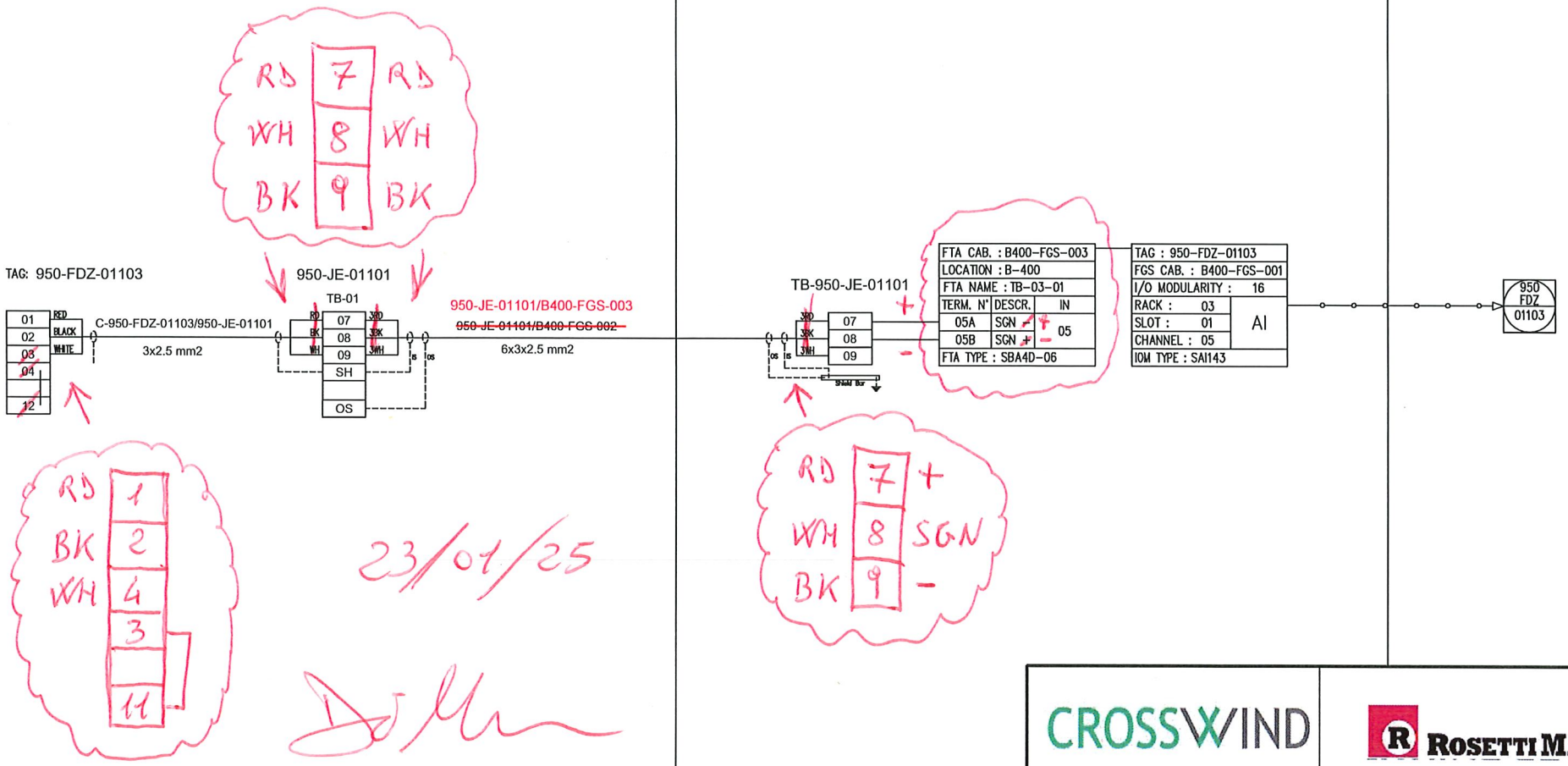
Flame Simulator Family

	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

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-FDZ-01103
FZ-01 FLAME DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 179	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

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	C10003153	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04F	Fire Detection

Loop Tag:	950-FDZ-01102			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	02	Slot:	03	Channel:	05
Output Signal:	mA						

Threshold: Fire Alarm - H | Fire Alarm - HH: 20 mA

Checking of Dirty optical ●

Checking of invalidity ●

Checking of Maintenance inhibition

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
FLS-FSIM-UV-IR	1544		

Comments:

	Performed by	● WITNESS ☐ REVIEW	● WITNESS ☐ REVIEW
Company	RM COMM	RM COO	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Laurentiu Grozavu 2025-01-29T06:51:19.877Z	Digitaly signed by Giandonato Delmissier 2025-01-29T08:52:19.989Z	Digitaly signed by Jamie McAllister 2025-01-30T07:25:36.797Z

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.

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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**	

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 and Gas Detection Technologies Inc. | 4222 E. La Palma Ave., Anaheim, CA 92807
Tel: (+1) 714-671-8500 | support@fg-detection.com
Version: F300V0010.04 • Oct 2023

FlameSpec-FLS-FSIM

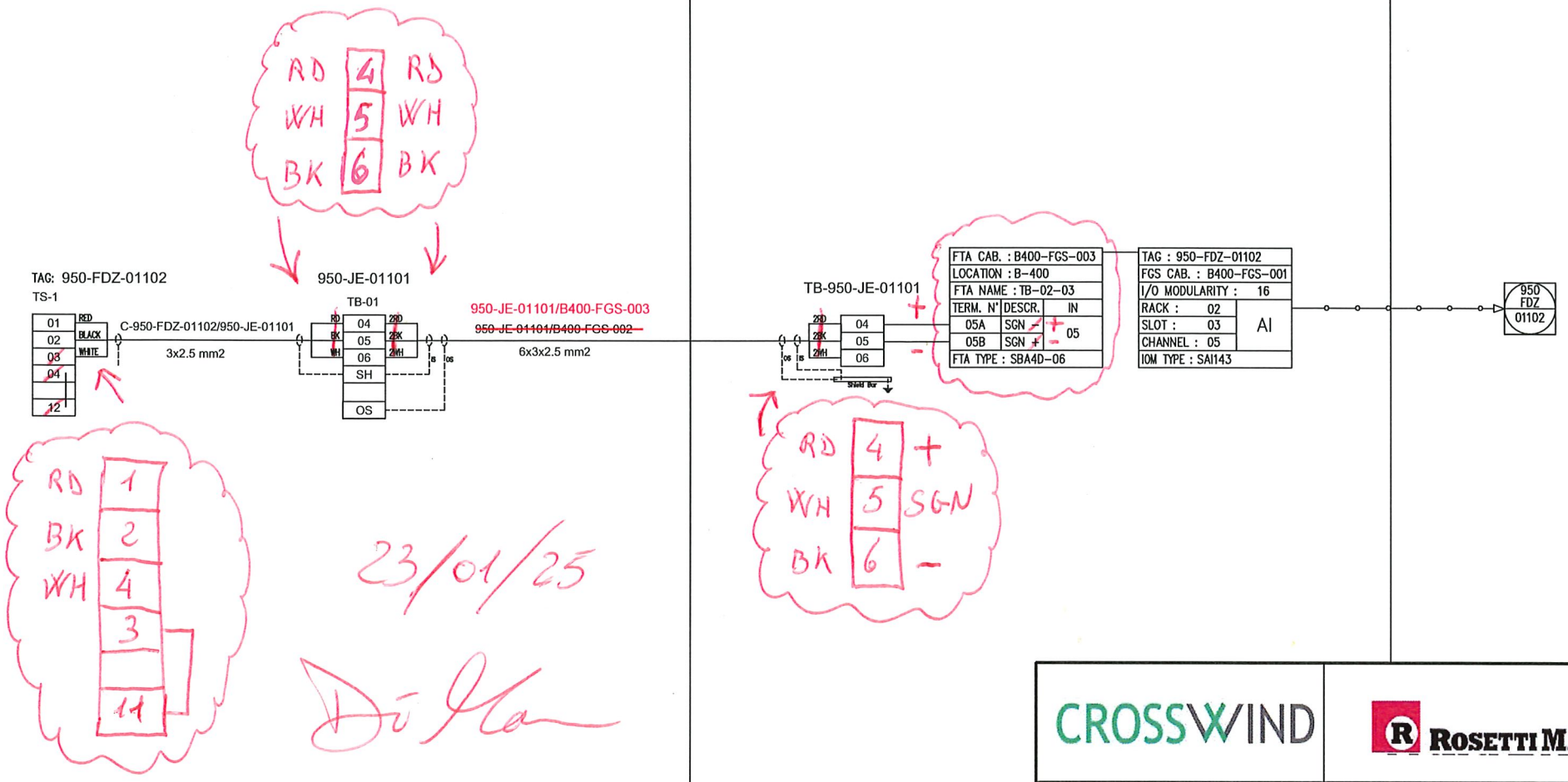
Flame Simulator Family

	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

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-FDZ-01102
FZ-01 FLAME DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 178	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

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	C10003154	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form FJ04F	Fire Detection

Loop Tag:	950-FDZ-01101			TDSL rev.:	123A90-FDL-IN-DG-40014 rev.1A		
Cabinet:	B400-FGS-001	Rack:	02	Slot:	01	Channel:	05
Output Signal:	mA						

Threshold: Fire Alarm - H [ ] Fire Alarm - HH [20 mA]

Checking of Dirty optical [●]

Checking of invalidity [●]

Checking of Maintenance inhibition [ ]

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
FLS-FSIM-UV-IR	1544		

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Laurentiu Grozavu 2025-01-29T06:51:53.678Z	Digitaly signed by Giandonato Delmissier 2025-01-29T08:52:41.624Z	Digitaly signed by Jamie McAllister 2025-01-30T07:26:28.972Z

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.

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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**	

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

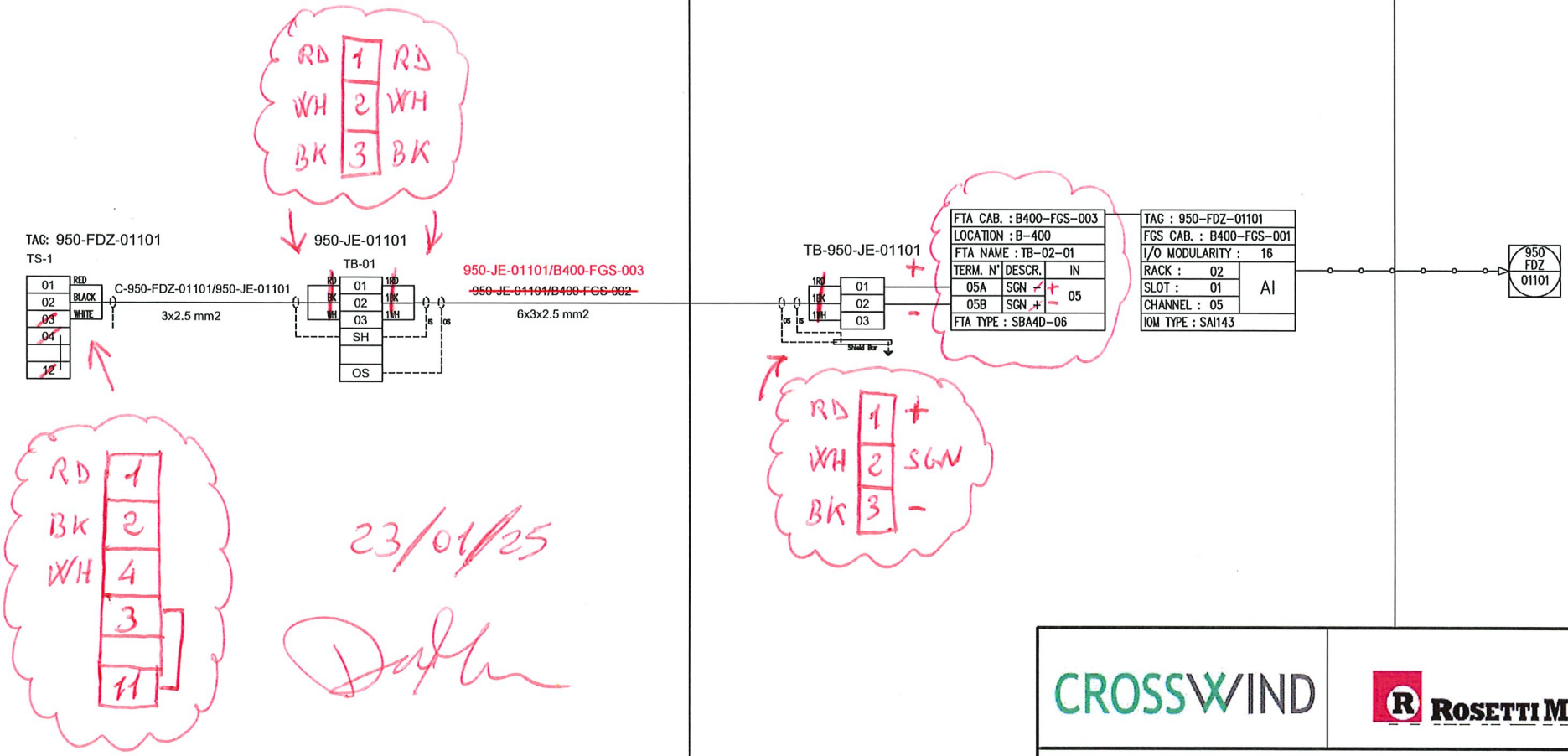
Flame Simulator Family

	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

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-FDZ-01101
FZ-01 FLAME DETECT. IN FUEL CELL PACKAGE AREA

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-IN-DG-40014	177	01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

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	C10004411		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form	FJ04PB_FGS Push Button Fire&Gas

LOOP DATA

Loop TAG	950-MFA-01101				TSLD	123A90-DDL-IN-DG-40014 rev. 1_A			
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	01A/01B		Slot	05	Rack	02	Chanel 01

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire alarm		Alarm / Control FGS		Display PCS	
6	Loop energized	Yes		Yes		OK	OK
7	Loop not energized	No		Yes		OK	OK
8	Checking of line monitoring	Yes		Yes		OK	OK
9	Checking of Maintenance Inhibition	NA		NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	OK
14	Any defect is recorded for punch list issuance	OK

Comments:

	Performed by	☒ WITNESS ☐ REVIEW	☒ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-02-07	2025-02-08	2025-02-11
Signature	PROVERLIS Digitaly signed by Marco Di Maria 2025-02-07T06:29:09.185Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-08T10:04:58.656Z	PROVERLIS Digitaly signed by John Mackillop 2025-02-11T05:30:33.681Z

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

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March 2024

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Powering Business Worldwide

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No liability is accepted for any consequence of use.

Certifications

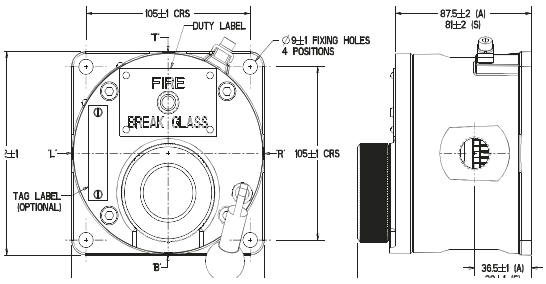
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C 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

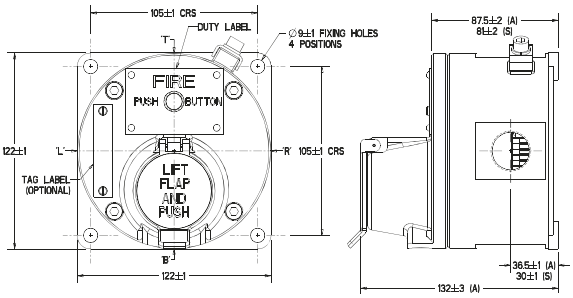
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy
Finish	Paint finish as standard or to customer specification
Voltage	Ex d 24V a.c./d.c. Ex ia 28V
Rating	2A
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)
Optional indicator	A red high intensity 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* –55°C to +70°C. Ex ia* –55°C to +60°C –20°C to +55°C (LED version only) UL –40°C to +70°C, –20°C to +55°C (LED version only) CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C CSA - Ex d IIC –55°C to +70°C CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C *Note: includes ATEX, IECEx & INMETRO versions
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

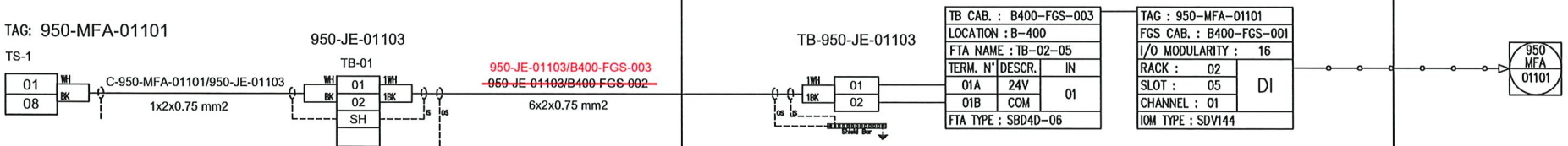
*Please specify

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

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



NO MARK UP

04/02/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-MFA-01101
FZ-01 Manual fire alarm (MFA)

CONTRACT NO./TITLE CONTRACT_NO. | SCALE 1:1

DRAWN: VBA | CHECKED: LCA | APPROVED: DLO | DATE 23/10/202

A3 | DRAWING NO. 123A90-DDL-IN-DG-40014 | SHEET 326 | REV. 01

ROSETTI MARINO | PROVERLIS | 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	C10004412		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form	FJ04PB_FGS Push Button Fire&Gas

LOOP DATA

Loop TAG	950-MFA-01102				TSLD	123A90-DDL-IN-DG-40014 rev. 1_A			
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	02A/02B		Slot	05	Rack	02	Chanel 02

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire alarm		Alarm / Control FGS		Display PCS	
6	Loop energized	Yes		Yes		OK	OK
7	Loop not energized	No		Yes		OK	OK
8	Checking of line monitoring	Yes		Yes		OK	OK
9	Checking of Maintenance Inhibition	NA		NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	OK
14	Any defect is recorded for punch list issuance	OK

Comments:

Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☉ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-02-07	2025-02-08	2025-02-11
Signature	PROVERLIS Digitaly signed by Marco Di Maria 2025-02-07T06:30:12.640Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-08T10:05:20.429Z	PROVERLIS Digitaly signed by John Mackillop 2025-02-11T05:30:43.463Z

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

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March 2024

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Certifications

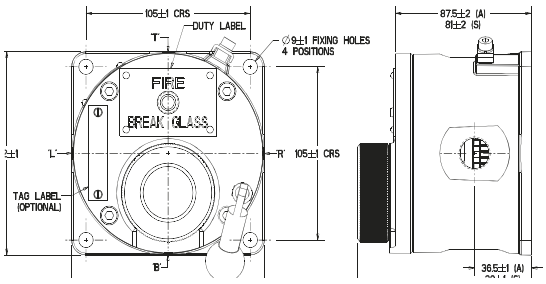
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C 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

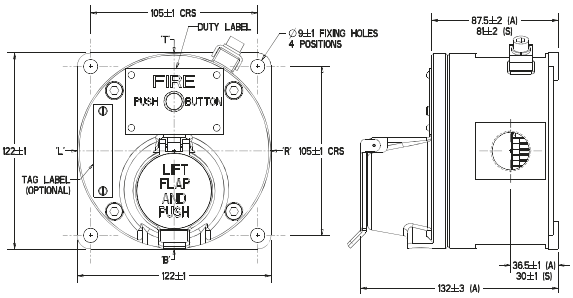
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy
Finish	Paint finish as standard or to customer specification
Voltage	Ex d 24V a.c./d.c. Ex ia 28V
Rating	2A
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)
Optional indicator	A red high intensity 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* –55°C to +70°C. Ex ia* –55°C to +60°C –20°C to +55°C (LED version only) UL –40°C to +70°C, –20°C to +55°C (LED version only) CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C CSA - Ex d IIC –55°C to +70°C CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C *Note: includes ATEX, IECEx & INMETRO versions
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

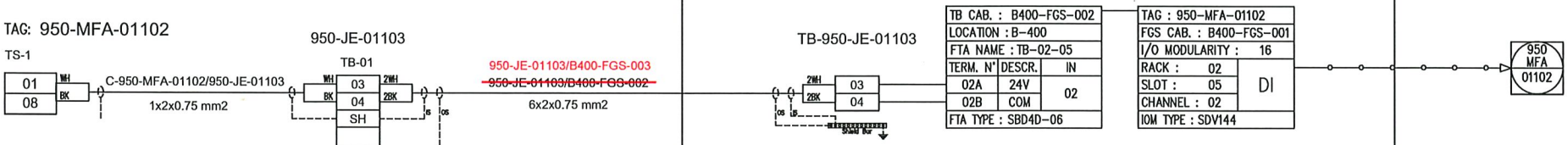
*Please specify

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

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



NO MARK UP

04/02/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-MFA-01102
FZ-01 MANUAL FIRE ALARM (MFA)

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 327	REV. 01

ROSETTI MARINO | PROVERLIS | CROSSWIND

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	C10004413		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form	FJ04PB_FGS Push Button Fire&Gas

LOOP DATA

Loop TAG	950-MFA-01103				TSLD	123A90-DDL-IN-DG-40014 rev. 1_A			
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	03A/03B		Slot	05	Rack	02	Chanel 03

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire alarm		Alarm / Control FGS		Display PCS	
6	Loop energized	Yes		Yes		OK	OK
7	Loop not energized	No		Yes		OK	OK
8	Checking of line monitoring	Yes		Yes		OK	OK
9	Checking of Maintenance Inhibition	NA		NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	OK
14	Any defect is recorded for punch list issuance	OK

Comments:

	Performed by	☒ WITNESS ☐ REVIEW	☒ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-02-07	2025-02-08	2025-02-11
Signature	PROVERLIS Digitaly signed by Marco Di Maria 2025-02-07T06:30:44.016Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-08T10:05:42.296Z	PROVERLIS Digitaly signed by John Mackillop 2025-02-11T05:30:54.124Z

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

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No liability is accepted for any consequence of use.

Certifications

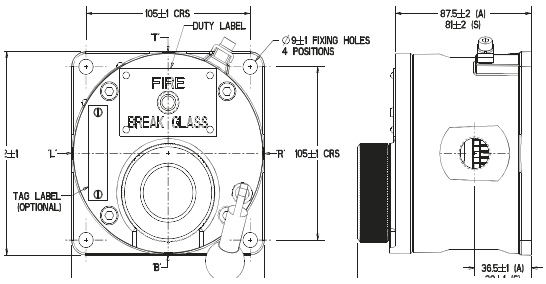
ATEX Ex d	Cert. no. Baseefa03ATEX0075. ATEX Approved Ex II 2GD Certified to: EN60079-0, EN60079-1, EN60079-31 Ex d IIC T5/T6 Gb, Ex tb IIIC T85°C/T100°C Db. IP66/IP67
ATEX Ex ia	Cert no. Baseefa 02ATEX0152X. ATEX Approved Ex II 1GD Certified to: EN60079-0, EN60079-11 Ex ia IIC T4 Ga, Ex ia IIIC T135°C 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

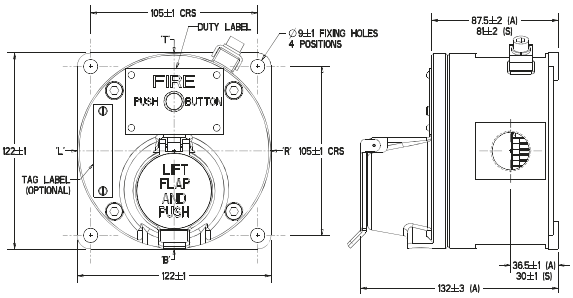
Material	Grade 316 ANC4B stainless steel or LM 25 TF marine grade alloy
Finish	Paint finish as standard or to customer specification
Voltage	Ex d 24V a.c./d.c. Ex ia 28V
Rating	2A
Switches	2 pole c/o, wired to terminals Optional up to 4 pole (UL version 2 pole only)
Optional indicator	A red high intensity 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* –55°C to +70°C. Ex ia* –55°C to +60°C –20°C to +55°C (LED version only) UL –40°C to +70°C, –20°C to +55°C (LED version only) CSA Explosion proof - Class 1, Div 1 & 2. –50°C to +55°C CSA - Ex d IIC –55°C to +70°C CSA Intrinsically safe - Class 1, Div 1 & 2 –50°C to +40°C *Note: includes ATEX, IECEx & INMETRO versions
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

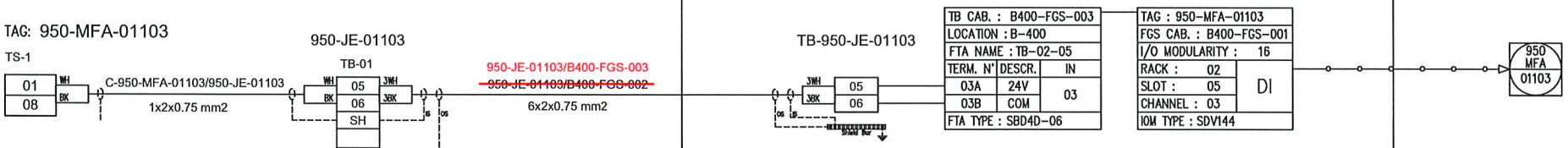
*Please specify

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

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 | REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



NO MARK UP
Den
04/02/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950–MFA–01103
FZ–01 MANUAL FIRE ALARM (MFA)

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/202

A3	DRAWING NO.	SHEET	REV.
	123A90–DDL–IN–DG–40014	328	01

ROSETTI MARINO | PROVERLIS | CROSSWIND

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	C10004436	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Instrumental	Form FJ04FB		Flashing Beacon

LOOP DATA

Loop TAG	950-XL-01101			TSLD	123A90-FDL-IN-DG-40014 rev. 1_A		
IO Type	Input Yes	Output No		Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-FGS-001	Terminal 03A/03B		Slot 07	Rack 02	Chanel 03	

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire alarm	Action Gas alarm	Alarm/Control FGS		Display PCS	
6	Loop energized	No	Yes	Yes		OK	OK
7	Loop not energized	No	No	No		OK	OK
8	Checking of line monitoring	NA	NA	NA		NA	NA
9	Checking of Maintenance Inhibition	NA	NA	NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA
12	Flash beacon	RED		AMBER			

LOOP DOCUMENTATION

13	Loop diagram is marked up and attached to this test sheet	OK
14	Cause and effect chart is highlighted accordingly	OK
15	Any defect is recorded for punch list issuance	OK

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS|
Name	Marco Di Maria	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Marco Di Maria 2025-01-29T06:32:58.182Z	Digitaly signed by Giandonato Delmissier 2025-01-29T09:02:00.661Z	Digitaly signed by Jamie McAllister 2025-01-30T07:31:23.547Z

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

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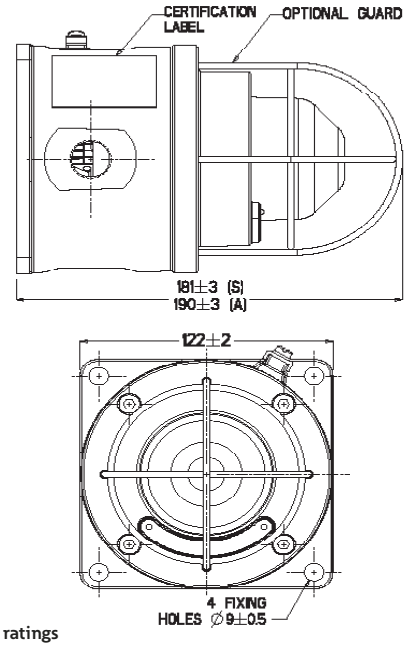
Certifications

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

Flash rate: 60fpm

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	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

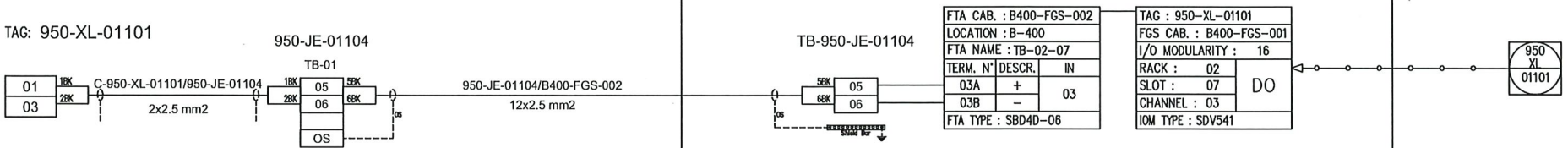
Finish

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

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



NO MARK UP
Longoni
21/01/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-XL-01101
FZ-01 OPTICAL EXP GAS ALARM

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 375	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

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	C10004437	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Instrumental	Form FJ04FB		Flashing Beacon

LOOP DATA

Loop TAG	950-XL-01102			TSLD	123A90-FDL-IN-DG-40014 rev. 1_A				
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	04A/04B	Slot	07	Rack	02	Chanel	04

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire alarm	Action Gas alarm	Alarm/Control FGS		Display PCS	
6	Loop energized	Yes	No	Yes		OK	OK
7	Loop not energized	No	No	No		OK	OK
8	Checking of line monitoring	NA	NA	NA		NA	NA
9	Checking of Maintenance Inhibition	NA	NA	NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA
12	Flash beacon	RED	●		AMBER		

LOOP DOCUMENTATION

13	Loop diagram is marked up and attached to this test sheet	OK
14	Cause and effect chart is highlighted accordingly	OK
15	Any defect is recorded for punch list issuance	OK

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Marco Di Maria	Giandonato Delmissier	Jamie McAllister
Date	2025-01-29	2025-01-29	2025-01-30
Signature	Digitaly signed by Marco Di Maria 2025-01-29T06:32:33.552Z	Digitaly signed by Giandonato Delmissier 2025-01-29T09:02:26.094Z	Digitaly signed by Jamie McAllister 2025-01-30T07:32:14.460Z

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

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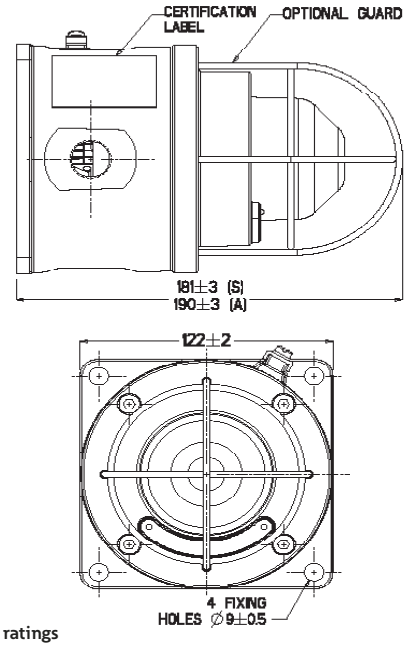
Certifications

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

Flash rate: 60fpm

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	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

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

Guard	Code
None	N
Yes	Y

Label	Code
None	N
Yes	Y*

* Please specify wording (Note: 15 characters maximum)

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

*Please specify

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

† Only SM87HXBA is available UL certified
‡ Only SM87HXB

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

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

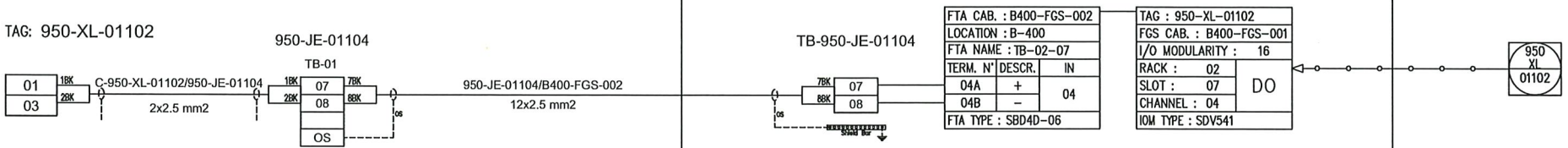
* Prefix position with entry size code
e.g. 1T1B=M20 Top and Bottom entries

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

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE



NO MARK UP
L Cowgam
21/01/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-XL-01102
FZ-01 OPTICAL FIRE ALARM

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 376	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | CROSSWIND

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	C10004460	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04MS	Monotone Sounder

LOOP DATA

Loop TAG	950-XZ-01101				TSLD	123A90-DDL-IN-DG-40014 rev. 1_A			
IO Type	Input	No	Output	Yes	Energy by transmitter	No		Energy by system	Yes
Marshalling	B400-FGS-001	Terminal	01A/01B		Slot	07	Rack	02	Chanel 01

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire&Gas alarm		Alarm / Control FGS		Display PCS	
6	Loop energized	Yes		Yes		NA	OK
7	Loop not energized	No		Yes		NA	OK
8	Checking of line monitoring	Yes		Yes		OK	OK
9	Checking of Maintenance Inhibition	NA		NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	OK
14	Any defect is recorded for punch list issuance	NA

Comments:

Page 1/1	Performed by	☒ WITNESS ☐ REVIEW	☒ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-02-08	2025-02-08	2025-02-11
Signature	Digitaly signed by Marco Di Maria 2025-02-08T10:42:16.227Z	Digitaly signed by Giandonato Delmissier 2025-02-08T22:25:37.047Z	Digitaly signed by John Mackillop 2025-02-11T05:32:52.450Z

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

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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

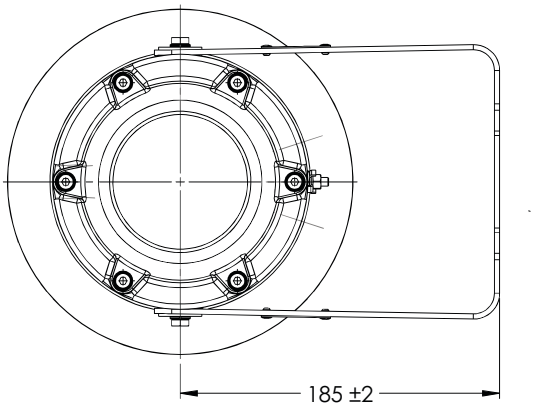
	Ex d/UL min	Max
Certified temperature	-60°C	+85°C

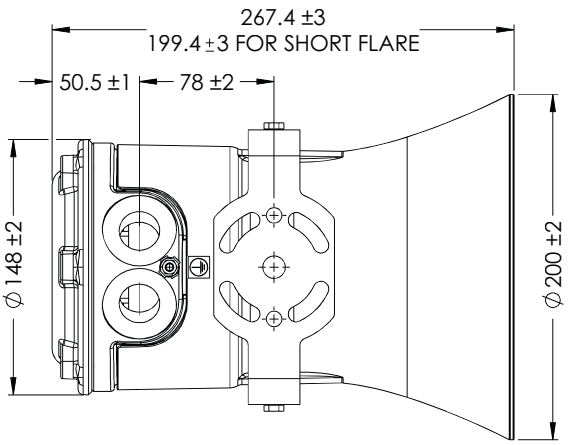
Operating temperature at launch (DC Only): -40 °C min +85 °C max
-55 °C as standard to follow. Please contact MEDC for low temperature options

	Short Flare	Long Flare
Max output (dB) 1400Hz @ 1m	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)

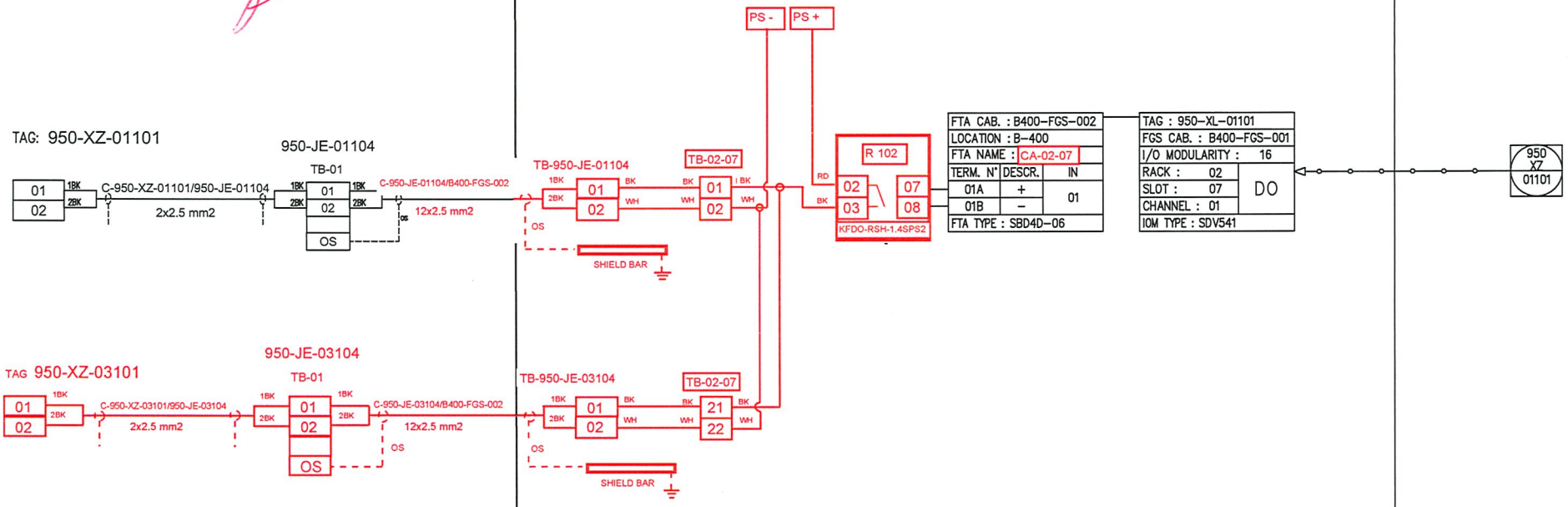
Finish	Code
Natural black	N
Natural red	R
Yellow	Y
Grey	G
Blue	B
Special	S*

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE

AS BUILT
05/02/25



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-XZ-01101
FZ-01 ACOUSTIC FIRE&GAS ALARM

CONTRACT NO./TITLE CONTRACT_NO.		SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 406	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV01

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	950-XZ-01102	: 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	C10004461	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ04MS	Monotone Sounder

LOOP DATA

Loop TAG	950-XZ-01102				TSLD	123A90-DDL-IN-DG-40014 rev. 1_A			
IO Type	Input	No	Output	Yes	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	02A/02B		Slot	07	Rack	02	Chanel 02

LOOP TEST

1	Check earth isolation of the loop.					OK
2	Connect loop to terminal					OK
3	Energise Loop (close loop) and record status	Normal	No	Alarm/trip	Yes	OK
4	De-Energise Loop (open loop) and record status	Normal	Yes	Alarm/trip	No	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action Fire&Gas alarm		Alarm / Control FGS		Display PCS	
6	Loop energized	Yes		Yes		NA	OK
7	Loop not energized	No		Yes		NA	OK
8	Checking of line monitoring	Yes		Yes		OK	OK
9	Checking of Maintenance Inhibition	NA		NA		NA	NA
10	Associated safety Level / bar						NA
11	Associated outputs						NA

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	OK
14	Any defect is recorded for punch list issuance	NA

Comments:

Page 1/1	Performed by	☒ WITNESS ☐ REVIEW	☒ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-02-08	2025-02-08	2025-02-11
Signature	PROVERLIS Digitaly signed by Marco Di Maria 2025-02-08T11:08:47.064Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-08T22:25:59.850Z	PROVERLIS Digitaly signed by John Mackillop 2025-02-11T05:33:02.123Z

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

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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

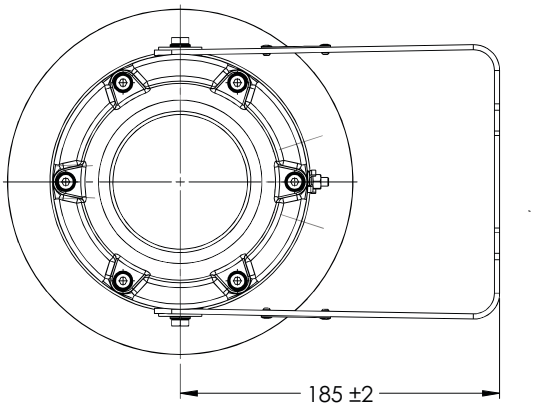
	Ex d/UL min	Max
Certified temperature	-60°C	+85°C

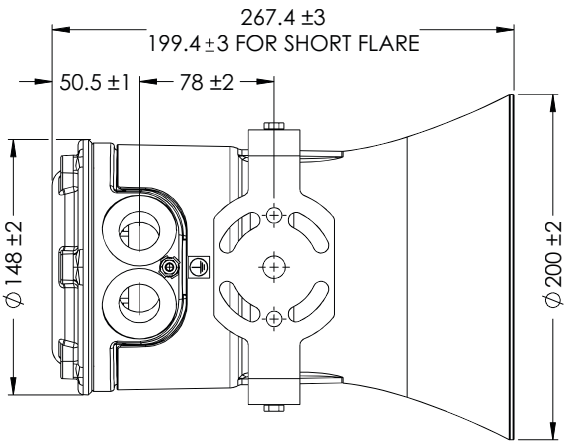
Operating temperature at launch (DC Only): -40 °C min +85 °C max
-55 °C as standard to follow. Please contact MEDC for low temperature options

	Short Flare	Long Flare
Max output (dB) 1400Hz @ 1m	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)

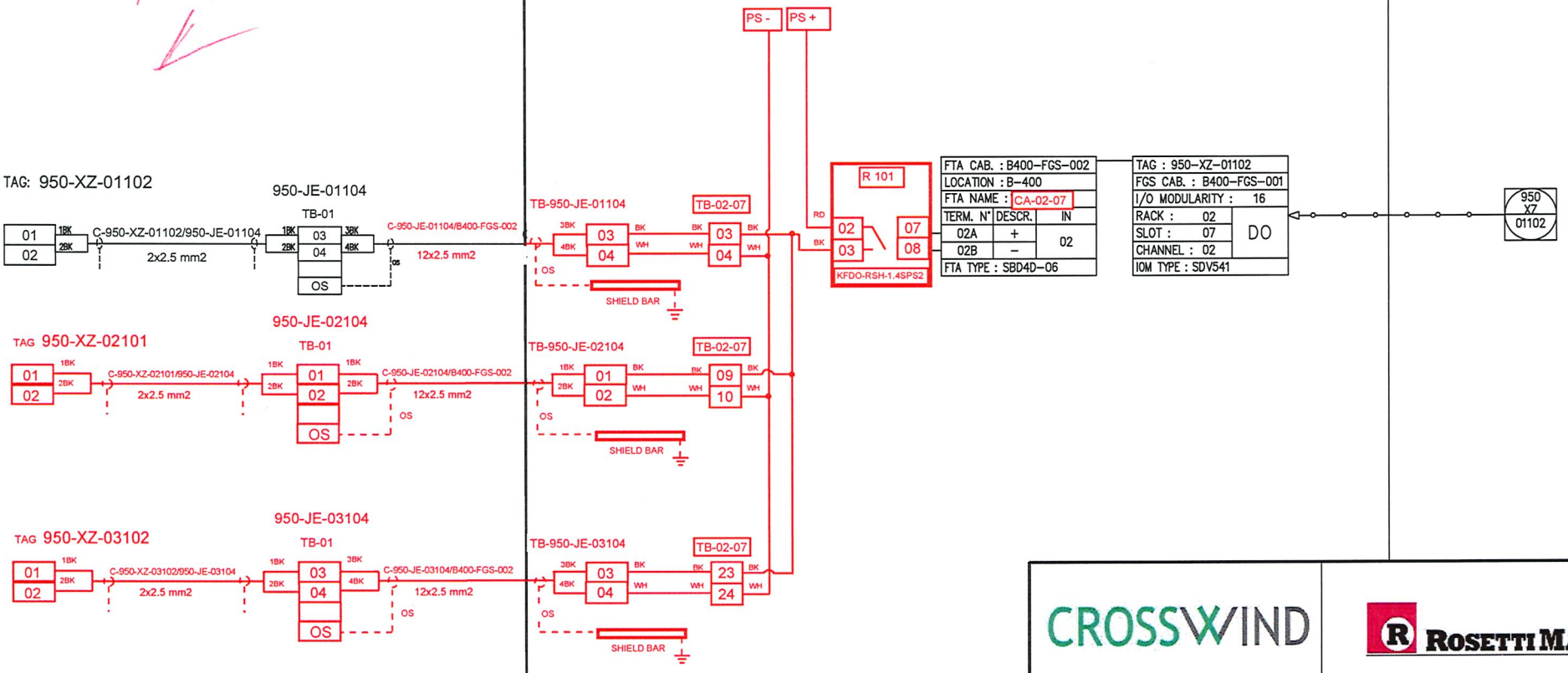
Finish	Code
Natural black	N
Natural red	R
Yellow	Y
Grey	G
Blue	B
Special	S*

*Please specify

DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	FIRE AND GAS SYSTEM	OPERATOR CONSOLE

AS BUILT
05/02/25



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV.: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
950-XZ-01102
FZ-01 ACOUSTIC FIRE&GAS ALARM

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 407	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV01

Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.5 Telecommunication functional test sheets index

NOT APPLICABLE

Section 4.6 Telecommunication
“As-Commissioned” I.C.D. / TSLD's

NOT APPLICABLE

Section 5 SITE / OPERATIONAL

Section 5.1 Operational Test Procedure

CROSSWIND	**123A90 - HOLLANDSE KUST NOORD WIND PARK BLPH Project** **COMMISSIONING DOSSIER INDEX**	ROSETTI MARINO

Main reference document **123A90-PML-COM-PRO-03054 _ OTP – F&G and ESD C&E Logics** has been uploaded in the Subsystem 70-00 Commissioning Dossier Sect. 5.1

FIRE ZONE 01
FUEL CELL

FZ-01= FUEL CELL AREA
FZ-02= H2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT

Effect No.	SYS	NOTES	DESCRIPTION	TAG No.
1	AUDIO / VISUAL ALERT		OPERATOR WORKSTATION DISPLAY - EVENT/ALARM	
2	AUDIO / VISUAL ALERT			
3	AUDIO / VISUAL ALERT		F&G ALARM ON CAP ONSHORE	
4	AUDIO / VISUAL ALERT			
5	AUDIO / VISUAL ALERT	TO SHEET 17	GAS BEACON ACTIVATION - AMBER	
6	AUDIO / VISUAL ALERT			
7	AUDIO / VISUAL ALERT	TO SHEET 17	FIRE BEACON ACTIVATION - RED	
8	AUDIO / VISUAL ALERT			
9	AUDIO / VISUAL ALERT	TO SHEET 17	SOUNDER ACTIVATION	
10	AUDIO / VISUAL ALERT			
11	AUDIO / VISUAL ALERT		WAVE-OFF LIGHT ACTIVATION TO NAVAIDS	72-XS-001
12	AUDIO / VISUAL ALERT			
13	AUDIO / VISUAL ALERT			
14	AUDIO / VISUAL ALERT			
15	AUDIO / VISUAL ALERT			
16	AUDIO / VISUAL ALERT			
17	SIS SYSTEM	1	ESD-1D TO SIS SYTEM	70-XS-002
18	SIS SYSTEM			
19	SIS SYSTEM			
20	SIS SYSTEM			
21	SIS SYSTEM			
22	SIS SYSTEM			
23	SIS SYSTEM			
24	SIS SYSTEM			
25	SIS SYSTEM			
26	SIS SYSTEM			
27	ELECTRIC ISOLATION			
28	ELECTRIC ISOLATION			
29	ELECTRIC ISOLATION			
30	ELECTRIC ISOLATION			
31	ELECTRIC ISOLATION			
32	ELECTRIC ISOLATION			
33	OTHER			
34	OTHER			
35	OTHER			
36	OTHER			
37	OTHER			
38	OTHER			
39	OTHER			
40	OTHER			
41	OTHER			
42	OTHER			
43	OTHER			
44	OTHER			
45	OTHER			
46	OTHER			
47	OTHER			
48	OTHER			
49	OTHER			
50	OTHER			
51	OTHER			
52	OTHER			
53	OTHER			

TAG Nos	CAUSE DESCRIPTION	VOTING	INHIBITION	REMARK	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
80-XA-001	GAS CONFIRMED IN FUEL CELL				1	X		F		X				X		X						X
					2																	
80-XA-002	SMOKE CONFIRMED IN FUEL CELL				3	X		F				X		X		X						X
					4																	
					5																	
					6																	
					7																	
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NOTES:
1. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE VnetIP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

LEGEND

TEST COMPLETED
GIANDONATO R.M.
19-03-2025
[signature]
PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO BE RESOLVED ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND [signature]
MARTIN TAYLOR
CROSSWIND
19-3-25

REFERENCE DOCUMENTS	
TITLE	NUMBER
Process Safety Cause and Effect Matrix	123A90-DDL-IN-CE-40000
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000
F&G detectors Layout - Lower deck and Upper deck	123A90-DDL-SAF-DL-30027
F&G detectors Layout - Below Lower deck	123A90-DDL-SAF-DL-30028

Rev.	Date	Status	Description	DRN	CHKD	APPD
00	08/03/2024	IFA	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	12/06/2024	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO
02	08/10/2024	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO
03	11/02/2025	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO

CROSSWIND | ROSETTI MARINO

Fire & Gas Cause & Effect Matrix: FUEL CELL

DATE 11/02/2025

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

Sheet. 9 of 17 | 03

FIRE ZONE 01/02/03/05
HYDROGEN OPEN AREA

FZ-01= FUEL CELL AREA
FZ-02= H2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT

No.	SYS	NOTES	DESCRIPTION	TAG No.
1	AUDIO / VISUAL ALERT		OPERATOR WORKSTATION DISPLAY - EVENT/ALARM	
2	AUDIO / VISUAL ALERT			
3	AUDIO / VISUAL ALERT		F&G ALARM ON CAP ONSHORE	
4	AUDIO / VISUAL ALERT			
5	AUDIO / VISUAL ALERT	TO SHEET 17	GAS BEACON ACTIVATION - AMBER	
6	AUDIO / VISUAL ALERT			
7	AUDIO / VISUAL ALERT	TO SHEET 17	FIRE BEACON ACTIVATION - RED	
8	AUDIO / VISUAL ALERT			
9	AUDIO / VISUAL ALERT	TO SHEET 17	SOUNDER ACTIVATION	
10	AUDIO / VISUAL ALERT			
11	AUDIO / VISUAL ALERT		WAVE-OFF LIGHT ACTIVATION TO NAVAIDS	72-XS-001
12–16	AUDIO / VISUAL ALERT			
17	SIS SYSTEM	1	H2 IN OPEN AREA TO SIS SYST. (TRIP EQ. NOT FOR ZONE 1 IN OPEN AREA)	70-XS-005
18–26	SIS SYSTEM			
27	ELECTRIC ISOLATION		ELECTRICAL ISOLATION VISIBILITY METER NOT SUITABLE FOR ZONE IIC or (IIB+H2)	72-XS-002
28–32	ELECTRIC ISOLATION			
33–53	OTHER			

CAUSE

TAG Nos	DESCRIPTION	VOTING	INHIBITION	REMARK	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
950-GDZ-02101 950-GDZ-02102 950-GDZ-02103 950-GDZ-02104 950-GDZ-02105 950-GDZ-02106 950-GDZ-02107 950-GDZ-02108 950-GDZ-02109 950-GDZ-02110 950-GDZ-02111 950-GDZ-02112 950-GDZ-02113 950-GDZ-02114 950-GDZ-02115 950-GDZ-02116 950-GDZ-02117 (ULTRAS.) 950-GDZ-02118 (ULTRAS.) 950-GDZ-02119 (ULTRAS.) 950-GDZ-02120 (ULTRAS.)	FZ-02 - H2 GAS LOW (ELECT./ ULTRAS. POINT 5% LFL)	1oo20	X		1	X		F																																														
	FZ-02 - H2 GAS HIGH (ELECT./ ULTRAS. POINT 10% LFL)	1oo20	X		2	X		F																																														
	FZ-02 - H2 GAS HIGH CONFIRMED (ELECT./ ULTRAS. POINT 10% L	2oo20			3	X		F		X				X		X						X										X																										
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950-GDZ-01101 (ULTRAS.) 950-GDZ-01102 (ULTRAS.) 950-GDZ-01103 (POINT)	FZ-01 - H2 GAS LOW (ULTRAS. POINT 5% LFL)	1oo3	X		13	X		F																																														
	FZ-01 - H2 GAS HIGH (ULTRAS. POINT 10% LFL)	1oo3	X		14	X		F																																														
	FZ-01 - H2 GAS HIGH CONFIRMED (ULTRAS. POINT 10% LFL)	2oo3			15	X		F		X				X		X						X										X																										
					16																																																	
950-GDZ-03101 (ULTRAS.) 950-GDZ-03102 (ULTRAS.) 950-GDZ-03103 (ULTRAS.) 950-GDZ-03104 (POINT) 950-GDZ-03105 (POINT)	FZ-03 - H2 GAS LOW (ULTRAS. POINT 5% LFL)	1oo5	X		17	X		F																																														
	FZ-03 - H2 GAS HIGH (ULTRAS POINT 10% LFL)	1oo5	X		18	X		F																																														
	FZ-03 - H2 GAS HIGH CONFIRMED (ULTRAS POINT 10% LFL)	2oo5			20	X		F		X				X		X						X										X																										
					21																																																	
950-GDZ-05101 950-GDZ-05102 950-GDZ-05103 950-GDZ-05104 950-GDZ-05105 950-GDZ-05106	FZ-05 - H2 GAS LOW (ELECTROCHEM. POINT 5% LFL)	1oo6	X		22	X		F																																														
	FZ-05 - H2 GAS HIGH (ELECTROCHEM. POINT 10% LFL)	1oo6	X		23	X		F																																														
	FZ-05 - H2 GAS HIGH CONFIRMED (ELECTROCHEM. POINT 10% LFL)	2oo6			24	X		F		X				X		X						X										X																										
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NOTES:
1. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE Vnet/IP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

LEGEND

TEST COMPLETED
GIANDONATO R.M.
14-03-2025
[signature]
PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO RESOLVE. ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND. 15/04/25
[signature] MARTIN TAYLOR
CROSSWIND

TITLE	NUMBER

REFERENCE DOCUMENTS

TITLE	NUMBER
Process Safety Cause and Effect Matrix	123A90-DDL-IN-CE-40000
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000
F&G detectors Layout - Lower deck and Upper deck	123A90-DDL-SAF-DL-30027
F&G detectors Layout - Below Lower deck	123A90-DDL-SAF-DL-30028

Rev.	Date	Status	Description	DRN	CHKD	APPD
00	08/03/2024	IFA	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	12/06/2024	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO
02	08/10/2024	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO
03	11/02/2025	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO

CROSSWIND | ROSETTI MARINO

Fire & Gas Cause & Effect Matrix: HYDROGEN OPEN AREA

DATE 11/02/2025

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

Sheet. 13 of 17 | 03

FIRE ZONE 01/02/03/04/05/06
FIRE OPEN AREA

FZ-01= FUEL CELL AREA
FZ-02= H2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT

TAG Nos	CAUSE: DESCRIPTION	VOTING	INHIBITION	REMARK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
					SYS	AUDIO / VISUAL ALERT																SIS SYSTEM										ELECTRIC ISOLATION						OTHER																				
					NOTES					TO SHEET 17		TO SHEET 17		TO SHEET 17								1																																				
					DESCRIPTION	OPERATOR WORKSTATION DISPLAY - EVENT/ALARM		F&G ALARM ON CAP ONSHORE		GAS BEACON ACTIVATION - AMBER		FIRE BEACON ACTIVATION - RED		SOUNDER ACTIVATION		WAVE-OFF LIGHT ACTIVATION TO NAVAIDS						ESD-1D TO SIS SYTEM																																				
					TAG No.											72-XS-001						70-XS-002																																				
950-FDZ-01101 950-FDZ-01102 950-FDZ-01103 950-FDZ-01104	FZ-01 - FLAME (UV/IR)	1oo4	X		1	X		F																																																		
	FZ-01 - FLAME CONFIRMED (UV/IR)	2oo4			2	X		F				X		X		X						X																																				
					3																																																				
950-FDZ-02101 950-FDZ-02102 950-FDZ-02103 950-FDZ-02104	FZ-02 - FLAME (UV/IR)	1oo4	X		4	X		F																																																		
	FZ-02 - FLAME CONFIRMED (UV/IR)	2oo4			5	X		F				X		X		X						X																																				
					6																																																				
950-FDZ-03101 950-FDZ-03102 950-FDZ-03103 950-FDZ-03104	FZ-03 (ELECTROLYZER AREA) - FLAME (UV/IR)	1oo4	X		7	X		F																																																			
	FZ-03 (ELECTROLYZER AREA) - FLAME CONFIRMED (UV/IR)	2oo4			8	X		F				X		X		X						X																																				
					9																																																				
950-FDZ-04101 950-FDZ-04102 950-FDZ-04103 950-FDZ-04104	FZ-04 - FLAME (UV/IR)	1oo4	X		10	X		F																																																			
	FZ-04 - FLAME CONFIRMED (UV/IR)	2oo4			11	X		F				X		X		X						X																																				
					12																																																				
950-FDZ-05101 950-FDZ-05102 950-FDZ-05103 950-FDZ-05104	FZ-05 - FLAME (UV/IR)	1oo4	X		13	X		F																																																			
	FZ-05 - FLAME CONFIRMED (UV/IR)	2oo4			14	X		F				X		X		X						X																																				
					15																																																				
950-FDZ-06101 950-FDZ-06102	FZ-06 - FLAME (UV/IR)	1oo2			16	X		F																																																		
	FZ-06 - FLAME CONFIRMED (UV/IR)	2oo2			17	X		F				X		X		X						X																																				
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NOTES:
1. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE Vnet/IP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

LEGEND

TEST COMPLETED
GIANDONATO R.M.
14-03-2025

GERRY MCCANN
CROSSWIND
14/3/25

REFERENCE DOCUMENTS	
TITLE	**NUMBER**
Process Safety Cause and Effect Matrix	123A90-DDL-IN-CE-40000
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000
F&G detectors Layout - Lower deck and Upper deck	123A90-DDL-SAF-DL-30027
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03	11/02/2025	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO

CROSSWIND | ROSETTI MARINO

Fire & Gas Cause & Effect Matrix: FIRE OPEN AREA

DATE 11/02/2025

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

FIRE ZONE 01/02/03/04/05/06/7
MFA PUSH BUTTONS

FZ-01= FUEL CELL AREA
FZ-02= H2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT

TAG Nos	CAUSE: DESCRIPTION	VOTING	INHIBITION	REMARK	TAG No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
					SYS	AUDIO / VISUAL ALERT																SIS SYSTEM										ELECTRIC ISOLATION						OTHER																				
					NOTES					TO SHEET 17		TO SHEET 17		TO SHEET 17																																								
					DESCRIPTION	OPERATOR WORKSTATION DISPLAY - EVENT/ALARM		F&G ALARM ON CAP ONSHORE		GAS BEACON ACTIVATION - AMBER		FIRE BEACON ACTIVATION - RED		SOUNDER ACTIVATION																																								
					1																																																			
950-MFA-01101	FZ-01 MFA ACTIVATION		X	1	2	X		F				X		X																																								
950-MFA-01102	FZ-01 MFA ACTIVATION		X	1	3	X		F				X		X																																								
950-MFA-01103	FZ-01 MFA ACTIVATION		X	1	4	X		F				X		X																																								
					5																																																			
950-MFA-02101	FZ-02 MFA ACTIVATION		X	1	6	X		F				X		X																																								
					7																																																			
950-MFA-03101	FZ-03 MFA ACTIVATION		X	1	8	X		F				X		X																																								
950-MFA-03102	FZ-03 MFA ACTIVATION		X	1	9	X		F				X		X																																								
950-MFA-03103	FZ-03 MFA ACTIVATION		X	1	10	X		F				X		X																																								
950-MFA-03104	FZ-03 MFA ACTIVATION		X	1	11	X		F				X		X																																								
					12																																																			
950-MFA-04101	FZ-04 MFA ACTIVATION		X	1	13	X		F				X		X																																								
950-MFA-04102	FZ-04 MFA ACTIVATION		X	1	14	X		F				X		X																																								
					15																																																			
950-MFA-04201	FZ-04 MFA ACTIVATION - B-400 INDOOR		X	1	16	X		F				X		X																																								
950-MFA-04202	FZ-04 MFA ACTIVATION - B-400 INDOOR		X	1	17	X		F				X		X																																								
950-MFA-04203	FZ-04 MFA ACTIVATION - B-400 INDOOR		X	1	18	X		F				X		X																																								
					19																																																			
950-MFA-05101	FZ-05 MFA ACTIVATION		X	1	20	X		F				X		X																																								
950-MFA-05102	FZ-05 MFA ACTIVATION		X	1	21	X		F				X		X																																								
950-MFA-05103	FZ-05 MFA ACTIVATION		X	1	22	X		F				X		X																																								
950-MFA-05104	FZ-05 MFA ACTIVATION		X	1	23	X		F				X		X																																								
					24																																																			
950-MFA-05201	FZ-05 MFA ACT. - WATER TREAT. PK INDOOR		X	1	25	X		F				X		X																																								
					26																																																			
950-MFA-06101	FZ-06 MFA ACTIVATION		X	1	27	X		F				X		X																																								
950-MFA-06102	FZ-06 MFA ACTIVATION		X	1	28	X		F				X		X																																								
					29																																																			
950-MFA-06201	FZ-06 MFA ACTIVATION - B-100 INDOOR		X	1	30	X		F				X		X																																								
					31																																																			
950-MFA-07101	FZ-07 MFA ACTIVATION		X	1	32	X		F				X		X																																								
					33																																																			
					34																																																			
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					41																																																			

NOTES:
1. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ASD PUSH BUTTONS ACTIVATION.

LEGEND

GERRY MCCANN
CROSSWIND
12/3/2025

TEST COMPLETED
12-03-2025
GIANDONATO R.U.

REFERENCE DOCUMENTS	
TITLE	NUMBER
Process Safety Cause and Effect Matrix	123A90-DDL-IN-CE-40000
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000
F&G detectors Layout - Lower deck and Upper deck	123A90-DDL-SAF-DL-30027
F&G detectors Layout - Below Lower deck	123A90-DDL-SAF-DL-30028

Rev.	Date	Status	Description	DRN	CHKD	APPD
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03	11/02/2025	AFC	Accepted for Construction (AFC)	LCA	MGA	DLO

CROSSWIND | ROSETTI MARINO

Fire & Gas Cause & Effect Matrix: MFA PUSH BUTTONS

DATE 11/02/2025

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

FIRE ZONE 01/02/03/04/05/06/7
SOUNDERS AND BEACONS

FZ-01= FUEL CELL AREA
FZ-02= H2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT

No.	SYS	NOTES	DESCRIPTION	TAG No.
1	GAS VISUAL ALERT BEACONS (AMBER)			
2	GAS VISUAL ALERT BEACONS (AMBER)		FZ-01 GAS BEACON ACTIVATION	950-XL-01101
3	GAS VISUAL ALERT BEACONS (AMBER)		FZ-02 GAS BEACON ACTIVATION	950-XL-02101
4	GAS VISUAL ALERT BEACONS (AMBER)		FZ-03 GAS BEACON ACTIVATION	950-XL-03101
5	GAS VISUAL ALERT BEACONS (AMBER)		FZ-03 GAS BEACON ACTIVATION	950-XL-03103
6	GAS VISUAL ALERT BEACONS (AMBER)		FZ-04 GAS BEACON ACTIVATION	950-XL-04101
7	GAS VISUAL ALERT BEACONS (AMBER)		FZ-04 GAS BEACON ACTIVATION	950-XL-04103
8	GAS VISUAL ALERT BEACONS (AMBER)		FZ-04 GAS BEACON ACT. - B-400 INDOOR	950-XL-04201
9	GAS VISUAL ALERT BEACONS (AMBER)		FZ-04 GAS BEACON ACT. - B-300 INDOOR	950-XL-04203
10	GAS VISUAL ALERT BEACONS (AMBER)		FZ-04 GAS BEACON ACT. - B-200 INDOOR	950-XL-04205
11	GAS VISUAL ALERT BEACONS (AMBER)		FZ-05 GAS BEACON ACT. - WATER T. INDOOR	950-XL-05201
12	GAS VISUAL ALERT BEACONS (AMBER)		FZ-06 GAS BEACON ACTIVATION	950-XL-06101
13	GAS VISUAL ALERT BEACONS (AMBER)		FZ-06 GAS BEACON ACTIVATION	950-XL-06103
14	GAS VISUAL ALERT BEACONS (AMBER)		FZ-06 GAS BEACON ACT. - B-100 INDOOR	950-XL-06201
15	GAS VISUAL ALERT BEACONS (AMBER)		FZ-07 GAS BEACON ACTIVATION	950-XL-07101
16	GAS VISUAL ALERT BEACONS (AMBER)			
17	FIRE VISUAL ALERT BEACONS (RED)			
18	FIRE VISUAL ALERT BEACONS (RED)		FZ-01 FIRE BEACON ACTIVATION	950-XL-01102
19	FIRE VISUAL ALERT BEACONS (RED)		FZ-02 FIRE BEACON ACTIVATION	950-XL-02102
20	FIRE VISUAL ALERT BEACONS (RED)		FZ-03 FIRE BEACON ACTIVATION	950-XL-03102
21	FIRE VISUAL ALERT BEACONS (RED)		FZ-03 FIRE BEACON ACTIVATION	950-XL-03104
22	FIRE VISUAL ALERT BEACONS (RED)		FZ-04 FIRE BEACON ACTIVATION	950-XL-04102
23	FIRE VISUAL ALERT BEACONS (RED)		FZ-04 FIRE BEACON ACTIVATION	950-XL-04104
24	FIRE VISUAL ALERT BEACONS (RED)		FZ-04 FIRE BEACON ACT. - B-400 INDOOR	950-XL-04202
25	FIRE VISUAL ALERT BEACONS (RED)		FZ-04 FIRE BEACON ACT. - B-300 INDOOR	950-XL-04204
26	FIRE VISUAL ALERT BEACONS (RED)		FZ-04 FIRE BEACON ACT. - B-200 INDOOR	950-XL-04206
27	FIRE VISUAL ALERT BEACONS (RED)		FZ-05 FIRE BEACON ACT. - WATER T. INDOOR	950-XL-05202
28	FIRE VISUAL ALERT BEACONS (RED)		FZ-06 FIRE BEACON ACTIVATION	950-XL-06102
29	FIRE VISUAL ALERT BEACONS (RED)		FZ-06 FIRE BEACON ACTIVATION	950-XL-06104
30	FIRE VISUAL ALERT BEACONS (RED)		FZ-06 FIRE BEACON ACT. - B-100 INDOOR	950-XL-06202
31	FIRE VISUAL ALERT BEACONS (RED)		FZ-07 FIRE BEACON ACTIVATION	950-XL-07102
32	FIRE VISUAL ALERT BEACONS (RED)			
33	AUDIO ALERT SOUNDERS			
34	AUDIO ALERT SOUNDERS		FZ-01 SOUNDER ACTIVATION	950-XZ-01101
35	AUDIO ALERT SOUNDERS		FZ-01 SOUNDER ACTIVATION	950-XZ-01102
36	AUDIO ALERT SOUNDERS		FZ-02 SOUNDER ACTIVATION	950-XZ-02101
37	AUDIO ALERT SOUNDERS		FZ-03 SOUNDER ACTIVATION	950-XZ-03101
38	AUDIO ALERT SOUNDERS		FZ-03 SOUNDER ACTIVATION	950-XZ-03102
39	AUDIO ALERT SOUNDERS		FZ-04 SOUNDER ACTIVATION	950-XZ-04101
40	AUDIO ALERT SOUNDERS		FZ-04 SOUNDER ACTIVATION	950-XZ-04102
41	AUDIO ALERT SOUNDERS		FZ-04 SOUNDER ACT. - B-400 INDOOR	950-XZ-04201
42	AUDIO ALERT SOUNDERS		FZ-04 SOUNDER ACT. - B-300 INDOOR	950-XZ-04202
43	AUDIO ALERT SOUNDERS		FZ-04 SOUNDER ACT. - B-200 INDOOR	950-XZ-04203
44	AUDIO ALERT SOUNDERS		FZ-05 SOUNDER ACTIVATION	950-XZ-05101
45	AUDIO ALERT SOUNDERS		FZ-05 SOUNDER ACTIVATION	950-XZ-05102
46	AUDIO ALERT SOUNDERS		FZ-05 SOUNDER ACTIVATION	950-XZ-05103
47	AUDIO ALERT SOUNDERS		FZ-05 SOUNDER ACTIVATION	950-XZ-05104
48	AUDIO ALERT SOUNDERS		FZ-05 SOUNDER ACTIVATION - WTER T. INDOOR	950-XZ-05201
49	AUDIO ALERT SOUNDERS		FZ-06 SOUNDER ACTIVATION	950-XZ-06101
50	AUDIO ALERT SOUNDERS	2	FZ-06 SOUNDER ACT. - B-100 INDOOR	950-XZ-06201
51	AUDIO ALERT SOUNDERS		FZ-07 SOUNDER ACTIVATION	950-XZ-07101
52	AUDIO ALERT SOUNDERS			
53	AUDIO ALERT SOUNDERS		WAVE-OFF LIGHT ACTIVATION TO NAVAIDS	72-XS-001

CAUSE

TAG Nos	DESCRIPTION	VOTING	INHIBITION	REMARK		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
	GAS CONFIRMED IN B-100 (HV CONTAINER)			From sheet 5	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED B-200 IN (LV CONTAINER)			From sheet 6	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN B-300 (UPS CONTAINER)			From sheet 7	3		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN B-400 (ITER CONTAINER)			From sheet 8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN FUEL CELL			From sheet 9	5		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN BESS			From sheet 10	6		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN ELECTROLYZER			From sheet 11	7		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	GAS CONFIRMED IN WATER TREAT. PKG			From sheet 12	8		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	HYDROGEN OPEN AREA			From sheet 13	9		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					10																																																	
	SMOKE CONFIRMED IN B-100 (HV CONTAINER)			From sheet 5	11																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONFIRMED B-200 IN (LV CONTAINER)			From sheet 6	12																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONF. IN B-300 (UPS CONTAINER)			From sheet 7	13																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONF. IN B-400 (ITER CONTAINER)			From sheet 8	14																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONFIRMED IN FUEL CELL			From sheet 9	15																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONFIRMED IN BESS			From sheet 10	16																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONFIRMED IN ELECTROLYZER			From sheet 11	17																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	SMOKE CONFIRMED IN WATER TREAT. PKG			From sheet 12	18																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	FIRE OPEN AREA			From sheet 15	19																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					20																																																	
	O2 GAS HIGH CONFIRMED			From sheet 14	21		X	X	X	X	X	X	X	X	X	X	X	X	X	X																			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					22																																																	
	MFA PUSH BUTTONS ACTIVATION FZ 01/02/03/04/05/06/7			From sheet 16	23																		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
					24																																																	
79-XA-001	ASD ACTIVATION FROM SIS SYSTEM			NOTE 1	25		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
79-XA-002	ESD-1D ACTIVATION FROM SIS SYSTEM			NOTE 1	26		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
79-XA-003	ESD-1 ACTIVATION FROM SIS SYSTEM			NOTE 1	27		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
					28																																																	
79-XA-004	MOB PUSH BUTTONS ACTIVATION FROM SIS SYSTEM			NOTE 1	29		X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
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NOTES:
1. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE Vnet/IP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP
2. It will be possible to deactivate the sounder 950-XZ-07101 (installed in Master Area) from CAP onshore.

LEGEND

TEST COMPLETED
GIANDONATO R.M.
19-03-2025

WITNESSED

PAUL WILLIAMSON
CROSSWIND
19-MAR-2025

REFERENCE DOCUMENTS	
TITLE	**NUMBER**
Process Safety Cause and Effect Matrix	123A90-DDL-IN-CE-40000
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000
F&G detectors Layout - Lower deck and Upper deck	123A90-DDL-SAF-DL-30027
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CROSSWIND | ROSETTI MARINO

Fire & Gas Cause & Effect Matrix: SOUNDERS AND BEACONS

DATE 11/02/2025

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

 03

Section 5.2 Operational Test Certificates

NOT APPLICABLE

Section 6 PIPING AND VESSEL PREPARATION

Section 6.1 Final Mechanical / Vessel Inspection Checks Index

NOT APPLICABLE

Section 6.2 Leak Test / Drying / Inerting Test Sheets Index

NOT APPLICABLE

Section 6.3 Chemical Loading & First Fill records Index

NOT APPLICABLE

Section 6.4 Chemical Cleaning Reports and Records Index

NOT APPLICABLE

Section 6.5 Lubrication Schedule

NOT APPLICABLE

Section 7 VENDOR

Section 7.1 Vendor Package Summary Index

NOT APPLICABLE

Section 7.2 SAT Procedure with associated punch list and reference (Front Page)

NOT APPLICABLE

Section 7.3 Vendor Spares & Special Tools lists references

ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	SPARE PART INDEX REGISTER (COMMISSIONING, 2-YEAR's) - FIRE AND GAS FIELD EQUIPMENT				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)			Contract	CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000821-COM-LIS-00011	Rev. Issued for review	Rev. Date 22-Oct-24 / Status IFR / Class 2

The equipment consists of the following units/components

1 Tag no.

2 Tag description

3 Manufacturer model/type no.

4 Manufacturer serial no.

5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: FORES ENGINEERING srl
Address: VIA SECONDO CASADEI 12
47122 Forlì
ITALY

PO Number: 1721002632

PO description: FIRE AND GAS FIELD EQUIPMENT
Supplier telephone no: +39.0543.813811
E-mail: Fores@fores.it

Contact name: MRS MATTEO OSSANI
Contact mobile no:
WEBSITE http://www.fores.it/

General Information:

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Parts/drawing ref.: Project Detail dwg. no.	Parts/drawing ref.: Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturename	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	24	SMOKE DETECTOR ZETTLER MR601TEx	1724000821-IN-DS-00004	1724000821-IN-DA-00003		FR110 "Bayblend" fire resistant												MR601TEx	ZETTLER	0	1	
2	49	GAS DETECTOR HYDROGEN Dräger Polytron® 8200 CAT DQ	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												Polytron® 8200 CAT DQ d S	Dräger	0	1	
3	9	GAS DETECTOR ULTRASONIC Dräger Polytron® 8900 UGLD	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												Polytron® 8900 UGLD d S 4-	Dräger	0	1	
4	3	GAS DETECTOR OXYGEN Dräger Polytron 8100 EC d S 4-	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												Polytron 8100 EC d S 4-	Dräger	0	1	
5	22	FLAME DETECTOR FGD FlameSpec FLS-UV-IR-AS11	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												FlameSpec FLS-UV-IR-AS11	FGD	0	1	
6	21	PUSH BUTTON MEDC SM87PBL MANUAL FIRE ALARM	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												SM87PB	MEDC	0	1	
7	20	PUSH BUTTON MEDC SM87PBL PUSH BUTTON TO SIS	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												SM87PB	MEDC	0	1	
8	13	GAS FLASH BEACON (AMBER) MEDC SM87LEDS	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												SM87LEDS	MEDC	0	1	
9	13	FIRE FLASH BEACON (RED) MEDC SM87LEDS	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												SM87LEDS	MEDC	0	1	
10	17	SOUNDER MEDC DB3B	1724000821-IN-DS-00004	1724000821-IN-DA-00003		AISI 316												DB3B	MEDC	0	1	
11	32	PUSH BUTTON DPDT CONTACT EATON GHG 432	1724000821-IN-DS-00004	1724000821-IN-DA-00003		Polyamide												GHG 432	EATON	0	0	
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Section 7.4 Vendor Data / Operations / Maintenance Manuals References

NOT APPLICABLE

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE