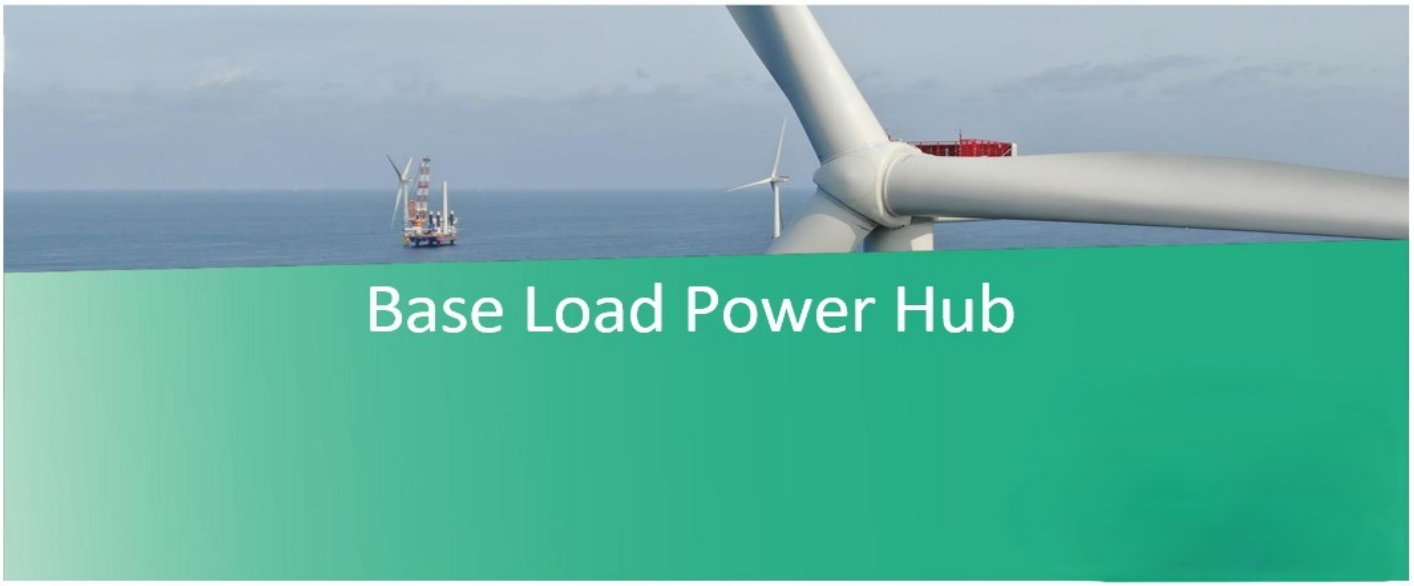
CROSSWIND

ROSETTI MARINO

PROVERUS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	79 Emergency Shutdown systems
SUBSYSTEM	79-00 Emergency Shutdown Systems (SIS)

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

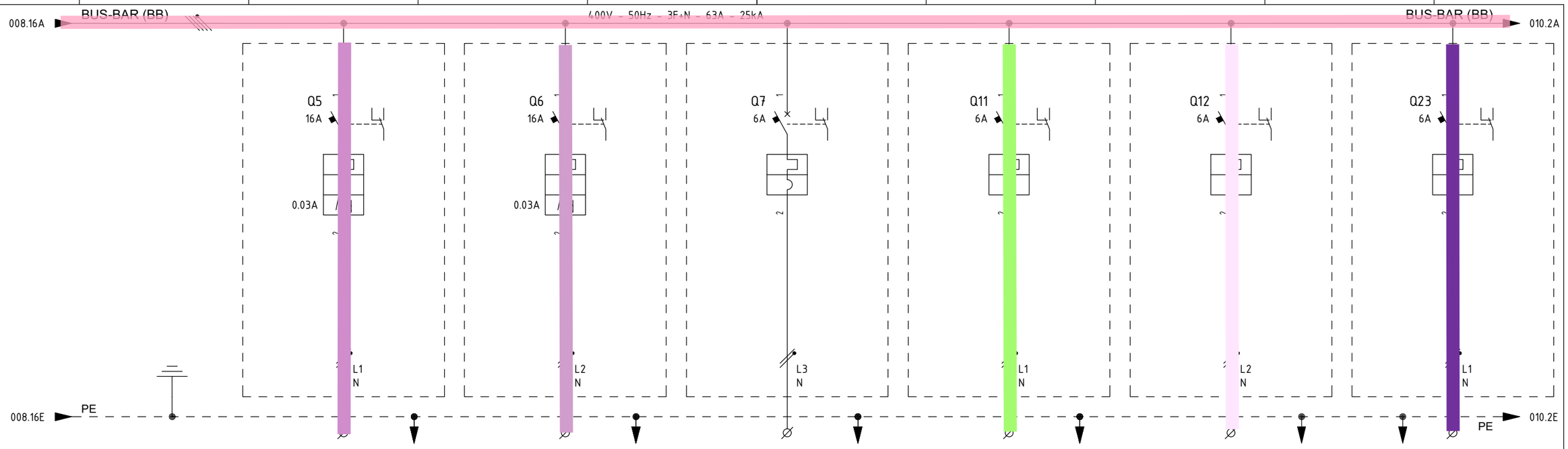
ROSETTI MARINO

Sub System N°:	79-00	**Tick as appropriate**	ONSHORE	OK
Description:	Emergency Shutdown Systems (SIS)		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*	OK
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 2025-04-25T12:18:05.690Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-25T13:35:03.352Z

Section 1 SUB-SYSTEM DEFINITION



ITEM			1	ESO-200N1-05-L1-01		ESO-200N1-06-L2-01		-		ESH-200N1-11-L1-01		ESH-200N1-12-L2-01		B400-SIS-001	
UTILITY			2	SMALL POWER SOCKET (UPPER DECK)		SMALL POWER SOCKET (LOWER DECK)		SPARE		SPACE HEATERS JB - WIND FARM SUBSEA CABLE		SPACE HEATERS JB - SOLAR SUBSEA CABLE		SIS-CONTROLLER AND I/O CABINET - AUXILIARY	
CUBICLE			3	+03		+03		+03		+03		+03		+03	
RATED POWER | RATED CURRENT			4/5	3 KW	14.49 A	3 KW	14.49 A	0.726 KW	3.95 A	0.25 KW	1.14 A	0.25 KW	1.14 A	0.5 KW	2.72 A
TYPICAL FUNCTIONAL			6	-		-		-		-		-		-	
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C16 + DDA202 AC-25/0.03		S302P-C16 + DDA202 AC-25/0.03		S302P-C6		S302P-C6		S302P-C6		S302P-C6	
	VERSION		8	2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE	
	TRIP UNITS		9	In=16A - Curve C / Id=0.03A Class AC		In=16A - Curve C / Id=0.03A Class AC		In=6A - Curve C		In=6A - Curve C		In=6A - Curve C		In=6A - Curve C	
	Icu	KA	10	25kA		25kA		25kA		25kA		25kA		25kA	
OVERLOAD	L	Range A	11	-		-		-		-		-		-	
		Range t	12	-		-		-		-		-		-	
SEL. SHORT-CIRCUIT	S	Range A	13	-		-		-		-		-		-	
		Range t	14	-		-		-		-		-		-	
INST. SHORT-CIRCUIT	I	Range A	15	SUBSYSTEM 83-55		SUBSYSTEM 83-55		-		SUBSYSTEM 81-00		SUBSYSTEM 83-10		SUBSYSTEM 79-00	
		Range t	16	-		-		-		-		-		-	
EARTH FAULT PROTECTION	G	Range A	17	-		-		-		-		-		-	
		Range t	18	-		-		-		-		-		-	
CONTACTOR (ABB)			19	-		-		-		-		-		-	
THERMAL OVERLOAD RELAY (ABB)			20	-		-		-		-		-		-	
SURGE ARRESTERS (DHENN)			21	-		-		-		-		-		-	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-		-		-		-		-		-	
FUSE HOLDER (ABB)			23	-		-		-		-		-		-	
TWILIGHT SWITCH (ABB)			24	-		-		-		-		-		-	
VOLTMETER (FRER)			25	-		-		-		-		-		-	
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-		-		-		-		-		-	
	PERFORMANCE/CLASS		27	-		-		-		-		-		-	
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-		-		-		-		-		-	
	PERFORMANCE/CLASS		29	-		-		-		-		-		-	
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 10		SCREW / 10		SCREW / 4		SCREW / 4		SCREW / 4		SCREW / 4	
POWER CONDUCTOR		mm²	31	3G10		3G10		3G2.5		3G2.5		3G2.5		3G2.5	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
2	24/04/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	15/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/13

Item n° : PF1002888/101

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00013

SHEET 009

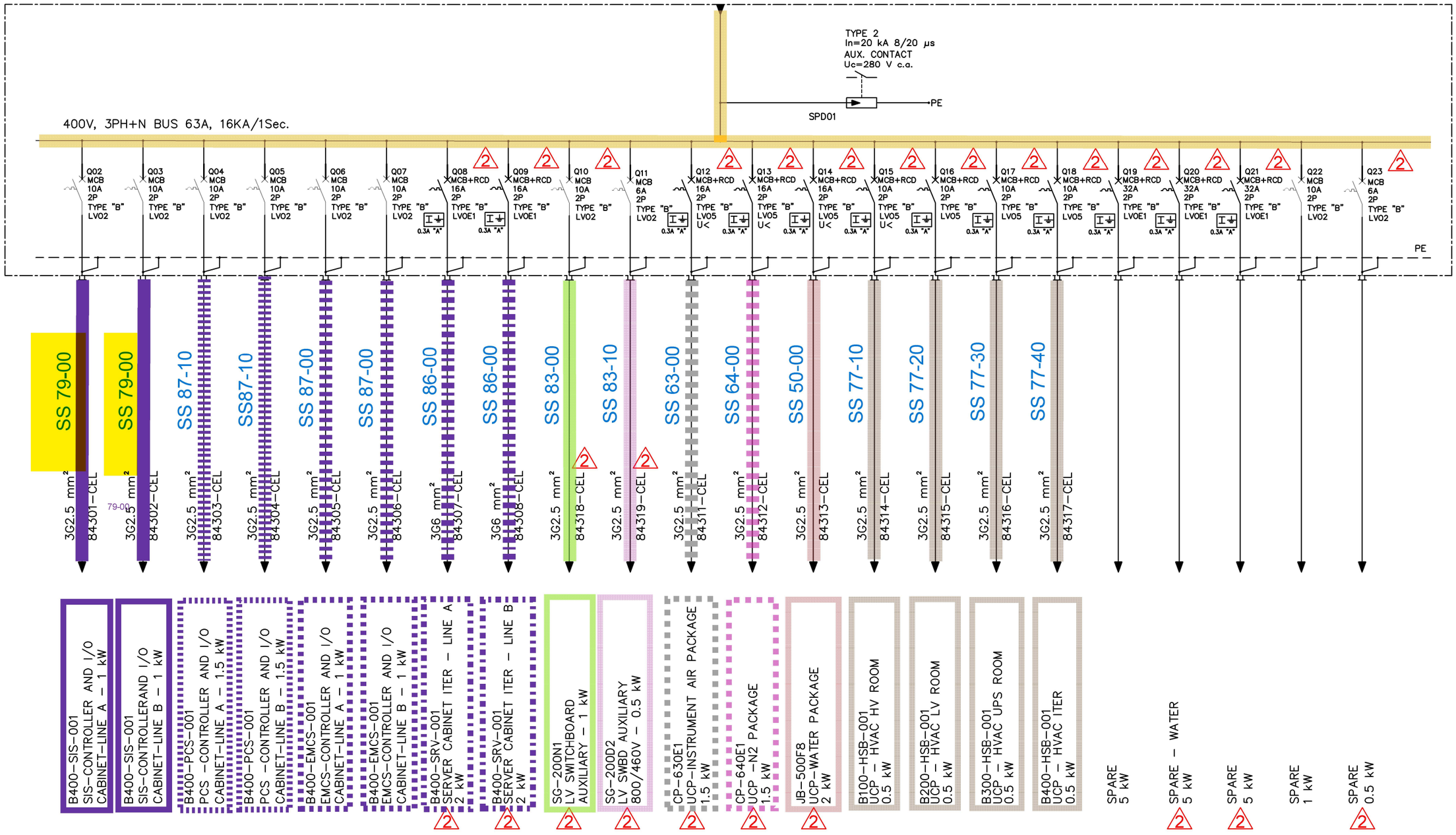
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00013 Rev. 03

AC UPS – PAS SINGLE LINE DIAGRAM(UP–200F3) DISTRIBUTION BOARD DETAILS

AC UPS DISTRIBUTION BOARD–PAS
DP–200F3



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/09/24	SAM	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	12/04/24	SAM	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	14/02/24	SAM	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL SINGLE LINE DIAGRAMS AC UPS SYSTEMS
AC UPS – PAS DISTRIBUTION BOARD SLD (UP–200F3)

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

SCALE : 1:X

A3

DRAWING NO. 123A90–DDL–EL–DG–20160

SHEET 005

REV. 02

File Name : 123A90–DDL–EL–DG–20160 Rev. 02

F.to UNI A3: 420mmx297mm

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:	2025-04-03	
System:	79	/	Emergency Shutdown systems		
SubSystem:	79-00	/	Emergency Shutdown Systems (SIS)		

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 3	

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Martin Taylor
Date	2025-04-05	2025-04-25
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-05T06:54:33.088Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-25T10:20:49.092Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 79-00 & process: COMM

Electrical	79-00 Emergency Shutdown Systems (SIS)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q23	POWER SUPPLY SIS AUX - DP-200N1-Q23	ONSHORE	C10002837	FTR-2	100	2024-10-28	RFO 1
UP-200F3-QF43	ALIMENTAZIONE SIS - LINE A	ONSHORE	C10004580	FTR-2	100	2024-11-08	RFO 1
UP-200F3-QF44	ALIMENTAZIONE SIS - LINE B	ONSHORE	C10004581	FTR-2	100	2024-11-08	RFO 1

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	79	Emergency Shutdown systems
SUBSYSTEM	79-00	Emergency Shutdown Systems (SIS)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000329	A	84301-CEL C10000579	Armour of the cable is not connected to BTM.	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000330	A	84302-CEL C10000580	Armour of the cable is not connected to BTM.	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000392	A	83104-CEL C10000623	multiple earthing cables connected to one earthing connection. (See attachment photo) .	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000333	B	84301-CEL C10000579	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000334	B	84302-CEL C10000580	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000391	B	83104-CEL C10000623	Missing plastic cable tag outside the panel (DP-200N1) and on MCT inside and outside.	.		Gtangianu 2024-11-08			
C30000405	B	83104-CEL C10000623	Plastic cable ties to be replaced on external routing	.		Ecarotenuto 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	79	Emergency Shutdown systems
SUBSYSTEM	79-00	Emergency Shutdown Systems (SIS)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000228	B	B400-SIS-001	Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve		DONE	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000229	B	B400-SIS-001	N. 2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.		INSTALLED	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000230	B	B400-SIS-001	Install and connect system cables (N. 2 type KS1-5/HF, N. 16 AKB331-M005/HF).		INSTALLED	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000381	B	B400-SIS-001	Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30000382	B	B400-SIS-001	N.2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30000383	B	B400-SIS-001	Install and connect system cables. (N.2 type KS1-5/HF, N. 16 AKB331-M005/HF			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30001033	B	B400-SIS-001 C10000844	Cleaning is required inside the panels. See attcached photo.	.		Gtangianu 2024-11-29	2025-01-03	Gtangianu 2025-01-03	2025-01-03
C30001040	B	B400-SIS-001 C10000844	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW.	.		Gtangianu 2024-11-29			
C30001044	B	B400-SIS-001 C10000844	Earthing Internal base plate will be installed after commissioning.	.		Gtangianu 2024-11-29			

Section 2.2 Exception Punch Lists (per discipline)

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	79	Emergency Shutdown systems
SUBSYSTEM	79-00	Emergency Shutdown Systems (SIS)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001040	B	B400-SIS-001 C10000844	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW.	.		Gtangianu 2024-11-29			

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

CAE EPLAN Electric P8

This document is property of AEG Power Solutions and must not be displayed or duplicated to any third party without the consent of the company

AUXILIARY
From Lighting & Small Power DB BOP DP 200N1
(Cubicle 33 Q41)
100-240V/N/PE~50/60Hz
back-up fuse gG10A 3G2.5mm2

LINE A
From LV Switchgear SG-200N1
(Cubicle A3/Q1)
Mains 400V;3/PE~50Hz
gG63A 4G35mm2

From LV Switchgear SG 200N1
(Cubicle A7/Q2)
Bypass mains 400V;3/PE~50Hz
gG63A 4G35mm2

LINE B
From LV Switchgear SG 200N1
(Cubicle A4/Q1)
Mains 400V;3/PE~50Hz
gG63A 4G35mm2

Not included in the AEG shipment

Code	Description
Q1	Rectifier input mains breaker
T40	Rectifier input isolation transformer
A1	Rectifier
A2	Inverter
T1	Inverter output isolation transformer
A3-A4	Static by-pass switch
A18	Display control module
A85	Heater
H1	Light

+MBC1
BY-200F3
Bypass transformer cabinet 40 kVA
1000007883.020
10039757

-Q10 L=63/65A I=0,8kA Icu=50kA
-T8 400V/400V 40kVA
-X1 1U,1V,1W,PE
-X10 U,V,W,PE
-X13 U,N,PE
-X14 U,N
-A85
-H1

-Q28.1 NC
-Q28.2 NC

+UPS1
BC-200F3A
Protect 8.33 40-400-210-400
1000007883.010
10039756

+UPS2
BC-200F3B
Protect 8.33 40-400-210-400
1000007883.310
10039755

-Q1 L=100/85A I=1,0kA Icu=50kA
-T40
-A1 REC
-A2 INV
-T1
-F1,-F2,-F3
-A3 SBS
-A4
-A18 Display
-A20 Parallel Adapter
-X3 INV CAN
-X5 INV Sync
-L11,-L12,-L13 Parallel preventive choke coil
-A12,-A13 Remote signaling
-A24.1 BLU PRO
-F91

-X1 2U,2V,2W,PE
-X4 1U,1V,1W,1N,PE
-X4 2U,2V,2W,2N,PE
-X1 4U,4V,4W,PE
-X1 3U,3V,3W,PE
-E1-X1 U,V,W,PE
-E4-X4 U,V,W,N,PE
-E2-X2 L-,L+,PE
-E3-X3 U,V,W,N,PE
-X15 2,3
-X130 1,2
-X5 1U,1V,1W,1N,PE
-X5 2U,2V,2W,2N,PE
-X2 3L+,3L-,PE
-X15 5,7
-X91 3M

-Q71 NC
-Q72 NC
-Q29 INV operation / Manual bypass
-F25

DP-200F3
-QF31 B32A 300mA
-QF32 B32A 300mA
-QF33 B32A 300mA
-QF34 B16A 300mA (5pc)
-QF38 B16A 300mA
-QF39 B10A 300mA (4pc)
-QF42 B13A 300mA (8pc)
-QF43 B13A
-QF50 B10A
-QF51 B6A
-QF52 B6A
-X2 2L+,2L-,PE
-X15 4,5
-X91 2M
-X130 1,2,1PE
-X31 U,N,PE
-X32 U,N,PE
-X33 U,N,PE
-X34 U,N,PE
-X38 V,N,PE
-X39 V,N,PE
-X42 W,N,PE
-X43 W,N,PE
-X50 U,N,PE
-X51 V,N,PE
-X52 V,N,PE
-X2 4L+,4L-,PE
-X15 8,9
-X91 4M
-X130 3,4,2PE

Not included in the AEG shipment
max. gG16A
max. gG16A
Load
400/230V;3/N/PE~50Hz

+BFB1
CB-200F3A
Battery fuse box 200 A
-Q2 L=200A
DC 24V max. 300W
2(1x70 mm2)

+BFB2
CB-200F3B
Battery fuse box 200 A
-Q2 L=200A
DC 24V max. 300W
2(1x70 mm2)

+BAT1
BA-200F3A
Batteries installed on rack
18 x FLG 12-150
Battery voltage 216V
Battery capacity 150Ah
string 1
-RBTMN

+BAT2
BA-200F3B
Batteries installed on rack
18 x FLG 12-150
Battery voltage 216V
Battery capacity 150Ah
string 1
-RBTMN

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724000372-EL-DG-00009

REV.:	DATE:	SIGNATURE:
3_A	15/11/24	G.Randi

ROSETTI MARINO SpA

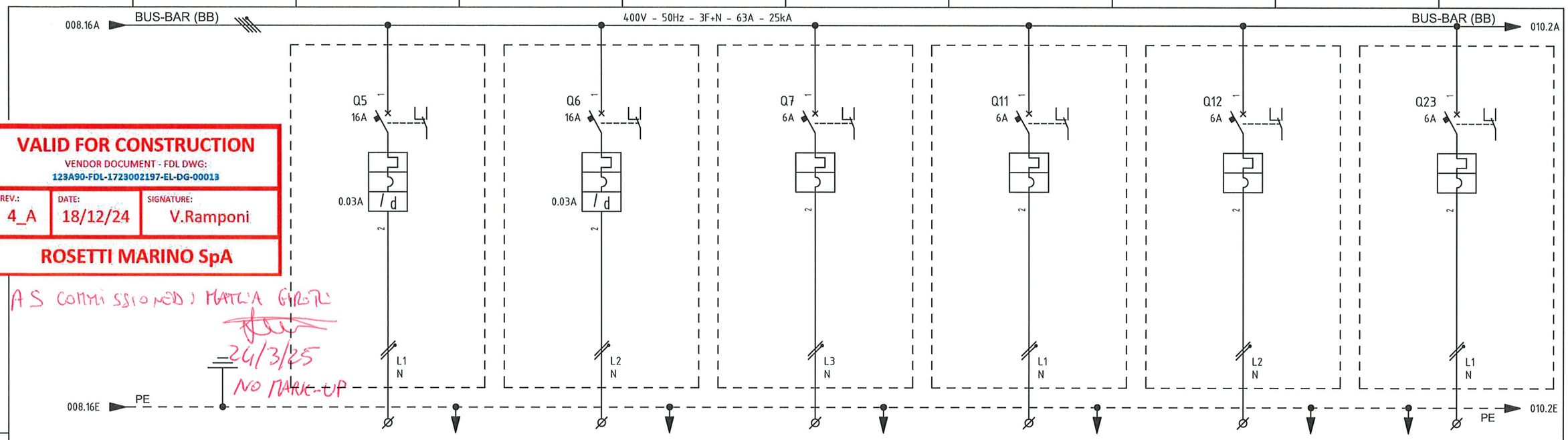
AS-COMMISSIONED
DAVIDE ZUCCONELLI
NO MARK UP
21/03/2025

*1 Attention! In the event of battery undervoltage < 130 V, the UPS automatically switches off battery isolator Q2.
If this happens, switch X15:3 must be switched into the open position (undervoltage trip blocked).
For restart, please refer to the chapter in the UPS operating instructions (charging the DC link capacitors) attached.
Unlock the tripped switch Q2 by switching to open position.
After charging the DC link capacitors, switch on Q2.
Attention! When the battery voltage reaches > 200 V, switch X15:3 must be switched back to the closed position.

*2 Connection cables are not included.

1000007888_010

ROSETTI MARINO
Mohammed Bin Rashid Al Maktoum Port Farm
AEG
System 40 kVA
Single-line diagram
1000007888_310 en
A0



VALID FOR CONSTRUCTION

VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1723002197-EL-DG-00013

REV.:	DATE:	SIGNATURE:
4_A	18/12/24	V.Ramponi

ROSETTI MARINO SpA

AS COMMISSIONED MATCH GIROTE
24/3/25
NO TAKE-UP

ITEM				1	ESO-200N1-05-L1-01	ESO-200N1-06-L2-01	-	ESH-200N1-11-L1-01	ESH-200N1-12-L2-01	B400-SIS-001
UTILITY				2	SMALL POWER SOCKET (UPPER DECK)	SMALL POWER SOCKET (LOWER DECK)	SPARE	~~SPACE HEATERS JB - WIND FARM SUBSEA CABLE~~ SPARE	~~SPACE HEATERS JB - SOLAR SUBSEA CABLE~~ SPARE	SIS-CONTROLLER AND I/O CABINET - AUXILIARY
CUBICLE				3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT				4/5	3 KW | 14.49 A	3 KW | 14.49 A	0.726 KW | 3.95 A	0.25 KW | 1.14 A	0.25 KW | 1.14 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL				6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE			7	S302P-C16 + DDA202 AC-25/0.03	S302P-C16 + DDA202 AC-25/0.03	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION			8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS			9	In=16A - Curve C / Id=0.03A Class AC	In=16A - Curve C / Id=0.03A Class AC	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu		KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range	A	11	-	-	-	-	-	-
		Range	t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range	A	13	-	-	-	-	-	-
		Range	t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range	A	15	-	-	-	-	-	-
		Range	t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range	A	17	-	-	-	-	-	-
		Range	t	18	-	-	-	-	-	-
CONTACTOR (ABB)				19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)				20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)				21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)				22	-	-	-	-	-	-
FUSE HOLDER (ABB)				23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)				24	-	-	-	-	-	-
VOLTMETER (FRER)				25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE			26	-	-	-	-	-	-
	PERFORMANCE/CLASS			27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE			28	-	-	-	-	-	-
	PERFORMANCE/CLASS			29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)			Type/mm²	30	SCREW / 10	SCREW / 10	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR			mm²	31	3G10	3G10	3G2.5	3G2.5	3G2.5	3G2.5

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
3	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
2	24/04/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	15/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/13

Item n° : PF1002888/101

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"
SINGLE LINE DIAGRAM
Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00013

SHEET 009

REV. 04

File Name : 1723002197-EL-DG-00013 Rev. 04

F.to UNI A3: 420mmx297mm

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	79	Emergency Shutdown systems
SUBSYSTEM	79-00	Emergency Shutdown Systems (SIS)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000329	A	84301-CEL C10000579	Armour of the cable is not connected to BTM.	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000330	A	84302-CEL C10000580	Armour of the cable is not connected to BTM.	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000392	A	83104-CEL C10000623	multiple earthing cables connected to one earthing connection. (See attachment photo) .	.		Gtangianu 2024-11-08	2024-11-29	Ecarotenuto 2024-11-29	2024-11-29
C30000333	B	84301-CEL C10000579	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000334	B	84302-CEL C10000580	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000391	B	83104-CEL C10000623	Missing plastic cable tag outside the panel (DP-200N1) and on MCT inside and outside.	.		Gtangianu 2024-11-08	2025-04-09	Gtangianu 2025-04-09	2025-04-09
C30000405	B	83104-CEL C10000623	Plastic cable ties to be replaced on external routing	.		Ecarotenuto 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 79 Emergency Shutdown systems

SUBSYSTEM 79-00 Emergency Shutdown Systems (SIS)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000228	B	B400-SIS-001	Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve		DONE	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000229	B	B400-SIS-001	N. 2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.		INSTALLED	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000230	B	B400-SIS-001	Install and connect system cables (N. 2 type KS1-5/HF, N. 16 AKB331-M005/HF).		INSTALLED	SLinari 2024-10-14	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000381	B	B400-SIS-001	Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30000382	B	B400-SIS-001	N.2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30000383	B	B400-SIS-001	Install and connect system cables. (N.2 type KS1-5/HF, N. 16 AKB331-M005/HF			SLinari 2024-10-14	2024-12-07	LNovaga 2024-12-07	2024-12-07
C30001033	B	B400-SIS-001 C10000844	Cleaning is required inside the panels. See attcached photo.	.		Gtangianu 2024-11-29	2025-01-03	Gtangianu 2025-01-03	2025-01-03
C30001040	B	B400-SIS-001 C10000844	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW.	.		Gtangianu 2024-11-29	RDegliEsposti 2025-06-16	RDegliEsposti 2025-06-16	2025-06-16
C30001044	B	B400-SIS-001 C10000844	Earthing Internal base plate will be installed after commissioning.	.		Gtangianu 2024-11-29	2025-04-11	Gtangianu 2025-04-11	2025-04-11

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000333

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000579	1.4 Discipline	Electrical
1.2 Item	84301-CEL		AC UPS - PAS DB / SIS -Controller and I/O Cabinet - Line A
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.

Name: Giovanni Tangianu

Date: 2024-11-08

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	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000334

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000580	1.4 Discipline	Electrical
1.2 Item	84302-CEL		AC UPS - PAS DB / SIS -Controller and I/O Cabinet - Line B
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.

Name: Giovanni Tangianu
Date: 2024-11-08
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	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu
Date: 2025-02-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000381

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve C, with NO auxiliary contact

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Refer to punch number: C30000228

Name Lorenzo Novaga

Date 2024-12-07

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000382

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

N.2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Refer to punch number: C30000229

Name Lorenzo Novaga

Date 2024-12-07

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000383

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Install and connect system cables. (N.2 type KS1-5/HF, N. 16 AKB331-M005/HF

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Refer to punch number: C30000230

Name Lorenzo Novaga

Date 2024-12-07

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000391

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000623	CPX09	1.4 Discipline	Electrical
1.2 Item	83104-CEL			Lighting & Small Power DB BoP / SIS -Controller and I/O Cabinet - Auxiliary
1.3 Subsystem	79-00			Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Missing plastic cable tag outside the panel (DP-200N1) and on MCT inside and outside.

Name: Giovanni Tangianu
Date: 2024-11-08
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	2024-11-08
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

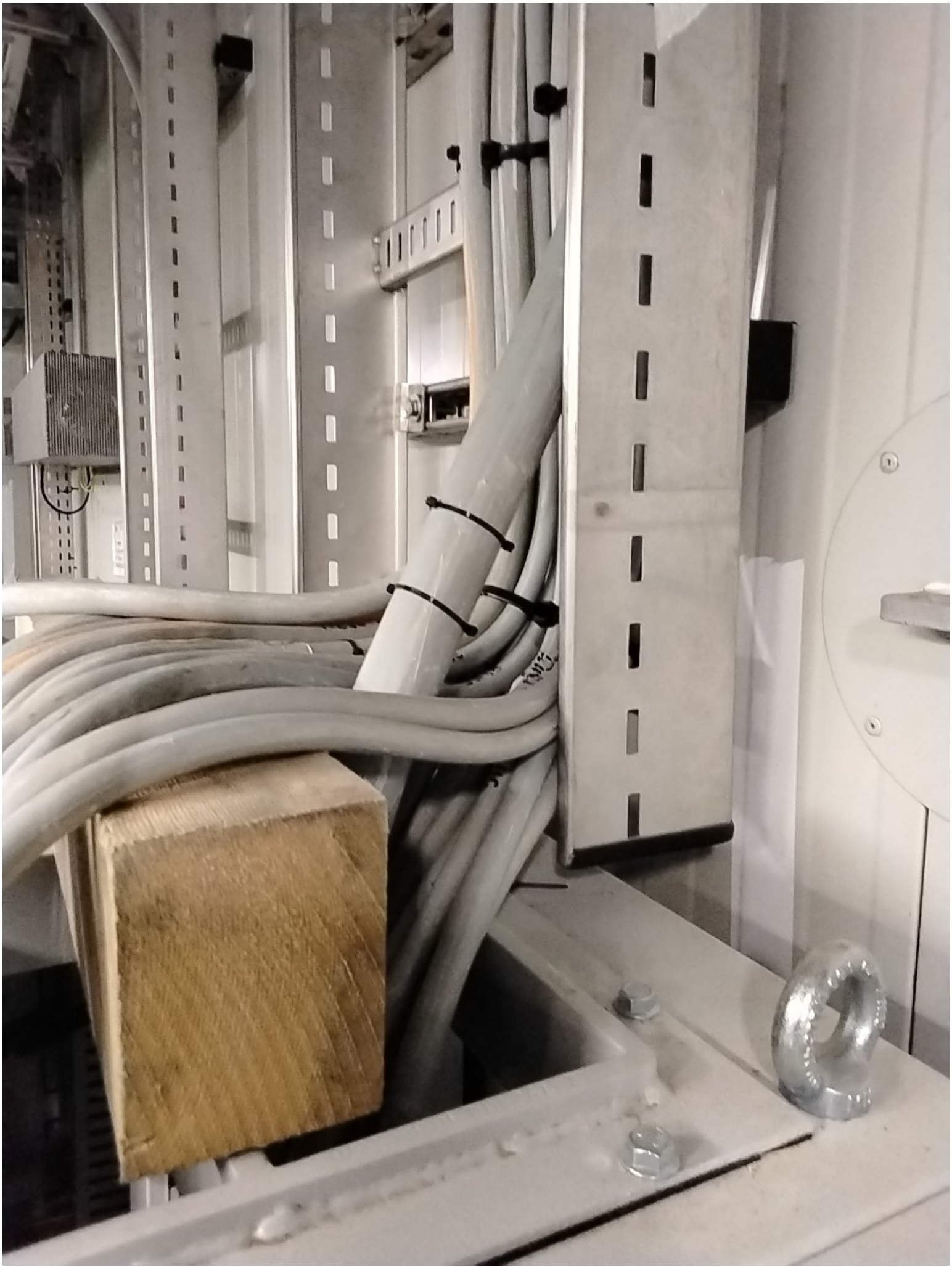
Installed.

Name: Giovanni Tangianu
Date: 2025-04-09
Signature:

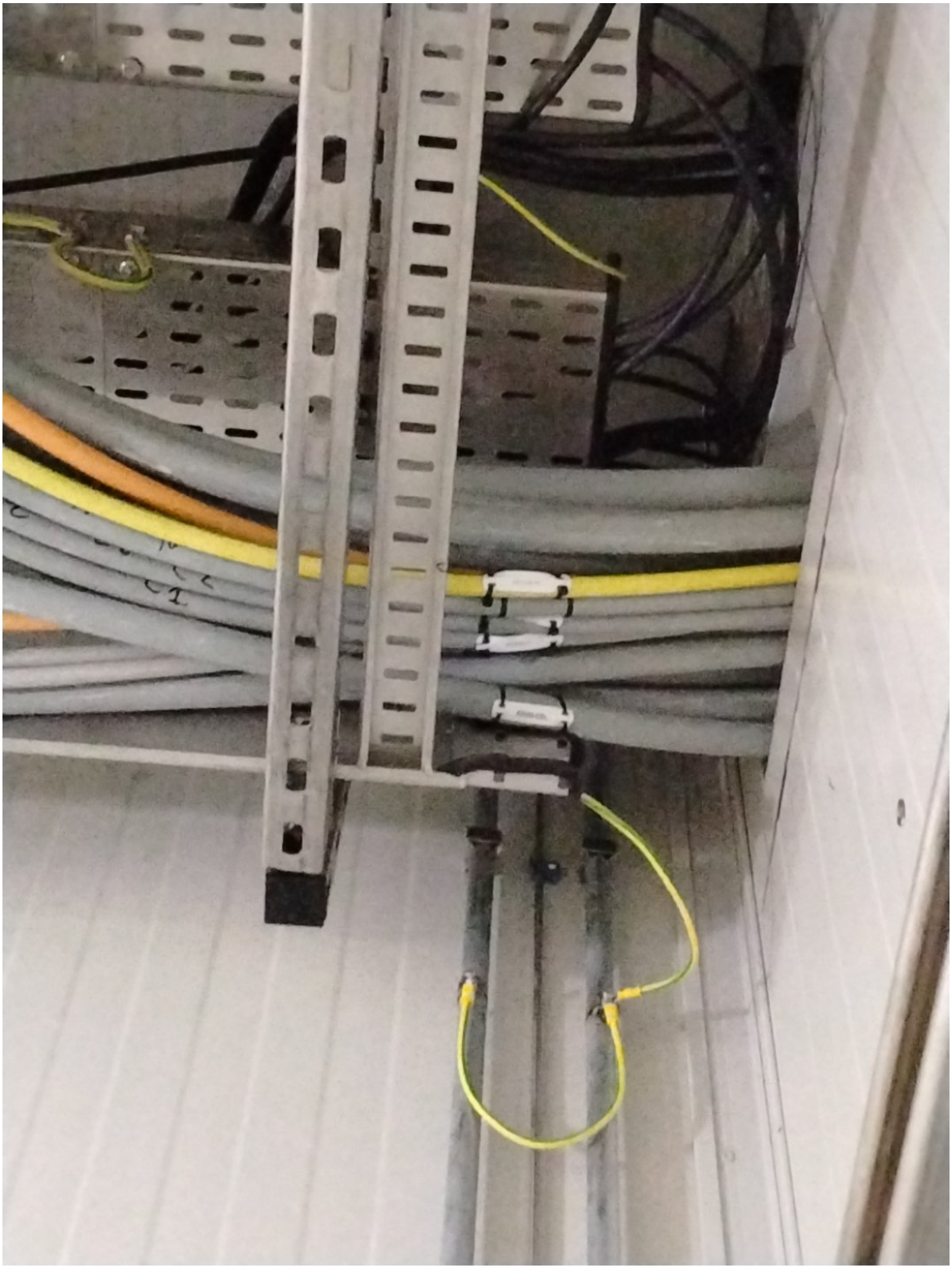
6- CLEARANCE APPROVAL

Name:
Date:
Signature:

2024-11-08 09:18 By Giovanni Tangianu



2024-11-08 09:21 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000392

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000623	1.4 Discipline	Electrical
1.2 Item	83104-CEL		Lighting & Small Power DB BoP / SIS -Controller and I/O Cabinet - Auxiliary
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

multiple earthing cables connected to one earthing connection. (See attachment photo) .

Name: Giovanni Tangianu
Date: 2024-11-08
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	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto
Date: 2024-11-29
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


PE-83124-CEL
PE-83108-CEL

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000405

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000623	CPX09	1.4 Discipline	Electrical
1.2 Item	83104-CEL			Lighting & Small Power DB BoP / SIS -Controller and I/O Cabinet - Auxiliary
1.3 Subsystem	79-00			Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Plastic cable ties to be replaced on external routing

Name: Giovanni Tangianu

Date: 2024-11-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Eleonora Carotenuto
3.4 Activity code	MC Mechanical Completion	Date	2024-11-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001033

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000844	1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001	SIS -Controller and I/O Cabinet	
1.3 Subsystem	79-00	Emergency Shutdown Systems (SIS)	

2 - OBSERVATION

Cleaning is required inside the panels.
See attcached photo.

Name: Giovanni Tangianu
Date: 2024-11-29
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	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-01-03
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001040

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000844	1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001	SIS -Controller and I/O Cabinet	
1.3 Subsystem	79-00	Emergency Shutdown Systems (SIS)	

2 - OBSERVATION

All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW.

Name: Giovanni Tangianu

Date: 2024-11-29

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	2024-11-29
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature:

5 - CLEARANCE CHECK

The issuance of the as-built documentation is part of the vendor's contractual obligations. This punch item is essentially a warning/reminder. All documentation listed in the SMIR must be approved with code 1 by RM and CW. The final vendor dossier is subject to approval.

Strictly speaking, this punch should not have been raised, as the requirement to issue final documentation was already implicit in the vendor scope. In principle, the same punch would have applied to all vendor packages.

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001044

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000844	1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001	SIS -Controller and I/O Cabinet	
1.3 Subsystem	79-00	Emergency Shutdown Systems (SIS)	

2 - OBSERVATION

Earthing Internal base plate will be installed after commissioning.

Name: Giovanni Tangianu

Date: 2024-11-29

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	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000228

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Replace disconnector switches Q22 and Q23 with the right rating 32A, with NO auxiliary contact. Replace CB Q65 and Q66 with rating 10A curve C, with NO auxiliary contact

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

DONE

Name VENDOR YOKOGAWA

Date 2024-12-10

Signature

5 - CLEARANCE CHECK

DONE

Name Stefano Linari

Date 2024-12-10

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature


Q41
Q42

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000229

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

N. 2 AI modules type SAI143-H63 must be installed in Node 1, Slots 1 and 2.

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

INSTALLED

Name VENDOR YOKOGAWA

Date 2024-12-10

Signature

5 - CLEARANCE CHECK

INSTALLED

Name Stefano Linari

Date 2024-12-10

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000230

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SIS-001		SIS -Controller and I/O Cabinet
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Install and connect system cables (N. 2 type KS1-5/HF, N. 16 AKB331-M005/HF).

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-14
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

INSTALLED

Name VENDOR YOKOGAWA

Date 2024-12-10

Signature

5 - CLEARANCE CHECK

INSTALLED

Name Stefano Linari

Date 2024-12-10

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000329

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000579	1.4 Discipline	Electrical
1.2 Item	84301-CEL		AC UPS - PAS DB / SIS -Controller and I/O Cabinet - Line A
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Armour of the cable is not connected to BTM.

Name: Giovanni Tangianu

Date: 2024-11-08

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	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-11-29

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000330

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000580	1.4 Discipline	Electrical
1.2 Item	84302-CEL		AC UPS - PAS DB / SIS -Controller and I/O Cabinet - Line B
1.3 Subsystem	79-00		Emergency Shutdown Systems (SIS)

2 - OBSERVATION

Armour of the cable is not connected to BTM.

Name: Giovanni Tangianu

Date: 2024-11-08

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	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-11-29

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 79-00 & process: COMM & discipline : E

Electrical	79-00 Emergency Shutdown Systems (SIS)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q23	POWER SUPPLY SIS AUX - DP-200N1-Q23	ONSHORE	C10002837	FTR-2	100	2024-10-28	RFO 1
UP-200F3-QF43	ALIMENTAZIONE SIS - LINE A	ONSHORE	C10004580	FTR-2	100	2024-11-08	RFO 1
UP-200F3-QF44	ALIMENTAZIONE SIS - LINE B	ONSHORE	C10004581	FTR-2	100	2024-11-08	RFO 1

ITEM	Tag	DP-200N1-Q23	: POWER SUPPLY SIS AUX - DP-200N1-Q23		Dwg	1723002197-EL-DG-00013	
	S/Sys	79-00	: Emergency Shutdown Systems (SIS)		Module		
TASK	code	C10002837	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

Manufacturer: ABB	Serial N°: NA	Relay type: NA
Auxiliary supply: NA	Location: B200	Cubicle: +03
Switchboard: DP-200N1		

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay Setting	Time delay Trip value
I	6A	NA	NA	FIXED	NA

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	10/07/2025

Comments:

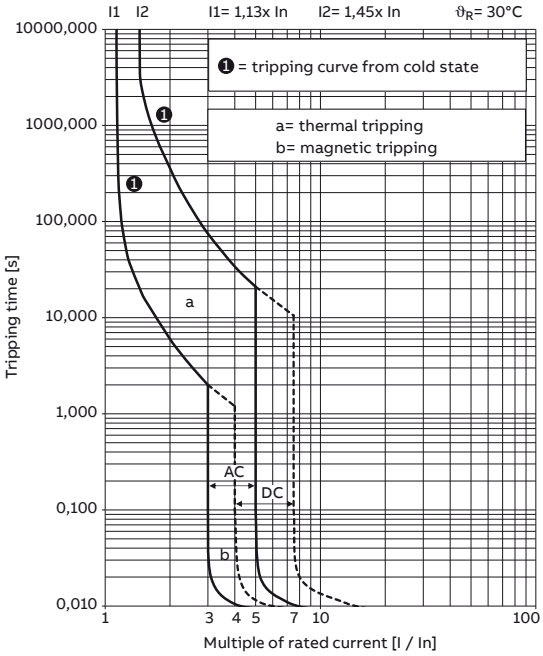
Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-10-28	2024-10-28	2024-10-28
Signature	Digitaly signed by Davide Zucconelli 2024-10-28T11:07:13.772Z	Digitaly signed by Kristian Castellani 2024-10-28T12:56:10.643Z	Digitaly signed by Witness waived 2024-10-28T13:27:43.816Z

Miniature Circuit breakers S300P

Tripping characteristics

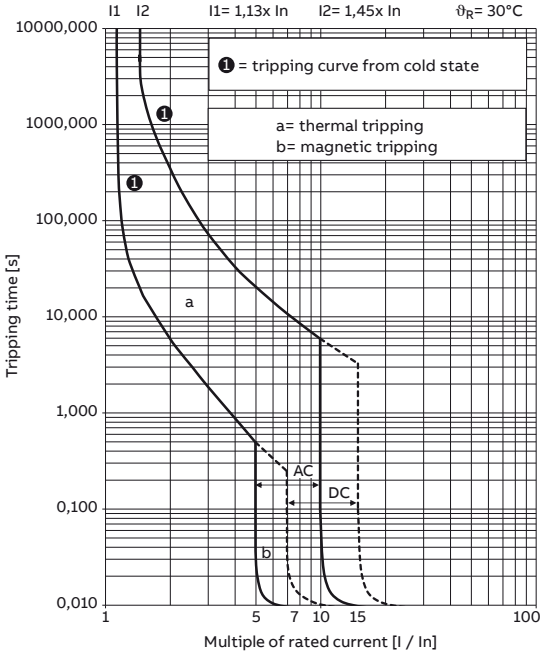
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



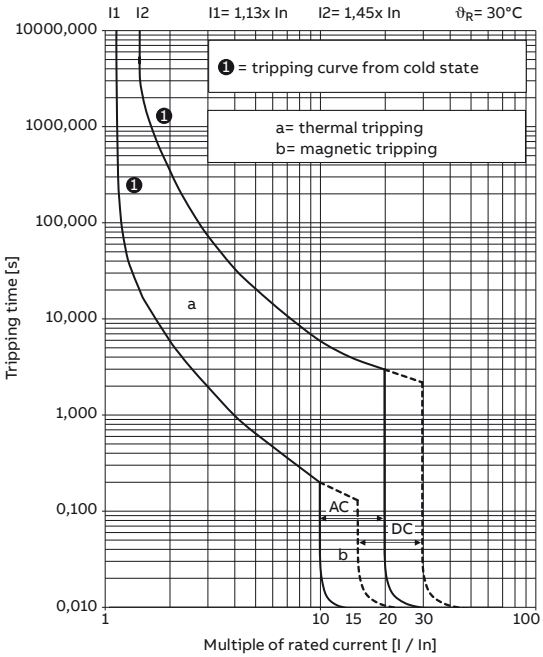
MCB Type S300P - C (5 ... 10 x I_n AC)

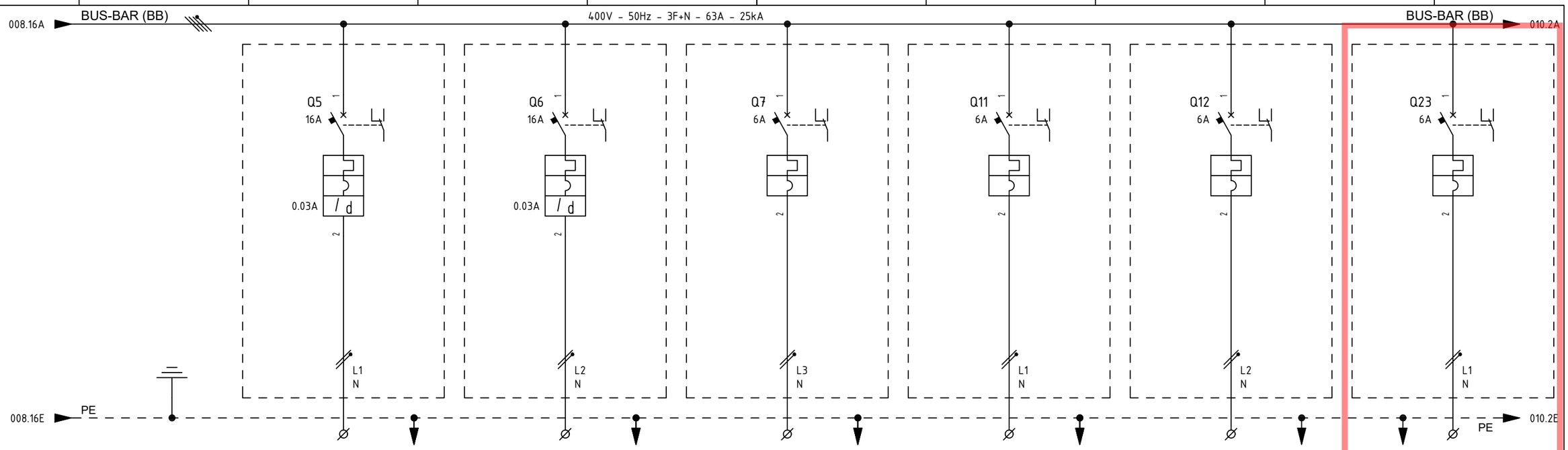
Tripping Characteristic IEC/EN 60898-1



MCB Type S300P - D (10 ... 20 x I_n AC)

Tripping Characteristic IEC/EN 60898-1





ITEM				1	ESO-200N1-05-L1-01	ESO-200N1-06-L2-01	-	ESH-200N1-11-L1-01	ESH-200N1-12-L2-01	B400-SIS-001
UTILITY				2	SMALL POWER SOCKET (UPPER DECK)	SMALL POWER SOCKET (LOWER DECK)	SPARE	SPACE HEATERS JB - WIND FARM SUBSEA CABLE	SPACE HEATERS JB - SOLAR SUBSEA CABLE	SIS-CONTROLLER AND I/O CABINET - AUXILIARY
CUBICLE				3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT				4/5	3 KW | 14.49 A	3 KW | 14.49 A	0.726 KW | 3.95 A	0.25 KW | 1.14 A	0.25 KW | 1.14 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL				6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE			7	S302P-C16 + DDA202 AC-25/0.03	S302P-C16 + DDA202 AC-25/0.03	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION			8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS			9	In=16A - Curve C / Id=0.03A Class AC	In=16A - Curve C / Id=0.03A Class AC	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu		KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range	A	11	-	-	-	-	-	-
		Range	t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range	A	13	-	-	-	-	-	-
		Range	t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range	A	15	-	-	-	-	-	-
		Range	t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range	A	17	-	-	-	-	-	-
		Range	t	18	-	-	-	-	-	-
CONTACTOR (ABB)				19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)				20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)				21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)				22	-	-	-	-	-	-
FUSE HOLDER (ABB)				23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)				24	-	-	-	-	-	-
VOLTMETER (FRER)				25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE			26	-	-	-	-	-	-
	PERFORMANCE/CLASS			27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE			28	-	-	-	-	-	-
	PERFORMANCE/CLASS			29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)			Type/mm²	30	SCREW / 10	SCREW / 10	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR			mm²	31	3G10	3G10	3G2.5	3G2.5	3G2.5	3G2.5

=

+

DWG n° : 231298/SD/13

Item n° : PF1002888/101

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
3	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
2	24/04/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	15/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

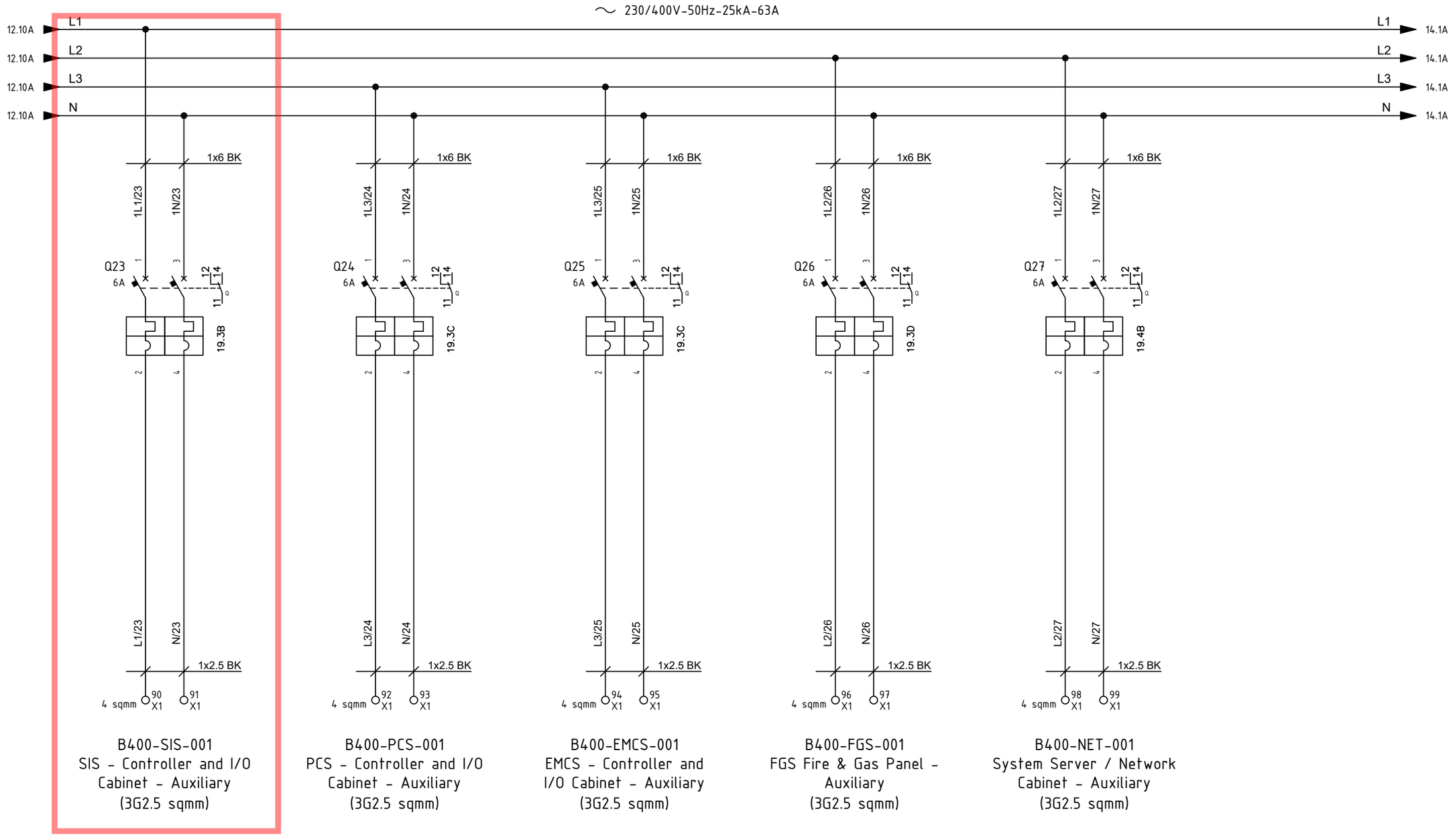
DRAWING NO. 1723002197-EL-DG-00013

SHEET 009

REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00013 Rev. 04



B400-SIS-001
SIS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-PCS-001
PCS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-EMCS-001
EMCS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-FGS-001
FGS Fire & Gas Panel - Auxiliary
(3G2.5 sqmm)

B400-NET-001
System Server / Network Cabinet - Auxiliary
(3G2.5 sqmm)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
2	19/08/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
1	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
0	29/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/33
Item n° : PF1002888/101

TITLE : "DP-200N1"
LV SWBD FUNCTIONAL DIAGRAMS
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1,3

REV. 02

File Name : 1723002197-EL-DG-00033 Rev. 02

F.to UNI A3: 420mmx297mm

ITEM	Tag	UP-200F3-QF43	: ALIMENTAZIONE SIS - LINE A		Dwg	1724000372-EL-DG-00009	
	S/Sys	79-00	: Emergency Shutdown Systems (SIS)		Module		
TASK	code	C10004580	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

Manufacturer:	ABB	Serial N°:	NA	Relay type:	NA
Auxiliary supply:	NA	Location:	B300	Cubicle:	NA
Switchboard:	UP-200F3				

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay Setting	Time delay Trip value
I	10A	NA	NA	FIXED	NA

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	08/07/2025

Comments:

Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-11-08	2024-11-08	2024-11-08
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2024-11-08T14:19:47.945Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-08T15:13:46.621Z	PROVERLIS Digitaly signed by Witness waived 2024-11-08T16:27:34.157Z

CAE EPLAN Electric P8
This document is property of AEG Power Solutions and must not be displayed or duplicated to any third party without the consent of the company

AUXILIARY
From Lighting & Small Power DB BOP DP-200N1
(Cubicle 03-Q41)
100-240V/N/PE~50/60Hz
back-up fuse gG10A 3G2.5mm2

LINE A
From LV Switchgear SG-200N1
(Cubicle A3/01)
Mains 400V;3/PE~50Hz
gG80A 4G35mm2

From LV Switchgear SG-200N1
(Cubicle A7/02)
Bypass mains 400V;3/PE~50Hz
gG63A 4G35mm2

LINE B
From LV Switchgear SG-200N1
(Cubicle A4/01)
Mains 400V;3/PE~50Hz
gG80A 4G35mm2

Not included in the AEG shipment

Code	Description
Q1	Rectifier input mains breaker
T40	Rectifier input isolation transformer
A1	Rectifier
A2	Inverter
T1	Inverter output isolation transformer
A3-A4	Static by-pass switch
A18	Display control module
A85	Heater
H1	Light

+MBC1
BY-200F3
Bypass transformer cabinet 40 kVA
10000007888.020
10009757

-X1 ◊ 1U,1V,1W,PE
-X10 ◊ U,V,W,PE
-X13 ◊ U,N,PE
-X14 ◊ U,N
-X1 ◊ 3U,3V,3W,PE
-Q10 L=80/85A I=0,8kA Icu=50kA
-T8 400V/400V 40kVA
-A85
-H1
-Q28.1 NC
-Q28.2 NC
-X1 ◊ 2U,2V,2W,PE
-X4 ◊ 1U,1V,1W,1N,PE
-X4 ◊ 2U,2V,2W,2N,PE
-X1 ◊ 4U,4V,4W,PE

+UPS1
BC-200F3A
Protect 8.33 40-400-210-400
10000007888.010
10009756

+UPS2
BC-200F3B
Protect 8.33 40-400-210-400
10000007888.010
10009756

-E1-X1 ◊ U,V,W,PE
-E4-X4 ◊ U,V,W,N,PE
-Q1 L=100/85A I=1,0kA Icu=50kA
-T40
-A1 REC
-A2 INV
-T1
-F1,-F2,-F3
-A3 SBS
-A18 Display
-A20 Parallel Adapter
INV CAN -X3 1-3 → 203 / 1.6
INV Sync -X5 1-4 → 205 / 1.6
1.5 / 203 → -X3 1-3 INV CAN
1.5 / 205 → -X5 1-4 INV Sync
-A4
-L11,-L12,-L13 Parallel preventive choke coil
-A24.1 BLÜ-PRO
-F91
-A12 ,-A13 Remote signaling
-E2-X2 ◊ L-,L+,PE
-X15 ◊ 2,3
-X130 ◊ 1,2
-E3-X3 ◊ U,V,W,N,PE
-X2 ◊ 1L+,1L-,PE
-X15 ◊ 6,7
-X91 ◊ 1M
-X91 ◊ 3M
-X5 ◊ 1U,1V,1W,1N,PE
-X5 ◊ 2U,2V,2W,2N,PE
-Q71 NC
-Q72 NC
1.5 / A → A / 1.6
-Q29 INV operation / Manual bypass
-F25
DP-200F3
-QF31 B32A 300mA
-QF32 B32A ^^0mA
-QF33 B32A 300mA
-QF34 B16A 300mA
5pc
-QF38 B16A 300mA
-QF39 B10A 300mA
4pc
-QF42 B10A 300mA
-QF43 B10A
8pc
-QF50 B10A
-QF51 B6A
-QF52 B6A
-X2 ◊ 2L+,2L-,PE
-X15 ◊ 4,5
-X91 ◊ 2M
-X130 ◊ 1,2,1PE
-X31 ◊ U,N,PE
-X32 ◊ U,N,PE
-X33 ◊ U,N,PE
-X34 ◊ U,N,PE
-X38 ◊ V,N,PE
-X39 ◊ V,N,PE
-X42 ◊ W,N,PE
-X43 ◊ W,N,PE
-X50 ◊ U,N,PE
-X51 ◊ V,N,PE
-X52 ◊ V,N,PE
-X2 ◊ 3L+,3L-,PE
-X15 ◊ 6,7
-X91 ◊ 3M
-X2 ◊ 4L+,4L-,PE
-X15 ◊ 8,9
-X91 ◊ 4M
-X130 ◊ 3,4,2PE

Not included in the AEG shipment
max. gG16A — max. gG16A
Load 400/230V;3/N/PE~50Hz

2(1x70 mm2)

+BFB1
CB-200F3A
Battery fuse box 200 A
-Q2 L=200A
DC 24V max. 300W

+BFB2
CB-200F3B
Battery fuse box 200 A
-Q2 L=200A
DC 24V max. 300W

+BAT1
BA-200F3A
Batteries installed on rack
18 x FLG 12-150
Battery voltage 216V
Battery capacity 150Ah
string 1
-R81

+BAT2
BA-200F3B
Batteries installed on rack
18 x FLG 12-150
Battery voltage 216V
Battery capacity 150Ah
string 1
-R81

*1 Attention! In the event of battery undervoltage < 130 V, the UPS automatically switches off battery isolator Q2.
If this happens, switch X15:3 must be switched into the open position (undervoltage trip blocked).
For restart, please refer to the chapter in the UPS operating instructions (charging the DC link capacitors) attached.
Unlock the tripped switch Q2 by switching to open position.
After charging the DC link capacitors, switch on Q2.
Attention! When the battery voltage reaches > 200 V, switch X15:3 must be switched back to the closed position.

*2 Connection cables are not included.

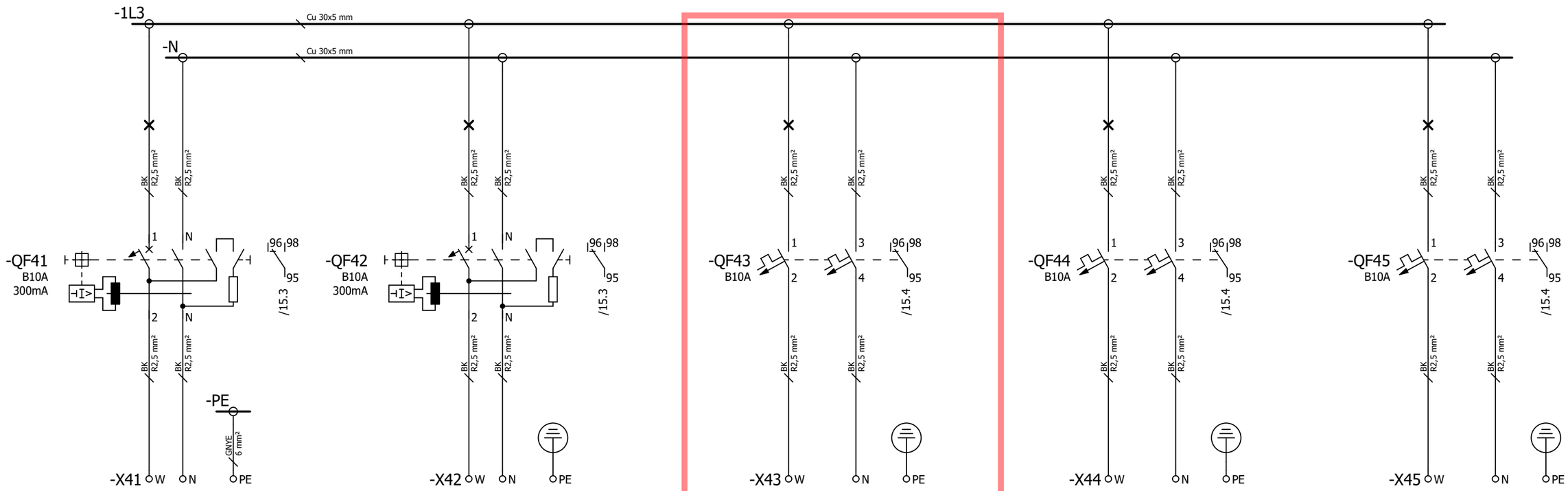
					Date	14.05.2024			
01	500000002053	13.08.2024	Beckschäfer	Editor	EEC	ROSETTI MARINO	AEG POWER SOLUTIONS	System 40 kVA	=
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck	Hollandse Kust Noord (HKN) wind farm		Single-line diagram	+
Stat	Alteration	Date	Name	Norm				1000007888_010 en	⏚ EFA

A0 | sheet 1 | sheets

1000007888_010

CAE EPLAN Electric P8

This document is property of AEG Power Solutions and must not be displayed or duplicated to any third party without the consent of the company



Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC UPS ROOM
0.5KW

Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC ITER
0.5KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O CABINET-LINE A - 1KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O CABINET-LINE B - 1KW

Load
230V/N/PE~50Hz

B400-PCS-001
PCS-CONTROLLER AND I/O CABINET-LINE A - 1.5KW

1000007888_010

				Date	23.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet with manual bypass 40 kVA
Circuit diagram

1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

A3

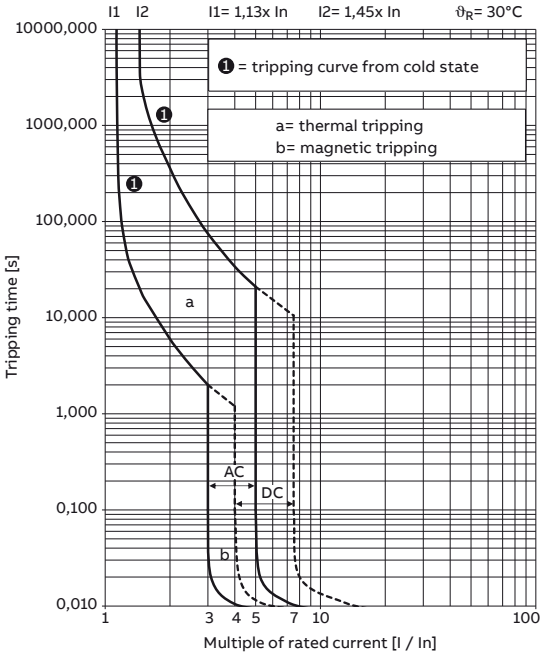
sheet 9
sheets 17

Miniature Circuit breakers S300P

Tripping characteristics

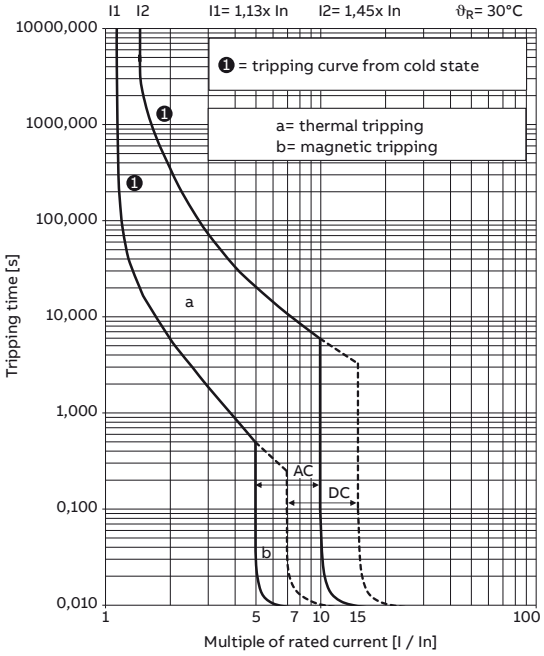
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



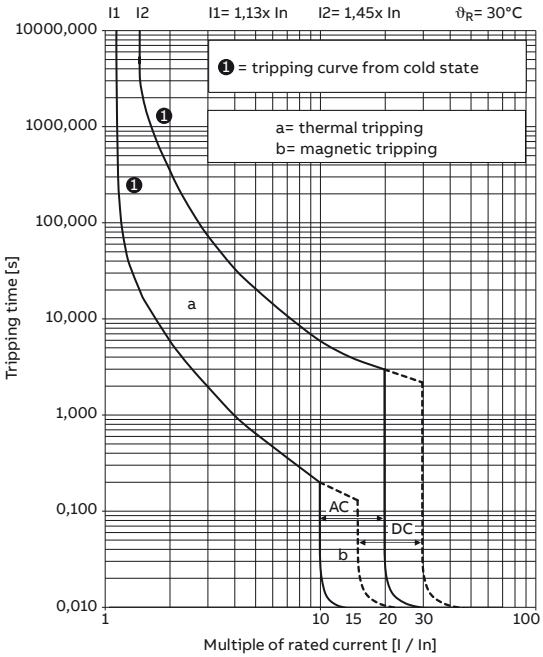
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



MCB Type S300P - D (10 ... 20 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



ITEM	Tag	UP-200F3-QF44	: ALIMENTAZIONE SIS - LINE B		Dwg	1724000372-EL-DG-00009	
	S/Sys	79-00	: Emergency Shutdown Systems (SIS)		Module		
TASK	code	C10004581	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

Manufacturer:	ABB	Serial N°:	NA	Relay type:	NA
Auxiliary supply:	NA	Location:	B300	Cubicle:	NA
Switchboard:	UP-200F3				

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
I	10A	NA	NA	FIXED	NA

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	08/07/2025

Comments:

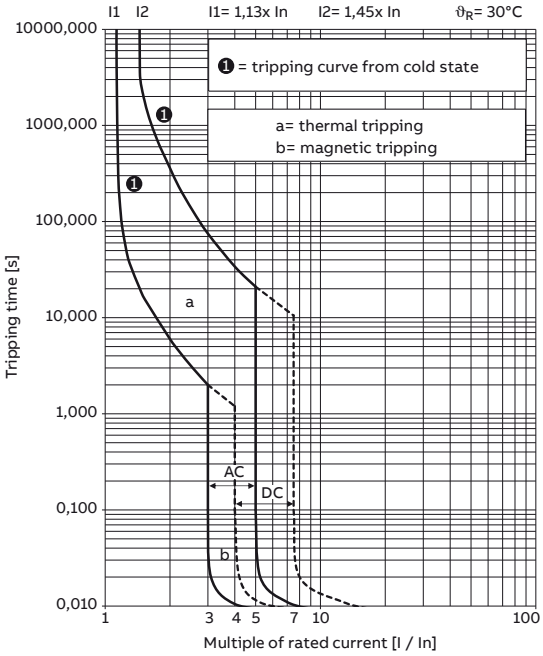
Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-11-08	2024-11-08	2024-11-08
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2024-11-08T14:20:17.710Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-08T15:14:32.529Z	PROVERLIS Digitaly signed by Witness waived 2024-11-08T16:27:48.929Z

Miniature Circuit breakers S300P

Tripping characteristics

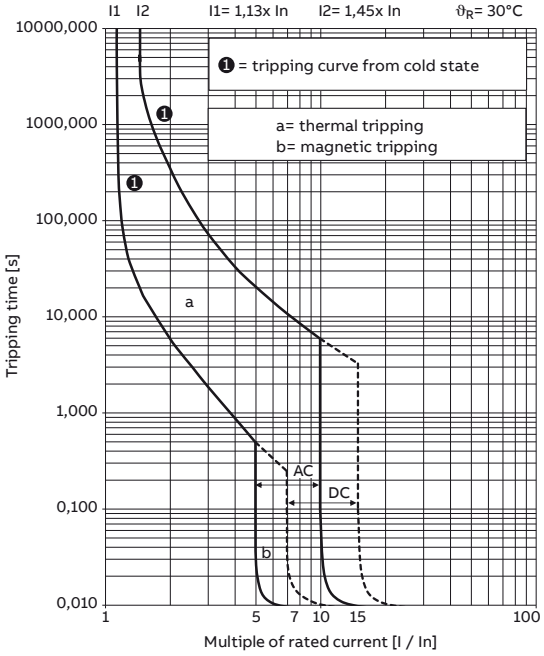
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



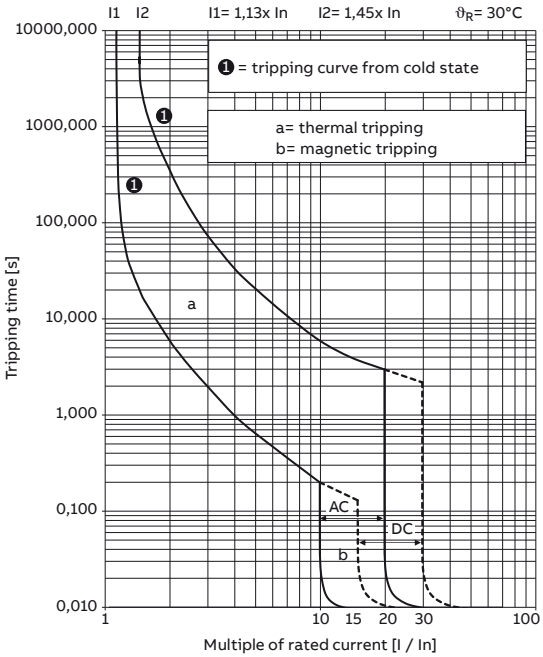
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



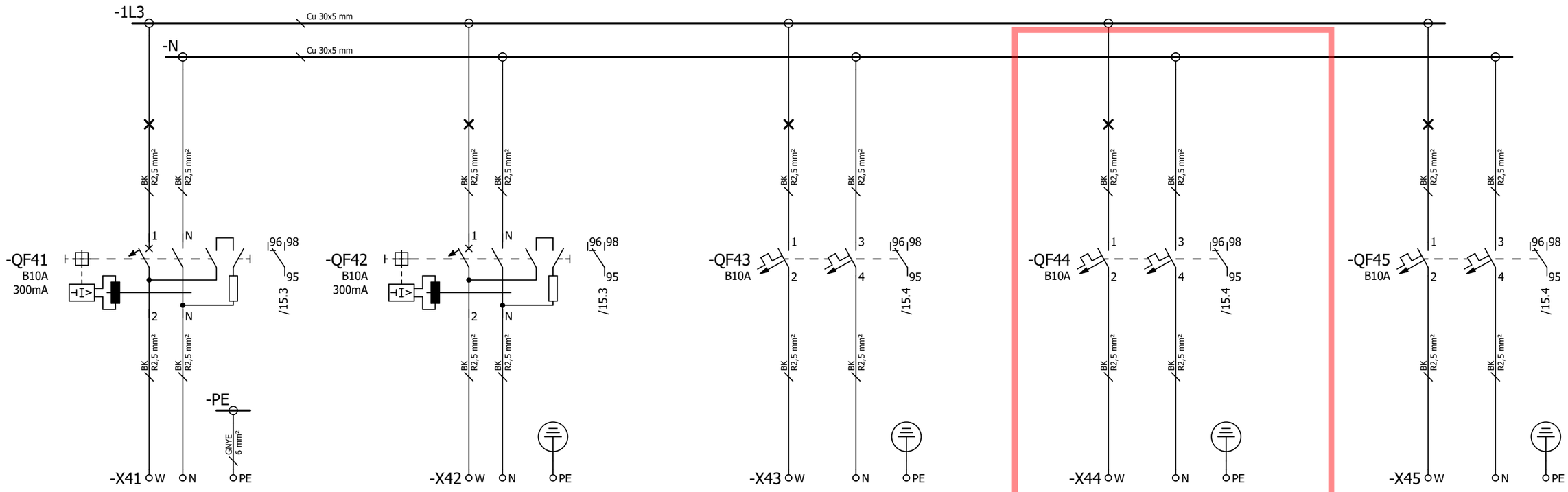
MCB Type S300P - D (10 ... 20 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



CAE EPLAN Electric P8

This document is property of AEG Power Solutions and must not be displayed or duplicated to any third party without the consent of the company



Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC UPS ROOM
0.5KW

Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC ITER
0.5KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O
CABINET-LINE A - 1KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O
CABINET-LINE B - 1KW

Load
230V/N/PE~50Hz

B400-PCS-001
PCS-CONTROLLER AND I/O
CABINET-LINE A - 1.5KW

1000007888_010

				Date	23.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 40 kVA
Circuit diagram

1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

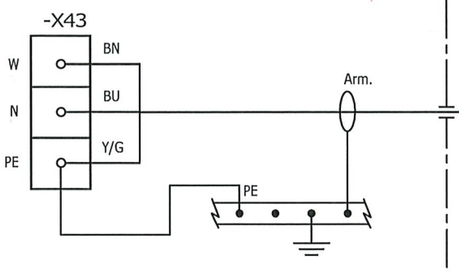
A3

sheet 9
sheets 17

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

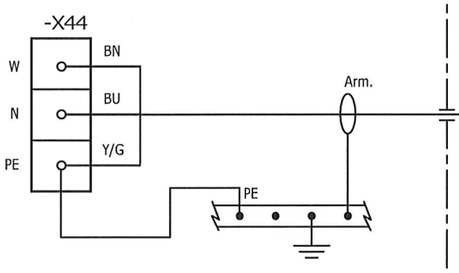
FROM	TO

DESCRIPTION: AC UPS - PAS DB
TAG NUMBER: ~~DP-200F3~~ UP-200F3 BY PASS



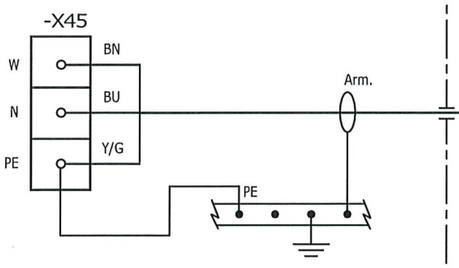
84301-CEL
3G2.5 mm²

MARCO MORETTO
21/3/25



84302-CEL
3G2.5 mm²

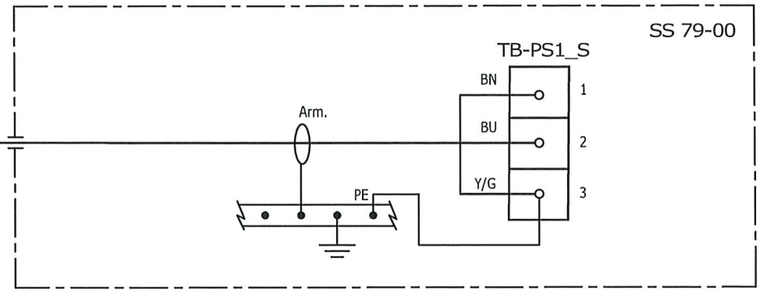
NO MARK UP
MARCO MORETTO
21/3/25



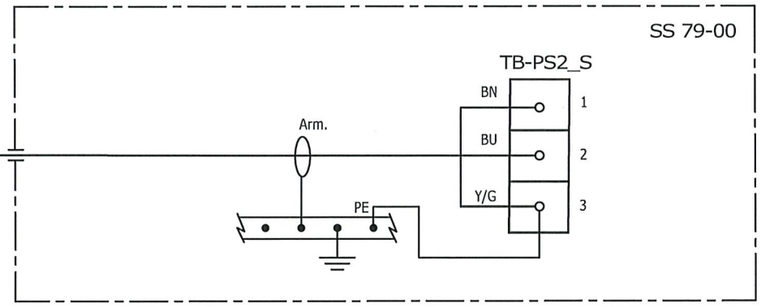
84303-CEL
3G2.5 mm²

AS COMMISSIONED: MATTIA GIROTTI

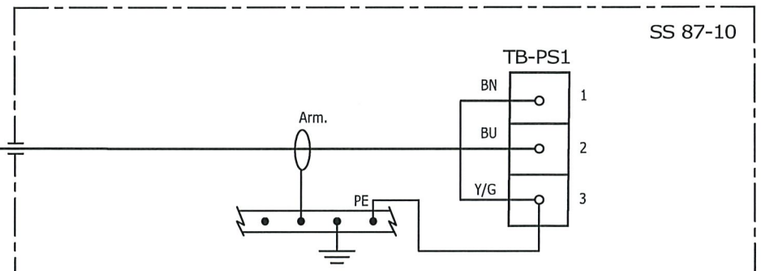
DESCRIPTION: SIS -CONTROLLER AND I/O CABINET - LINE A
TAG NUMBER: B400-SIS-001



DESCRIPTION: SIS -CONTROLLER AND I/O CABINET - LINE B
TAG NUMBER: B400-SIS-001



DESCRIPTION: PCS -CONTROLLER AND I/O CABINET - LINE A
TAG NUMBER: B400-PCS-001



VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DG-20149

REV.:	DATE:	SIGNATURE:
2_F	09/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
DC UPS NAVAID SYSTEM & AC UPS – PAS DB

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	038	02

F.to UNI A3: 420mmx297mm

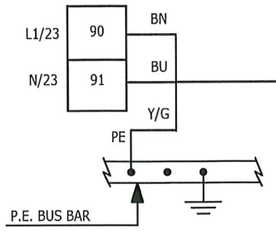
File Name : 123A90-DDL-EL-DG-20149 Rev. 02

FROM	TO

DESCRIPTION: LIGHTING & SMALL POWER DB BOP
TAG NUMBER: DP-200N1

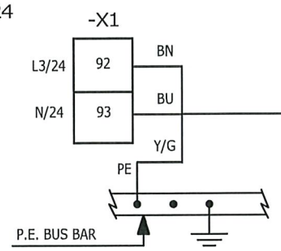
NO MARK UP
MARCO MORETTO
21/3/25

CUBICLE/CB: +03/Q23



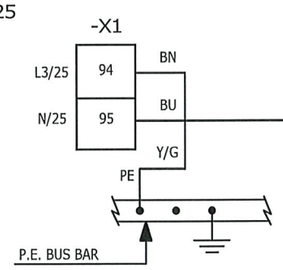
83104-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q24



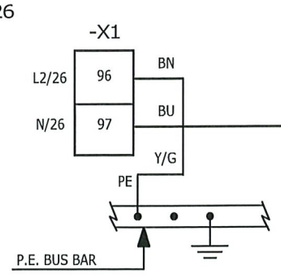
83105-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q25



83106-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q26

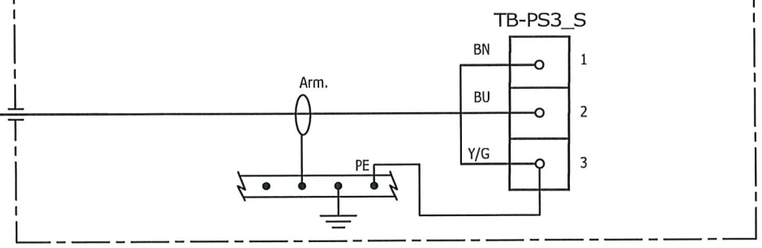


83107-CEL
3G2.5 mm²

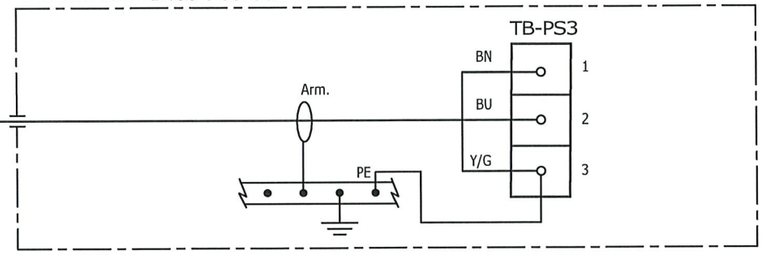
AS-COMMISSIONED: MATTIA GIRTI

NO MARK UP
MARCO MORETTO
21/3/25

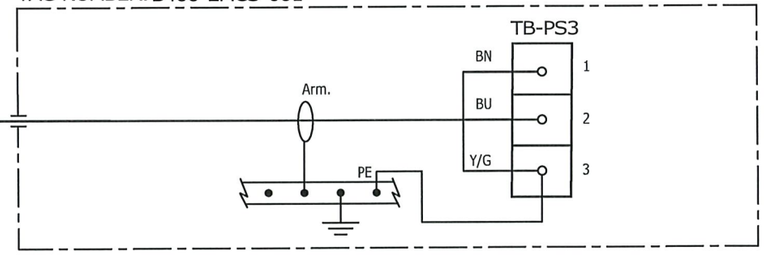
DESCRIPTION: SIS -CONTROLLER AND I/O CABINET - AUXILIARY
TAG NUMBER: B400-SIS-001



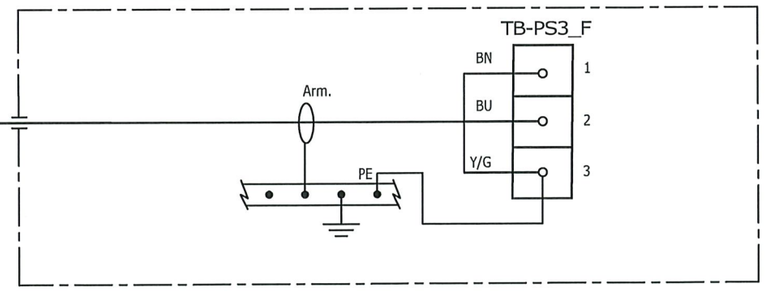
DESCRIPTION: PCS -CONTROLLER AND I/O CABINET - AUXILIARY
TAG NUMBER: B400-PCS-001



DESCRIPTION: EMCS -CONTROLLER AND I/O CABINET - AUXILIARY
TAG NUMBER: B400-EMCS-001



DESCRIPTION: FGS FIRE & GAS PANEL - AUXILIARY
TAG NUMBER: B400-FGS-001



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_F	09/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LIGHTING & SMALL POWER DB BOP

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 052 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

Section 4.3 Instrumentation functional test sheets index

NOT APPLICABLE

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

CAUSE AND EFFECT CHARTS

ASD

CAUSE

EFFECT

ESD Level	DESCRIPTION	TAG NO.	FUNC.	By-Pass / Reset	P&ID NO.	NOTE	TAG. NO.	ACTION	ESD LEVEL	DESCRIPTION	P&ID	To sheet
										ALARM / INTERFACE		
										BATTERIES DISCONNECTED		
										PROCESS/POWER PACKAGES		
										INCOMING CIRCUIT BREAKERS POWER GENERATION		
										HVAC SYSTEM		
										ELECTRICAL ISOLATION UPS POWERS		
ASD	ASD ACTIVATION FROM FGS SYSTEM	70-XA-001				4				OPERATOR WORKSTATION DISPLAY - EVENT/ALARM		
ASD	FZ-01 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON	950-ASD-01101		X		3				ALARM ON CAP ONSHORE		
ASD	FZ-03 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON	950-ASD-03101		X		3				ESD-1D ACTIVATION		6
ASD	FZ-04 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON	950-ASD-04101		X		3				ASD ACTIVATION TO FGS SYSTEM		NOTE 4
ASD	FZ-06 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON	950-ASD-06101		X		3				DISCONNECT AC UPS UP-200F3 BATTERIES A/B (B-300 CONTAINER)		
ASD	FZ-07 ABANDON SHUTDOWN ACTIVATION PUSH BUTTON	950-ASD-07101		X		3				DISCONNECT AC UPS UP-200F4 BATTERIES A/B (B-300 CONTAINER)		
										DISCONNECT DC UPS (B-100 CONTAINER)		
										SHUTDOWN ELECTROLYZER PACKAGE A-20000	80011	
										SHUTDOWN BESS PACKAGE A-85000		
										SHUTDOWN SOLAR FARM PACKAGE (NOTE 1)		
										SHUTDOWN FUEL CELL PACKAGE A-80000	80012	
										SHUTDOWN WATER TREATMENT PACKAGE A-50000	80022/23	
										SHUTDOWN INSTRUMENT AIR PACKAGE A-63000	80027	
										SHUTDOWN NITROGEN PACKAGE A-84000	80027	
										OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS		
										OPEN FUEL CELL A-80000 INCOMING CIRCUIT BREAKERS		
										OPEN SOLAR INCOMING CIRCUIT BREAKERS		
										OPEN WIND FARM INCOMING CIRCUIT BREAKERS		
										SHUTDOWN HVAC SYSTEM OF B-100 (HV CONTAINER)		
										SHUTDOWN HVAC SYSTEM OF B-200 (LV CONTAINER)		
										SHUTDOWN HVAC SYSTEM OF B-300 (UPS CONTAINER)		
										SHUTDOWN HVAC SYSTEM OF B-400 (ITER CONTAINER)		
										ELECT. ISOLATION UPS POWER UCP (WATER TREAT. A-50000)		
										ELECT. ISOLATION UPS POWER UCP (INSTRUMENT AIR A-63000)		
										ELECT. ISOLATION UPS POWER UCP (NITROGEN A-84000)		
										ELECT. ISOLATION UPS POWER UCP HVAC B-100		
										ELECT. ISOLATION UPS POWER UCP HVAC B-200		
							79-XS-001		7			
							84-XS-007A/B	ISOLATE	9			
							84-XS-008A/B	ISOLATE	11			
							84-XS-006	ISOLATE	13			
							20-XS-001		15			
							85-XS-001		17			
							83-XS-001		19			
							80-XS-001		21			
							50-XS-001		23			
							63-XS-001		25			
							64-XS-001		27			
							82-XS-002		29			
							82-XS-003		31			
							82-XS-001		33			
							81-XS-001		35			
							77-XS-001		37			
							77-XS-002		39			
							77-XS-003		41			
							77-XS-004		43			
							84-XS-001		45			
							84-XS-003		47			
							84-XS-002		49			
							84-XS-004		51			
							84-XS-005		53			

NOTES

1. SERIAL SIGNALS THROUGH FIBER OPTIC CABLE.
2. T4= 1 sec. (PROPOSED delay time).
3. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ASD PUSH BUTTONS ACTIVATION.
4. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE VnetVIP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.

TEST COMPLETED
GRASSOWIND 19.03.2025
R.H.
PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO RESOLVE. ALL OTHER TESTING ACKNOWLEDGED BY GRASSOWIND
MARTIN TAYLOR

HOLDS

GRASSOWIND 15/04/25

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

Reference

Document Title	Document Number
Fire & Gas Cause & Effect Matrix	123A90-DDL-IN-CE-40002
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000

LEGEND

CCR	CENTRAL CONTROL ROOM (ONSHORE)
OER	ONSHORE EQUIPMENT ROOM
ITER	OFFSHORE CONTROL ROOM
R	RESET
EL	EVENT LOG
F	FLASHING LIGHT INDICATION ON CAP
T	TIME DELAY

Rev.	Date	Description	Issued by	Checked by	Approved by
00	24/11/2023	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	08/03/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
02	12/06/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
04	11/02/2025	Accepted For Construction (AFC)	LCA	MGA	DLO

Process Safety Cause & Effect Matrix

ASD: ABANDON

Document Reference: 123A90-DDL-IN-CE-40000
Rev. 04 | Status: AFC
Contract No. CW-I-WP4-2023-05
Sheet 5 of 9

CAUSE AND EFFECT CHARTS

ESD-1D

CAUSE / EFFECT

ESD Level	DESCRIPTION	TAG NO.	FUNC.	By-Pass / Reset	P&ID NO.	NOTE
ASD	ESD-1D ACTIVATION IN CASCADE FROM ASD					
ESD-1D	LOW LOW PRESSURE ON NITROGEN MANIFOLD	64-PT-002	LO_LO	X	80027	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001A	25-PT-004	HI_HI	X	80015	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001B	25-PT-006	HI_HI	X	80016	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001C	25-PT-008	HI_HI	X	80017	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001D	25-PT-009	HI_HI	X	80018	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001E	25-PT-011	HI_HI	X	80019	
ESD-1D	HIGH HIGH PRESSURE ON H2 STORAGE TANK V-25001F	25-PT-012	HI_HI	X	80020	
ESD-1D	ESD-1D ACTIVATION FROM FGS SYSTEM	70-XA-002				3
ESD-1D	HYDROGEN CONFIRMED IN OPEN AREA FROM F&G SYSTEM (ISOLATE EQUIP. NOT SUITABLE FOR ZONE 1)	70-XA-005				3
ESD-1D	INHIBIT BATTERY CHARGING B-100	70-XA-008				3
ESD-1D	INHIBIT BATTERY CHARGING B-300	70-XA-004				3
ESD-1D	FZ-01 ESD-1D PUSH BUTTON ACTIVATION	950-ESDD-01101		X		2
ESD-1D	FZ-03 ESD-1D PUSH BUTTON ACTIVATION	950-ESDD-03101		X		2
ESD-1D	FZ-04 ESD-1D PUSH BUTTON ACTIVATION	950-ESDD-04101		X		2
ESD-1D	FZ-06 ESD-1D PUSH BUTTON ACTIVATION	950-ESDD-06101		X		2
ESD-1D	FZ-07 ESD-1D PUSH BUTTON ACTIVATION	950-ESDD-07101		X		2
ESD-1D	ESD-1D PUSH BUTTONS ONSHORE	950-ESDD-00001		X		2
ESD-1D	H2/SMOKE INSIDE B-100 (ELECT. ISOLATION) FROM FGS SYSTEM	70-XA-006				3
ESD-1D	H2/SMOKE INSIDE B-200 (ELECT. ISOLATION) FROM FGS SYSTEM	70-XA-007				3
ESD-1D	H2/SMOKE IN WATER TREATM. PKG (ELECT. ISOLATION) FROM FGS SYSTEM	70-XA-010				3
ESD-1D	LOSS OF ON-SHORE COMMUNICATION	79-XS-005				
ESD-1	LOW LOW PRESSURE ON INSTRUMENT AIR MANIFOLD	63-PT-004	LO_LO	X	80027	
	H2/SMOKE INTAKE B-100 FROM FGS SYTEM	70-XA-015				3
	H2/SMOKE INTAKE B-200 FROM FGS SYSTEM	70-XA-016				3
	H2/SMOKE INTAKE B-300 FROM FGS SYSTEM	70-XA-017				3
	H2/SMOKE INTAKE B-400 FROM FGS SYSTEM	70-XA-018				3

TAG. NO.	ACTION	ESD LEVEL	DESCRIPTION	P&ID	To sheet
			ALARM / INTERFACE		
			WORKSTATION HMIs - EVENT/ALARM		
			ALARM ON CAP ONSHORE		
			ESD-1 ACTIVATION		7
79-XS-002			ESD-1D ACTIVATION TO FGS SYSTEM		NOTE 3
			DEPRESSURIZATION		
25-BDV-005		ESD-1D	OPEN 25-BDV-005 ON H2 STORAGE TANKS V-25001A	80015	
25-BDV-007		ESD-1D	OPEN 25-BDV-007 ON H2 STORAGE TANKS V-25001B	80016	
25-BDV-010		ESD-1D	OPEN 25-BDV-010 ON H2 STORAGE TANKS V-25001C	80017	
25-BDV-013		ESD-1D	OPEN 25-BDV-013 ON H2 STORAGE TANKS V-25001D	80018	
25-BDV-016		ESD-1D	OPEN 25-BDV-016 ON H2 STORAGE TANKS V-25001E	80019	
25-BDV-019		ESD-1D	OPEN 25-BDV-019 ON H2 STORAGE TANKS V-25001F	80020	
25-BDV-022		ESD-1D	OPEN 25-BDV-022 ON OUTLET H2 HEADER TO FUEL CELL PGK	80014	
			HVAC SYSTEM		
77-XS-001		ESD-1D	SHUTDOWN HVAC SYSTEM OF B-100 (HV CONTAINER)		
77-XS-003			SHUTDOWN HVAC SYSTEM OF B-300 (UPS CONTAINER)		
77-XS-002		ESD-1D	SHUTDOWN HVAC SYSTEM OF B-200 (LV CONTAINER)		
77-XS-004			SHUTDOWN HVAC SYSTEM OF B-400 (ITER CONTAINER)		
			BATTERY INHIBITION (B-100 AND B-300)		
84-XS-009			INHIBIT. BATTERY CHARGING B-100		
84-XS-010			INHIBIT. BATTERY CHARGING B-300 AC UPS UP-200F3 BATTERIES		
84-XS-011			INHIBIT. BATTERY CHARGING B-300 AC UPS UP-200F4 BATTERIES		
79-XS-010			ELECT. ISOLATION SOFT. CABLES COMMUNICATION CAT 6A		4
84-XS-004			ELECT. ISOLATION UPS POWER UCP HVAC B-100		
84-XS-005			ELECT. ISOLATION UPS POWER UCP HVAC B-200		
84-XS-003			ELECT. ISOLATION UPS POWER UCP (INSTRUMENT AIR A-63000)		
84-XS-002			ELECT. ISOLATION UPS POWER UCP (NITROGEN A-64000)		
84-XS-001			ELECT. ISOLATION UPS POWER UCP (WATER TREAT. A-50000)		
84-XS-006	ISOLATE		DISCONNECT DC UPS (B-100 CONTAINER)		
			PROCESS/POWER PACKAGES		
20-XS-001			SHUTDOWN ELECTROLYZER PACKAGE A-20000	80011	
85-XS-001		1	SHUTDOWN BESS PACKAGE A-85000		
83-XS-001		1	SHUTDOWN SOLAR FARM PACKAGE		
80-XS-001		1	SHUTDOWN FUEL CELL PACKAGE A-80000	80012	
50-XS-001		1	SHUTDOWN WATER TREATMENT PACKAGE A-50000	80022/23	
63-XS-001		1	SHUTDOWN INSTRUMENT AIR PACKAGE A-63000	80027	
64-XS-001		1	SHUTDOWN NITROGEN PACKAGE A-64000	80027	
			INCOMING CIRCUIT BREAKERS POWER GENERATION		
82-XS-002			OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS		
82-XS-003			OPEN FUEL CELL A-80000 INCOMING CIRCUIT BREAKERS		
82-XS-001			OPEN SOLAR INCOMING CIRCUIT BREAKERS		
81-XS-001			OPEN WIND FARM INCOMING CIRCUIT BREAKERS		

NOTES

1. SERIAL SIGNALS THROUGH FIBER OPTIC CABLE.
2. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ESD-1D PUSH BUTTONS ACTIVATION.
3. FGS AND SIS SYSTEM EXCHANGE DATA BETWEEN THEM BY USING THE VneVIP NETWORK. THIS IS IMPLEMENTED AS REDUNDANT SAFETY COMMUNICATION, APPROVED FOR SIL 3 LOOP.
4. INTERNAL WIRING ISOLATION BETWEEN SIS AND NETWORK CABINETS.

TEST COMPLETED
GIVEN OVER TO CROSSWIND 19-03-2025
R.H.
PUNCH LST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO RESOLVE. ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND
MARTIN TAYLOR

HOLDS
CROSSWIND 15/04/25

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

Reference

Document Title	Document Number
Fire & Gas Cause & Effect Matrix	123A90-DDL-IN-CE-40002

LEGEND

CCR	CENTRAL CONTROL ROOM (ONSHORE)
OER	ONSHORE EQUIPMENT ROOM
ITER	OFFSHORE CONTROL ROOM
R	RESET
EL	EVENT LOG
F	FLASHING LIGHT INDICATION ON CAP
T	TIME DELAY

Rev.	Date	Description	Issued by	Checked by	Approved by
00	24/11/2023	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	08/03/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
02	12/06/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
04	11/02/2025	Accepted For Construction (AFC)	LCA	MGA	DLO

Process Safety Cause & Effect Matrix

ESD-1D: EMERGENCY SHUT DOWN WITH DEPRESSURIZATION

Document Reference: 123A90-DDL-IN-CE-40000
Rev: 04 Status: AFC
Contract No. CW4-WP4-2023-05
Sheet 6 of 9

CAUSE AND EFFECT CHARTS

ESD-1

EFFECT

Column	To sheet	P&ID	Description	ESD Level	Action	Tag No.
ALARM / INTERFACE						
1			WORKSTATION HMIs - EVENT/ALARM	1		
(unnumbered)			ALARM ON CAP ONSHORE			
3	8		PSD ACTIVATION	PSD		
5	NOTE 2		ESD-1 ACTIVATION TO FGS SYSTEM	1		79-XS-003
PROCESS/POWER PACKAGES						
7		80011	SHUTDOWN ELECTROLYZER PACKAGE A-20000			20-XS-001
13		80012	SHUTDOWN FUEL CELL PACKAGE A-80000	1		80-XS-001
15		80022/23/2	SHUTDOWN WATER TREATMENT PACKAGE A-50000	1		50-XS-001
SHUT-DOWN VALVES						
21		80027	CLOSE 64-SDV-001 NITROGEN TO H2 STORAGE TANKS	1		64-SDY-001
23		80014	CLOSE 25-SDV-023 ON OUTLET H2 HEADER TO FUEL CELL PKG			25-SDY-023
25		80013	CLOSE 25-SDV-001 ON H2 HEADER TO STORAGE TANKS			25-SDY-001

CAUSE

ESD Level	Description	Tag No.	Func.	By-Pass / Reset	P&ID NO 123A90-DDL-PR-PID-.	Note	Row	1	Alarm on CAP	3	5	7	13	15	21	23	25
ESD-1D	ESD-1 ACTIVATION IN CASCADE FROM ESD-1D						2			X					X	X	X
ESD-1	FZ-01 ESD-1 PUSH BUTTON ACTIVATION	950-ESD-01101		X		1	10	X	F	X	X	X	X	X		X	X
ESD-1	FZ-03 ESD-1 PUSH BUTTON ACTIVATION	950-ESD-03101		X		1	12	X	F	X	X	X	X	X		X	X
ESD-1	FZ-04 ESD-1 PUSH BUTTON ACTIVATION	950-ESD-04101		X		1	14	X	F	X	X	X	X	X		X	X
ESD-1	FZ-06 ESD-1 PUSH BUTTON ACTIVATION	950-ESD-06101		X		1	16	X	F	X	X	X	X	X		X	X
ESD-1	FZ-07 ESD-1 PUSH BUTTON ACTIVATION	950-ESD-07101		X		1	18	X	F	X	X	X	X	X		X	X
ESD-1	ESD-1 PUSH BUTTONS ONSHORE	950-ESD-00001				1	20	X	F	X	X	X	X	X		X	X
ESD-1	BESS ALARM THERMAL RUN AWAY	85-XA-004					22	X	F	X	X	X	X	X		X	X

NOTES

1. THE FLASHING ALARM ON CAP ONSHORE IS A CUMULATIVE OF ALL ESD-1 PUSH BUTTONS ACTIVATION.

2. 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.

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

PUNCH LIST HAS BEEN RAISED TO REFLECT REMOTE RESET ISSUE STILL TO BE RESOLVED. ALL OTHER TESTING ACKNOWLEDGED BY CROSSWIND.
MARTIN TAYLOR 15/04/25

HOLDS

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

Reference

Document Title	Document Number
Fire & Gas Cause & Effect Matrix	123A90-DDL-IN-CE-40002
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000

LEGEND

- CCR — CENTRAL CONTROL ROOM (ONSHORE)
- OER — ONSHORE EQUIPMENT ROOM
- ITER — OFFSHORE CONTROL ROOM
- R — RESET
- EL — EVENT LOG
- F — FLASHING LIGHT INDICATION ON CAP
- T — TIME DELAY

Rev.	Date	Description	Issued by	Checked by	Approved by
00	24/11/2023	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	08/03/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
02	12/06/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
04	11/02/2025	Accepted For Construction (AFC)	LCA	MGA	DLO

Process Safety Cause & Effect Matrix

ESD-1: EMERGENCY SHUT DOWN WITHOUT DEPRESSURIZATION

Document Reference: 123A90-DDL-IN-CE-40000

Rev: 04 Status: AFC

Contract No. CW-I-WP4-2023-05

CAUSE AND EFFECT CHARTS

MOB PUSH BUTTONS

CAUSE / EFFECT

PSD	DESCRIPTION	TAG NO.	FUNC.	By-Pass / Reset	P&ID NO 123A90-DDL-PR-PID-.	NOTE
	FZ-01 MAN OVER BOARD ACTIVATION	950-MOB-01101		X		1
	FZ-03 MAN OVER BOARD ACTIVATION	950-MOB-03101		X		1
	FZ-04 MAN OVER BOARD ACTIVATION	950-MOB-04101		X		1
	FZ-06 MAN OVER BOARD ACTIVATION	950-MOB-06101		X		1
	FZ-07 MAN OVER BOARD ACTIVATION	950-MOB-07101		X		1

	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	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
TAG. NO.					79-XS-004																																																																																								
ACTION					ALARM																																																																																																					
DESCRIPTION	WORKSTATION HMIs - EVENT/ALARM		ALARM ON CAP ONSHORE		MOB PUSH BUTTONS ALARM ACTIVATION TO FGS SYSTEM																																																																																																					
P&ID																																																																																																									
To sheet					NOTE 2																																																																																																					

NOTES

1. The Flahing Alarm on CAP onshore is a cumulative of all Man Onverboard (MOB) push buttons activation.

2. 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.

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

GERRY McCANN
CROSSWIND
14/3/25

HOLDS

1. T1= 1439 min 55 sec
2. T2= 5 sec.
3. T3= 30 sec.
4. T4= 15 sec. (T4<T3)
5. T5= 24 hours (T1+ T2)

Reference

Document Title	Document Number
Fire & Gas Cause & Effect Matrix	123A90-DDL-IN-CE-40002
Process Safety Cause and Effect Block Diagram	123A90-DDL-PR-DG-80000

LEGEND

CCR	CENTRAL CONTROL ROOM (ONSHORE)
OER	ONSHORE EQUIPMENT ROOM
ITER	OFFSHORE CONTROL ROOM
R	RESET
EL	EVENT LOG
F	FLASHING LIGHT INDICATION ON CAP
T	TIME DELAY

Rev.	Date	Description	Issued by	Checked by	Approved by
00	24/11/2023	Issue for Acceptance (IFA)	LCA	MGA	DLO
01	08/03/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
02	12/06/2024	Accepted For Construction (AFC)	LCA	MGA	DLO
04	11/02/2025	Accepted For Construction (AFC)	LCA	MGA	DLO

Process Safety Cause & Effect Matrix

MOB PUSH BUTTONS

Document Reference: 123A90-DDL-IN-CE-40008

Rev. 04 Status: AFC

Contract No. CW4-WP4-2023-05

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

NOT APPLICABLE

Section 7.4 Vendor Data / Operations / Maintenance Manuals References

CAE EPLAN Electric P8

This document is property of AEG Power Solutions and must not be displayed or duplicated to any third party without the consent of the company

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724000372-EL-DG-00009

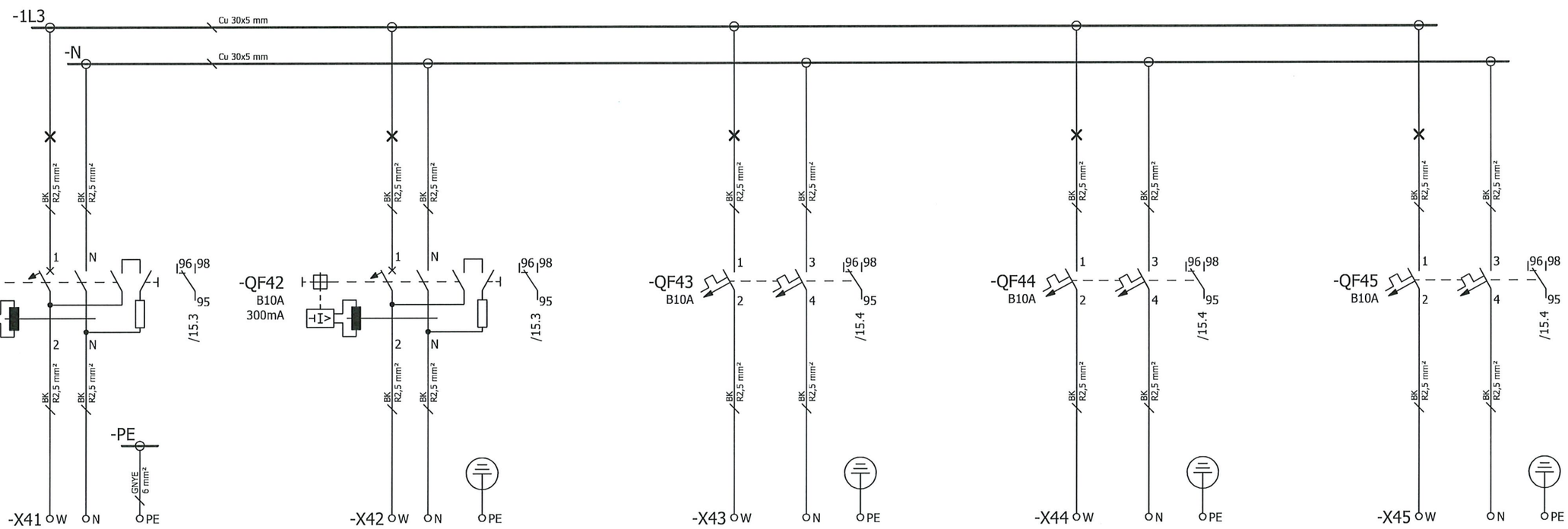
REV.:	DATE:	SIGNATURE:
3_A	15/11/24	G.Randi

ROSETTI MARINO SpA

NO MARK UP

AS COMMISSIONED: MARIA GIROTTI

24/3/25



Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC UPS ROOM
0.5KW

Load
230V/N/PE~50Hz

B300-HSB-001
UCP-HVAC ITER
0.5KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O
CABINET-LINE A - 1KW

Load
230V/N/PE~50Hz

B400-SIS-001
SIS-CONTROLLER AND I/O
CABINET-LINE B - 1KW

Load
230V/N/PE~50Hz

B400-PCS-001
PCS-CONTROLLER AND I/O
CABINET-LINE A - 1.5KW

1000007888_010

				Date	23.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 40 kVA
Circuit diagram

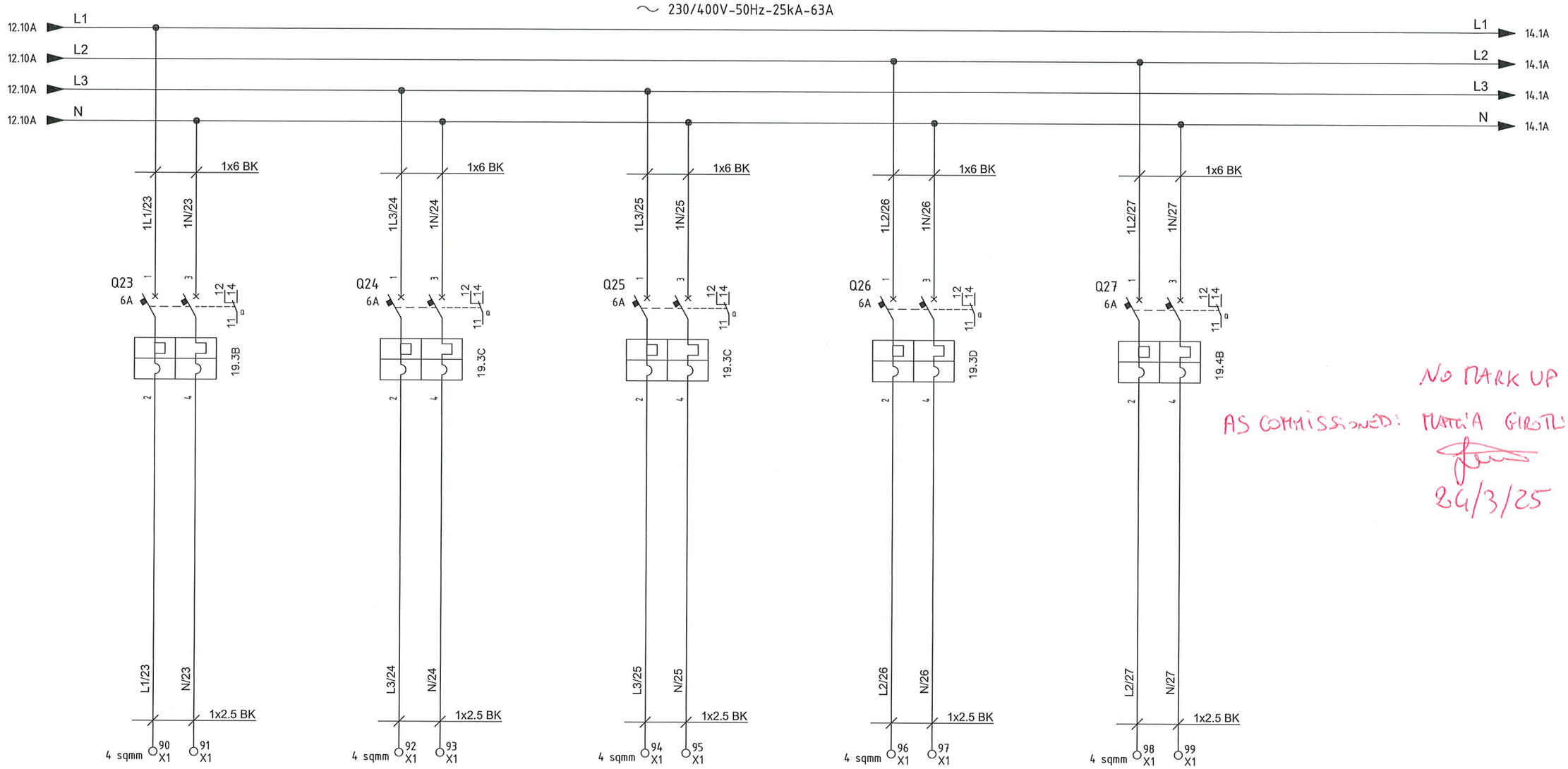
1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

A3

sheet 9
sheets 17



B400-SIS-001
SIS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-PCS-001
PCS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-EMCS-001
EMCS - Controller and I/O Cabinet - Auxiliary
(3G2.5 sqmm)

B400-FGS-001
FGS Fire & Gas Panel - Auxiliary
(3G2.5 sqmm)

B400-NET-001
System Server / Network Cabinet - Auxiliary
(3G2.5 sqmm)

NO MARK UP
AS COMMISSIONED: MARCO GIROTTI
24/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00033

REV.:	DATE:	SIGNATURE:
3_A	18/03/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/33
Item n° : PF1002888/101

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	12/03/2025	Santinelli	Flamminio	Sigismondi	Replaced Twiligh Switch TW1
2	19/08/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
1	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
0	29/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "DP-200N1"
LV SWBD FUNCTIONAL DIAGRAMS
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.3

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00033 Rev. 03

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE