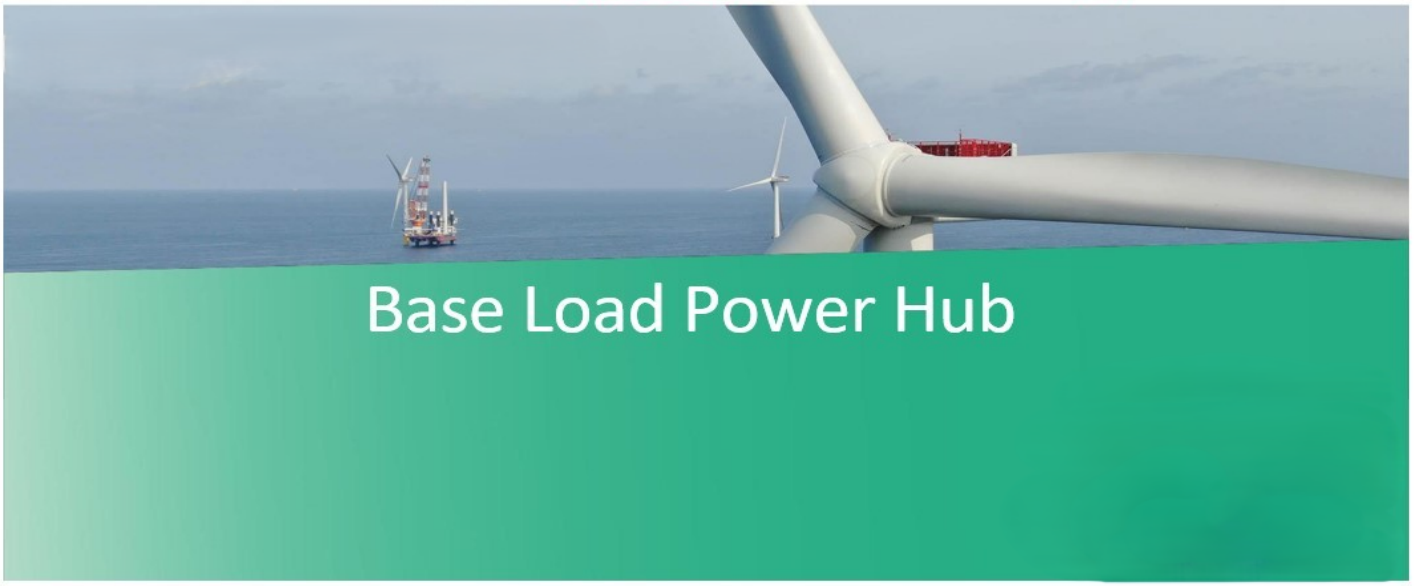
CROSSWIND

ROSETTI MARINO

PROVERUS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	72 Electrical - Telecom - Instrumentation
SUBSYSTEM	72-00 NAVAID

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

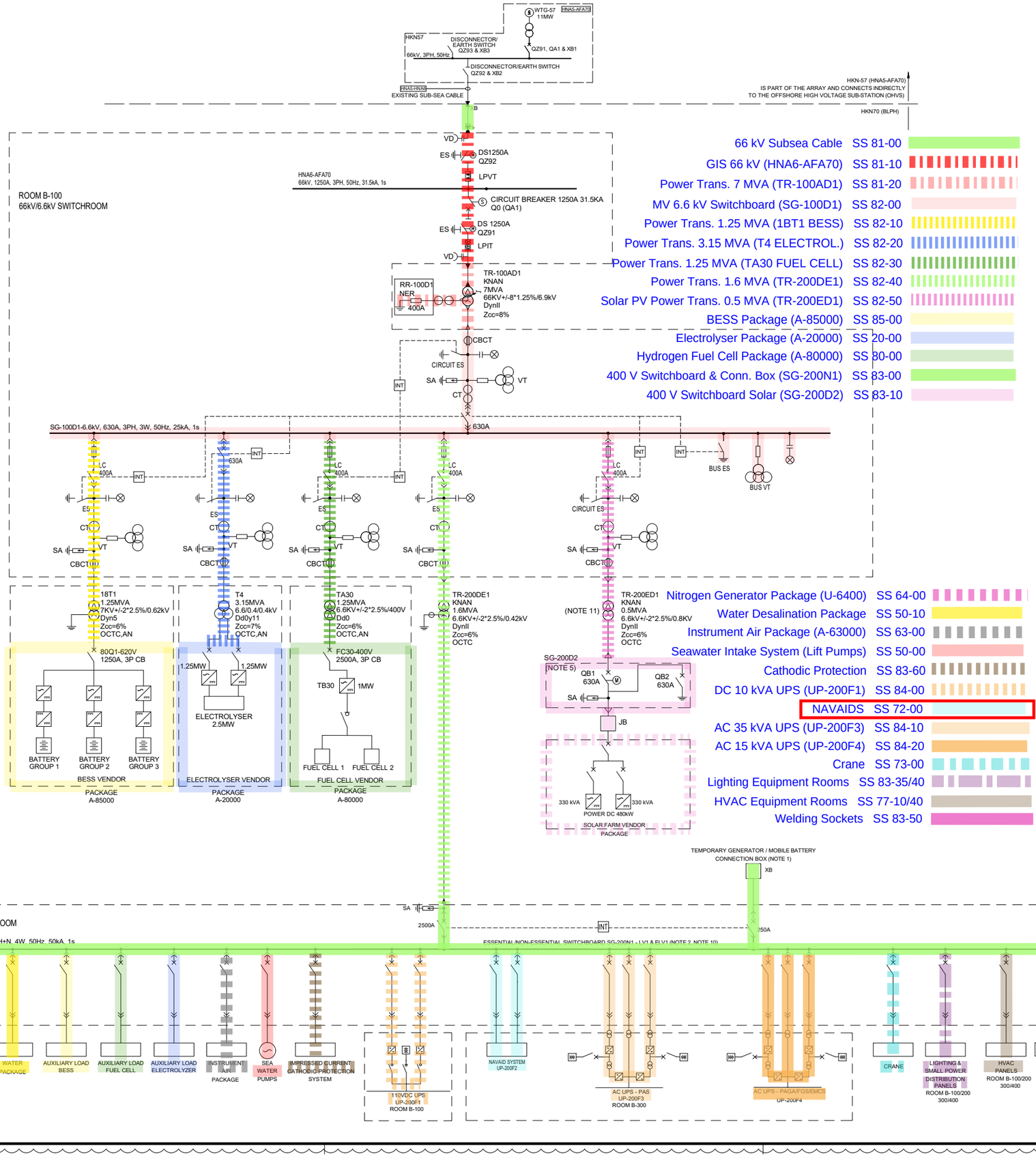
Sub System N°:	72-00	**Tick as appropriate**	ONSHORE	OK
Description:	NAVAID		OFFSHORE	

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	2025-06-06	2025-06-10
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-06-06T10:00:01.679Z	PROVERLIS Digitaly signed by Martin Taylor 2025-06-10T12:09:30.280Z

Section 1 SUB-SYSTEM DEFINITION

DRAWING NO. 123A90-DDL-EL-DG-20158 REV. 01



SYMBOL LEGEND:

- VOLTAGE DETECTOR
- EARTHING SWITCH DISCONNECTOR
- MOTORIZED EARTHING SWITCH
- CIRCUIT BREAKER
- FUSE
- CONTACTOR
- THREE-PHASE TRANSFORMER WITH TAP CHANGER
- THREE-PHASE TRANSFORMER
- CURRENT TRANSFORMER
- THREE-PHASE TRANSFORMER, WITH THREE WINDINGS
- NEUTRAL EARTHING RESISTOR
- SURGE ARRESTER
- CORE BALANCE CURRENT TRANSFORMER
- SURGE ARRESTOR FOR T-CONNECTOR (N.1 FOR EACH PHASE)
- VOLTAGE & CURRENT TRANSFORMER (3Ø X 2) (LPIT TYPE)
- VOLTAGE TRANSFORMER (3Ø X 2) (LPVT TYPE)
- VOLTAGE TRANSFORMER
- CABLE BOX
- T-CONNECTOR CABLE TERMINATION
- CABLE AIR TERMINATION

OLTC	= ON LOAD TAP CHANGER
OCTC	= OPEN CIRCUIT TAP CHANGER
KNAN	= NON-MINERAL OIL NATURAL AIR COOLED
AN	= AIR NATURAL
XB	= CABLE BOX
QZ	= DISCONNECT SWITCH & EARTH SWITCH
QA	= CIRCUIT BREAKER
LC	= LATCHED FUSED CONTACTOR (400A)
INT	= INTERLOCK SYSTEM
SA	= SURGE ARRESTER
CBCT	= CORE BALANCE CURRENT TRANSFORMER
ES	=EARTHING SWITCH
VD	=VOLTAGE DETECTOR
LCP	=LOCAL CONTROL PANEL
LPVT	=LOW POWER VOLTAGE TRANSFORMER
LPCT	=LOW POWER CURRENT TRANSFORMER
LPIT	=LOW POWER INSTRUMENT TRANSFORMER
JB	=JUNCTION BOX

NOTES:

1. TEMPORARY POWER SUPPLY CONNECTION BOX LOCATED ON OUTSIDE WALL OF LV SWITCHROOM / CONTAINER.
2. LOAD DEFINITION 'ESSENTIAL' / 'NON-ESSENTIAL' IS SHOWN IN THE LOAD LIST. THE CCS, EMCS AND 'SMART' SWITCHGEAR WILL OPEN / CLOSE CIRCUIT BREAKERS AS REQUIRED.
3. A COMBINED CCS/EMCS SYSTEM COMPRISES A MICROPROCESSOR BASED SYSTEM, ASSOCIATED SOFTWARE AND REQUIRED PERIPHERALS FOR MONITORING AND CONTROLLING OF ELECTRICAL POWER NETWORK. ALL ELECTRICAL EQUIPMENT AND PACKAGE UNITS SHALL BE CONNECTED TO THE CENTRAL CONTROL SYSTEM .
4. IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM SUPPLIED BY COMPANY.
5. THE SOLAR FARM IN-FEED POWER CIRCUIT BREAKERS PANEL IS LOCATED INSIDE THE LV SWITCHGEAR ROOM B-200.
6. DELETED.
7. DELETED.
8. DELETED.
9. CROSSWIND SHALL BE ABLE TO CONTROL THE BLPH 66KV MOTORISED CIRCUIT BREAKER Q0 (QA1) & MOTORISED ELECTRICAL DISCONNECTOR / EARTH SWITCH (QZ92, TYPE B) USING THEIR 'HV-SCADA' SYSTEM. THIS BACK-UP / REDUNDANT CONTROL SHALL BE ADDITIONAL TO THAT PROVIDED BY THE CCS AND BE OF HIGHER PRIORITY OVER A SEPARATE FIBRE OPTIC CABLE (FOC). THE CCS OPERATOR AND 'HV-SCADA' SHALL BOTH BE KEPT FULLY AWARE OF EQUIPMENT STATUS AT ALL TIMES. INTERTRIPPING, INHIBITS & INTERLOCKING FOR BLPH 66KV EQUIPMENT SHALL BE AS PER THE WIND FARM.
10. THE LOADS IN THE LOW VOLTAGE SWITCHGEAR AND THE CURRENT VALUES OF THE CIRCUIT BREAKERS ARE ONLY INDICATIVE.
11. NEUTRAL POINT OF TR-200ED1 SHALL NOT BE GROUNDED AS REQUIRED BY SOLAR FARM SUPPLIER IN 123A90-PML-PM-TQ-00040.

REFERENCES:

1. 123A90-DDL-EL-DG-20014 ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
2. 123A90-DDL-EL-DG-20015 ELECTRICAL SINGLE LINE DIAGRAM 6.6kV SYSTEMS
3. 123A90-DDL-EL-DG-20159 ELECTRICAL SINGLE LINE DIAGRAMS LV SYSTEM
4. 123A90-DDL-EL-DG-20160 ELECTRICAL SINGLE LINE DIAGRAMS AC UPS SYSTEMS
5. 123A90-DDL-EL-DG-20161 ELECTRICAL SINGLE LINE DIAGRAMS DC UPS SYSTEMS
6. 123A90-DDL-EL-DG-20185 ELECTRICAL SINGLE LINE DIAGRAM HV SYSTEMS
7. 123A90-DDL-EL-DL-20104 ELECTRICAL EQUIPMENT LAYOUT - HV SWITCHROOM
8. 123A90-DDL-EL-DL-20105 ELECTRICAL EQUIPMENT LAYOUT - LV SWITCHROOM
9. 123A90-DDL-EL-LIS-20016 ELECTRICAL LOAD LIST and BALANCE -CCS MODE CHARGING-
10. 123A90-DDL-EL-RE-20152 ELECTRICAL EQUIPMENT SIZING CCALCULATION REPORT
11. 123A90-DDL-EL-RE-20170 ELECTRICAL SYSTEM STUDY REPORT - LOAD FLOW
12. 123A90-DDL-EL-RE-20171 ELECTRICAL SYSTEM STUDY REPORT - SHORT CIRCUIT
13. 123A90-DDL-EL-RE-20172 ELECTRICAL SYSTEM STUDY REPORT - ARC FLASH ENERGY CALCULATION
14. 123A90-DDL-EL-RE-20173 ELECTRICAL SYSTEM STUDY REPORT - HARMONICS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	02/11/2023	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

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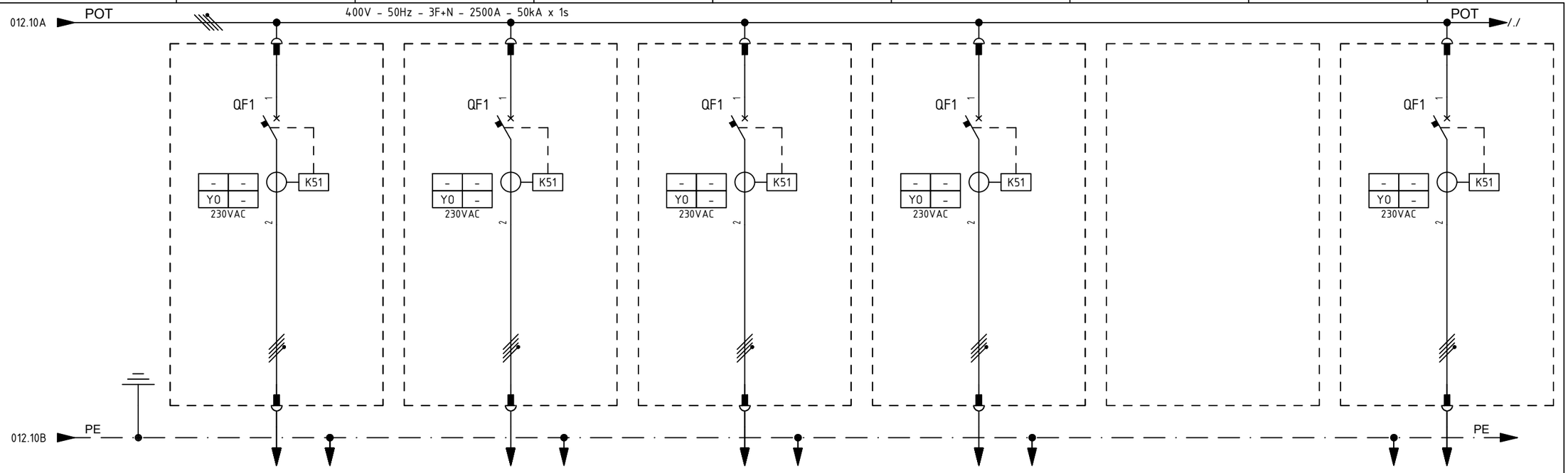
TITLE :

OVERALL/KEY SINGLE LINE DIAGRAM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 26/03/2023
A1	DRAWING NO. 123A90-DDL-EL-DG-20158	SHEET 001	REV. 01

01

File Name : 123A90-DDL-EL-DG-20158_REV01.dwg



ITEM			1	UP-200F1	UP-200F1	UP-200F2	UP-200F2		ESW-200N2
UTILITY			2	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	NAVAID SYSTEM FEEDER A	NAVAID SYSTEM FEEDER B		WELDING SOCKETS (LOWER DECK)
COLUMN/CUBICLE			3	A7 / +03	A7 / +04	A7 / +05	A7 / +06		A7 / +08
RATED POWER | RATED CURRENT			4/5	10 kW | 16 A	10 kW | 16 A	1.6 kVA | 7 A	1.6 kVA | 7 A		69.84 kW | 126.15 A
TYPICAL FUNCTIONAL			6	L1-63	L1-63	L1-10	L1-10		L2-160
CIRCUIT BREAKER (ABB)	TYPE		7	XT2S - 160	XT2S - 160	XT2S - 160	XT2S - 160		XT4S - 250
	VERSION		8	4P - FIXED	4P - FIXED	4P - FIXED	4P - FIXED		4P - FIXED
	TRIP UNITS		9	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 160A)
	Icu KA		10	50kA	50kA	50kA	50kA		50kA
OVERLOAD	L	Range A	11	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In		(0.4 - 1) x In
		Range t	12	k/I^2	k/I^2	k/I^2	k/I^2		k/I^2
SEL. SHORT-CIRCUIT	S	Range A	13	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	14	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2
INST. SHORT-CIRCUIT	I	Range A	15	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	16	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec		<= 0.02 sec
EARTH FAULT PROTECTION	G	Range A	17	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In		(0.2 - 1) x In
		Range t	18	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec		0.1 - 0.8 sec
CONTACTOR (ABB)			19	-	-	-	-		-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-		-
SURGE ARRESTER (DEHN)			21	-	-	-	-		-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-		-
FUSE HOLDER (ITALWEBER)			23	SUBSISTEM 84.00	SUBSISTEM 84.00	SUBSISTEM 72.00	SUBSISTEM 72.00		SUBSISTEM 83.50
INDIRECT PROTECTION (ABB)			24						
VOLTMETER			25						
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-		-
	PERFORMANCE/CLASS		27	-	-	-	-		-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-		-
	PERFORMANCE/CLASS		29	-	-	-	-		-
LOCK-OUT RELAY (-)			30	-	-	-	-		-
POWER CONDUCTOR mmq			31	4G16	4G16	3G16	3G16		5G50

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DWG n° : 231298/SD/11

Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-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-00011

SHEET 013

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00011 Rev. 03

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:	2025-05-27	
System:	72	/	Electrical - Telecom - Instrumentation		
SubSystem:	72-00	/	NAVAID		

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: 4

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Martin Taylor
Date	2025-05-28	2025-06-05
Signature	Digitaly signed by Anthony Iveson 2025-05-28T06:40:29.609Z	Digitaly signed by Martin Taylor 2025-06-05T08:23:26.898Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00 & process: COMM

Electrical	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
A7/+05-QF1	NAVAID SYSTEM FEEDER A - A7/+05-QF1	ONSHORE	C10002970	FP00	100	2025-02-04	RFO 1
		ONSHORE	C10002971	FTR-2	100	2024-10-02	RFO 1
		ONSHORE	C10002972	FTR-6	100	2024-10-02	RFO 1
		ONSHORE	C10003031	FTR-5	100	2025-05-15	RFO 1
A7/+06-QF1	NAVAID SYSTEM FEEDER B - A7/+06-QF1	ONSHORE	C10002973	FP00	100	2025-02-04	RFO 1
		ONSHORE	C10002974	FTR-2	100	2024-10-02	RFO 1
		ONSHORE	C10002975	FTR-6	100	2024-10-02	RFO 1
		ONSHORE	C10003032	FTR-5	100	2025-05-15	RFO 1
BA-200F2	Battery Bank for NAVAID	ONSHORE	C10002977	FTR-4	100	2025-02-12	RFO 1
		ONSHORE	C10002978	FTR-4	100	2025-02-14	RFO 1
		ONSHORE	C10002979	FTR-3	100	2025-02-14	RFO 1
NC-200F2	NAVAID Central Control Panel (NCCP)	ONSHORE	C10002976	FP25	100	2025-02-04	RFO 1
		ONSHORE	C10002980	FTR-6	100	2025-02-04	RFO 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00 & process: COMM

Instrumental	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
72-XA-001	Wave-off light system fault (NAVAIDS FAULT ALARM)	ONSHORE	C10003830	FJ01D	100	2025-02-13	RFO 1
72-XS-001	Wave-off lights activation	ONSHORE	C10004877	FJ01D	100	2025-02-13	RFO 1
72-XS-002	B-300 Visibility meter power cut-off	ONSHORE	C10004878	FJ01D	100	2025-02-13	RFO 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00 & process: COMM

Miscellaneous	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
123A90-PML-COM-PRO-03053	OTP - Navaids System	ONSHORE	C10004618	5300	100	2025-04-19	RFO 1
		OFFSHORE	C10004942	5300	0	-	-

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	72	Electrical - Telecom - Instrumentation
SUBSYSTEM	72-00	NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001076	A	83036-CEL C10000561	Cable to be terminated with correct pins by UP-200F2 side	.		Pschintu 2024-11-30	2025-01-07	Gtangianu 2025-01-07	2025-01-07
C30001088	A	72209-CEC C10001807	Cable to be terminated properly by ETM-200-01 side.	.		Pschintu 2024-11-30	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30001096	A	CB-200F2 C10000854	Missing earthing connection of JB	.		Pschintu 2024-11-30	2024-12-27	Ecarotenuto 2024-12-27	2024-12-27
C30002405	A	72217-CEC C10002048	cable gland EVM-200-01 side is damaged.(see attached photo). To be replaced	.		Pschintu 2025-01-07	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30000117	B	A7/+06-QF1 C10002974	New and definitive protection setting to be implemented on SG-200N1 drawer A7/+06	Update the protection setting on the drawer A7/+06	The definitive setting has been updated.	MGirotti 2024-10-01	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30000118	B	A7/+05-QF1 C10002971	New and definitive protection setting to be implemented on SG-200N1 drawer A7/+05	Update the protection setting on the drawer A7/+05	The definitive setting has been updated.	MGirotti 2024-10-01	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30001073	B	83036-CEL C10000561	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001074	B	83036-CEL C10000561	Missing core identification tags by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001079	B	83037-CEL C10000562	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001080	B	83037-CEL C10000562	Missing core identification tags by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001081	B	83037-CEL C10000562	Cable to be terminated with correct pins by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001086	B	72209-CEC C10001807	Missing cable tags From/To	.		Pschintu 2024-11-30	2025-02-03	APolo 2025-02-03	2025-02-03
C30001087	B	72209-CEC C10001807	Missing core identification tags both side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001090	B	72208-CEC C10002049	Missing core identification tags both side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001091	B	72208-CEC C10002049	Missing cable tag from/to	.		Pschintu 2024-11-30	2025-01-30	APolo 2025-01-30	2025-01-30
C30001390	B	72214-CEL-P C10002061	Identification tag wires missing both side the (72214-CEL-P).	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001391	B	72214-CEL-P C10002061	Missing cable tags both side.	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001394	B	72214-CEL-N C10002062	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001395	B	72214-CEL-N C10002062	"Identification tag wires missing both side the (72214-CEL-N) "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001396	B	72215-CEL-N C10002064	"Identification tag wires missing both side. "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001397	B	72215-CEL-P C10002063	"Identification tag wires missing both side. "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001398	B	72215-CEL-P C10002063	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001400	B	72215-CEL-N C10002064	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30002403	B	72217-CEC C10002048	Missing platic cable tag inside and outside NC-200F2, MCT internal side, and SS cable tag EVM-200-01 side	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002407	B	72217-CEC C10002048	Missing core identification tag by EVM-200-01 side	.		Pschintu 2025-01-07	2025-01-30	APolo 2025-01-30	2025-01-30
C30002408	B	72217-CEC C10002048	Missing terminal strip identification tag (X1) inside EVM-200-01 (see attached photo)	.		Pschintu 2025-01-07			
C30002461	B	72207-CEC C10001837	Missing cable tag on routing and both ends.	.		Pschintu 2025-01-08	2025-02-04	Pschintu 2025-02-04	2025-02-04

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002462	B	72207-CEC C10001837	Missing core identification tag by EPH-200-01 side	.		Pschintu 2025-01-08	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002463	B	72207-CEC C10001837	Cable to be fixed and dressed properly on primary cable tray of upper deck	.		Pschintu 2025-01-08	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002489	B	72202-CEL C10000570	Missing cable tag NC-200F2 side and EML-200-02 side	.		Pschintu 2025-01-09	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002681	B	72202-CEL C10000570	The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of	.		Pschintu 2025-01-11	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30002682	B	72201-CEL C10000569	The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of	.		Pschintu 2025-01-11	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30002683	B	72201-CEL C10000569	Missing cable tag NC-200F2 side and EML-200-01 side	.		Pschintu 2025-01-11	2025-02-12	APolo 2025-02-12	2025-02-12
C30003052	B	72203-CEL C10000571	Missing cable tags both sides	.		Pschintu 2025-01-17	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30003073	B	72211-CEL C10002051	Missing SS cable tag EJB-200F2-02 side	.		Pschintu 2025-01-18	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30003074	B	72213-CEL C10002053	Secondary cable tray must be moved after that scaffolding will be removed	.		Pschintu 2025-01-18	2025-02-22	JKrizanic 2025-02-22	2025-02-22

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	72	Electrical - Telecom - Instrumentation
SUBSYSTEM	72-00	NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004161	B	72210-CEL C10002050	Missing the SS cable tag side the (ESL-200-01).	.		Gtangianu 2025-02-27	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004263	B	72205-CEL C10002047	Missing identification SS tag side the EJB-200F2-01.See attached photo.	.		Gtangianu 2025-03-25	2025-03-27	Gtangianu 2025-03-27	2025-03-27
C30004264	B	72204-CEL C10002046	Missing identification SS tag side the EJB-200F2-01.See attached photo.	.		Gtangianu 2025-03-25	2025-03-27	Gtangianu 2025-03-27	2025-03-27
C30004367	B	A7/+05-QF1 C10003031	The BOAT LANDING lamp ELS-200-01 will be tested during the OFFSHORE, because during the ONSHORE phase the test has been done	Connect the cable and test the lamp		DZucconelli 2025-05-06			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000988	B	C-NC-200F2/B400-FGS-002.01 C10001468	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28			
C30000989	B	C-NC-200F2/B400-FGS-002.02 C10001469	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28			
C30000990	B	C-NC-200F2/B400-FGS-002.02 C10001469	Missing cable tag all along the route	.		Pschintu 2024-11-28	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000991	B	C-NC-200F2/B400-FGS-002.01 C10001468	Missing cable tag all along the route	.		Pschintu 2024-11-28	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001083	B	C-NC-200F2/B400-SIS-001 C10001460	Missing core identification tag by both sides	.		Pschintu 2024-11-30	2025-05-22	Gtangianu 2025-05-22	2025-05-22
C30001084	B	C-NC-200F2/B400-SIS-001 C10001460	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30002089	B	ETM-200-01 C10002073	Missing lock nut, serrated washer and teflon for probe fixing system. See attached photo	.		Pschintu 2024-12-20	2025-02-24	JKrizanic 2025-02-24	2025-02-24

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003059	B	EJB-200F2-02 C10002068	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990083, but actual is 24P00297990001.	.		Ecarotenuto 2025-01-18	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003069	B	EOL-200-03 C10001622	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) JB Serial Number is 240547-MC03, but actual is 240547-MC02	.		Ecarotenuto 2025-01-18	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30004262	B	EOL-200-02 C10001621	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) Serial Number is 240547-MC02, but actual is 240547-MC03 and equipment protection	.		Gtangianu 2025-03-24	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30004265	B	EJB-200F2-01 C10002067	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990082, but actual is24P00297990004.See attached	.		Gtangianu 2025-03-25	2025-04-17	Gtangianu 2025-04-17	2025-04-17

Section 2.2 Exception Punch Lists (per discipline)

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	72	Electrical - Telecom - Instrumentation
SUBSYSTEM	72-00	NAVAID

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000988	B	C-NC-200F2/B400-FGS-002.01 C10001468	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28			
C30000989	B	C-NC-200F2/B400-FGS-002.02 C10001469	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28			

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

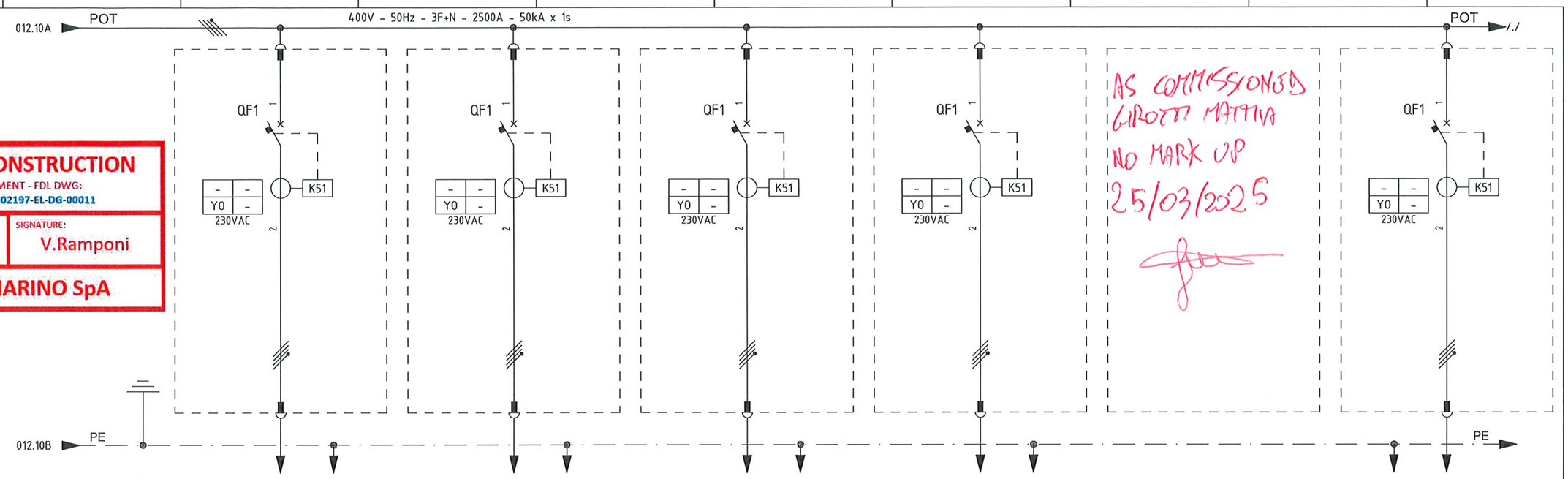
SYSTEM 72 Electrical - Telecom - Instrumentation

SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002408	B	72217-CEC C10002048	Missing terminal strip identification tag (X1) inside EVM-200-01 (see attached photo)	.		Pschintu 2025-01-07			
C30004367	B	A7/+05-QF1 C10003031	The BOAT LANDING lamp ELS-200-01 will be tested during the OFFSHORE, because during the ONSHORE phase the test has been done	Connect the cable and test the lamp		DZucconelli 2025-05-06			

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



VALID FOR CONSTRUCTION

VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1723002197-EL-DG-00011

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

ROSETTI MARINO SpA

ITEM			1	UP-200F1	UP-200F1	UP-200F2	UP-200F2		ESW-200N2
UTILITY			2	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	NAVAID SYSTEM FEEDER A	NAVAID SYSTEM FEEDER B		WELDING SOCKETS (LOWER DECK)
COLUMN/CUBICLE			3	A7 / +03	A7 / +04	A7 / +05	A7 / +06		A7 / +08
RATED POWER | RATED CURRENT			4/5	10 kW | 16 A	10 kW | 16 A	1.6 kVA | 7 A	1.6 kVA | 7 A		69.84 kW | 126.15 A
TYPICAL FUNCTIONAL			6	L1-63	L1-63	L1-63	L1-63		L2-160
CIRCUIT BREAKER (ABB)	TYPE		7	XT2S - 160	XT2S - 160	XT2S - 160	XT2S - 160		XT4S - 250
	VERSION		8	4P - FIXED	4P - FIXED	4P - FIXED	4P - FIXED		4P - FIXED
	TRIP UNITS		9	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 160A)
	Icu	KA	10	50kA	50kA	50kA	50kA		50kA
OVERLOAD	L	Range A	11	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In		(0.4 - 1) x In
		Range t	12	k/I^2	k/I^2	k/I^2	k/I^2		k/I^2
SEL. SHORT-CIRCUIT	S	Range A	13	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	14	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2
INST. SHORT-CIRCUIT	I	Range A	15	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	16	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec		<= 0.02 sec
EARTH FAULT PROTECTION	G	Range A	17	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In		(0.2 - 1) x In
		Range t	18	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec		0.1 - 0.8 sec
CONTACTOR (ABB)			19	-	-	-	-		-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-		-
SURGE ARRESTER (DEHN)			21	-	-	-	-		-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-		-
FUSE HOLDER (ITALWEBER)			23	-	-	-	-		-
INDIRECT PROTECTION (ABB)			24	-	-	-	-		-
VOLTMETER			25	-	-	-	-		-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-		-
	PERFORMANCE/CLASS		27	-	-	-	-		-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-		-
	PERFORMANCE/CLASS		29	-	-	-	-		-
LOCK-OUT RELAY (-)			30	-	-	-	-		-
POWER CONDUCTOR		mmq	31	4G16	4G16	3G16	3G16		5G50

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DWG n° : 231298/SD/11

Item n° : PF1002983/26

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
4	28/08/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-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-00011

SHEET 013

REV. 04

File Name : 1723002197-EL-DG-00011 Rev. 04

F.to UNI A3: 420mmx297mm

BASE LOAD POWER HUB (BLPH)

NAVIGATION AIDS SYSTEM

SINGLE-LINE DIAGRAM

AS COMMISSIONED
GROTTI MATTIA
NO MARK UP
28/03/2025

SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-2			
sice					
CROSSWIND	ROSETTI MARINO				

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE-LINE DIAGRAM
FRONT PAGE

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

SCALE : NTS

A3

DRAWING NO. 1724000775-EL-DG-00005

SHEET 001

REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00005 REV.5.DWG

REV. No.	SHEET No.	DESCRIPTION	REF. CODE
05	001	FRONT PAGE	
05	002	SUMMARY AND GENERAL NOTES	
05	003	SYMBOL LIST	
05	004	NAVIGATION AIDS SYSTEM – SINGLE-LINE DIAGRAM	

GENERAL NOTES

(1) = EQUIPMENT TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(2) = INTERCONNECTING CABLES TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(3) = FOR A DETAILED LIST OF THE REMOTE SIGNALS, PLEASE REFER TO THE I/O LIST (DOC. No. 1724000775-EL-LIS-00011).

(4) = FEEDER TO BE CURVE D/K WITH RATED CURRENT 16A.

(5) = DEVICE OPERABLE FROM THE FRONT COVER OF THE ENCLOSURE (ONCE THE COVER IS CLOSED).

(6) = TEMPERATURE PROBE TO BE INSTALLED BY CUSTOMER IN THE BATTERY BOX.

AS COMMISSIONED
CIRCUIT MATCH
NO MARK UP
28/03/2025

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-2

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE-LINE DIAGRAM
SUMMARY AND GENERAL NOTES

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

A3 | DRAWING NO. 1724000775-EL-DG-00005 | SHEET 002 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00005 REV.5.DWG

SYMBOL LIST

Q AUTOMATIC CIRCUIT BREAKER (MAGNETO–THERMIC)	Q AUTOMATIC CIRCUIT BREAKER (ONLY MAGNETIC)	Q/K AUXILIARY / RELAY CONTACT (NORMALLY OPEN)	Q/K AUXILIARY / RELAY CONTACT (NORMALLY CLOSED)	K 24Vdc RELAY COIL (COIL POWERED AT 24VDC)	K 230Vac RELAY COIL (COIL POWERED AT 230VAC)
KM 24Vdc POWER CONTACTOR (COIL POWERED AT 24VDC)	KU I< UNDERCURRENT MONITORING RELAY	KE FAULT 24Vdc PE 24VDC EARTH INSULATION MONITORING RELAY	KE FAULT 230Vac PE 230VAC EARTH INSULATION MONITORING RELAY	KP 24Vdc PHOTOCELL RELAY (POWERED AT 24VDC)	TH1 T> THERMIC SWITCH (CLOSED WHEN TEMPERATURE HIGHER THAN THRESHOLD)
FN COOLING FAN	SK 230VAC SOCKET	D DIODE	SH CURRENT SHUNT	CV 0...60mV 4...20mA 0...60mV TO 4...20mA TRANSDUCER	X TERMINAL
X TERMINAL WITH FUSE	H PILOT LIGHT	L CABINET INTERNAL LIGHT	SW LIMIT SWITCH	FTC PHOTOCELL (RESISTANCE SENSIBLE TO LIGHT)	CG MARINE LIGHT CODER MARINE SIGNAL LIGHT CODER CIRCUIT
CG STATUS LIGHT CODER STATUS LIGHT CODER CIRCUIT	CG MIOL CODER MEDIUM INTENSITY OBSTRUCTION LIGHT CODER CIRCUIT	BC BATTERY CHARGER MODULE (AC/DC)	ACDC POWER AC/DC CONVERTER MODULE (AC/DC)	INV POWER INVERTER MODULE (DC/AC)	DCDC POWER DC/DC CONVERTER MODULE (DC/DC)
TR PE VOLTAGE TRANSFORMER	CONTROL SYSTEM CONTROL SYSTEM	PLC MODBUS INTERFACE (SLAVE)	MECHANICAL INTERLOCK BETWEEN POWER CONTACTORS (KM)	P PUSH–BUTTON	S POS.1 POS.2 2–POSITION SELECTOR SWITCH
S POS.1 POS.2 POS.3 3–POSITION SELECTOR SWITCH	A.C.O. AUTOMATIC CHANGE–OVER	CN RJ–45 MODULAR JACK	Z LOAD EMI FILTER LINE PE EMI FILTER	KA 24Vdc ASTRONOMIC SWITCH	SA PE SURGE ARRESTER

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

05	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–2

sice

CROSSWIND | ROSETTI MARINO

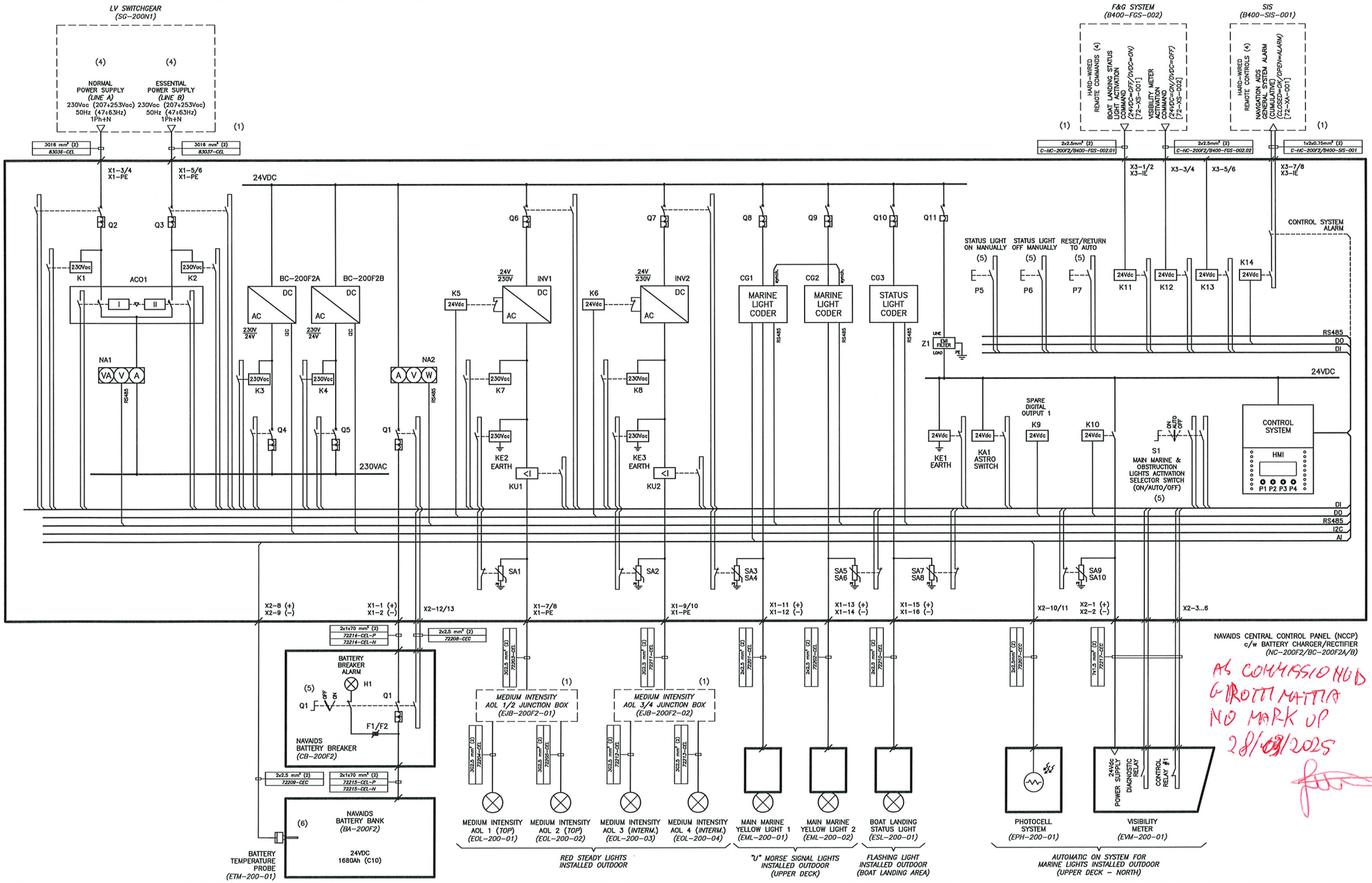
TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE–LINE DIAGRAM
SYMBOL LIST

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

A3 | DRAWING NO. 1724000775–EL–DG–00005 | SHEET 003 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00005 REV.5.DWG



AS COMMISSIONED
G.ROTTI MATTIA
NO MARK UP
28/09/2025

05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-2

sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
NAVIGATION AIDS SYSTEM
SINGLE-LINE DIAGRAM

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

A3 | DRAWING NO. 1724000775-EL-DG-00005 | SHEET 004 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00005 REV.5.DWG

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation

SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001076	A	83036-CEL C10000561	Cable to be terminated with correct pins by UP-200F2 side	.		Pschintu 2024-11-30	2025-01-07	Gtangianu 2025-01-07	2025-01-07
C30001088	A	72209-CEC C10001807	Cable to be terminated properly by ETM-200-01 side.	.		Pschintu 2024-11-30	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30001096	A	CB-200F2 C10000854	Missing earthing connection of JB	.		Pschintu 2024-11-30	2024-12-27	Ecarotenuto 2024-12-27	2024-12-27
C30002405	A	72217-CEC C10002048	cable gland EVM-200-01 side is damaged.(see attached photo). To be replaced	.		Pschintu 2025-01-07	2025-01-16	Ecarotenuto 2025-01-16	2025-01-16
C30000117	B	A7/+06-QF1 C10002974	New and definitive protection setting to be implemented on SG-200N1 drawer A7/+06	Update the protection setting on the drawer A7/+06	The definitive setting has been updated.	MGirotti 2024-10-01	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30000118	B	A7/+05-QF1 C10002971	New and definitive protection setting to be implemented on SG-200N1 drawer A7/+05	Update the protection setting on the drawer A7/+05	The definitive setting has been updated.	MGirotti 2024-10-01	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30001073	B	83036-CEL C10000561	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001074	B	83036-CEL C10000561	Missing core identification tags by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001079	B	83037-CEL C10000562	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation

SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001080	B	83037-CEL C10000562	Missing core identification tags by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001081	B	83037-CEL C10000562	Cable to be terminated with correct pins by UP-200F2 side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001086	B	72209-CEC C10001807	Missing cable tags From/To	.		Pschintu 2024-11-30	2025-02-03	APolo 2025-02-03	2025-02-03
C30001087	B	72209-CEC C10001807	Missing core identification tags both side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001090	B	72208-CEC C10002049	Missing core identification tags both side	.		Pschintu 2024-11-30	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001091	B	72208-CEC C10002049	Missing cable tag from/to	.		Pschintu 2024-11-30	2025-01-30	APolo 2025-01-30	2025-01-30
C30001390	B	72214-CEL-P C10002061	Identification tag wires missing both side the (72214-CEL-P).	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001391	B	72214-CEL-P C10002061	Missing cable tags both side.	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001394	B	72214-CEL-N C10002062	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001395	B	72214-CEL-N C10002062	"Identification tag wires missing both side the (72214-CEL-N) "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001396	B	72215-CEL-N C10002064	"Identification tag wires missing both side. "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001397	B	72215-CEL-P C10002063	"Identification tag wires missing both side. "	.		Gtangianu 2024-12-05	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001398	B	72215-CEL-P C10002063	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001400	B	72215-CEL-N C10002064	Missing cable tags both side .	.		Gtangianu 2024-12-05	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30002403	B	72217-CEC C10002048	Missing platic cable tag inside and outside NC-200F2, MCT internal side, and SS cable tag EVM-200-01 side	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002407	B	72217-CEC C10002048	Missing core identification tag by EVM-200-01 side	.		Pschintu 2025-01-07	2025-01-30	APolo 2025-01-30	2025-01-30
C30002408	B	72217-CEC C10002048	Missing terminal strip identification tag (X1) inside EVM-200-01 (see attached photo)	.		Pschintu 2025-01-07	2025-06-10	Ecarotenuto 2025-06-10	2025-06-10
C30002461	B	72207-CEC C10001837	Missing cable tag on routing and both ends.	.		Pschintu 2025-01-08	2025-02-04	Pschintu 2025-02-04	2025-02-04

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002462	B	72207-CEC C10001837	Missing core identification tag by EPH-200-01 side	.		Pschintu 2025-01-08	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002463	B	72207-CEC C10001837	Cable to be fixed and dressed properly on primary cable tray of upper deck	.		Pschintu 2025-01-08	2025-02-21	JKrizanic 2025-02-21	2025-02-21
C30002489	B	72202-CEL C10000570	Missing cable tag NC-200F2 side and EML-200-02 side	.		Pschintu 2025-01-09	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002681	B	72202-CEL C10000570	The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of	.		Pschintu 2025-01-11	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30002682	B	72201-CEL C10000569	The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of	.		Pschintu 2025-01-11	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30002683	B	72201-CEL C10000569	Missing cable tag NC-200F2 side and EML-200-01 side	.		Pschintu 2025-01-11	2025-02-12	APolo 2025-02-12	2025-02-12
C30003052	B	72203-CEL C10000571	Missing cable tags both sides	.		Pschintu 2025-01-17	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30003073	B	72211-CEL C10002051	Missing SS cable tag EJB-200F2-02 side	.		Pschintu 2025-01-18	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30003074	B	72213-CEL C10002053	Secondary cable tray must be moved after that scaffolding will be removed	.		Pschintu 2025-01-18	2025-02-22	JKrizanic 2025-02-22	2025-02-22

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation
SUBSYSTEM 72-00 NAVAID

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004161	B	72210-CEL C10002050	Missing the SS cable tag side the (ESL-200-01).	.		Gtangianu 2025-02-27	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004263	B	72205-CEL C10002047	Missing identification SS tag side the EJB-200F2-01.See attached photo.	.		Gtangianu 2025-03-25	2025-03-27	Gtangianu 2025-03-27	2025-03-27
C30004264	B	72204-CEL C10002046	Missing identification SS tag side the EJB-200F2-01.See attached photo.	.		Gtangianu 2025-03-25	2025-03-27	Gtangianu 2025-03-27	2025-03-27
C30004367	B	A7/+05-QF1 C10003031	The BOAT LANDING lamp ELS-200-01 will be tested during the OFFSHORE, because during the ONSHORE phase the test has been done	Connect the cable and test the lamp	We added one MC ITR OFFSHORE Ref. C10004689 and one COMM ITR	DZucconelli 2025-05-06	MGirotti 2025-06-10	MGirotti 2025-06-10	2025-06-10

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	72	Electrical - Telecom - Instrumentation
SUBSYSTEM	72-00	NAVAID

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000988	B	C-NC-200F2/B400-FGS-002.01 C10001468	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28	2025-07-02	Ecarotenuto 2025-07-02	2025-07-02
C30000989	B	C-NC-200F2/B400-FGS-002.02 C10001469	Missing core identification tags on both cable termination	.		Pschintu 2024-11-28	2025-07-02	Ecarotenuto 2025-07-02	2025-07-02
C30000990	B	C-NC-200F2/B400-FGS-002.02 C10001469	Missing cable tag all along the route	.		Pschintu 2024-11-28	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000991	B	C-NC-200F2/B400-FGS-002.01 C10001468	Missing cable tag all along the route	.		Pschintu 2024-11-28	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001083	B	C-NC-200F2/B400-SIS-001 C10001460	Missing core identification tag by both sides	.		Pschintu 2024-11-30	2025-05-22	Gtangianu 2025-05-22	2025-05-22
C30001084	B	C-NC-200F2/B400-SIS-001 C10001460	Missing cable tag on all the route	.		Pschintu 2024-11-30	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30002089	B	ETM-200-01 C10002073	Missing lock nut, serrated washer and teflon for probe fixing system. See attached photo	.		Pschintu 2024-12-20	2025-02-24	JKrizanic 2025-02-24	2025-02-24

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 72 Electrical - Telecom - Instrumentation

SUBSYSTEM 72-00 NAVAID

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003059	B	EJB-200F2-02 C10002068	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990083, but actual is 24P00297990001.	.		Ecarotenuto 2025-01-18	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003069	B	EOL-200-03 C10001622	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) JB Serial Number is 240547-MC03, but actual is 240547-MC02	.		Ecarotenuto 2025-01-18	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30004262	B	EOL-200-02 C10001621	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) Serial Number is 240547-MC02, but actual is 240547-MC03 and equipment protection	.		Gtangianu 2025-03-24	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30004265	B	EJB-200F2-01 C10002067	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990082, but actual is24P00297990004.See attached	.		Gtangianu 2025-03-25	2025-04-17	Gtangianu 2025-04-17	2025-04-17

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004367

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003031	1.4 Discipline	Electrical
1.2 Item	A7/+05-QF1	NAVAID SYSTEM FEEDER A - A7/+05-QF1	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

The BOAT LANDING lamp ELS-200-01 will be tested during the OFFSHORE, because during the ONSHORE phase the test has been done temporary.

Name: Davide Zucconelli
Date: 2025-05-06
Signature:

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal	Connect the cable and test the lamp		
3.2 Material required			
3.3 Priority	B PL B	Name	Davide Zucconelli
3.4 Activity code	COMM Commissioning	Date	2025-05-06
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

We added one MC ITR OFFSHORE Ref. C10004689 and one COMM ITR OFFSHORE Ref.C10004975 for cover the test of the cable and the lamp.

Name: Mattia Girotti
Date: 2025-06-10
Signature:

5 - CLEARANCE CHECK

Name: Mattia Girotti
Date: 2025-06-10
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002403

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002048	1.4 Discipline	Electrical
1.2 Item	72217-CEC	DC UPS NAVAID System / NAV AIDS Visibility meter	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing platic cable tag inside and outside NC-200F2, MCT internal side, and SS cable tag EVM-200-01 side

Name: Paolo Schintu

Date: 2025-01-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002405

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002048	1.4 Discipline	Electrical
1.2 Item	72217-CEC		DC UPS NAVAID System / NAV AIDS Visibility meter
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

cable gland EVM-200-01 side is damaged.(see attached photo).
To be replaced

Name: Paolo Schintu
Date: 2025-01-07
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Replaced

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

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002407

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002048	1.4 Discipline	Electrical
1.2 Item	72217-CEC		DC UPS NAVAID System / NAV AIDS Visibility meter
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing core identification tag by EVM-200-01 side

Name: Paolo Schintu

Date: 2025-01-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002408

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002048	1.4 Discipline	Electrical
1.2 Item	72217-CEC	DC UPS NAVAID System / NAV AIDS Visibility meter	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing terminal strip identification tag (X1) inside EVM-200-01 (see attached photo)

Name: Paolo Schintu

Date: 2025-01-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-07
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed

Name: Eleonora Carotenuto

Date: 2025-06-10

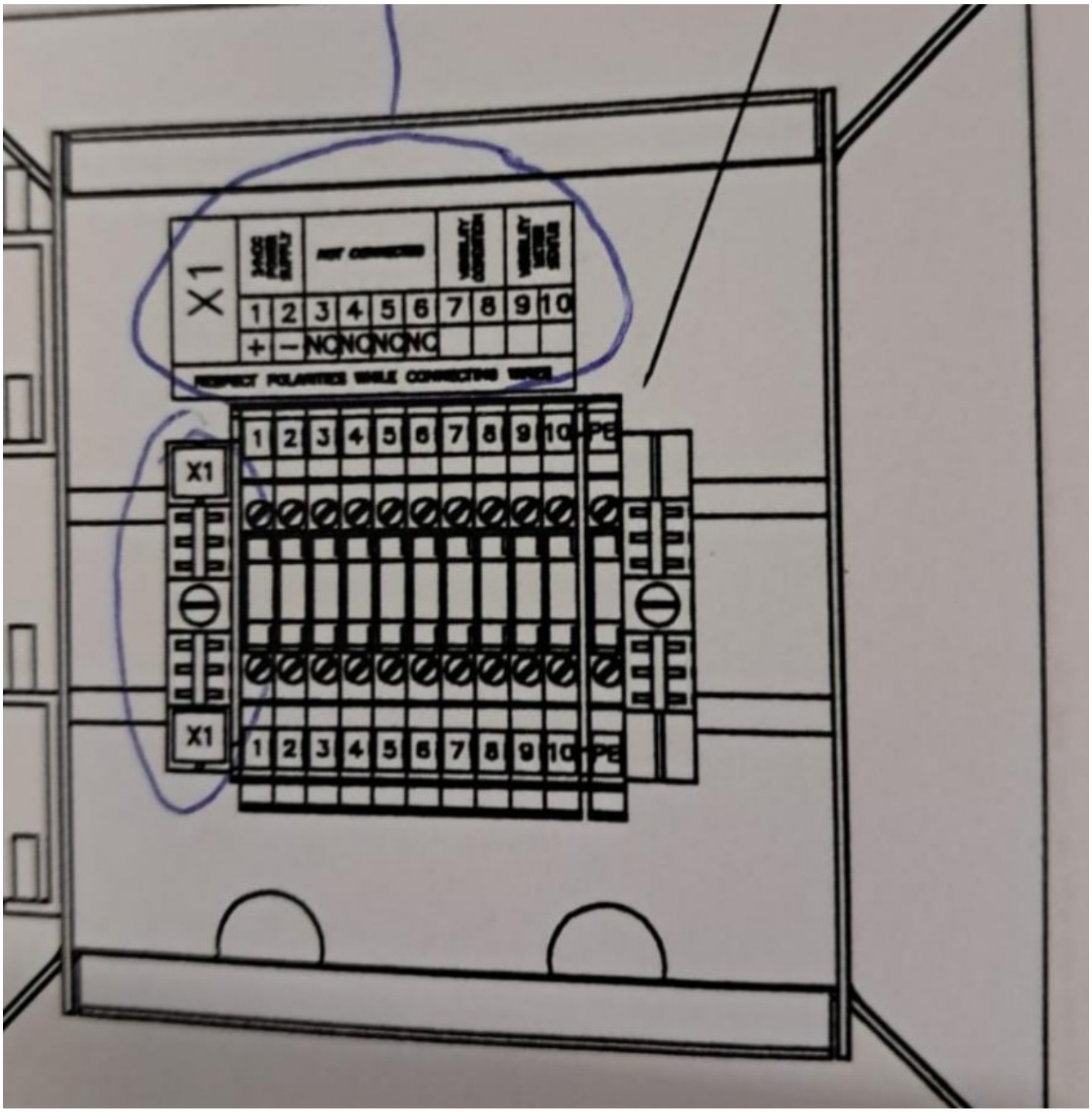
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


X1
1 2 3 4 5 6 7 8 9 10
+ − NO NO NO NC
X1
1 2 3 4 5 6 7 8 9 10 PE
X1
1 2 3 4 5 6 7 8 9 10 PE

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002461

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001837	1.4 Discipline	Electrical
1.2 Item	72207-CEC		DC UPS NAVAID System / NAV AIDS Battery Bank Temperature Probe
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing cable tag on routing and both ends.

Name: Paolo Schintu

Date: 2025-01-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002462

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001837	1.4 Discipline	Electrical
1.2 Item	72207-CEC	DC UPS NAVAID System / NAV AIDS Battery Bank Temperature Probe	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tag by EPH-200-01 side

Name: Paolo Schintu

Date: 2025-01-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-08
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002463

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001837	1.4 Discipline	Electrical
1.2 Item	72207-CEC		DC UPS NAVAID System / NAV AIDS Battery Bank Temperature Probe
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Cable to be fixed and dressed properly on primary cable tray of upper deck

Name: Paolo Schintu

Date: 2025-01-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-08
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

C30002489

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000570	1.4 Discipline	Electrical
1.2 Item	72202-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag NC-200F2 side and EML-200-02 side

Name: Paolo Schintu

Date: 2025-01-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002681

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000570	1.4 Discipline	Electrical
1.2 Item	72202-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of item.. See attached photo

Name: Paolo Schintu

Date: 2025-01-11

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-11
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-03-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002682

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000569	1.4 Discipline	Electrical
1.2 Item	72201-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

The cable is stressed on the EML-200-02 cable gland and touches the item support. Support to be moved to free the rotation and maintenance of item.. See attached photo

Name: Paolo Schintu
Date: 2025-01-11
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-11
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Done

Name: Giovanni Tangianu
Date: 2025-03-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002683

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000569	1.4 Discipline	Electrical
1.2 Item	72201-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag NC-200F2 side and EML-200-01 side

Name: Paolo Schintu

Date: 2025-01-11

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-11
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003052

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000571	1.4 Discipline	Electrical
1.2 Item	72203-CEL	DC UPS NAVAID System / NAV AIDS Aeronautical obstruction red led lights - Telecom mast	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tags both sides

Name: Paolo Schintu

Date: 2025-01-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-17
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003059

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002068	1.4 Discipline	ATEX
1.2 Item	EJB-200F2-02	Intermediate obstruction lights junction box	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990083, but actual is 24P00297990001.

Name: Eleonora Carotenuto
Date: 2025-01-18
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	2025-01-18
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu
Date: 2025-04-17
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003069

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001622	1.4 Discipline	ATEX
1.2 Item	EOL-200-03	Obstruction Lights	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) Serial Number is 240547-MC03, but actual is 240547-MC02 and equipment protection type is Ex db eb, IIC T4 Gb as per Atex certificate and dataplate.

Name: Eleonora Carotenuto
Date: 2025-01-18
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	2025-01-18
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu
Date: 2025-04-17
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003073

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002051	1.4 Discipline	Electrical
1.2 Item	72211-CEL		DC UPS NAVAID System / Intermediate obstruction lights junction box
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing SS cable tag EJB-200F2-02 side

Name: Paolo Schintu

Date: 2025-01-18

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003074

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002053	1.4 Discipline	Electrical
1.2 Item	72213-CEL		Intermediate obstruction lights junction box / Intermediate Obstruction Red Lights
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Secondary cable tray must be moved after that scaffolding will be removed

Name: Paolo Schintu

Date: 2025-01-18

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-18
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

C30004161

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002050	1.4 Discipline	Electrical
1.2 Item	72210-CEL	DC UPS NAVAID System / Wave Off Status Light	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing the SS cable tag side the (ESL-200-01).

Name: Giovanni Tangianu

Date: 2025-02-27

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	2025-02-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004262

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001621	1.4 Discipline	ATEX
1.2 Item	EOL-200-02	Obstruction Lights	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 23) Serial Number is 240547-MC02, but actual is 240547-MC03 and equipment protection type is Ex db eb, IIC T4 Gb as per Atex certificate and dataplate.See attached photo.

Name: Giovanni Tangianu

Date: 2025-03-24

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	2025-03-24
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu

Date: 2025-04-17

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


MEDIUM INTENSITY
AERONAUTICAL
OBSTRUCTION LIGHT 2
(TOP LIGHT)
(EOL-200-02)
MIOL-C3 MEDIUM INTENSITY BEACON
IP66
CE
MODEL: L864-LXS-EX-CS2LJS-CAP168
SERIAL N°: 240547/MC03
EMISSION: 2.000cd night red steay
POWER SUPPLY: 115/230VAC
POWER: 50W
BOX TAG: BOX-MC3
Made in Italy
luxsolar.com
LXS
LUXSOLAR
DO NOT OPEN WHEN ENERGIZED

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004263

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002047	1.4 Discipline	Electrical
1.2 Item	72205-CEL		Top Obstruction Lights Junction Box / Top Obstruction Red Lights
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing identification SS tag side the EJB-200F2-01.See attached photo.

Name: Giovanni Tangianu

Date: 2025-03-25

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	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


EJB-200F2-01
CORTEC
Date installed 1/25
Replacement Date 1/26
ROSETTI MARINO
CROSSWIND
HKN
WARNING
LIVE EQUIPMENT
24 Volts
2025.03.24 16:24

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004264

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002046	1.4 Discipline	Electrical
1.2 Item	72204-CEL		Top Obstruction Lights Junction Box / Top Obstruction Red Lights
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing identification SS tag side the EJB-200F2-01.See attached photo.

Name: Giovanni Tangianu

Date: 2025-03-25

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	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


EJB-200F2-01
CORTEC
Date installed 1/25
Replacement Date 1/26
ROSETTI MARINO
CROSSWIND
HKN
WARNING
LIVE EQUIPMENT
24 Volts
2025.03.24 16:24

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004265

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002067	1.4 Discipline	ATEX
1.2 Item	EJB-200F2-01	Top Obstruction Lights Junction Box	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 19) JB Serial Number is 24P00297990082, but actual is24P00297990004.See attached photo.

Name: Giovanni Tangianu
Date: 2025-03-25
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	2025-03-25
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu
Date: 2025-04-17
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


TECHNOR
ITALSMEA
A COMPANY OF MARECHAL ELECTRIC
Via Italia 33 - 20060 Cassano (MI) ITALY
CE 0080
II 2G
II 2D
FIDI 21ATEX 0090X
IECEx FIDI 21.0015X
Year of construction: 2024
MADE IN ITALY
TYPE: AQ-252612P
230VAC 50Hz 20A
Max.Dis.P. 6W
Ex eb IIC T6 Gb
Ex tb IIIC T85°C Db
IP66
T.amb. -20/+40°C
Serial Nr. 24P00297990004
WARNINGS: DO NOT OPEN WHEN ENERGIZED

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001074

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000561	1.4 Discipline	Electrical
1.2 Item	83036-CEL		LV Switchgear / DC UPS NAVAID System - Feeder A
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing core identification tags by UP-200F2 side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001076

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000561	1.4 Discipline	Electrical
1.2 Item	83036-CEL		LV Switchgear / DC UPS NAVAID System - Feeder A
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Cable to be terminated with correct pins by UP-200F2 side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-01-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001079

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000562	1.4 Discipline	Electrical
1.2 Item	83037-CEL	LV Switchgear / DC UPS - NAVAID System - Feeder B	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag on all the route

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
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

C30001080

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000562	1.4 Discipline	Electrical
1.2 Item	83037-CEL	LV Switchgear / DC UPS - NAVAID System - Feeder B	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tags by UP-200F2 side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001081

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000562	1.4 Discipline	Electrical
1.2 Item	83037-CEL		LV Switchgear / DC UPS - NAVAID System - Feeder B
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Cable to be terminated with correct pins by UP-200F2 side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001083

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001460	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-SIS-001	NAVAIDS FAULT ALARM / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tag by both sides

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-05-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001084

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001460	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-SIS-001	NAVAIDS FAULT ALARM / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag on all the route

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
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

C30001086

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001807	1.4 Discipline	Electrical
1.2 Item	72209-CEC	NAVAIDS Communication (Status) / PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tags From/To

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001087

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001807	1.4 Discipline	Electrical
1.2 Item	72209-CEC	NAVAIDS Communication (Status) / PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tags both side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001088

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001807	1.4 Discipline	Electrical
1.2 Item	72209-CEC	NAVAIDS Communication (Status) / PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Cable to be terminated properly by ETM-200-01 side.

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

RLMU Done, installation done

Name: Eleonora Carotenuto

Date: 2025-01-16

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001090

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002049	1.4 Discipline	Electrical
1.2 Item	72208-CEC		DC UPS NAVAID System / NAV AIDS Battery Isolator
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing core identification tags both side

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001091

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002049	1.4 Discipline	Electrical
1.2 Item	72208-CEC		DC UPS NAVAID System / NAV AIDS Battery Isolator
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing cable tag from/to

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001096

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000854	1.4 Discipline	Electrical
1.2 Item	CB-200F2	NAVAID Battery Isolator / Breaker	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing earthing connection of JB

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2024-12-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001390

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002061	1.4 Discipline	Electrical
1.2 Item	72214-CEL-P	NAVAID - Charger / NAVAID - Battery Isolator	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Identification tag wires missing both side the (72214-CEL-P).

Name: Giovanni Tangianu
Date: 2024-12-05
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	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-02-15
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001391

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002061	1.4 Discipline	Electrical
1.2 Item	72214-CEL-P		NAVAID - Charger / NAVAID - Battery Isolator
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing cable tags both side.

Name: Giovanni Tangianu

Date: 2024-12-05

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	2024-12-05
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

C30001394

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002062	1.4 Discipline	Electrical
1.2 Item	72214-CEL-N	NAVAID - Charger / NAVAID - Battery Isolator	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tags both side .

Name: Giovanni Tangianu
Date: 2024-12-05
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	2024-12-05
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

C30001395

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002062	1.4 Discipline	Electrical
1.2 Item	72214-CEL-N	NAVAID - Charger / NAVAID - Battery Isolator	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

"Identification tag wires missing both side the (72214-CEL-N)
"

Name: Giovanni Tangianu
Date: 2024-12-05
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	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name
Date
Signature

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-02-15
Signature

6- CLEARANCE APPROVAL

Name
Date
Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001396

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002064	1.4 Discipline	Electrical
1.2 Item	72215-CEL-N	NAVAID - Battery Isolator / NAVAID - Battery	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

"Identification tag wires missing both side.
"

Name: Giovanni Tangianu
Date: 2024-12-05
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	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-02-15
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001397

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002063	1.4 Discipline	Electrical
1.2 Item	72215-CEL-P	NAVAID - Battery Isolator / NAVAID - Battery	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

"Identification tag wires missing both side.
"

Name: Giovanni Tangianu
Date: 2024-12-05
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	2024-12-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-02-15
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001398

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002063	1.4 Discipline	Electrical
1.2 Item	72215-CEL-P	NAVAID - Battery Isolator / NAVAID - Battery	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tags both side .

Name: Giovanni Tangianu

Date: 2024-12-05

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	2024-12-05
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

C30001400

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002064	1.4 Discipline	Electrical
1.2 Item	72215-CEL-N	NAVAID - Battery Isolator / NAVAID - Battery	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tags both side .

Name: Giovanni Tangianu

Date: 2024-12-05

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	2024-12-05
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

C30002089

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002073	1.4 Discipline	Instrumental
1.2 Item	ETM-200-01	NAV AIDS Battery Bank Temperature Probe	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing lock nut, serrated washer and teflon for probe fixing system. See attached photo

Name: Paolo Schintu

Date: 2024-12-20

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-24

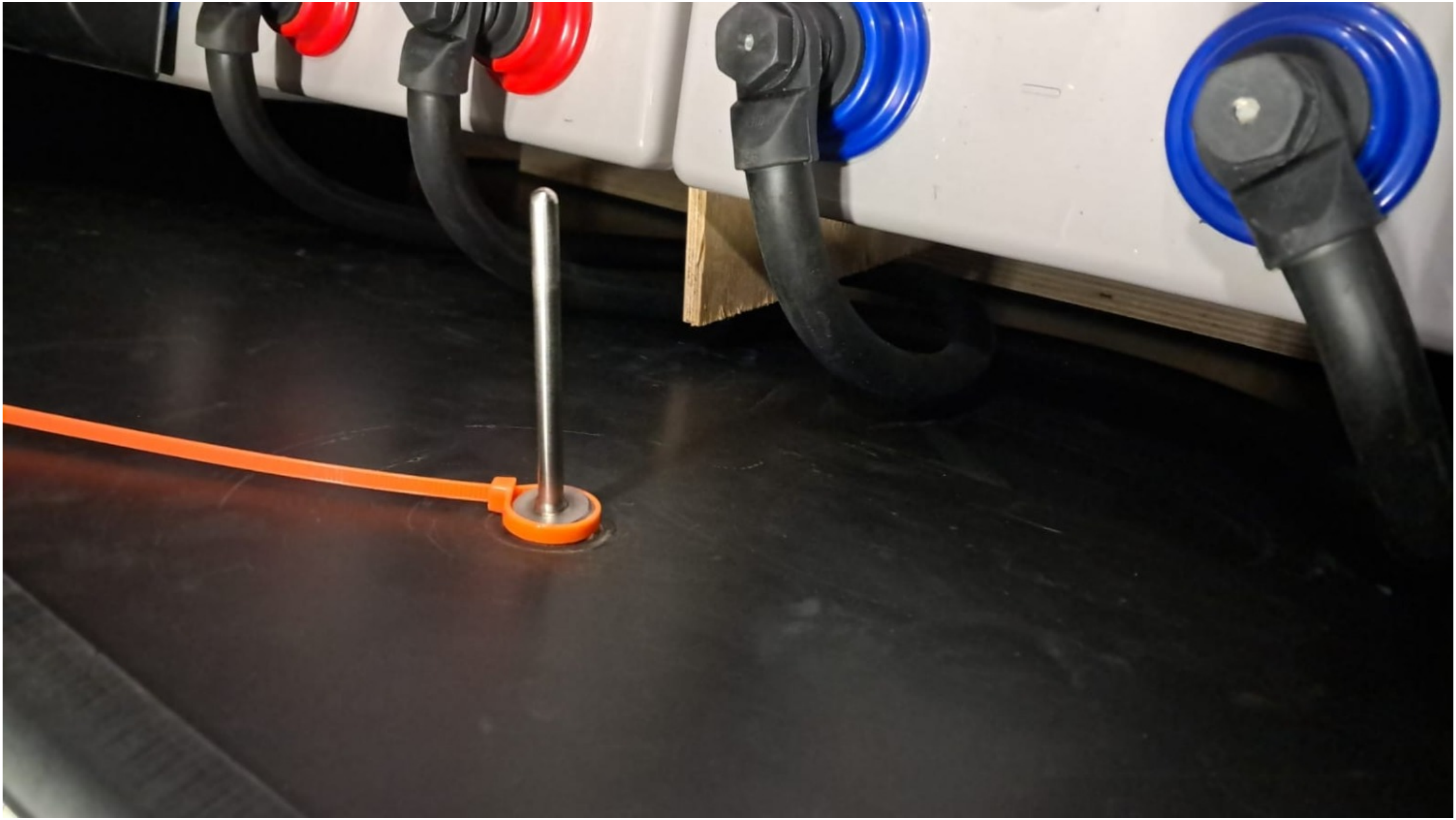
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000117

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002974	1.4 Discipline	Electrical
1.2 Item	A7/+06-QF1	NAVAID SYSTEM FEEDER B - A7/+06-QF1	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

New and definitive protection setting to be implemented on SG-200N1 drawer A7/+06

Name: Mattia Girotti

Date: 2024-10-01

Signature:

3 - DEFECT ASSESSMENT

Update the protection setting on the drawer A7/+06

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Mattia Girotti
3.4 Activity code	COMM Commissioning	Date	2024-10-01
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

The definitive setting has been updated.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

5 - CLEARANCE CHECK

Done.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Electronic protection parameters				
	Electronic/Manual parameters selection			
		Electronic/Manual parameters selectio	ELECTRONIC	
	Electronic L protection			
		Trip unit nominal current In	63	
		L threshold	0.40	In
		L time	3.00	s
		Thermal memory	Disabled	
	Electronic S protection			
		S status	Enabled	
		Curve type	t=k/i^2	
		Threshold (t=k/i^2)	2.00	In
		Time (t=k/i^2)	0.10	s
	Electronic I protection			
		I status	Enabled	
		I threshold	4.00	In
	Electronic G protection			
		G status	Enabled	
		G threshold	0.20	In
		G time	0.10	s
	Electronic LC protection			
		Iw status	Disabled	
		Iw threshold	0.30	In
		LC1 status	Disabled	
		LC1 threshold	0.50	I1
		LC2 status	Disabled	
		LC2 threshold	0.50	I1

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000118

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002971	1.4 Discipline	Electrical
1.2 Item	A7/+05-QF1	NAVAID SYSTEM FEEDER A - A7/+05-QF1	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

New and definitive protection setting to be implemented on SG-200N1 drawer A7/+05

Name: Mattia Girotti

Date: 2024-10-01

Signature:

3 - DEFECT ASSESSMENT

Update the protection setting on the drawer A7/+05

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Mattia Girotti
3.4 Activity code	COMM Commissioning	Date	2024-10-01
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

The definitive setting has been updated.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

5 - CLEARANCE CHECK

Done.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Electronic protection parameters				
	Electronic/Manual parameters selection			
		Electronic/Manual parameters selectio	ELECTRONIC	
	Electronic L protection			
		Trip unit nominal current In	63	
		L threshold	0.40	In
		L time	3.00	s
		Thermal memory	Disabled	
	Electronic S protection			
		S status	Enabled	
		Curve type	t=k/i^2	
		Threshold (t=k/i^2)	2.00	In
		Time (t=k/i^2)	0.10	s
	Electronic I protection			
		I status	Enabled	
		I threshold	4.00	In
	Electronic G protection			
		G status	Enabled	
		G threshold	0.20	In
		G time	0.10	s
	Electronic LC protection			
		Iw status	Disabled	
		Iw threshold	0.30	In
		LC1 status	Disabled	
		LC1 threshold	0.50	I1
		LC2 status	Disabled	
		LC2 threshold	0.50	I1

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000988

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001468	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-FGS-002.01	NAVAIDS NCCP / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tags on both cable termination

Name: Paolo Schintu

Date: 2024-11-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-07-02

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000989

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001469	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-FGS-002.02	NAVAIDS NCCP / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing core identification tags on both cable termination

Name: Paolo Schintu

Date: 2024-11-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-07-02

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000990

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001469	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-FGS-002.02	NAVAIDS NCCP / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag all along the route

Name: Paolo Schintu

Date: 2024-11-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-28
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

C30000991

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001468	1.4 Discipline	Instrumental
1.2 Item	C-NC-200F2/B400-FGS-002.01	NAVAIDS NCCP / MARSHALLING PCS	
1.3 Subsystem	72-00	NAVAID	

2 - OBSERVATION

Missing cable tag all along the route

Name: Paolo Schintu

Date: 2024-11-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-28
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

C30001073

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000561	1.4 Discipline	Electrical
1.2 Item	83036-CEL		LV Switchgear / DC UPS NAVAID System - Feeder A
1.3 Subsystem	72-00		NAVAID

2 - OBSERVATION

Missing cable tag on all the route

Name: Paolo Schintu

Date: 2024-11-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-30
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:

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00 & process: COMM & discipline : E

Electrical	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
A7/+05-QF1	NAVAID SYSTEM FEEDER A - A7/+05-QF1	ONSHORE	C10002970	FP00	100	2025-02-04	RFO 1
		ONSHORE	C10002971	FTR-2	100	2024-10-02	RFO 1
		ONSHORE	C10002972	FTR-6	100	2024-10-02	RFO 1
		ONSHORE	C10003031	FTR-5	100	2025-05-15	RFO 1
A7/+06-QF1	NAVAID SYSTEM FEEDER B - A7/+06-QF1	ONSHORE	C10002973	FP00	100	2025-02-04	RFO 1
		ONSHORE	C10002974	FTR-2	100	2024-10-02	RFO 1
		ONSHORE	C10002975	FTR-6	100	2024-10-02	RFO 1
		ONSHORE	C10003032	FTR-5	100	2025-05-15	RFO 1
BA-200F2	Battery Bank for NAVAID	ONSHORE	C10002977	FTR-4	100	2025-02-12	RFO 1
		ONSHORE	C10002978	FTR-4	100	2025-02-14	RFO 1
		ONSHORE	C10002979	FTR-3	100	2025-02-14	RFO 1
NC-200F2	NAVAID Central Control Panel (NCCP)	ONSHORE	C10002976	FP25	100	2025-02-04	RFO 1
		ONSHORE	C10002980	FTR-6	100	2025-02-04	RFO 1

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	A7/+05-QF1	: NAVAID SYSTEM FEEDER A - A7/+05-QF1			Dwg	1723002197-EL-DG-00011
	S/Sys	72-00	: NAVAID			Module	
TASK	code	C10002970		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FP00 Miscellaneous electrical Consumer

DATA

Switchboard	SG-200N1	Circuit ref:	A7/+05-QF1
Breaker rating (A)	7A	Nominal current (A)	63A

FUNCTION TEST REQUIREMENT

1	Check pre-commissioning activities have been carried out				OK
2	Check equipment for cleaness				OK
3	Measure I/R value of equipment and feeder cable at 1000V (Min value: 10 Mohm)	>1000	MΩ		OK
4	Energise control of equipment feeder				OK
5	Full test feeder breaker operation in test position				OK
6	Check protection setting				OK
7	Test interface trips and signals (remote alarms & status). Check the relevant ITR presence in the system				OK
8	Test control and safety functions according to manufacturer's procedure.				OK
9	Energize				OK
10	Measure Voltage and Current values at feeder breaker	237	V	0.5 A	OK
11	Attach test procedure, if any				NA

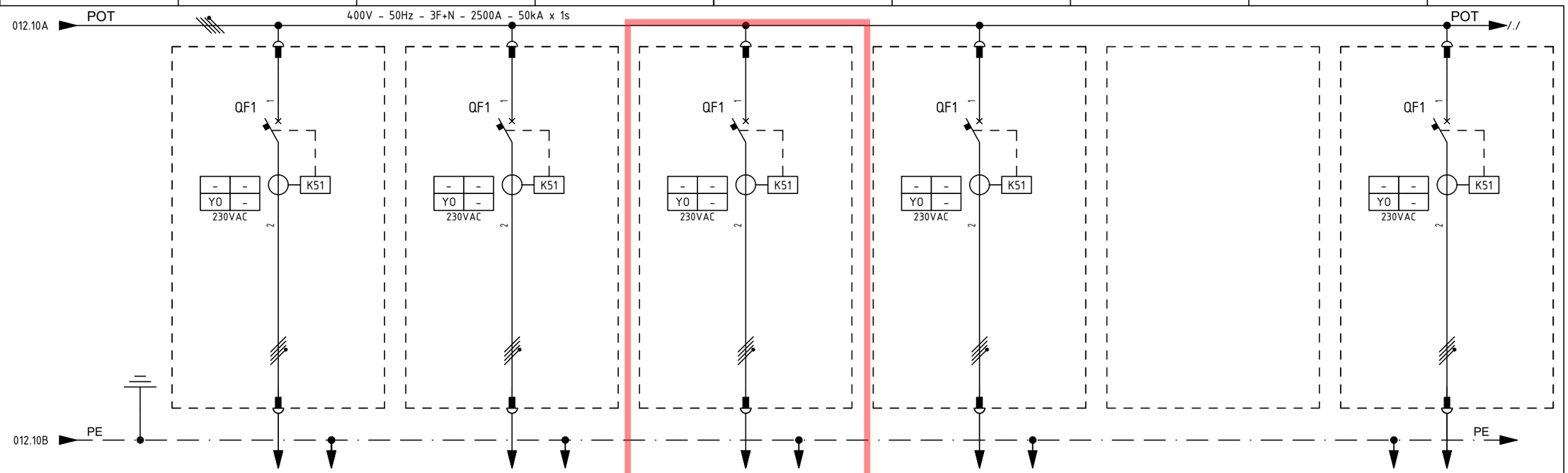
FUNCTION TEST REQUIREMENT	RESULT

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025

Comments:

Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-01-31	2025-02-04	2025-02-04
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-01-31T09:53:11.382Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-04T12:17:18.115Z	PROVERLIS Digitaly signed by Witness waived 2025-02-04T13:38:30.518Z



ITEM			1	UP-200F1	UP-200F1	UP-200F2	UP-200F2		ESW-200N2
UTILITY			2	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	NAVAID SYSTEM FEEDER A	NAVAID SYSTEM FEEDER B		WELDING SOCKETS (LOWER DECK)
COLUMN/CUBICLE			3	A7 / +03	A7 / +04	A7 / +05	A7 / +06		A7 / +08
RATED POWER | RATED CURRENT			4/5	10 kW | 16 A	10 kW | 16 A	1.6 kVA | 7 A	1.6 kVA | 7 A		69.84 kW | 126.15 A
TYPICAL FUNCTIONAL			6	L1-63	L1-63	L1-10	L1-10		L2-160
CIRCUIT BREAKER (ABB)	TYPE		7	XT2S - 160	XT2S - 160	XT2S - 160	XT2S - 160		XT4S - 250
	VERSION		8	4P - FIXED	4P - FIXED	4P - FIXED	4P - FIXED		4P - FIXED
	TRIP UNITS		9	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)	EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 160A)
	Icu	KA	10	50kA	50kA	50kA	50kA		50kA
OVERLOAD	L	Range A	11	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In	(0.4 - 1) x In		(0.4 - 1) x In
		Range t	12	k/I^2	k/I^2	k/I^2	k/I^2		k/I^2
SEL. SHORT-CIRCUIT	S	Range A	13	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	14	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2	0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2
INST. SHORT-CIRCUIT	I	Range A	15	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In	(1 - 10) x In		(1 - 10) x In
		Range t	16	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec	<= 0.02 sec		<= 0.02 sec
EARTH FAULT PROTECTION	G	Range A	17	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In	(0.2 - 1) x In		(0.2 - 1) x In
		Range t	18	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec	0.1 - 0.8 sec		0.1 - 0.8 sec
CONTACTOR (ABB)			19	-	-	-	-		-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-		-
SURGE ARRESTER (DEHN)			21	-	-	-	-		-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-		-
FUSE HOLDER (ITALWEBER)			23	-	-	-	-		-
INDIRECT PROTECTION (ABB)			24	-	-	-	-		-
VOLTMETER			25	-	-	-	-		-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-		-
	PERFORMANCE/CLASS		27	-	-	-	-		-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-		-
	PERFORMANCE/CLASS		29	-	-	-	-		-
LOCK-OUT RELAY (-)			30	-	-	-	-		-
POWER CONDUCTOR		mmq	31	4G16	4G16	3G16	3G16		5G50

=

+

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/11

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

TITLE : "SG-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-00011

SHEET 013

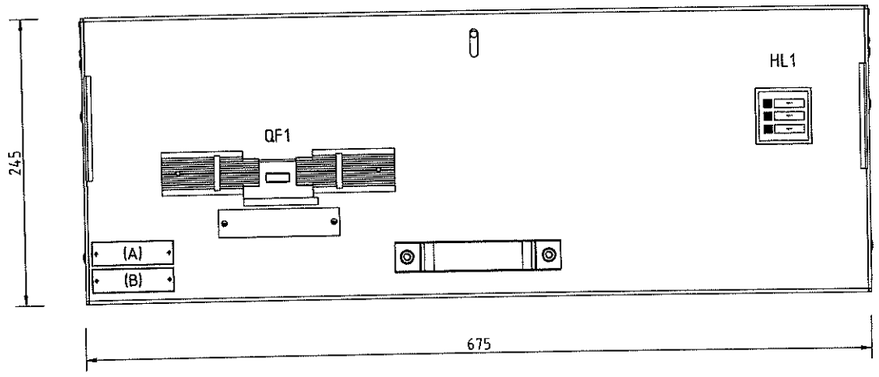
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00011 Rev. 03

DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L1-n"

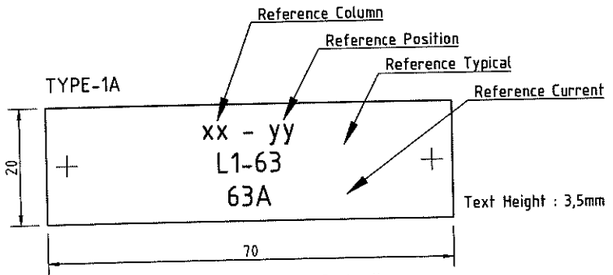


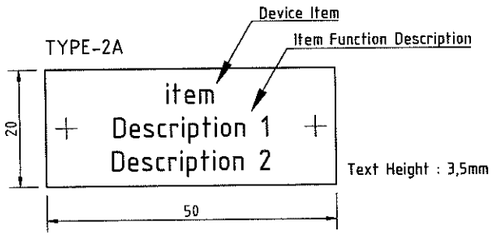
NOTE :

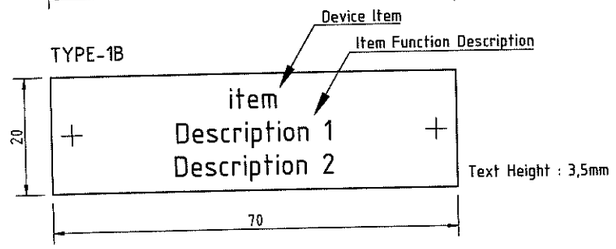
A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position [Column / Position inside SWB]
- Typical name [reference applicability typical used]
- Power [reference applicability typical used]

B) USER name plate (type-1B), with :
- Item User [to see SLD diagrams]
- User Description [to see SLD diagrams]

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate







=	TYPICAL
+	L-x
DWG n° :	231298/SD/31
Item n° :	PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 023

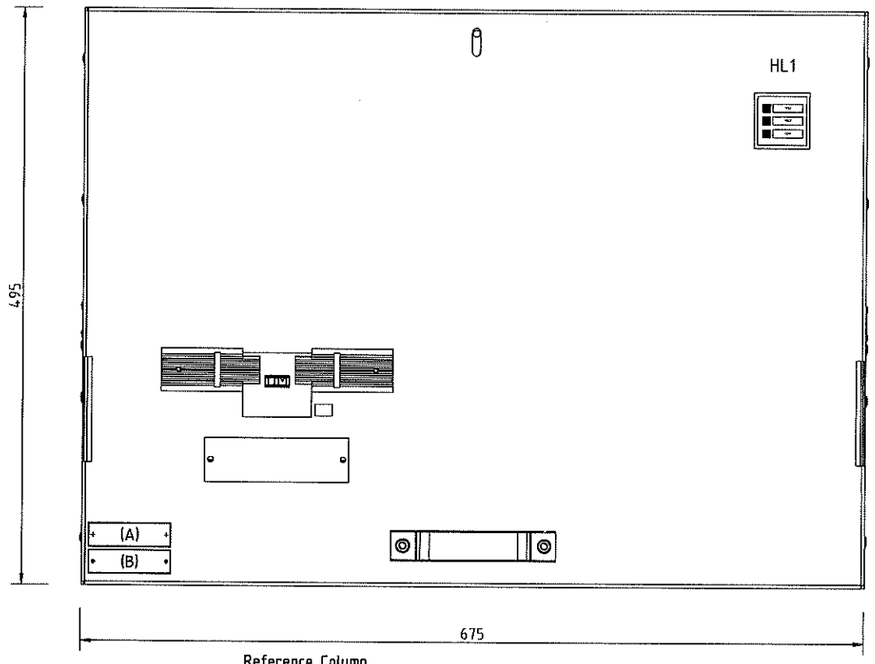
REV. 00

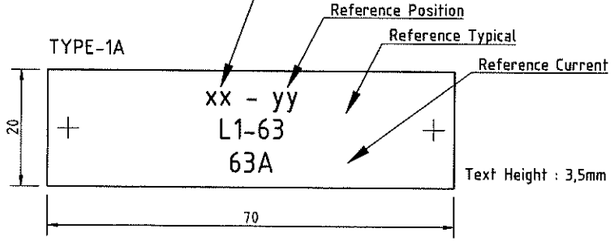
F.to UNI A3: 420mmx297mm

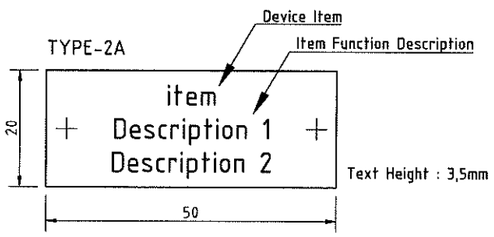
File Name : 1723002197-EL-DG-00031 Rev. 00

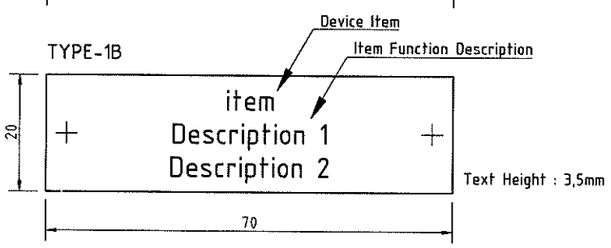
DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L2-n"









NOTE :

A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position (Column / Position inside SWB)
- Typical name (reference applicability typical used)
- Power (reference applicability typical used)

B) USER name plate (type-1B), with :
- Item User (to see SLD diagrams)
- User Description (to see SLD diagrams)

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate

=	TYPICAL
+	L-x
DWG n° :	231298/SD/31
Item n° :	PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 024

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

USERS LEGEND

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

TYPICAL APPLICABILITY					
ITEM	ITEM TAG	DESCRIPTION TAG	REFERENCE POSITION (written on name name plate "type-1A)	REFERENCE NOMINAL CURRENT C.B. TRIP UNIT (written on name name plate "type-1A)	REFERENCE TYPICAL (written on name name plate "type-1A)
1	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE B	A2 / +04	63A	L1-63
2	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE A	A3 / +01	100A	L1-100
3	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE B	A4 / +01	100A	L1-100
4	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE A	A6 / +05	63A	L1-63
5	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE B (BYPASS)	A6 / +06	63A	L1-63
6	ESW-200N1	WELDING SOCKETS (TOP DECK)	A6 / +08	160A	L2-160
7	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 (BYPASS)	A7 / +02	100A	L1-100
8	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	A7 / +03	63A	L1-63
9	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	A7 / +04	63A	L1-63
10	UP-200F2	NAVAID SYSTEM FEEDER A	A7 / +05	10A	L1-10
11	UP-200F2	NAVAID SYSTEM FEEDER B	A7 / +06	10A	L1-10
12	ESW-200N2	WELDING SOCKETS (LOWER DECK)	A7 / +08	160A	L2-160

= TYPICAL
+ L-x

DWG n° : 231298/SD/31
Item n° : PF1002983/26

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Users Legend - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 025 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

ITEMS ACRONYM

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

Composition of Typical :

L-x = Common Parts
L1-"nn" or L2-"nn"= Specific Parts

Example for Composition of L1-63:
- to take "L-x" plus "L1-63"

Example for Composition of L2-160:
- to take "L-x" plus "L2-160"

	ACRONYM ITEMS (Comun parts)	ACRONYM ITEMS (Specific parts)				
	L-x	L1-40 (In=40A) (Current Trip Unit)	L1-63 (In=63A) (Current Trip Unit)	L1-100 (In=100A) (Current Trip Unit)	L2-160 (In=160A) (Current Trip Unit)	
ASSOCIATED TYPICAL	This Item include all devices that are comun for both "Specific Parts" Items	This Items include only devices that are detail for "Specific Parts" Items				
L1-40	X	X				
L1-63	X		X			
L1-100	X			X		
L2-160	X				X	

=	TYPICAL					
+	L-x					
DWG n° :	231298/SD/31					
Item n° :	PF1002983/26					
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

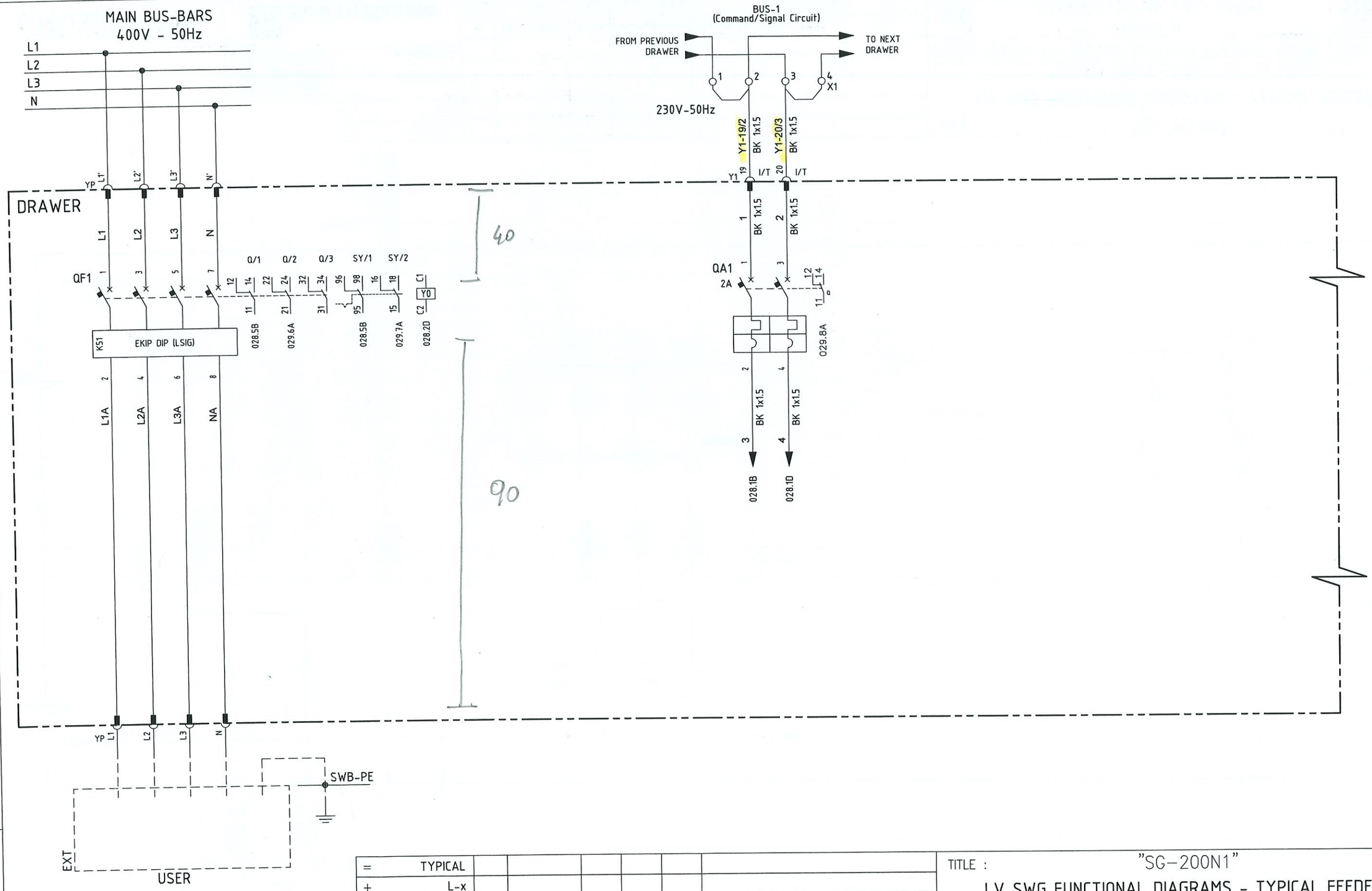
TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Items Acronym - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 026 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° : 231298/SD/31							
Item n° : PF1002983/26							
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

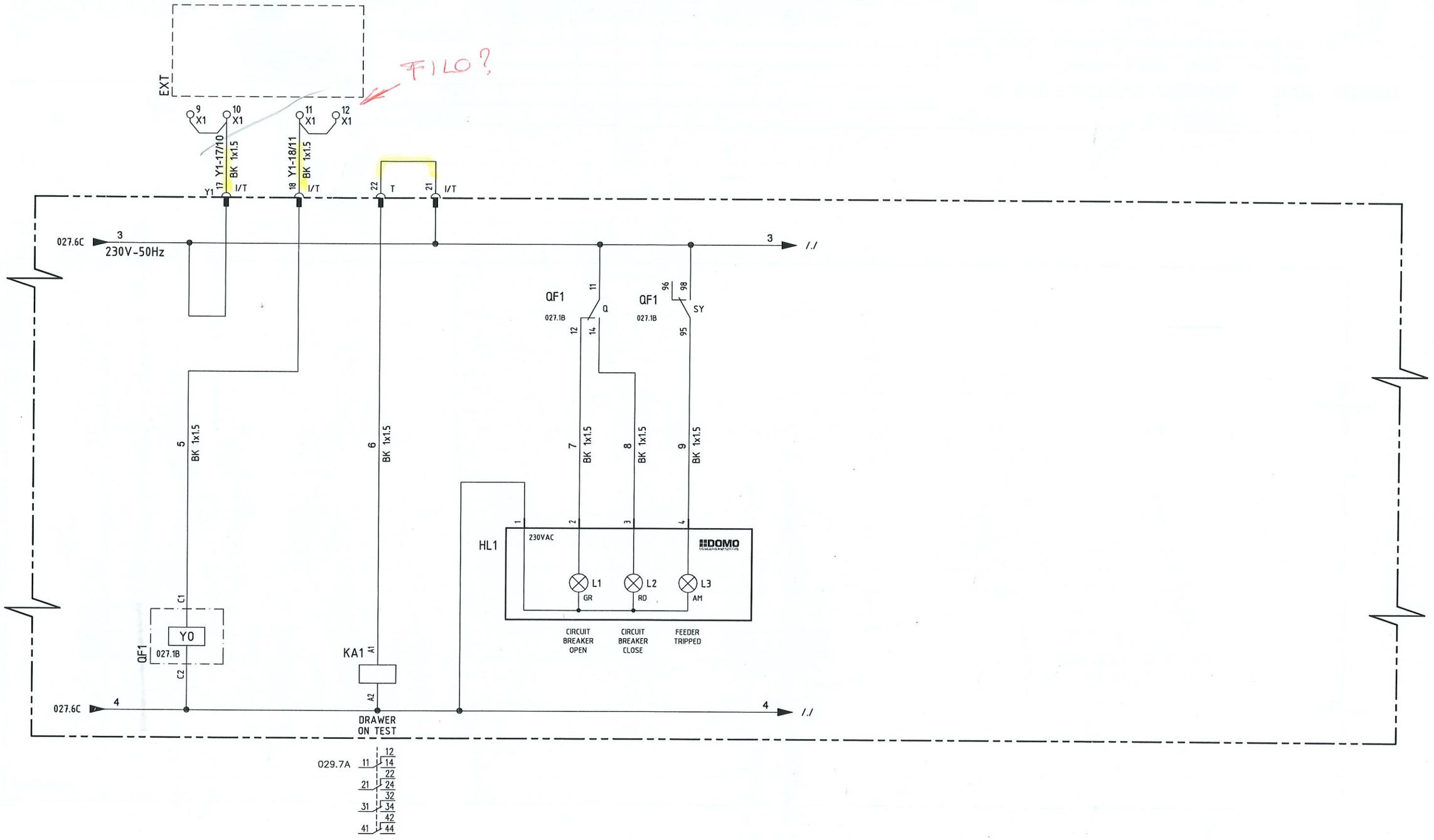
DRAWING NO. 1723002197-EL-DG-00031

SHEET 027

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° :	231298/SD/31						
Item n° :	PF1002983/26						
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

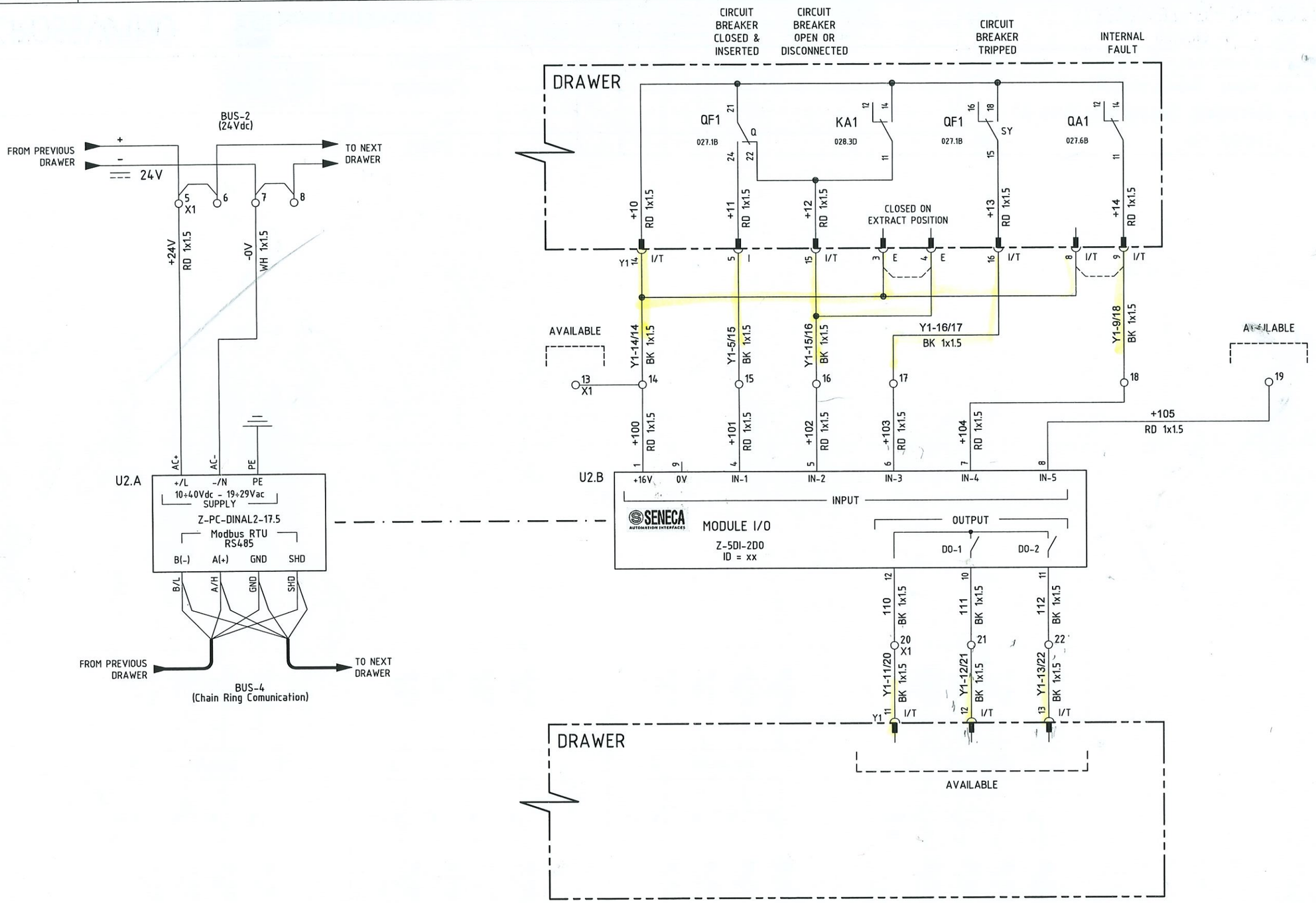
DRAWING NO. 1723002197-EL-DG-00031

SHEET 028

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° :	231298/SD/31						
Item n° :	PF1002983/26						
0		09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
REV.		DATE	DRN	CHKD	APPD	DESCRIPTION	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 029

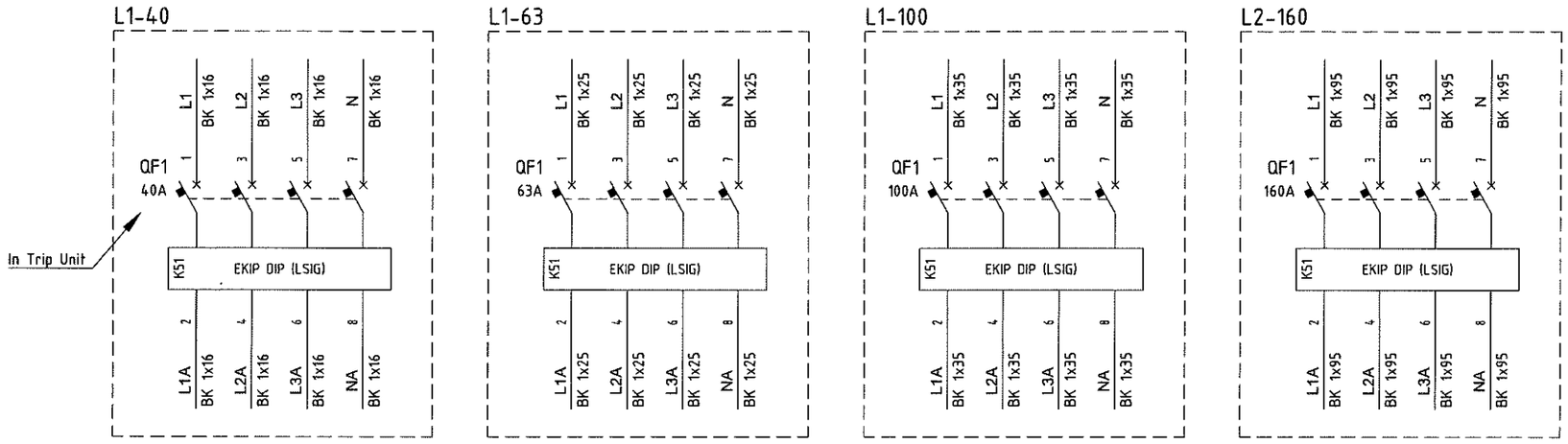
REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

SPECIFIC PARTS

TYPICAL : LINE FEEDER "L1-n" & "L2-n"



=	TYPICAL						
+	L-x						
OWG n° : 231298/SD/31							
Item n° : PF1002983/26							
		0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 030 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

AUXILIARY SOCKET

136450/001 (PF – 1 pcs) + 136458/004 (PM – 1 pcs)

N° PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
JUMP			•	•				•	•													
RACKED-OUT			X	X				X	X													
TEST								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
RACKED-IN					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PIN USED			029.6B	029.7B	029.6B			029.8B	029.8B		029.7D	029.7D	029.8D	029.5B	029.6B	029.7B	028.2B	028.3B	027.6A	027.6A	028.4B	028.3B

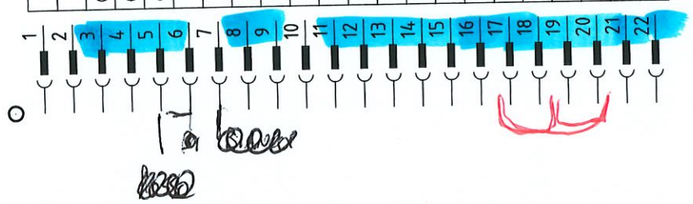
← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-OUT POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN TEST POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-IN POSITION

← CROS-REFERENCE USED PIN

TYPICAL - L-x - Y1



NERO

X12 CASSETTI

=	TYPICAL							
+	L-x							
DWG n° :	231298/SD/31							
Item n° :	PF1002983/26							
		0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 031

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

TYPICAL - L-x

X1

NumM	Fg.	Sez.	Tipo	Descrizione	Costruttore
			BT003	BT/3 End bracket	Cabur
1	027.5A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
2	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
3	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
4	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
5	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
6	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
7	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
8	029.3A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD101GR	HMD/PT/GR End section - Grey	Cabur
9	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
10	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
11	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
12	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
13	029.4B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
14	029.5B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
15	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
16	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
17	029.7B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
18	029.8B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
19	029.9B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
20	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
21	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
22	029.8D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD201GR	HMD.1/PT/GR End section - Grey	Cabur
			BT003	BT/3 End bracket	Cabur

=	TYPICAL						
+	L-x						
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

OWG n° : 231298/SD/31

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 032

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
HL1	028	ML22/483L230STLTTR	1	MULTILED 48x48 - 3 LED - Vaux=230Vac/dc + LAMP TEST + TROP	DOMO	TYPICAL L-x
KA1	028	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	TYPICAL L-x
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	TYPICAL L-x
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	TYPICAL L-x
QA1	027	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	TYPICAL L-x
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	TYPICAL L-x
U2.A	029	Z-PC-DINAL2-17.5	1	DIN RAIL 2SLOT WITH HEAD FOR "Z-5DI-2DO"	SENECA	TYPICAL L-x
U2.B	029	Z-5DI-2DO	1	I/O MODUL 5DI+2DO modbus RS485 Vaux=10÷40Vdc 19÷28Vac	SENECA	TYPICAL L-x
X1		HD100GR_	8	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		HD400GR_	14	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		BT003	2	BT/3 End bracket	Cabur	TYPICAL L-x
		HD101GR	1	HMD/PT/GR End section - Grey	Cabur	TYPICAL L-x
		HD201GR	1	HMD.1/PT/GR End section - Grey	Cabur	TYPICAL L-x

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S40LSIG4	1	XT2S 160 Ekip LSIG In=40A 4p F F	ABB	TYPICAL L1-40
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-40
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-40

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S63LSIG4	1	XT2S 160 Ekip LSIG In=63A 4p F F	ABB	TYPICAL L1-63
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-63
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-63

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S100LSIG4	1	XT2S 160 Ekip LSIG In=100A 4p F F	ABB	TYPICAL L1-100
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-100
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-100

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	1SDA068179R1	1	XT4S 250 BREAKING PART 4p F F	ABB	TYPICAL L2-160
		1SDA067536R1	1	SG.EL.Ekip LSIG In=160A XT4 4p	ABB	TYPICAL L2-160
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L2-160
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L2-160

=	TYPICAL
+	L-x

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/31

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 033 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

ITEM	Tag	A7/+05-QF1	: NAVAID SYSTEM FEEDER A - A7/+05-QF1	Dwg	1723002197-EL-DG-00011		
	S/Sys	72-00	: NAVAID	Module			
TASK	code	C10002971	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°:	E201256002521070	Relay type:	EKIP DIP LSIG
Auxiliary supply:	24Vdc	Location:	B200	Cubicle:	A7/+05
Switchboard:	SG-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	Trip value
L	47A	189A		3s	1724ms
S	221A	315A		0.1s	396ms
I	441A	630A		INSTANT	23ms
G	12.6A			0.1s	

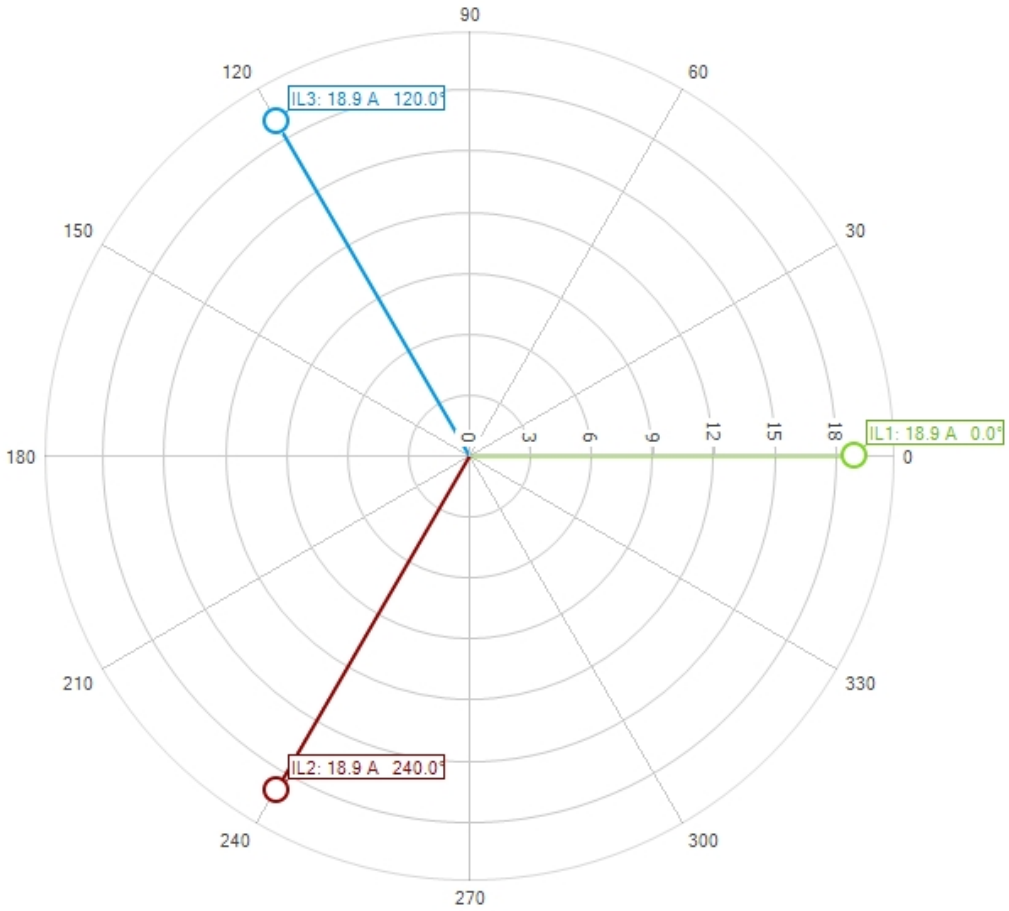
Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
ABB EKIP T&P	E34013804410W050		

Comments: The protection settings that have been implemented on drawer A7/+05 were defined by the Commissioning team to allow the internal testing. The definitive settings will be implemented asap, in the meantime a PUNCH B ref. C30000118 has been raised to ensure traceability of this outstanding task.

	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-01	2024-10-01	2024-10-02
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-01T10:30:52.524Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-01T14:47:32.789Z	PROVERLIS Digitaly signed by Witness waived 2024-10-02T06:37:50.101Z

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Electronic protection parameters				
	Electronic/Manual parameters selection			
		Electronic/Manual parameters selectio	ELECTRONIC	
	Electronic L protection			
		Trip unit nominal current In	63	
		L threshold	0.75	In
		L time	3.00	s
		Thermal memory	Disabled	
	Electronic S protection			
		S status	Enabled	
		Curve type	t=k/i^2	
		Threshold (t=k/i^2)	3.50	In
		Time (t=k/i^2)	0.10	s
	Electronic I protection			
		I status	Enabled	
		I threshold	7.00	In
	Electronic G protection			
		G status	Enabled	
		G threshold	0.20	In
		G time	0.10	s
	Electronic LC protection			
		Iw status	Disabled	
		Iw threshold	0.30	In
		LC1 status	Disabled	
		LC1 threshold	0.50	I1
		LC2 status	Disabled	
		LC2 threshold	0.50	I1



Test

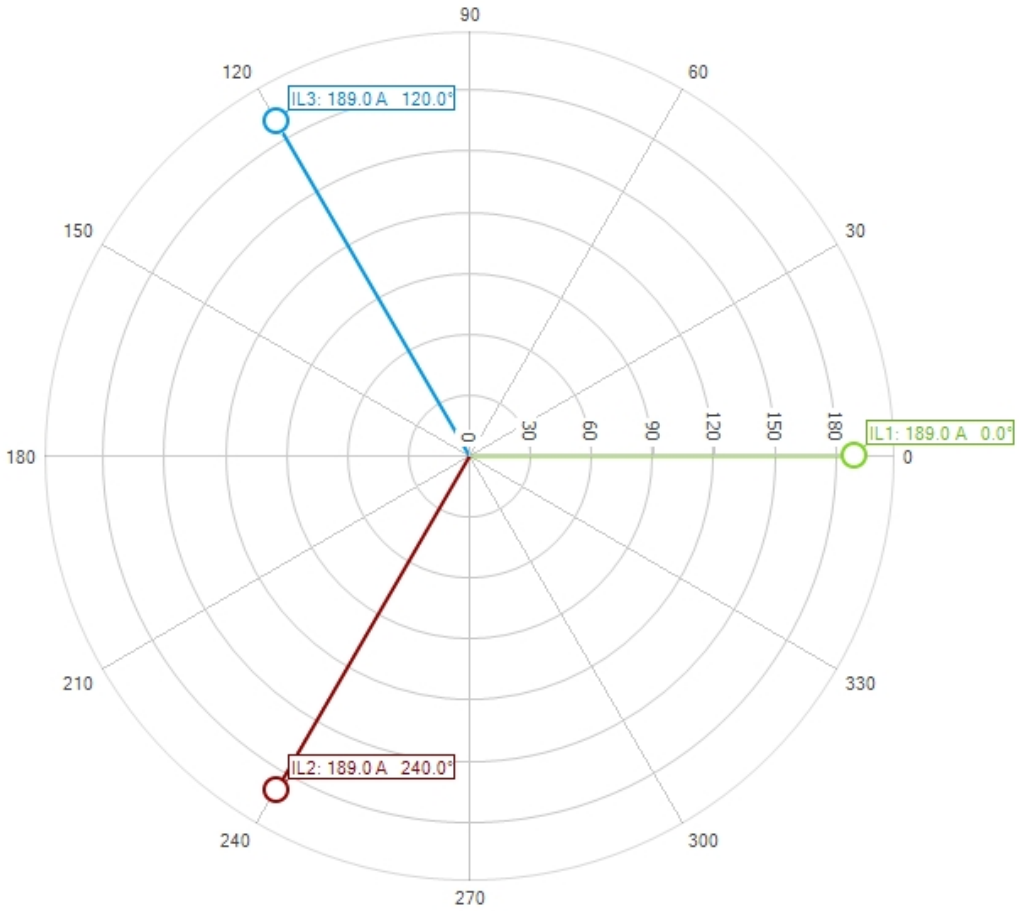
Name	Automatic test 1
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/05
Relay Serial Number	E201256002521070
Circuit Breaker Serial Number	EGH0520060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

⚠ Test completed without any trip in 3000 ms.



Test

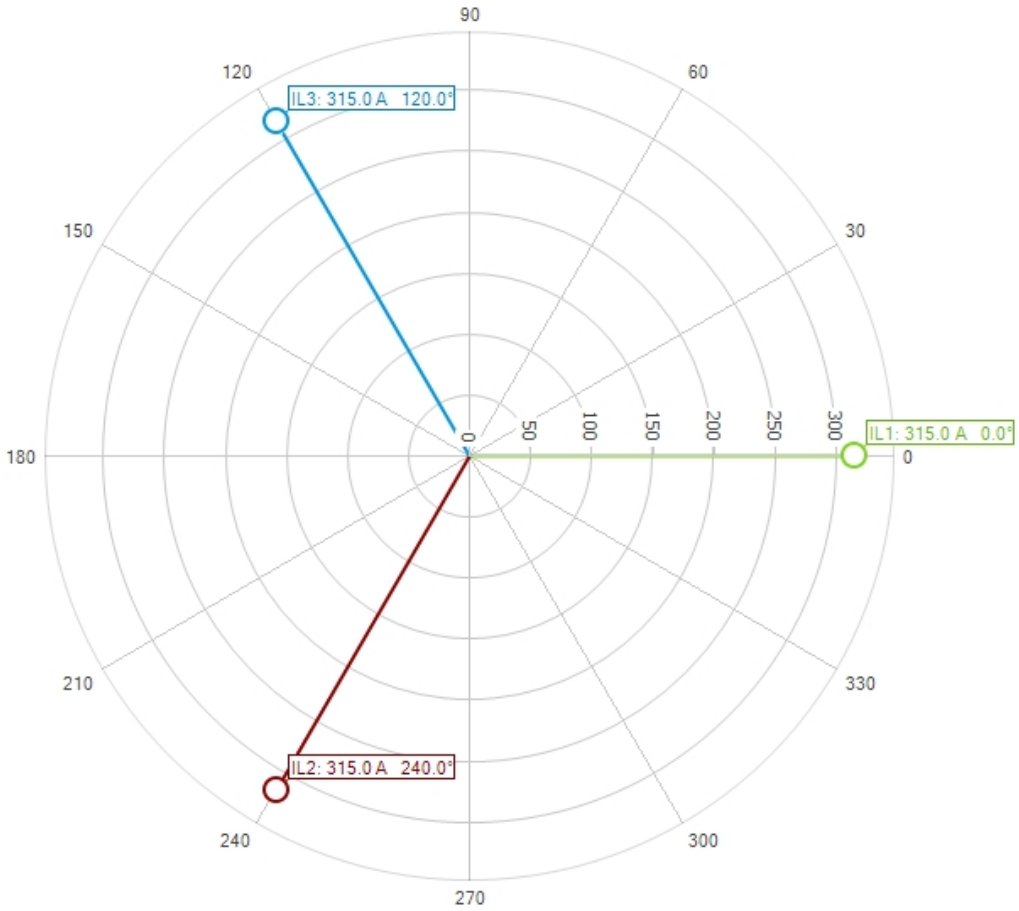
Name	Automatic test 2
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/05
Relay Serial Number	E201256002521070
Circuit Breaker Serial Number	EGH0520060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

⚠ Test completed with trip but out of time. Protection L tripped in 1724 ms.
Trip time must be between 0 ms and 1000 ms.



Test

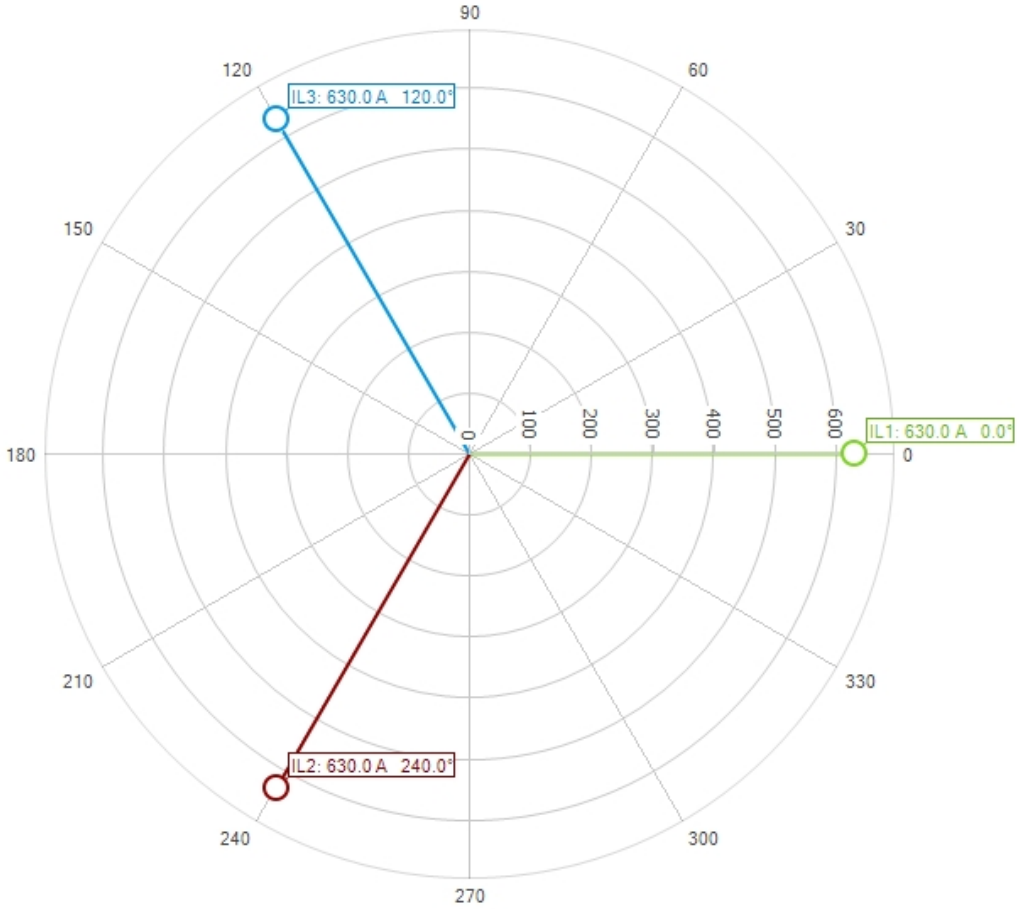
Name	Automatic test 3
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/05
Relay Serial Number	E201256002521070
Circuit Breaker Serial Number	EGH0520060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection S tripped in 396 ms.
Trip time must be between 0 ms and 1000 ms.



Test

Name	Automatic test 4
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/05
Relay Serial Number	E201256002521070
Circuit Breaker Serial Number	EGH0520060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 23 ms.
Trip time must be between 0 ms and 1000 ms.

ITEM	Tag	A7/+05-QF1	: NAVAID SYSTEM FEEDER A - A7/+05-QF1		Dwg	1723002197-EL-DG-00011	
	S/Sys	72-00	: NAVAID		Module		
TASK	code	C10002972	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-6	Electrical IO

FTR 6 - Electrical I/O check record sheet

Equipment Tag:	UP-200F2 - NAVAID SYSTEM FEEDER B	Instrument Type / Serial N° :	FLUKE 175 / 17140769
Cubicle N°:	A7/+05	Calibration certificate date:	7715/24 - 10/07/2025

Link Type:	●	Hardwired	Communication	(strike through unapplicable type)
I/O Type:	●	Digital	Analogic	(strike through unapplicable type)

DIGITAL

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Text Labelling Display Satisfactory (Y/N)	Blinking/Static Display Satisfactory (Y/N)	Color Coding Satisfactory (Y/N)	Status Check			Time Stamping Satisfactory (Y/N)	Refresh Time (if >1s)	Appearing in all applicable display (Y/N)
									Event (Y/N)	Alarm (Y/N)	Fault (Y/N)			
1	C.B. - CLOSED & INSERTED	HW	DI	A7/+05 - QF1/21-24	A7/+05 - X1/14-15	NA	NA	NA	Y	NA	NA	NA	NA	NA
2	C.B. - OPEN OR DISCONNECTED	HW	DI	A7/+05 - QF1/21-22	A7/+05 - X1/14-16	NA	NA	NA	Y	NA	NA	NA	NA	NA
3	C.B. TRIPPED	HW	DI	A7/+05 - QF1/15-18	A7/+05 - X1/14-17	NA	NA	NA	NA	NA	Y	NA	NA	NA
4	INTERNAL FAULT	HW	DI	A7/+05 - QA1/11-14	A7/+05 - X1/14-18	NA	NA	NA	NA	NA	Y	NA	NA	NA
5	DRAWER ON TEST	HW	DI	A7/+05 - KA1/11-14	A7/+05 - X1/14-16	NA	NA	NA	Y	NA	NA	NA	NA	NA
6														
7														
8														

ANALOGIC

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Min value sent	Min value received	Max value sent	Max value received	Intermediate value sent	Intermediate value received	Out of scale test (OK, Not OK)	Refresh time (if >2s)	Appearing in all applicable display (Y/N)
1														
2														
3														

Comments: The test of the cubicle was carried out on a test bench.

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-02	2024-10-02	2024-10-02
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-02T08:07:43.312Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-02T08:56:21.342Z	PROVERLIS Digitaly signed by Witness waived 2024-10-02T09:21:14.449Z

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	A7/+06-QF1	: NAVAID SYSTEM FEEDER B - A7/+06-QF1			Dwg	1723002197-EL-DG-00011
	S/Sys	72-00	: NAVAID			Module	
TASK	code	C10002973		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FP00 Miscellaneous electrical Consumer

DATA

Switchboard	SG-200N1	Circuit ref:	A7/+06-QF1
Breaker rating (A)	7A	Nominal current (A)	63A

FUNCTION TEST REQUIREMENT

1	Check pre-commissioning activities have been carried out				OK
2	Check equipment for cleaness				OK
3	Measure I/R value of equipment and feeder cable at 1000V (Min value: 10 Mohm)	>1000	MΩ		OK
4	Energise control of equipment feeder				OK
5	Full test feeder breaker operation in test position				OK
6	Check protection setting				OK
7	Test interface trips and signals (remote alarms & status). Check the relevant ITR presence in the system				OK
8	Test control and safety functions according to manufacturer's procedure.				OK
9	Energize				OK
10	Measure Voltage and Current values at feeder breaker	238	V	0.4 A	OK
11	Attach test procedure, if any				NA

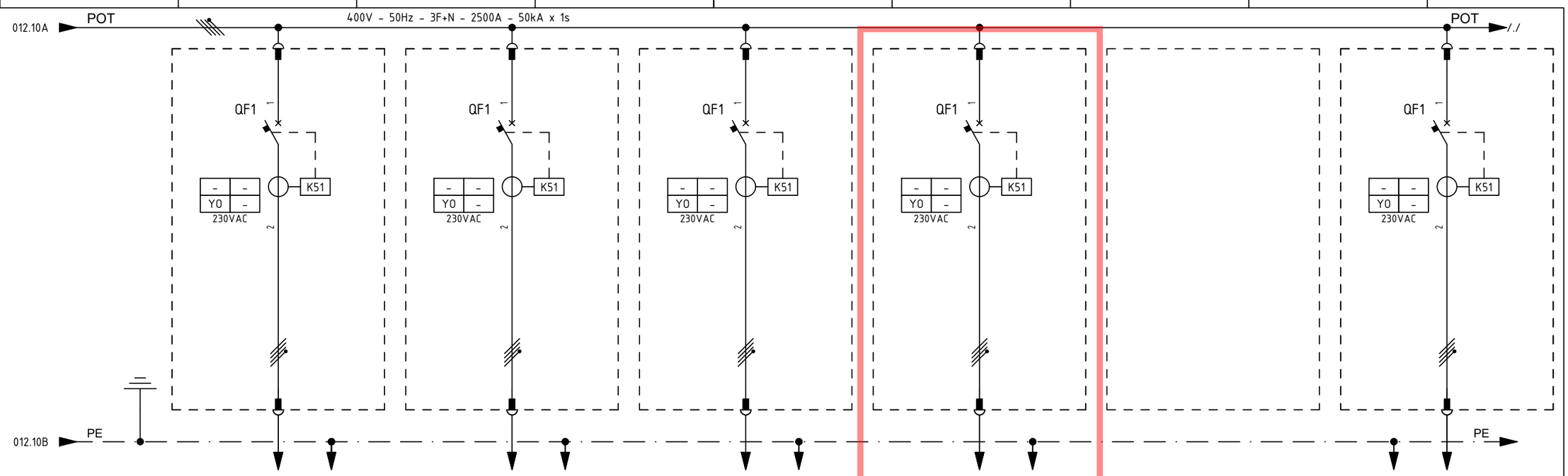
FUNCTION TEST REQUIREMENT	RESULT

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025

Comments:

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-01-31	2025-02-04	2025-02-04
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-01-31T09:55:54.440Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-04T12:18:03.108Z	PROVERLIS Digitaly signed by Witness waived 2025-02-04T13:38:55.317Z



ITEM			1	UP-200F1		UP-200F1		UP-200F2		UP-200F2				ESW-200N2	
UTILITY			2	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A		DC BATTERY SYSTEM SWTG CONTROL - FEEDER B		NAVAID SYSTEM FEEDER A		NAVAID SYSTEM FEEDER B				WELDING SOCKETS (LOWER DECK)	
COLUMN/CUBICLE			3	A7 / +03		A7 / +04		A7 / +05		A7 / +06				A7 / +08	
RATED POWER | RATED CURRENT			4/5	10 kW	16 A	10 kW	16 A	1.6 kVA	7 A	1.6 kVA	7 A			69.84 kW	126.15 A
TYPICAL FUNCTIONAL			6	L1-63		L1-63		L1-10		L1-10				L2-160	
CIRCUIT BREAKER (ABB)	TYPE		7	XT2S - 160		XT2S - 160		XT2S - 160		XT2S - 160				XT4S - 250	
	VERSION		8	4P - FIXED		4P - FIXED		4P - FIXED		4P - FIXED				4P - FIXED	
	TRIP UNITS		9	EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 63A)		EKIP DIP LSIG (In = 63A)				EKIP DIP LSIG (In = 160A)	
	Icu	KA	10	50kA		50kA		50kA		50kA				50kA	
OVERLOAD	L	Range A	11	(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In		(0.4 - 1) x In				(0.4 - 1) x In	
		Range t	12	k/I^2		k/I^2		k/I^2		k/I^2				k/I^2	
SEL. SHORT-CIRCUIT	S	Range A	13	(1 - 10) x In		(1 - 10) x In		(1 - 10) x In		(1 - 10) x In				(1 - 10) x In	
		Range t	14	0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2		0.05 - 0.4 sec / k/I^2				0.05 - 0.4 sec / k/I^2	
INST. SHORT-CIRCUIT	I	Range A	15	(1 - 10) x In		(1 - 10) x In		(1 - 10) x In		(1 - 10) x In				(1 - 10) x In	
		Range t	16	<= 0.02 sec		<= 0.02 sec		<= 0.02 sec		<= 0.02 sec				<= 0.02 sec	
EARTH FAULT PROTECTION	G	Range A	17	(0.2 - 1) x In		(0.2 - 1) x In		(0.2 - 1) x In		(0.2 - 1) x In				(0.2 - 1) x In	
		Range t	18	0.1 - 0.8 sec		0.1 - 0.8 sec		0.1 - 0.8 sec		0.1 - 0.8 sec				0.1 - 0.8 sec	
CONTACTOR (ABB)			19	-		-		-		-				-	
THERMAL OVERLOAD RELAY (ABB)			20	-		-		-		-				-	
SURGE ARRESTER (DEHN)			21	-		-		-		-				-	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-		-		-		-				-	
FUSE HOLDER (ITALWEBER)			23	-		-		-		-				-	
INDIRECT PROTECTION (ABB)			24	-		-		-		-				-	
VOLTMETER			25	-		-		-		-				-	
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-		-		-		-				-	
	PERFORMANCE/CLASS		27	-		-		-		-				-	
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-		-		-		-				-	
	PERFORMANCE/CLASS		29	-		-		-		-				-	
LOCK-OUT RELAY (-)			30	-		-		-		-				-	
POWER CONDUCTOR		mmq	31	4G16		4G16		3G16		3G16				5G50	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/11

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

TITLE : "SG-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-00011

SHEET 013

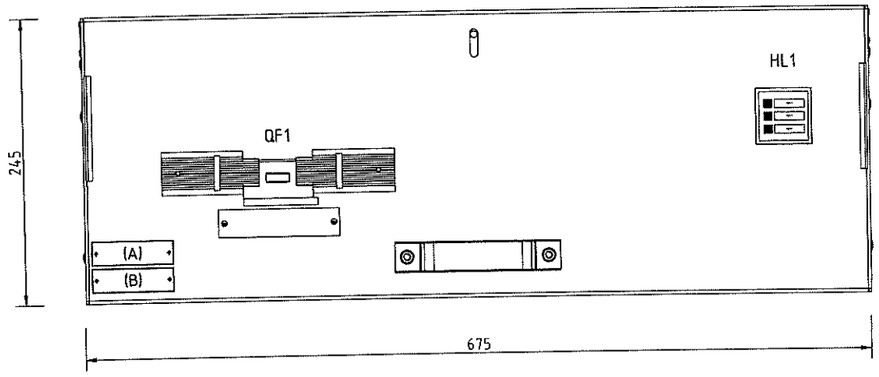
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00011 Rev. 03

DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L1-n"

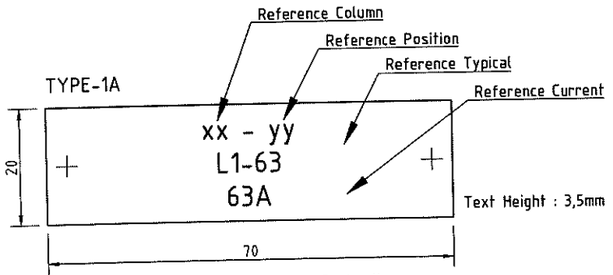


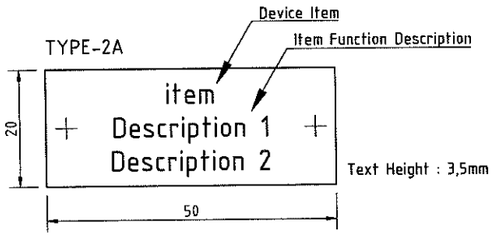
NOTE :

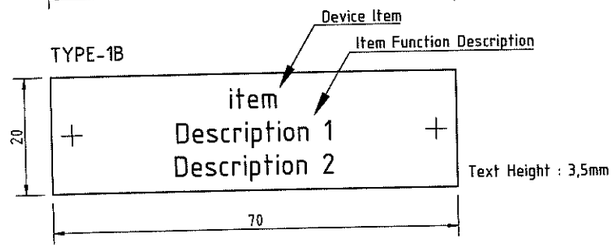
A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position [Column / Position inside SWB]
- Typical name [reference applicability typical used]
- Power [reference applicability typical used]

B) USER name plate (type-1B), with :
- Item User [to see SLD diagrams]
- User Description [to see SLD diagrams]

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate







=	TYPICAL
+	L-x
DWG n° :	231298/SD/31
Item n° :	PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 023

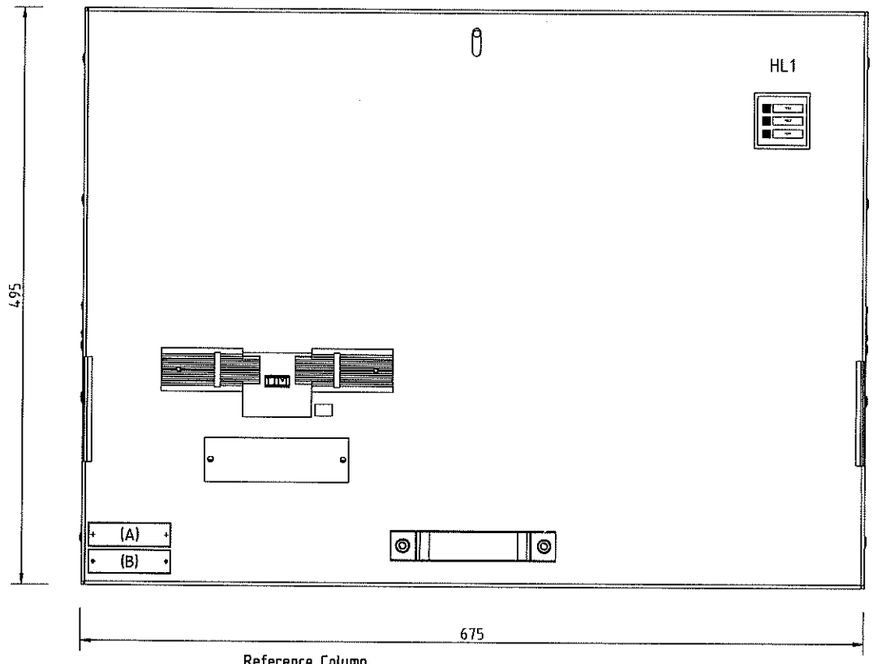
REV. 00

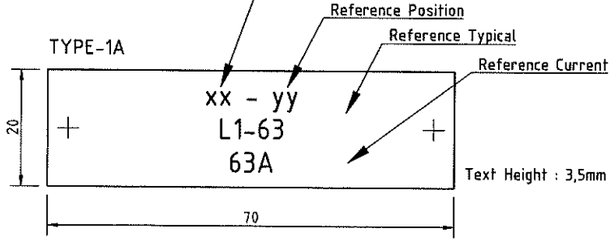
F.to UNI A3: 420mmx297mm

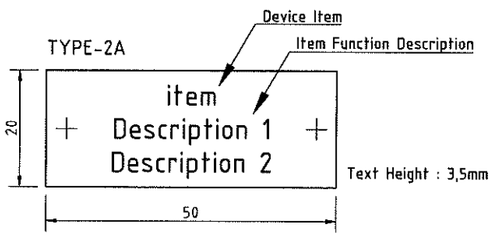
File Name : 1723002197-EL-DG-00031 Rev. 00

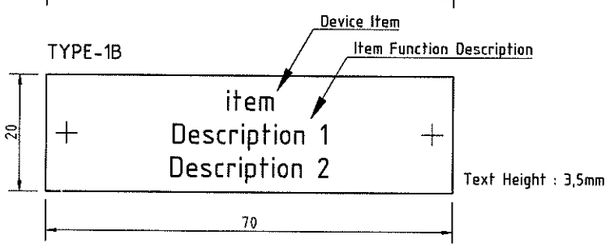
DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L2-n"









NOTE :

A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position (Column / Position inside SWB)
- Typical name (reference applicability typical used)
- Power (reference applicability typical used)

B) USER name plate (type-1B), with :
- Item User (to see SLD diagrams)
- User Description (to see SLD diagrams)

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate

=	TYPICAL
+	L-x
DWG n° :	231298/SD/31
Item n° :	PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 024

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

USERS LEGEND

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

TYPICAL APPLICABILITY					
ITEM	ITEM TAG	DESCRIPTION TAG	REFERENCE POSITION (written on name name plate "type-1A)	REFERENCE NOMINAL CURRENT C.B. TRIP UNIT (written on name name plate "type-1A)	REFERENCE TYPICAL (written on name name plate "type-1A)
1	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE B	A2 / +04	63A	L1-63
2	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE A	A3 / +01	100A	L1-100
3	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE B	A4 / +01	100A	L1-100
4	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE A	A6 / +05	63A	L1-63
5	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE B (BYPASS)	A6 / +06	63A	L1-63
6	ESW-200N1	WELDING SOCKETS (TOP DECK)	A6 / +08	160A	L2-160
7	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 (BYPASS)	A7 / +02	100A	L1-100
8	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	A7 / +03	63A	L1-63
9	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	A7 / +04	63A	L1-63
10	UP-200F2	NAVAID SYSTEM FEEDER A	A7 / +05	10A	L1-10
11	UP-200F2	NAVAID SYSTEM FEEDER B	A7 / +06	10A	L1-10
12	ESW-200N2	WELDING SOCKETS (LOWER DECK)	A7 / +08	160A	L2-160

= TYPICAL
+ L-x

DWG n° : 231298/SD/31
Item n° : PF1002983/26

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Users Legend - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 025 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

ITEMS ACRONYM

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

Composition of Typical :

L-x = Common Parts
L1-"nn" or L2-"nn"= Specific Parts

Example for Composition of L1-63:
- to take "L-x" plus "L1-63"

Example for Composition of L2-160:
- to take "L-x" plus "L2-160"

	ACRONYM ITEMS (Comun parts)	ACRONYM ITEMS (Specific parts)				
	L-x	L1-40 (In=40A) (Current Trip Unit)	L1-63 (In=63A) (Current Trip Unit)	L1-100 (In=100A) (Current Trip Unit)	L2-160 (In=160A) (Current Trip Unit)	
ASSOCIATED TYPICAL	This Item include all devices that are comun for both "Specific Parts" Items	This Items include only devices that are detail for "Specific Parts" Items				
L1-40	X	X				
L1-63	X		X			
L1-100	X			X		
L2-160	X				X	

=	TYPICAL					
+	L-x					
DWG n° :	231298/SD/31					
Item n° :	PF1002983/26					
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

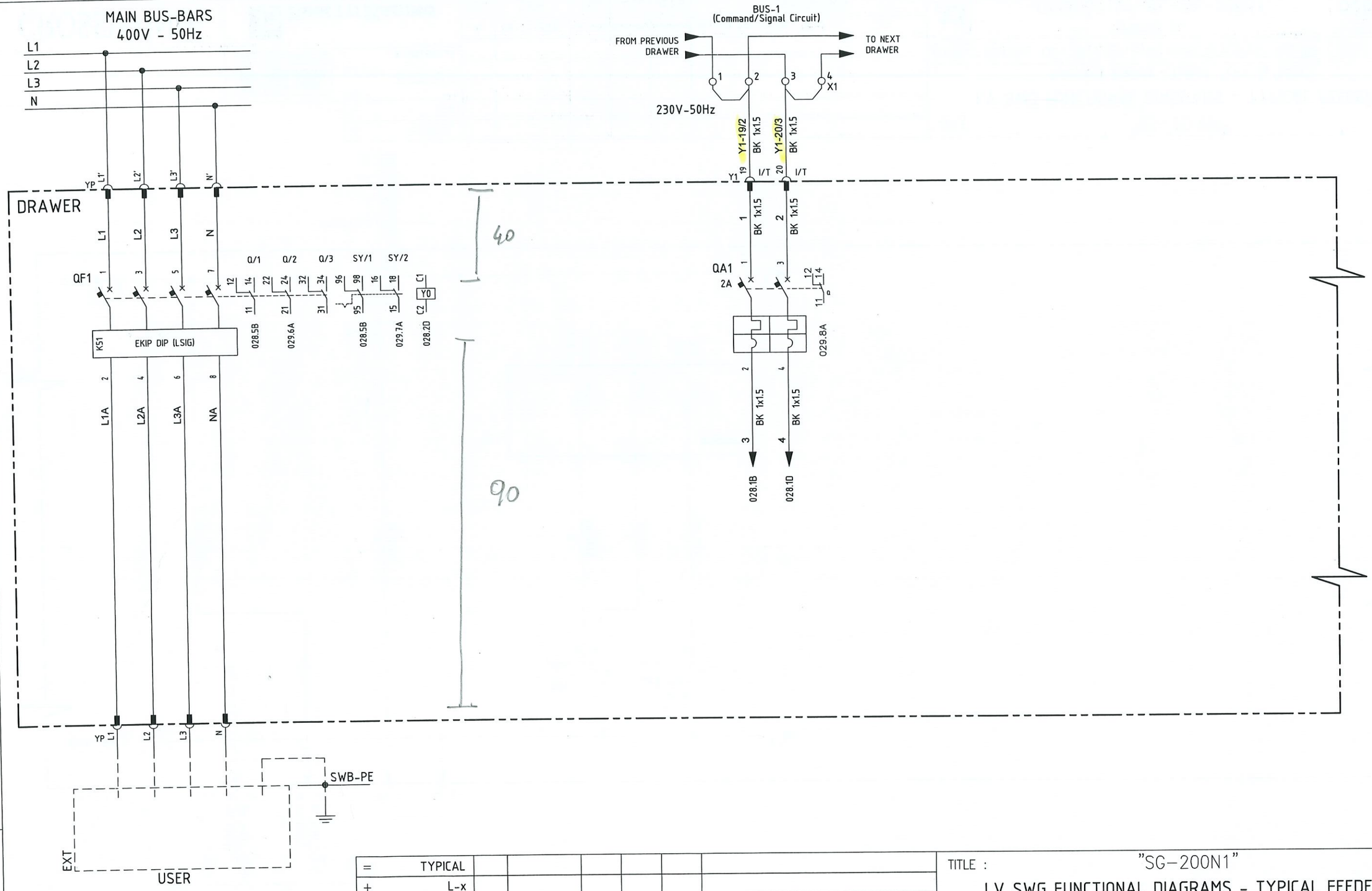
TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Items Acronym - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 026 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° : 231298/SD/31							
Item n° : PF1002983/26							
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

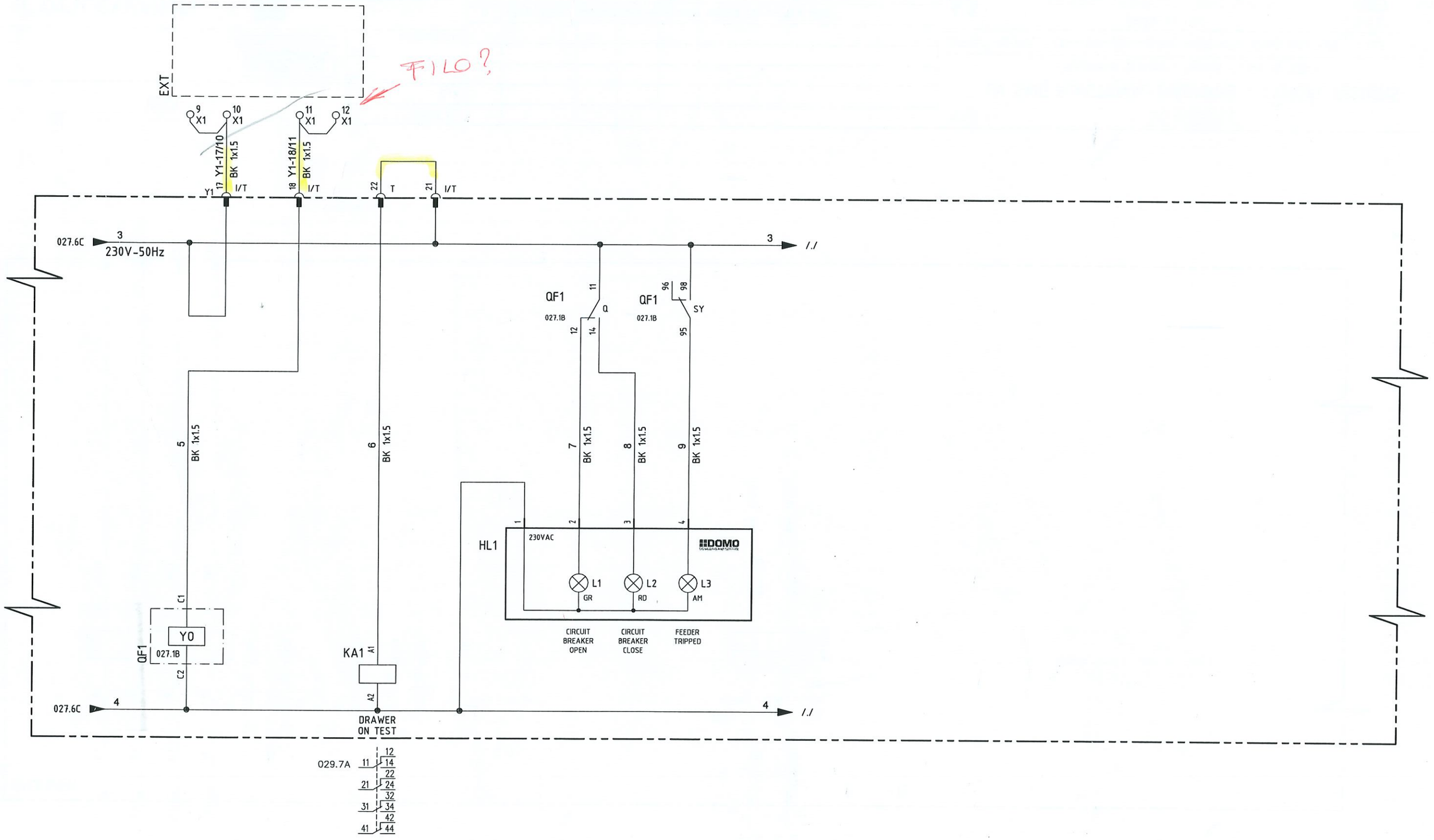
DRAWING NO. 1723002197-EL-DG-00031

SHEET 027

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° :	231298/SD/31						
Item n° :	PF1002983/26						
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

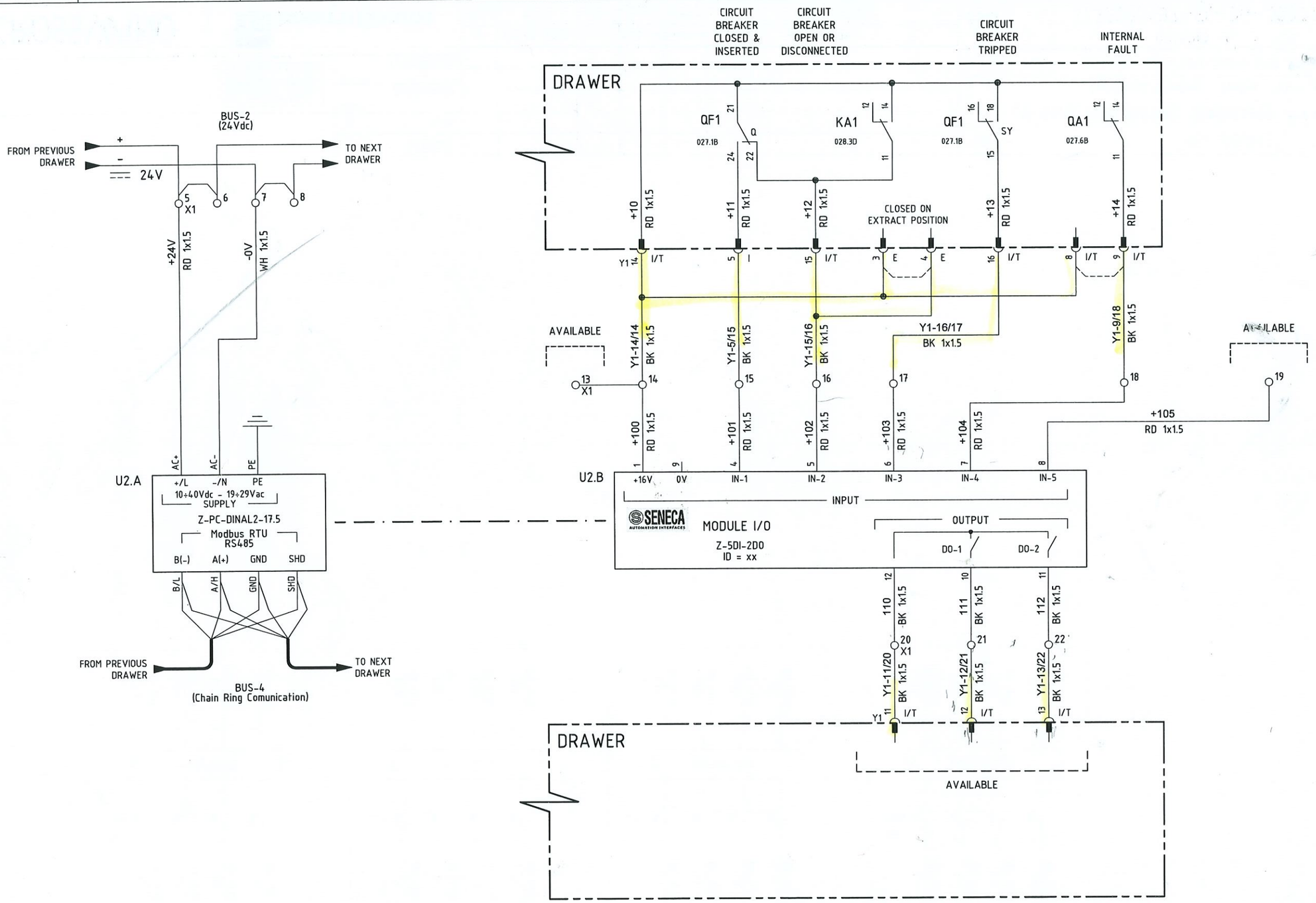
DRAWING NO. 1723002197-EL-DG-00031

SHEET 028

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00



=	TYPICAL						
+	L-x						
DWG n° :	231298/SD/31						
Item n° :	PF1002983/26						
0		09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
REV.		DATE	DRN	CHKD	APPD	DESCRIPTION	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 029

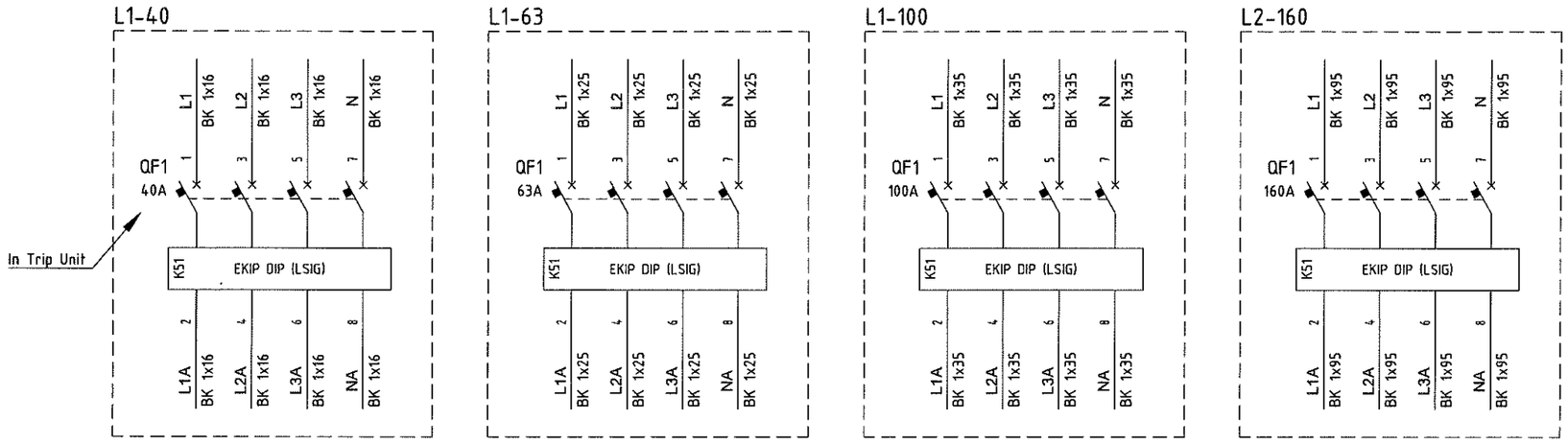
REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

SPECIFIC PARTS

TYPICAL : LINE FEEDER "L1-n" & "L2-n"



=	TYPICAL						
+	L-x						
OWG n° : 231298/SD/31							
Item n° : PF1002983/26							
		0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 030 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

AUXILIARY SOCKET

136450/001 (PF – 1 pcs) + 136458/004 (PM – 1 pcs)

N° PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
JUMP			•	•				•	•													
RACKED-OUT			X	X				X	X													
TEST								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
RACKED-IN					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PIN USED			029.6B	029.7B	029.6B			029.8B	029.8B		029.7D	029.7D	029.8D	029.5B	029.6B	029.7B	028.2B	028.3B	027.6A	027.6A	028.4B	028.3B

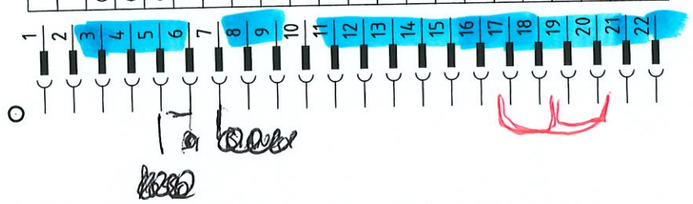
← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-OUT POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN TEST POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-IN POSITION

← CROS-REFERENCE USED PIN

TYPICAL - L-x - Y1



NERO

X12 CASSETTI

=	TYPICAL							
+	L-x							
DWG n° :	231298/SD/31							
Item n° :	PF1002983/26							
		0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)	
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 031

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

TYPICAL - L-x

X1

NumM	Fg.	Sez.	Tipo	Descrizione	Costruttore
			BT003	BT/3 End bracket	Cabur
1	027.5A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
2	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
3	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
4	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
5	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
6	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
7	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
8	029.3A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD101GR	HMD/PT/GR End section - Grey	Cabur
9	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
10	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
11	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
12	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
13	029.4B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
14	029.5B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
15	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
16	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
17	029.7B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
18	029.8B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
19	029.9B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
20	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
21	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
22	029.8D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD201GR	HMD.1/PT/GR End section - Grey	Cabur
			BT003	BT/3 End bracket	Cabur

=	TYPICAL						
+	L-x						
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

OWG n° : 231298/SD/31

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00031

SHEET 032

REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
HL1	028	ML22/483L230STLTTR	1	MULTILED 48x48 - 3 LED - Vaux=230Vac/dc + LAMP TEST + TROP	DOMO	TYPICAL L-x
KA1	028	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	TYPICAL L-x
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	TYPICAL L-x
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	TYPICAL L-x
QA1	027	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	TYPICAL L-x
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	TYPICAL L-x
U2.A	029	Z-PC-DINAL2-17.5	1	DIN RAIL 2SLOT WITH HEAD FOR "Z-5DI-2DO"	SENECA	TYPICAL L-x
U2.B	029	Z-5DI-2DO	1	I/O MODUL 5DI+2DO modbus RS485 Vaux=10÷40Vdc 19÷28Vac	SENECA	TYPICAL L-x
X1		HD100GR_	8	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		HD400GR_	14	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		BT003	2	BT/3 End bracket	Cabur	TYPICAL L-x
		HD101GR	1	HMD/PT/GR End section - Grey	Cabur	TYPICAL L-x
		HD201GR	1	HMD.1/PT/GR End section - Grey	Cabur	TYPICAL L-x

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S40LSIG4	1	XT2S 160 Ekip LSIG In=40A 4p F F	ABB	TYPICAL L1-40
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-40
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-40

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S63LSIG4	1	XT2S 160 Ekip LSIG In=63A 4p F F	ABB	TYPICAL L1-63
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-63
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-63

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S100LSIG4	1	XT2S 160 Ekip LSIG In=100A 4p F F	ABB	TYPICAL L1-100
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-100
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-100

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	1SDA068179R1	1	XT4S 250 BREAKING PART 4p F F	ABB	TYPICAL L2-160
		1SDA067536R1	1	SG.EL.Ekip LSIG In=160A XT4 4p	ABB	TYPICAL L2-160
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L2-160
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L2-160

=	TYPICAL
+	L-x

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/31

Item n° : PF1002983/26

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 033 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 00

ITEM	Tag	A7/+06-QF1	: NAVAID SYSTEM FEEDER B - A7/+06-QF1	Dwg	1723002197-EL-DG-00011		
	S/Sys	72-00	: NAVAID	Module			
TASK	code	C10002974	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°:	E200623002521070	Relay type:	EKIP DIP LSIG
Auxiliary supply:	24Vdc	Location:	B200	Cubicle:	A7/+06
Switchboard:	SG-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
L	47A	189A		3s	1721ms
S	220A	315A		0.1s	400ms
I	441A	630A		INSTANT	22ms
G	12.6A			0.1s	

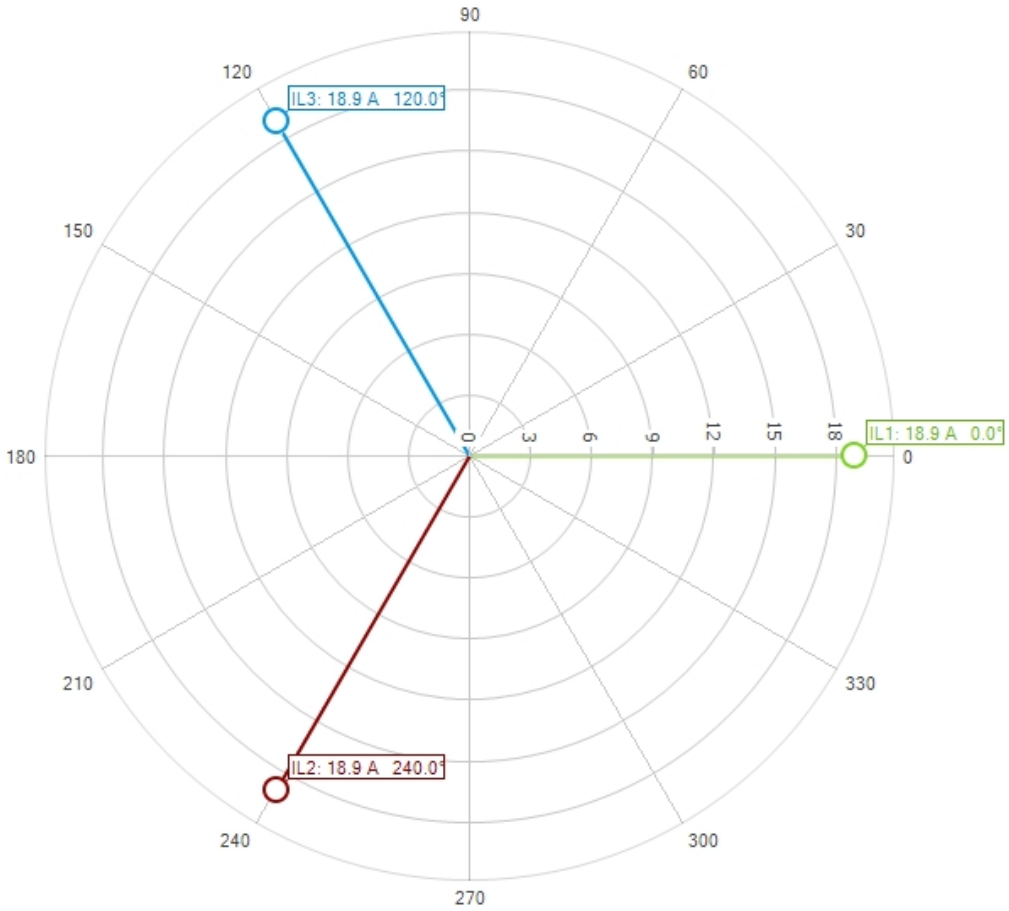
Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
ABB EKIP T&P	E34013804410W050		

Comments: The protection settings that have been implemented on drawer A7/+06 were defined by the Commissioning team to allow the internal testing of the HVAC system. The definitive settings will be implemented asap, in the meantime a PUNCH B ref. C30000117 has been raised to ensure traceability of this outstanding task.

Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company		RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-01	2024-10-01	2024-10-02
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-01T09:45:17.248Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-01T14:48:05.729Z	PROVERLIS Digitaly signed by Witness waived 2024-10-02T06:38:27.793Z

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Electronic protection parameters				
	Electronic/Manual parameters selection			
		Electronic/Manual parameters selectio	ELECTRONIC	
	Electronic L protection			
		Trip unit nominal current In	63	
		L threshold	0.75	In
		L time	3.00	s
		Thermal memory	Disabled	
	Electronic S protection			
		S status	Enabled	
		Curve type	t=k/i^2	
		Threshold (t=k/i^2)	3.50	In
		Time (t=k/i^2)	0.10	s
	Electronic I protection			
		I status	Enabled	
		I threshold	7.00	In
	Electronic G protection			
		G status	Enabled	
		G threshold	0.20	In
		G time	0.10	s
	Electronic LC protection			
		Iw status	Disabled	
		Iw threshold	0.30	In
		LC1 status	Disabled	
		LC1 threshold	0.50	I1
		LC2 status	Disabled	
		LC2 threshold	0.50	I1



Test

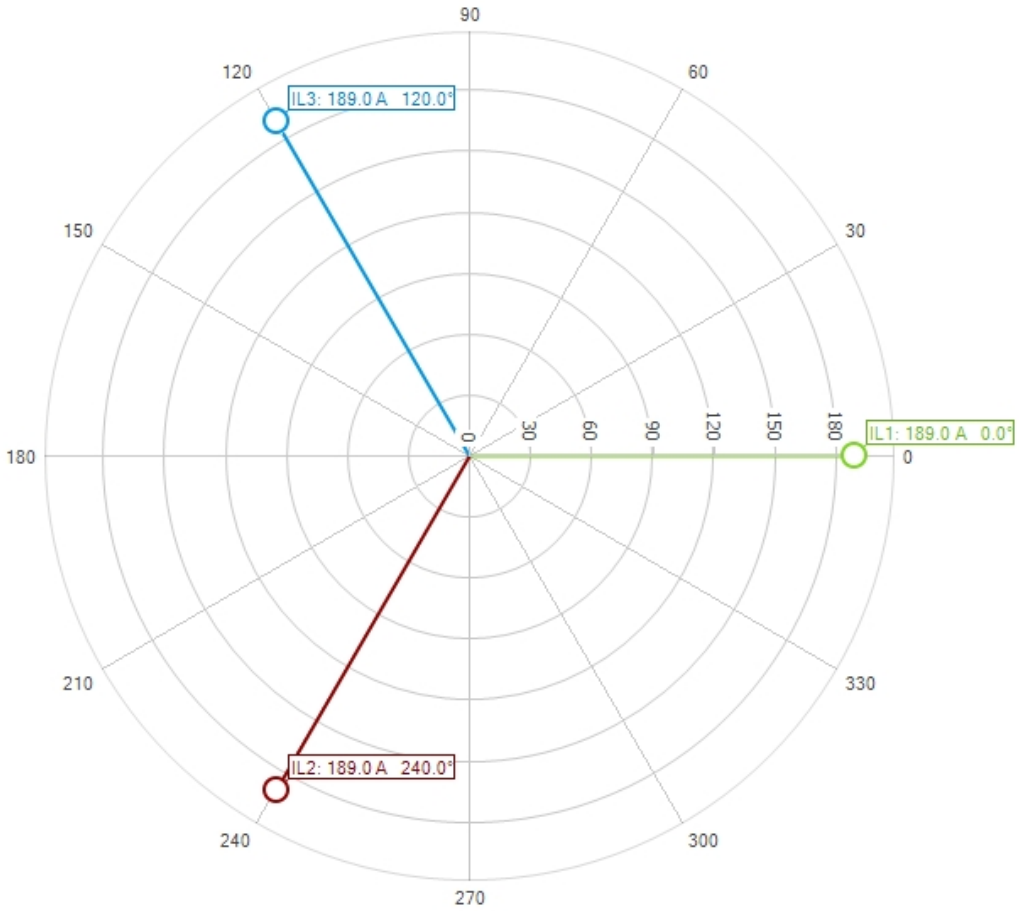
Name	Automatic test 1
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/06
Relay Serial Number	E200623002521070
Circuit Breaker Serial Number	EGH0521060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

⚠ Test completed without any trip in 3000 ms.



Test

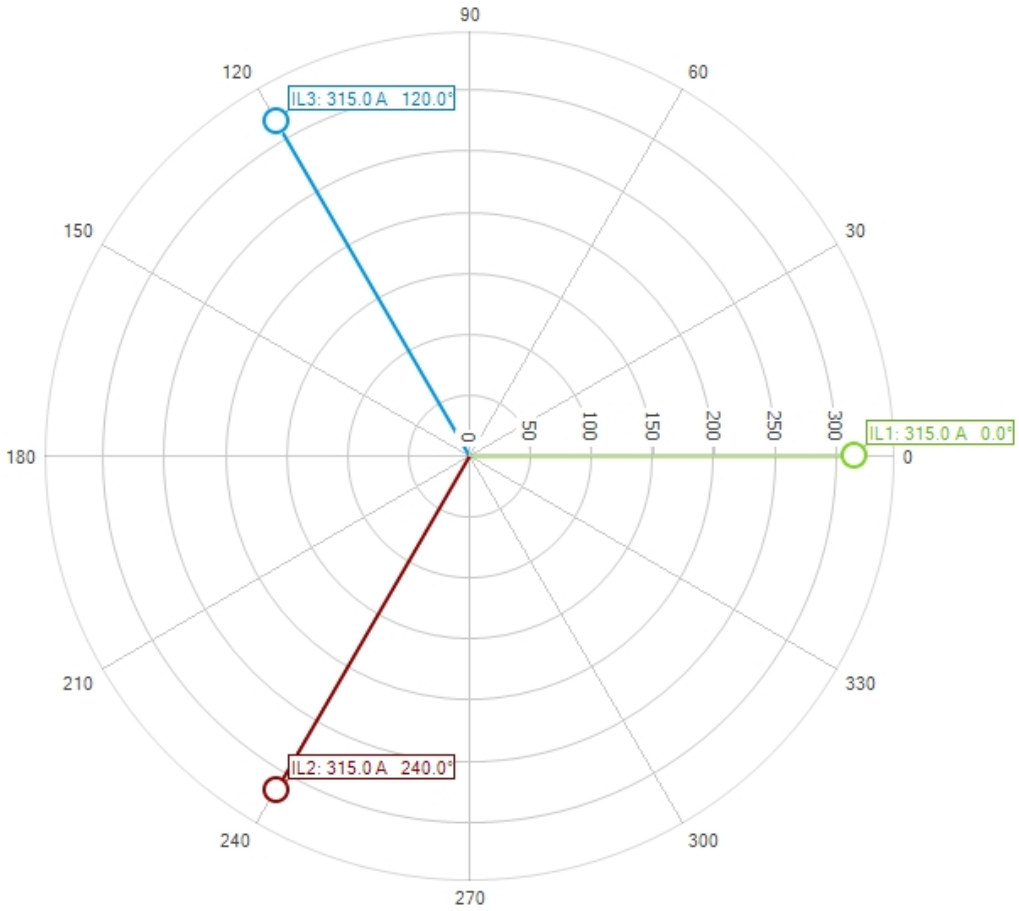
Name	Automatic test 2
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/06
Relay Serial Number	E200623002521070
Circuit Breaker Serial Number	EGH0521060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

⚠ Test completed with trip but out of time. Protection L tripped in 1721 ms.
Trip time must be between 0 ms and 1000 ms.



Test

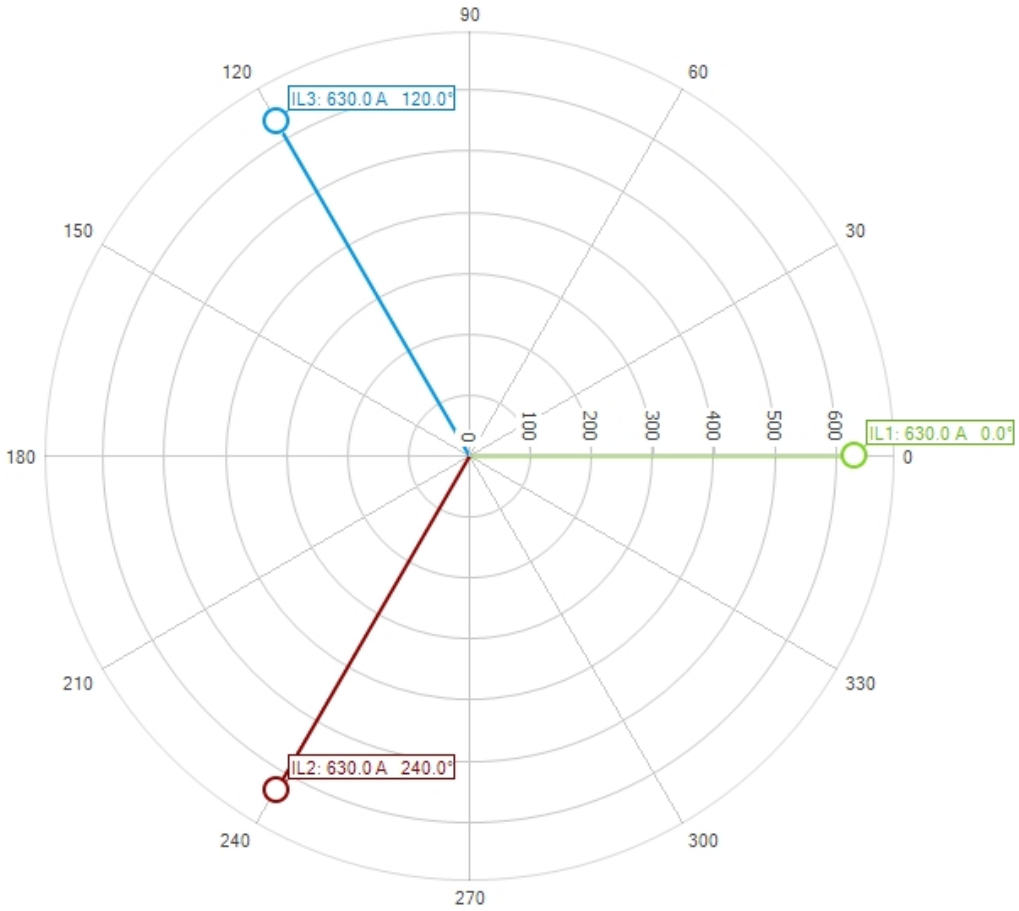
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Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/06
Relay Serial Number	E200623002521070
Circuit Breaker Serial Number	EGH0521060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection S tripped in 400 ms.
Trip time must be between 0 ms and 1000 ms.



Test

Name	Automatic test 4
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	A7/06
Relay Serial Number	E200623002521070
Circuit Breaker Serial Number	EGH0521060300010
	Ekip LSIG
Device settings	In = 63 A
Protection Settings	Protection = L Threshold = 0.75 In Time = 3.00 s Protection = S Curve type = t=k/i^2 Threshold = 3.50 In Time = 0.10 s Protection = I Threshold = 7.00 In Protection = G Threshold = 0.20 In Time = 0.10 s
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 22 ms.
Trip time must be between 0 ms and 1000 ms.

ITEM	Tag	A7/+06-QF1	: NAVAID SYSTEM FEEDER B - A7/+06-QF1		Dwg	1723002197-EL-DG-00011	
	S/Sys	72-00	: NAVAID		Module		
TASK	code	C10002975	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-6	Electrical IO

FTR 6 - Electrical I/O check record sheet

Equipment Tag:	UP-200F2 NAVAID SYSTEM FEEDER B	Instrument Type / Serial N° :	FLUKE 175 / 17140769
Cubicle N°:	A7/+06	Calibration certificate date:	7715/24 - 10/07/2025

Link Type:	●	Hardwired	Communication	(strike through unapplicable type)
I/O Type:	●	Digital	Analogic	(strike through unapplicable type)

DIGITAL

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Text Labelling Display Satisfactory (Y/N)	Blinking/Static Display Satisfactory (Y/N)	Color Coding Satisfactory (Y/N)	Status Check			Time Stamping Satisfactory (Y/N)	Refresh Time (if >1s)	Appearing in all applicable display (Y/N)
									Event (Y/N)	Alarm (Y/N)	Fault (Y/N)			
1	C.B. - CLOSED & INSERTED	HW	DI	A7/+06 - QF1/21-24	A7/+06 - X1/14-15	NA	NA	NA	Y	NA	NA	NA	NA	NA
2	C.B. - OPEN OR DISCONNECTED	HW	DI	A7/+06 - QF1/21-22	A7/+06 - X1/14-16	NA	NA	NA	Y	NA	NA	NA	NA	NA
3	C.B. - TRIPPED	HW	DI	A7/+06 - QF1/15-18	A7/+06 - X1/14-17	NA	NA	NA	NA	NA	Y	NA	NA	NA
4	INTERNAL FAULT	HW	DI	A7/+06 - QA1/11-14	A7/+06 - X1/14-18	NA	NA	NA	NA	NA	Y	NA	NA	NA
5	DRAWER ON TEST	HW	DI	A7/+06-KA1/14-11	A7/+06 - X1/14-16	NA	NA	NA	Y	NA	NA	NA	NA	NA
6														
7														
8														

ANALOGIC

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Min value sent	Min value received	Max value sent	Max value received	Intermediate value sent	Intermediate value received	Out of scale test (OK, Not OK)	Refresh time (if >2s)	Appearing in all applicable display (Y/N)
1														
2														
3														

Comments: The test of the cubicle was carried out on a test bench.

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-02	2024-10-02	2024-10-02
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-02T07:30:30.017Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-02T08:53:52.633Z	PROVERLIS Digitaly signed by Witness waived 2024-10-02T09:21:29.900Z

ITEM	Tag	NC-200F2	: NAVAID Central Control Panel (NCCP)		Dwg	123A90-DDL-EL-DL-20139	
	S/Sys	72-00	: NAVAID		Module	LD_B-300	
TASK	code	C10002976	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FP25	Navigation Aids

DATA

Manufacturer	SICE	Voltage (V)	230/24Vac/24Vdc		
Serial N°	24-1141	Rating (kW)	0.3	Classification	ATEX - ZONE 1

FUNCTION TEST REQUIREMENT

1	Check MC activities have been carried out.			OK
2	Check commissioning forms of battery navigation aids system are signed. Check the ITR presence in the system			OK
3	Measure Insulation resistance value of equipment and feeder cable at 500V (Min 10 Mohm).	>500	MΩ	OK
4	Energise control of Navaids feeder and put the system in test position.			NA
5	If applicable: perform test on protection devices. Check the ITR presence in the system.			OK
6	Full test feeder breaker operation with system in test position.			
	Energization			
7	Carry out functional test of navigation aids in local and remote configurations.			Note
8	Test interface trips and signals (remote alarms & status). Check the ITR presence in the system.			OK
9	Test Navaid systems according to Manufacturer's commissioning procedure and attach.			OK
10	Marine navigation lights: Check lighting , intermittent lighting device and automatic change over device are OK.			OK
11	Aircraft obstruction lights: check lighting.			OK
12	Fog horn : Check U signal , check manual , remote and automatic (if any) control.			NA
13	Measure current value at feeder breaker	3.7	A	OK

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	10/07/25
FLUKE 376	A1711003	7710/24	10/07/25

Comments: NOTE Point 7: The remote configuration isn't foreseen.

Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-01-31	2025-02-04	2025-02-04
Signature	Digitaly signed by Mattia Girotti 2025-01-31T14:47:01.876Z	Digitaly signed by Kristian Castellani 2025-02-04T12:19:03.469Z	Digitaly signed by Witness waived 2025-02-04T13:39:23.892Z

BASE LOAD POWER HUB (BLPH)

NAVIGATION AIDS SYSTEM

SINGLE-LINE DIAGRAM

05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-2

sice

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE-LINE DIAGRAM
FRONT PAGE

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

A3 | DRAWING NO. 1724000775-EL-DG-00005 | SHEET 001 | REV. 05

File Name : 1724000775-EL-DG-00005 REV.5.DWG

F.to UNI A3: 420mmx297mm

REV. No.	SHEET No.	DESCRIPTION	REF. CODE
05	001	FRONT PAGE	
05	002	SUMMARY AND GENERAL NOTES	
05	003	SYMBOL LIST	
05	004	NAVIGATION AIDS SYSTEM – SINGLE-LINE DIAGRAM	

GENERAL NOTES

(1) = EQUIPMENT TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(2) = INTERCONNECTING CABLES TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(3) = FOR A DETAILED LIST OF THE REMOTE SIGNALS, PLEASE REFER TO THE I/O LIST (DOC. No. 1724000775-EL-LIS-00011).

(4) = FEEDER TO BE CURVE D/K WITH RATED CURRENT 16A.

(5) = DEVICE OPERABLE FROM THE FRONT COVER OF THE ENCLOSURE (ONCE THE COVER IS CLOSED).

(6) = TEMPERATURE PROBE TO BE INSTALLED BY CUSTOMER IN THE BATTERY BOX.

SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-2

sice

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE-LINE DIAGRAM
SUMMARY AND GENERAL NOTES

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

SCALE : NTS

A3

DRAWING NO. 1724000775-EL-DG-00005

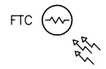
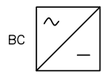
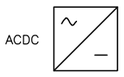
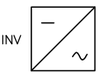
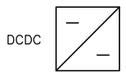
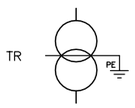
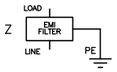
SHEET 002

REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00005 REV.5.DWG

SYMBOL LIST

 AUTOMATIC CIRCUIT BREAKER (MAGNETO–THERMIC)	 AUTOMATIC CIRCUIT BREAKER (ONLY MAGNETIC)	AUXILIARY / RELAY CONTACT (NORMALLY OPEN)	 AUXILIARY / RELAY CONTACT (NORMALLY CLOSED)	 RELAY COIL (COIL POWERED AT 24VDC)	 RELAY COIL (COIL POWERED AT 230VAC)
 POWER CONTACTOR (COIL POWERED AT 24VDC)	 UNDERCURRENT MONITORING RELAY	 24VDC EARTH INSULATION MONITORING RELAY	 230VAC EARTH INSULATION MONITORING RELAY	 PHOTOCELL RELAY (POWERED AT 24VDC)	 THERMIC SWITCH (CLOSED WHEN TEMPERATURE HIGHER THAN THRESHOLD)
 COOLING FAN	 230VAC SOCKET	 DIODE	 CURRENT SHUNT	 0...60mV TO 4...20mA TRANSDUCER	 TERMINAL
 TERMINAL WITH FUSE	 PILOT LIGHT	 CABINET INTERNAL LIGHT	LIMIT SWITCH	 PHOTOCELL (RESISTANCE SENSIBLE TO LIGHT)	 MARINE SIGNAL LIGHT CODER CIRCUIT
 STATUS LIGHT CODER CIRCUIT	 MEDIUM INTENSITY OBSTRUCTION LIGHT CODER CIRCUIT	 BATTERY CHARGER MODULE (AC/DC)	 POWER AC/DC CONVERTER MODULE (AC/DC)	 POWER INVERTER MODULE (DC/AC)	 POWER DC/DC CONVERTER MODULE (DC/DC)
 VOLTAGE TRANSFORMER	 CONTROL SYSTEM	 MODBUS INTERFACE (SLAVE)	 MECHANICAL INTERLOCK BETWEEN POWER CONTACTORS (KM)	 PUSH–BUTTON	 2–POSITION SELECTOR SWITCH
 3–POSITION SELECTOR SWITCH	 AUTOMATIC CHANGE–OVER	 RJ–45 MODULAR JACK	 EMI FILTER	ASTRONOMIC SWITCH	SURGE ARRESTER

05	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–2

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

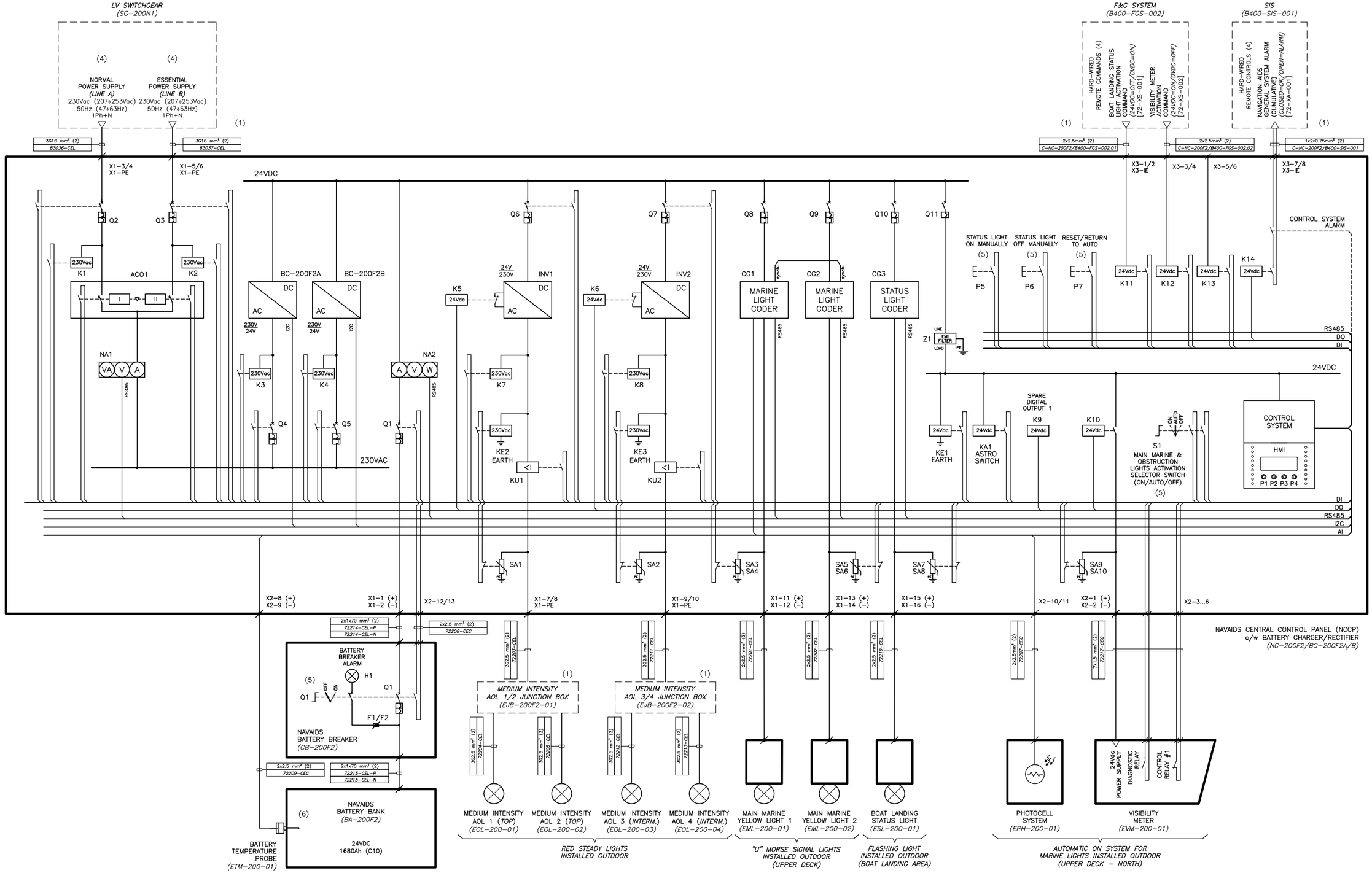
TITLE : BASE LOAD POWER HUB (BLPH)
SINGLE–LINE DIAGRAM
SYMBOL LIST

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

A3 | DRAWING NO. 1724000775–EL–DG–00005 | SHEET 003 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00005 REV.5.DWG



05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-2

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
NAVIGATION AIDS SYSTEM
SINGLE-LINE DIAGRAM

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

A3 | DRAWING NO. 1724000775-EL-DG-00005 | SHEET 004 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00005 REV.5.DWG

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	BA-200F2	: Battery Bank for NAVAID		Dwg	123A90-DDL-EL-DL-20139	
	S/Sys	72-00	: NAVAID		Module	LD_B-300	
TASK	code	C10002977	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-4	Battery Charge/Discharge

FTR4 - Battery charge / discharge
Record sheet

BATTERY DATA

Manufacturer:	FIAMM	Serial N°:	NA	Type	SMG (VRLA GEL)
Rated voltage	24Vdc	Battery capacity (Ah):	1680	Number of cells	12
Rated autonomy (min)			5760		

Test type

Important notice:

Discharge and charge (if required) must be performed according to manufacturer's instructions

Manufacturer:	FIAMM	Serial N°:	NA	Type	SMG(VRLA GEL)
Test type: Charge	Discharge ●	Duration	100h	Time	SEE ATTACHED
CdNi	constant current	Current(A)	SEE ATTACHED	Ambiant T°	SEE ATTACHED
Pb	constant voltage	Volt/Cell	SEE ATTACHED	Initial T° 24.5	Final T° 29.7

N° Hours	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	...	24
Time (hh:mm)	9	13	17	8	12	16	8	12	16	8	12	16	8	9	10	11	12	13	14		
Charge Voltage (V)	25.8	24.9	24.8	24.8	24.8	24.8	24.6	24.6	24.6	24.5	24.5	24.4	24.3	24.3	24.3	24.3	24.3	24.3	24.3		
Charge Current (A)	7	9.7	8.7	8.3	8.1	7.7	8.2	7.8	7.7	8.4	7.9	7.8	8.5	8.1	8.1	7.9	8.3	8.5	8.4		
Ambient Temp. (°C)	24	24.5	24.1	27.4	26.9	23.6	21.1	20.1	22.5	20.7	20.3	25	27.7	27.4	26.8	26.8	25.8	25.6	23.6		
Battery Cell Temp. (°C)	24.5	24.9	25.2	26.1	26.6	22.6	22.8	22.2	22.4	22.5	21.7	23.1	26.2	25.9	25.9	25.9	25.3	25.2	29.7		
Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)
1	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
2	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
3	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
4	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
5	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
...	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
N	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.	SEE ATT.		

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 62 MAX	53172376WS	7716/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025
FLUKE 175	17140769	7715/24	10/07/2025

Comments: See attachements for full test.

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-10	2025-02-12	2025-02-12
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-10T11:27:42.959Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-12T08:07:03.075Z	PROVERLIS Digitaly signed by Witness waived 2025-02-12T14:55:25.565Z

CROSSWIND

123A90 BLPH - CROSSWIND OFFSHORE PROJECT
COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]

SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

ROSETTI MARINO

NOME: GIRGIU NATALIA

FIRMA:

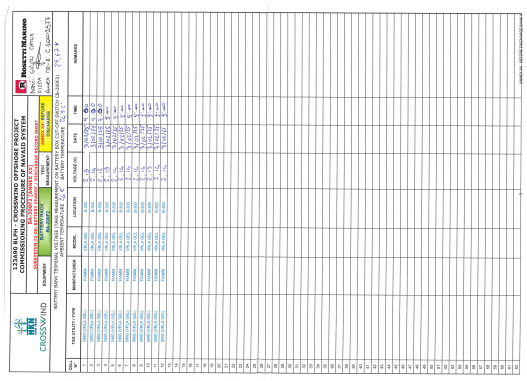
ANNEX IIR-B: C1002977

EQUIPMENT	BATTERY RACK BA-200F2	TEST MEASUREMENT:	ANNEX XX: BEFORE DISCHARGE

BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY BOX CUT-OFF SWITCH CB-200F2) 25,67 V

AMBIENT TEMPERATURE 24 C° BATTERY TEMPERATURE 24,5 C°

CELL N°	TAG UTILITY / TYPE	MANIFACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	REMARKS
1	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	9:00	
2	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
3	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,12	3/02/25	9:00	
4	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	9:00	
5	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
6	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
7	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
8	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
9	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
10	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	9:00	
11	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
12	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
13								
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CROSSWIND

BLPH - CROSSWIND PROJECT - COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]
SUBSYSTEM 72-00: BATTERY DISCHARGE RECORD SHEET

ROSETTI MARINO

BATTERY RACK
BA-200F2

ANNEX XX): 96h CAPACITY DISCHARGE TEST
RECORD WITH FULL CHARGE

N° Hours	0:00	4:00	3:00	23:00	27:00	31:00	47:00	51:00	55:00	71:00	75:00	79:00	95:00	96:00	97:00	98:00	99:00	100:00	101:00	Note:
Time (hh:mm)	9:00	13:00	17:00	8:00	12:00	16:00	8:00	12:00	16:00	8:00	12:00	16:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	
Discharge Voltage (V)	25,8	24,9	24,8	24,8	24,8	24,8	24,6	24,6	24,6	24,5	24,5	24,4	24,3	24,3	24,3	24,3	24,3	24,3	24,3	
Discharge Current (A)	7	9,7	8,7	8,3	8,1	7,7	8,2	7,8	7,7	8,4	7,9	7,8	8,5	8,1	8,1	7,9	8,3	8,5	8,4	
Ambient Temp. (°C)	24	24,5	24,1	27,4	26,9	23,6	21,1	20,1	22,5	20,7	20,3	25,0	27,7	27,4	26,8	26,8	25,8	25,6	23,6	
Battery Cell Temp. (°C)	24,5	24,9	25,2	26,1	26,6	22,6	22,8	22,2	22,4	22,5	21,7	23,1	26,2	25,9	25,4	25,9	25,3	25,2	23,7	

Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	Note:
1	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
2	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
3	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
4	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
5	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
6	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
7	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
8	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
9	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
10	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
11	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
12	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	

NOME: MATTIA GIROTTI
FIRMA:
ANNEX ITR-B: C1002977

ITEM	Tag	BA-200F2	: Battery Bank for NAVAID		Dwg	123A90-DDL-EL-DL-20139	
	S/Sys	72-00	: NAVAID		Module	LD_B-300	
TASK	code	C10002978	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-4	Battery Charge/Discharge

FTR4 - Battery charge / discharge
Record sheet

BATTERY DATA

Manufacturer:	FIAMM	Serial N°:	NA	Type	VRLA (GEL)
Rated voltage	24Vdc	Battery capacity (Ah):	1680	Number of cells	12
Rated autonomy (min)			720		

Test type

Important notice:

Discharge and charge (if required) must be performed according to manufacturer's instructions

Manufacturer:	FIAMM	Serial N°:	NA	Type	VRLA (GEL)
Test type: Charge ● Discharge		Duration	12h	Time	10:35/8:30
CdNi	constant current	Current(A)	40	Ambiant T°	NA
Pb	constant voltage	Volt/Cell	NA	Initial T° 23.7	Final T° 27.9

N° Hours	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	...	24
Time (hh:mm)	10:35	11:35	12:35	15	17	8	8:30														
Charge Voltage (V)	24.3	24.7	24.9	25.1	25.2	26.4	25.3														
Charge Current (A)	40.5	40.3	39.8	41.3	40.7	44.3	1.2														
Ambient Temp. (°C)	23.2	23.3	24.6	24.5	25.0	25.1	25.8														
Battery Cell Temp. (°C)	23.7	23.9	24.2	24.3	25.3	27.5	27.9														
Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)
1	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
2	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
3	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
4	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
5	2.03	2.06	2.08	2.09	2.10	2.20	2.12														
...	2.03	2.06	2.08	2.09	2.10	2.20	2.12														
N	NOTE	NOTE	NOTE	NOTE	NOTE	NOTE	NOTE														

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 62 MAX	53172376WS	7716/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025
FLUKE 175	17140769	7715/24	10/07/2025

Comments: NOTE: See attachment fo full measures.

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-12	2025-02-13	2025-02-14
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-12T08:00:45.559Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-13T09:08:11.850Z	PROVERLIS Digitaly signed by Witness waived 2025-02-14T07:12:11.153Z

HKN ONE TEAM
CROSSWIND

123A90 BLPH - CROSSWIND OFFSHORE PROJECT
COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]

SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

EQUIPMENT	BATTERY RACK BA-200F2	TEST MEASUREMENT:	ANNEX XX: BEFORE CHARGE

ROSETTI MARINO

NOME: MATTIA GIGLI
ANNEX: C 1000 2378
FIRMA:

BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY BOX CUT-OFF SWITCH CB-200F2) 23,9V
AMBIENT TEMPERATURE 23,6C BATTERY TEMPERATURE 24,3°C

CELL N°	TAG UTILITY / TYPE	MANIFACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	REMARKS
1	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
2	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
3	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
4	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
5	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
6	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
7	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
8	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
9	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
10	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
11	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
12	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
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HKN ONE TEAM
CROSSWIND

BLPH - CROSSWIND PROJECT - COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]
SUBSYSTEM 72-00: BATTERY CHARGE RECORD SHEET

BATTERY RACK
BA-200F2

ANNEX XX): 12h CHARGE TEST RECORD

ROSETTI MARINO

N° Hours	0:00	1:00	3:00	4:30	6:30	21:30	22:00																									Note:
Time (hh:mm)	10:35	11:35	12:35	15:00	17:00	8:00	8:30																									
Discharge Voltage (V)	24,3	24,7	24,9	25,1	25,2	26,4	25,3																									
Discharge Current (A)	40,5	40,3	39,8	41,3	40,7	44,3	1,2																									
Ambient Temp. (°C)	23,2°	23,3°	24,6	24,5	25,0	25,1	25,8																									
Battery Cell Temp. (°C)	23,7°	23,8°	24,2	24,3	25,3	27,5	27,9																									

Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	Note:
1	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
2	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
3	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
4	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
5	2,03	2,06	2,08	2,09	2,10	2,20	2,12																										
6	2,03	2,06	2,08	2,09	2,10	2,20	2,12																										
7	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
8	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
9	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
10	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										
11	2,04	2,06	2,08	2,09	2,10	2,20	2,11																										
12	2,03	2,06	2,08	2,09	2,10	2,20	2,11																										

NOME: MATTIA GIROTTI
ANNEX: C1000 2378
FIRMA:

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	BA-200F2	: Battery Bank for NAVAID		Dwg	123A90-DDL-EL-DL-20139	
	S/Sys	72-00	: NAVAID		Module	LD_B-300	
TASK	code	C10002979	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FTR-3		Battery Autonomy

FTR3 - Battery autonomy
Record sheet

BATTERY DATA

Manufacturer:	FIAMM	Serial N°:	NA	Type	SMG (VRLA GEL)
Rated voltage	24Vdc	Battery capacity (Ah):	1680	Number of cells	12
Rated autonomy (min):	5760				

Battery autonomy test

Floating battery voltage:	2.25	V	Test load (kW):	NA	kW

Time	0'	15"	30"	45"	1'	1'30"	2'	3'	4'	5'	6'	7'
Battery voltage	NOTE											
Discharge current												

Time	8'	9'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'
Battery voltage												
Discharge current												

Time	60'	70'	80'	90'	100'	110'	120'					
Battery voltage												
Discharge current												

Battery stopping voltage

Design	NA	Measured	NA

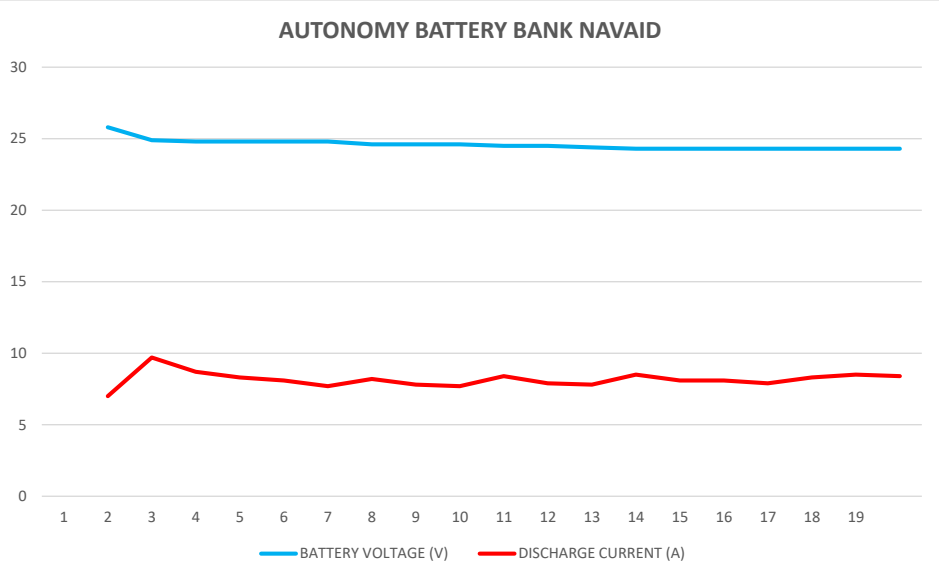
Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 175	17140769	7715/24	10/07/2025

Comments: See attachment for full measures

Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-10	2025-02-13	2025-02-14
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-10T12:47:36.861Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-13T09:09:08.400Z	PROVERLIS Digitaly signed by Witness waived 2025-02-14T07:10:16.080Z

	TIME	BATTERY VOLTAGE (V)	DISCHARGE CURRENT (A)
1	09:00	25,8	7
2	13:00	24,9	9,7
3	17:00	24,8	8,7
4	08:00	24,8	8,3
5	12:00	24,8	8,1
6	16:00	24,8	7,7
7	08:00	24,6	8,2
8	12:00	24,6	7,8
9	16:00	24,6	7,7
10	08:00	24,5	8,4
11	12:00	24,5	7,9
12	16:00	24,4	7,8
13	08:00	24,3	8,5
14	09:00	24,3	8,1
15	10:00	24,3	8,1
16	11:00	24,3	7,9
17	12:00	24,3	8,3
18	13:00	24,3	8,5
19	14:00	24,3	8,4



ITEM	Tag	NC-200F2	: NAVAID Central Control Panel (NCCP)	Dwg	123A90-DDL-EL-DL-20139		
	S/Sys	72-00	: NAVAID	Module	LD_B-300		
TASK	code	C10002980	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FTR-6	Electrical IO

FTR 6 - Electrical I/O check record sheet

Equipment Tag:	NC-200F2 - NAVAID CONTROL PANEL	Instrument Type / Serial N° :	FLUKE 175 / 17140769
Cubicle N°:	NA	Calibration certificate date:	7715-24 / 10/07/2025

Link Type:	●	Hardwired	Communication	(strike through unapplicable type)
I/O Type:	●	Digital	Analogic	(strike through unapplicable type)

DIGITAL

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Text Labelling Display Satisfactory (Y/N)	Blinking/Static Display Satisfactory (Y/N)	Color Coding Satisfactory (Y/N)	Status Check			Time Stamping Satisfactory (Y/N)	Refresh Time (if >1s)	Appearing in all applicable display (Y/N)
									Event (Y/N)	Alarm (Y/N)	Fault (Y/N)			
1	GENERAL SYSTEM ALARM	HW	DI	NC-200F2/X3:7-8	B400-SIS-001	NA	NA	NA	NA	Y	NA	NA	NA	NA
2	BOAT LANDING STATUS	HW	DO	NC-200F2/X3:1-2	B400-FGS-002	NA	NA	NA	Y	NA	NA	NA	NA	NA
3	VISIBILITY METER ACTIVATION COMMAND	HW	DO	NC-200F2/X3:3-4	B400-FGS-002	NA	NA	NA	Y	NA	NA	NA	NA	NA
4						NA								
5						NA								
6						NA								
7														
8														

ANALOGIC

Item	Signal description	Link Type (Hardwired/ Communication)	I/O Type (Digital/Analogic)	Point of Origin (From)	Point of Receival (to)	Min value sent	Min value received	Max value sent	Max value received	Intermediate value sent	Intermediate value received	Out of scale test (OK, Not OK)	Refresh time (if >2s)	Appearing in all applicable display (Y/N)
1														
2														
3														

Comments:

Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-04	2025-02-04	2025-02-04
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-04T08:52:48.098Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-04T12:20:06.398Z	PROVERLIS Digitaly signed by Witness waived 2025-02-04T13:39:44.771Z

BASE LOAD POWER HUB (BLPH)

NAVIGATION AIDS SYSTEM

I/O LIST

SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-8

sice

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
02	19/07/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
I/O LIST
FRONT PAGE

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

SCALE : NTS

A3

DRAWING NO. 1724000775-EL-LIS-00011

SHEET 001

REV. 03

File Name : 1724000775-EL-LIS-00011 REV.3.DWG

F.to UNI A3: 420mmx297mm

REV. No.	SHEET No.	DESCRIPTION	REF. CODE
03	001	FRONT PAGE	
03	002	SUMMARY AND GENERAL NOTES	
03	003	NAVIGATION AIDS SYSTEM – I/O LIST	

GENERAL NOTES

03	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
02	19/07/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-8

sice

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
I/O LIST
SUMMARY AND GENERAL NOTES

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

A3 | DRAWING NO. 1724000775–EL–LIS–00011 | SHEET 002 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–LIS–00011 REV.3.DWG

NAVAIDS CENTRAL CONTROL PANEL (NCCP)

REMOTE CONTROLS (DIGITAL INPUTS)

ITEM	TYPE	TAG	SIGNAL DESCRIPTION	VOLT-FREE CONTACT		TYPE OF INFORMATION	TO REMOTE VIA	TO UNIT			REMARKS
				CLOSED (=1)	OPEN (=0)			DESCRIPTION	TAG	TERMINALS	
1	DI	*72-XA-001*	NAVIGATION AIDS GENERAL SYSTEM ALARM (CUMULATIVE)	OK	ALARM	ALARM	HARD-WIRED	*SIS*	*B400-SIS-001*	X3-7/8	–

NAVAIDS CENTRAL CONTROL PANEL (NCCP)

REMOTE COMMANDS (DIGITAL OUTPUTS)

ITEM	TYPE	TAG	SIGNAL DESCRIPTION	VOLTAGE SIGNAL		TYPE OF INFORMATION	TO REMOTE VIA	FROM UNIT			REMARKS
				24VDC (=1)	0VDC (=0)			DESCRIPTION	TAG	TERMINALS	
1	DO	*72-XS-001*	BOAT LANDING STATUS LIGHT ACTIVATION COMMAND	OFF	ON	COMMAND	HARD-WIRED	*ESD/F&G SYSTEM*	*B400-FGS-002*	X3-1/2	*VOLTAGE COMMAND (STABLE)*
2	DO	*72-XS-002*	VISIBILITY METER ACTIVATION COMMAND	ON	OFF	COMMAND	HARD-WIRED			X3-3/4	*VOLTAGE COMMAND (STABLE)*
3	DO	*N/A*	*SPARE COMMAND*	*N/A*	*N/A*	COMMAND	HARD-WIRED	*N/A*	*N/A*	X3-5/6	*[FOR FUTURE USE]*

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-8

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
02	19/07/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
NAVIGATION AIDS SYSTEM
I/O LIST

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

A3 | DRAWING NO. 1724000775-EL-LIS-00011 | SHEET 003 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-LIS-00011 REV.3.DWG

ITEM	Tag	A7/+05-QF1	: NAVAID SYSTEM FEEDER A - A7/+05-QF1			Dwg	1723002197-EL-DG-00011
	S/Sys	72-00	: NAVAID			Module	
TASK	code	C10003031		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Electrical	Form	FTR-5 Remote Signalling

FTR5 - Remote signalling
Record sheet

DATA

Switchboard:	SG-200N1	Cubicle N°:	A7/+05

FUNCTION TEST

	Order/Inputs		Status/Output					
	Start order	Stop order	Run	Fault	Stop Signalisation	Available/Ready to start	TRIP	CB OPEN/CLOSED
UCP								
ECS								
SSS								
PSS								
PCS				● ●			● ●	● ●
Control Station								
Control Panel								
HVAC Panel								
MCC							● ●	● ●

Column 1 (To check) to be filled during commissioning preparation stage - black if the check is asked
Column 2 (Checked) to be filled black if check is Ok

Comments:

Page 1/1	Performed by	☐ WITNESS ☐● REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	
Name	Davide Zucconelli	Kristian Castellani	Martin Taylor
Date	2025-05-12	2025-05-12	2025-05-15
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2025-05-12T09:23:40.310Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-05-12T11:30:00.168Z	PROVERLIS Digitaly signed by Martin Taylor 2025-05-15T04:29:50.469Z

ITEM	Tag	A7/+06-QF1	: NAVAID SYSTEM FEEDER B - A7/+06-QF1			Dwg	1723002197-EL-DG-00011
	S/Sys	72-00	: NAVAID			Module	
TASK	code	C10003032		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Electrical	Form	FTR-5 Remote Signalling

FTR5 - Remote signalling
Record sheet

DATA

Switchboard:	SG-200N1	Cubicle N°:	A7/+06

FUNCTION TEST

	Order/Inputs		Status/Output					
	Start order	Stop order	Run	Fault	Stop Signalisation	Available/Ready to start	TRIP	CB OPEN/CLOSED
UCP								
ECS								
SSS								
PSS				● ●			● ●	● ●
PCS								
Control Station								
Control Panel								
HVAC Panel								
MCC							● ●	● ●

Column 1 (To check) to be filled during commissioning preparation stage - black if the check is asked
Column 2 (Checked) to be filled black if check is Ok

Comments:

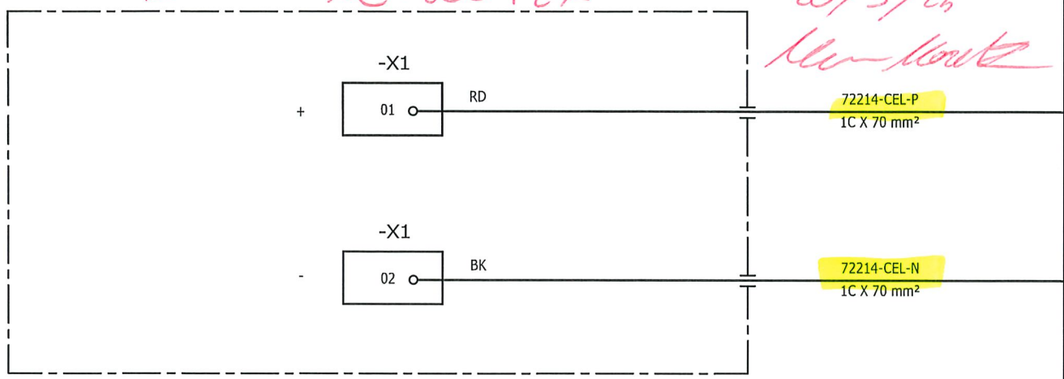
	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	
Name	Davide Zucconelli	Kristian Castellani	Martin Taylor
Date	2025-05-12	2025-05-12	2025-05-15
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2025-05-12T09:23:53.672Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-05-12T11:30:21.870Z	PROVERLIS Digitaly signed by Martin Taylor 2025-05-15T04:30:04.381Z

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

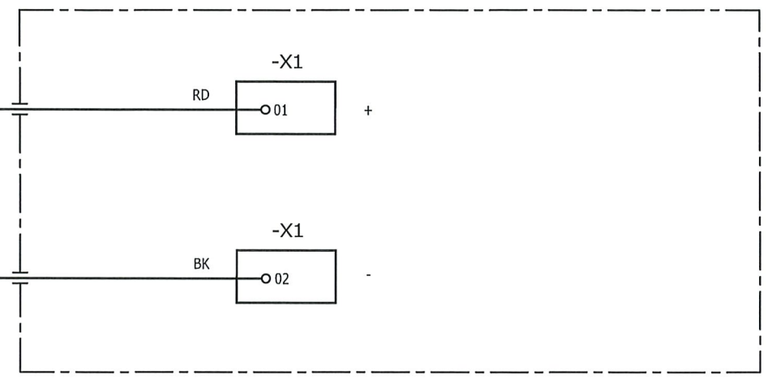
FROM	TO

DESCRIPTION: NAVAID - CHARGER
TAG NUMBER: ~~BC-200F2~~ NC-200F2A

MARCO MORETTO 20/3/25

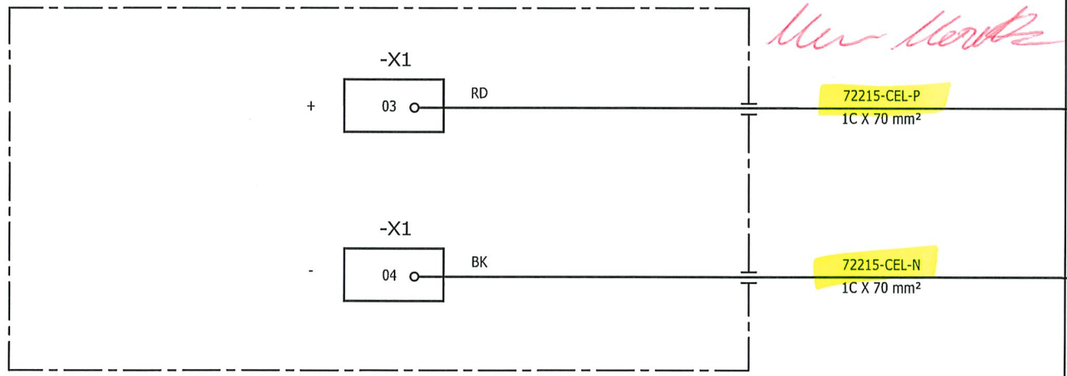


DESCRIPTION: NAVAID - BATTERY ISOLATOR
TAG NUMBER: CB-200F2

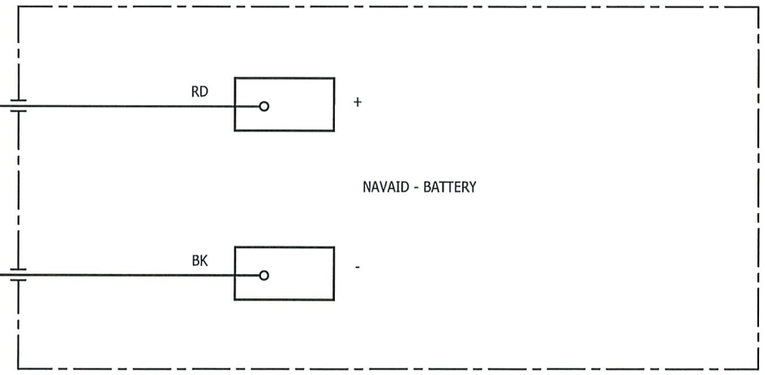


DESCRIPTION: NAVAID - BATTERY ISOLATOR
TAG NUMBER: CB-200F2

NO MARK UP 20/3/25



DESCRIPTION: NAVAID - BATTERY
TAG NUMBER: BA-200F2



AS COMMISSIONED: MATTIA GIROTTI

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
NAVAID – CHARGER & NAVAID – BATTERY ISOLATOR

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	066	01

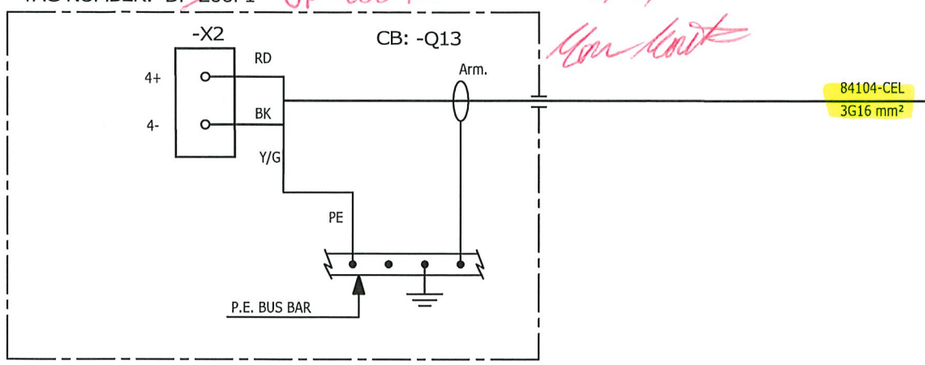
F.to UNI A3: 420mmx297mm

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

FROM	TO

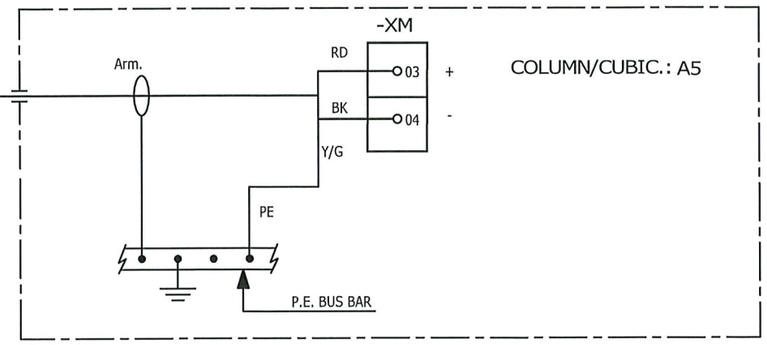
DESCRIPTION: DC UPS DB
TAG NUMBER: DP-200F1 ~~DP-200F1~~ UP-200 F1

MARCO MORETTO 18/3/25

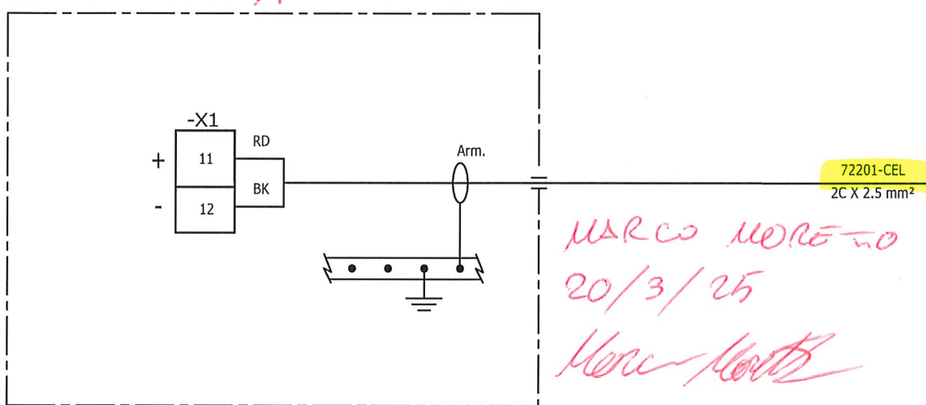


84104-CEL
3G16 mm²

DESCRIPTION: DC CONTROL FOR 6,6 KV SWITCHGEAR LINE-B
TAG NUMBER: SG-100D1

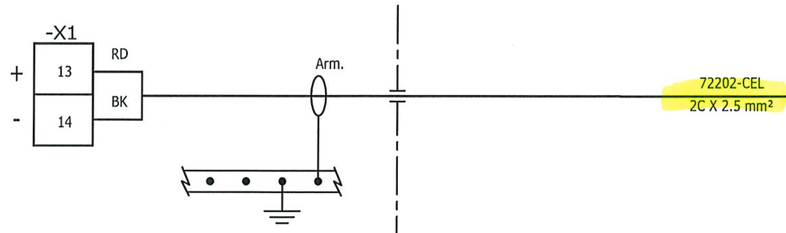


DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2 A



72201-CEL
2C X 2.5 mm²

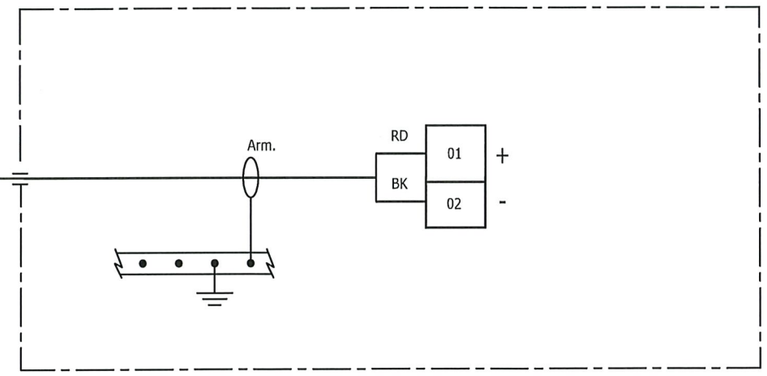
MARCO MORETTO 20/3/25



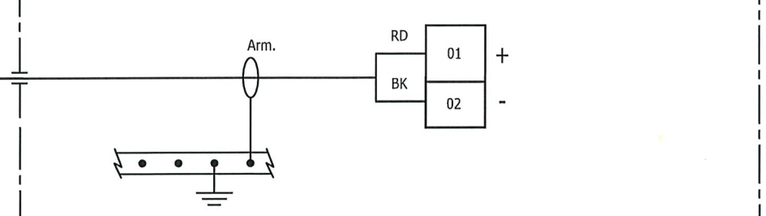
72202-CEL
2C X 2.5 mm²

AS COMMISSIONED: MATTIA GIROTTI

DESCRIPTION: NAV AIDS MAIN YELLOW LANTERNS
TAG NUMBER: EML-200-01



DESCRIPTION: NAV AIDS MAIN YELLOW LANTERNS
TAG NUMBER: EML-200-02



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 DB & DC UPS NAVAID SYSTEM

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

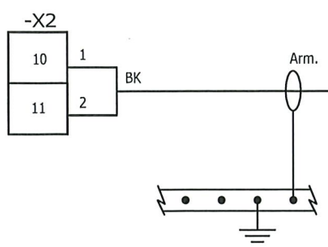
A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	034	02

F.to UNI A3: 420mmx297mm

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

FROM	TO

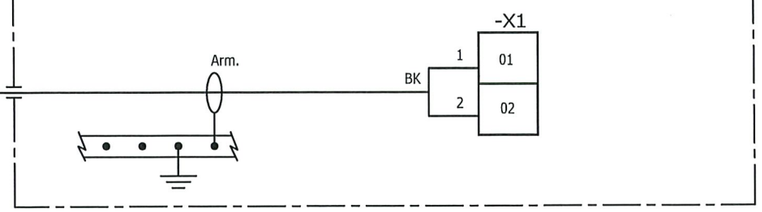
DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2 A

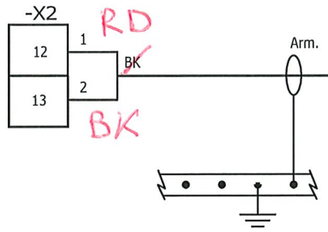


72207-CEC
2C X 2.5 mm²

MARCO MORETTO
20/3/25

DESCRIPTION: NAV AIDS PHOTOCELL
TAG NUMBER: EPH-200-01

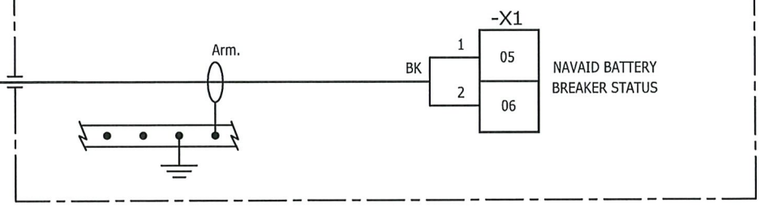


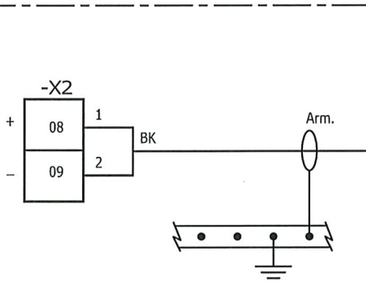


72208-CEC
2C X 2.5 mm²

MARCO MORETTO
20/3/25

DESCRIPTION: NAV AIDS BATTERY ISOLATOR
TAG NUMBER: CB-200F2

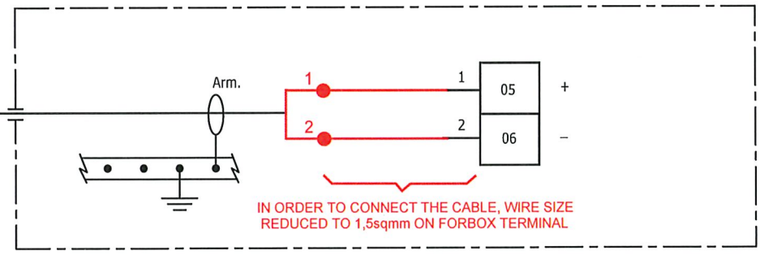




72209-CEC
2C X 2.5 mm²

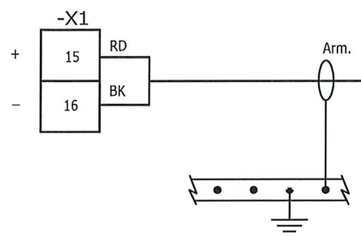
NO MARK UP
MARCO MORETTO
20/3/25

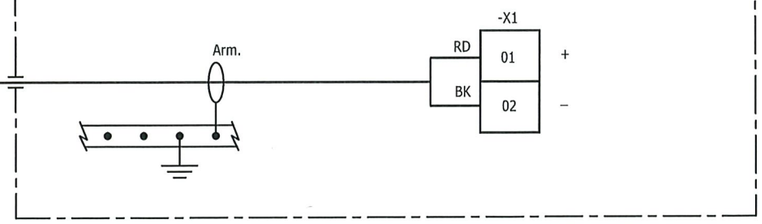
DESCRIPTION: NAV AIDS BATTERY BANK TEMPERATURE PROBE
TAG NUMBER: ETM-200-01



NO MARK UP
MARCO MORETTO
20/3/25

DESCRIPTION: WAVE OFF STATUS LIGHT
TAG NUMBER: ESL-200-01





72210-CEL
2C X 2.5 mm²

AS COMMISSIONED: MATTIA GIROTTI

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 NC-200F2

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	037	02

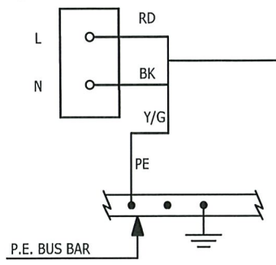
F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

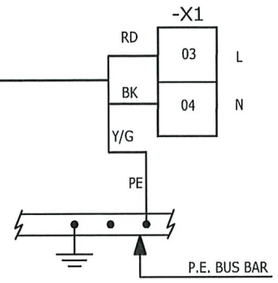
COLUMN/CUBIC.:A7/+05



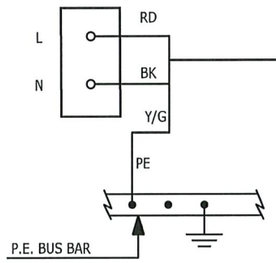
83036-CEL ~~NOTE 3~~
3G16 mm²

DESCRIPTION: DC UPS NAVAID SYSTEM - FEEDER A
TAG NUMBER: ~~UP-200F2~~ NC-200 F2 A

PANEL:.CHARGER-1



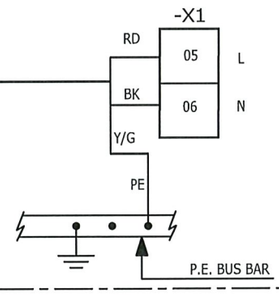
COLUMN/CUBIC.:A7/+06



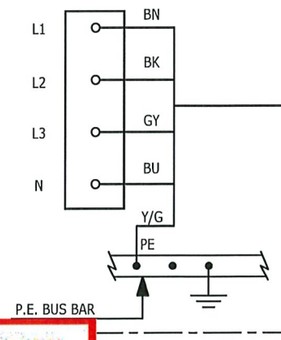
83037-CEL ~~NOTE 3~~
3G16 mm²

DESCRIPTION: DC UPS - NAVAID SYSTEM - FEEDER B
TAG NUMBER: ~~UP-200F2~~ NC-200 F2 A

PANEL:.CHARGER-2

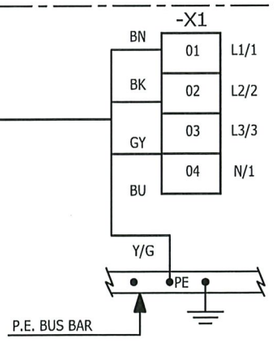


COLUMN/CUBIC.:A3/+03



83043-CEL ~~NOTE 4~~
5G50 mm²

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



CUBICLE/CB: +01/Q1

MARCO MORETTO
20/3/25

MARCO MORETTO
20/3/25

NO MARK UP
19/3/25
MARCO MORETTO

AS COMMISSIONED: MATTIA GIROTTI

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
LV SWITCHGEAR SG-200N1

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

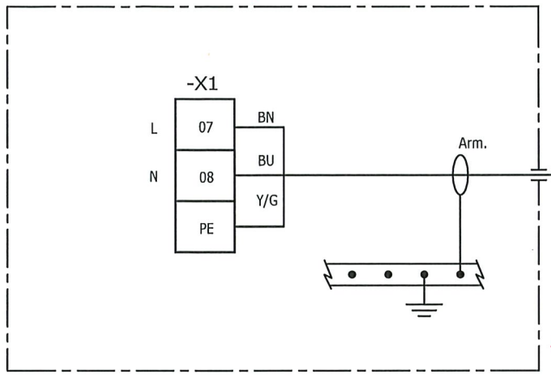
A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	030	02

F.to UNI A3: 420mmx297mm

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

FROM

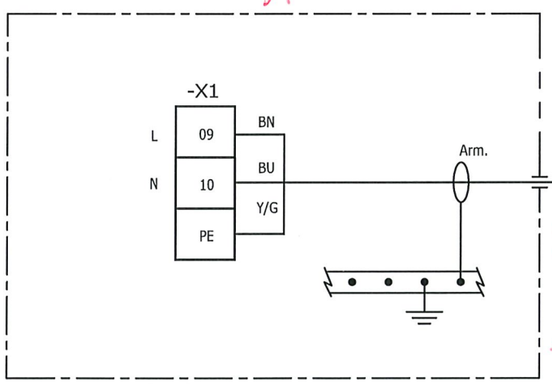
DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2 A



72203-CEL
3G2.5 mm²

MARCO MORETTO
20/3/25

DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2 A



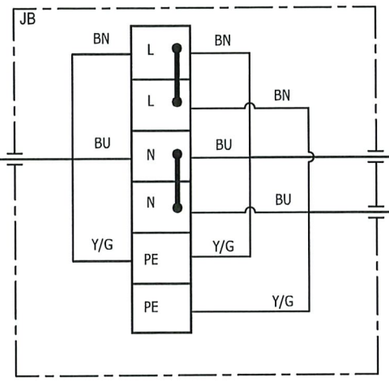
72211-CEL
3G2.5 mm²

MARCO MORETTO
20/3/25

AS COMMISSIONED: MATTIA GIROTTI

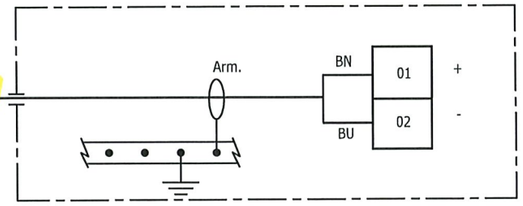
TO

DESCRIPTION: TOP OBSTRUCTION LIGHTS JUNCTION BOX
TAG NUMBER: EJB-200F2-01



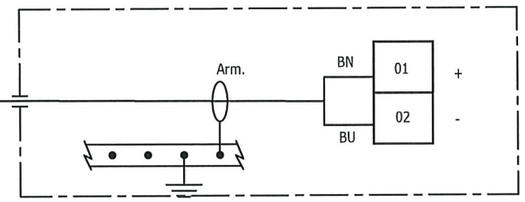
72204-CEL
3G2.5 mm²

DESCRIPTION: TOP OBSTRUCTION RED LIGHTS (MEDIUM INTENSITY)
TAG NUMBER: EOL-200-01

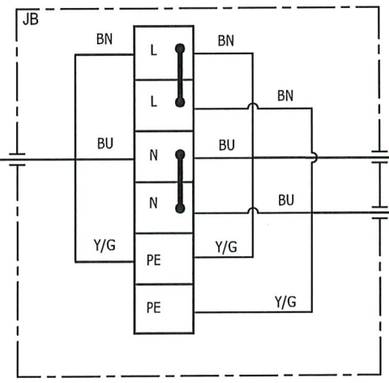


72205-CEL
3G2.5 mm²

DESCRIPTION: TOP OBSTRUCTION RED LIGHTS (MEDIUM INTENSITY)
TAG NUMBER: EOL-200-02

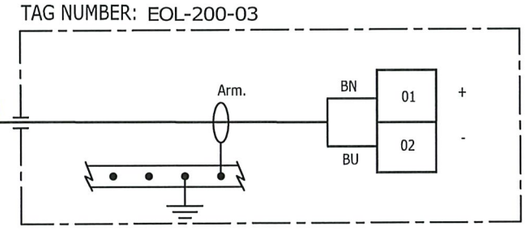


DESCRIPTION: INTERMEDIATE OBSTRUCTION LIGHTS JUNCTION BOX
TAG NUMBER: EJB-200F2-02



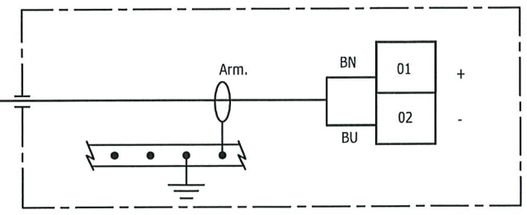
72212-CEL
3G2.5 mm²

DESCRIPTION: INTERMEDIATE OBSTRUCTION RED LIGHTS (MEDIUM INTENSITY)
TAG NUMBER: EOL-200-03



72213-CEL
3G2.5 mm²

DESCRIPTION: INTERMEDIATE OBSTRUCTION RED LIGHTS (MEDIUM INTENSITY)
TAG NUMBER: EOL-200-04



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 DB & DC UPS NAVAID SYSTEM

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 035

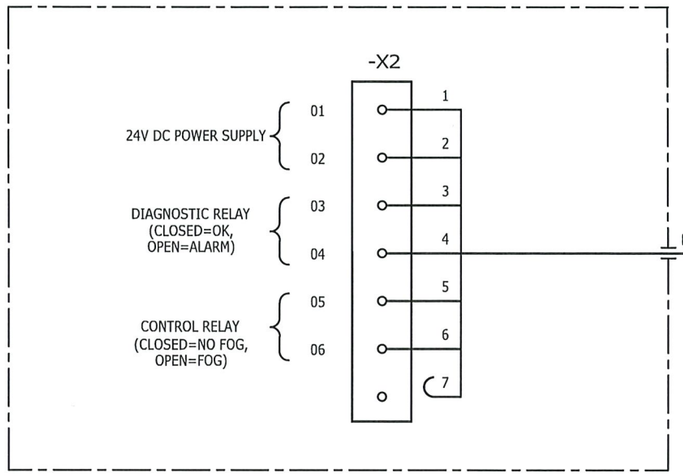
REV. 02

F.to UNI A3: 420mmx297mm

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

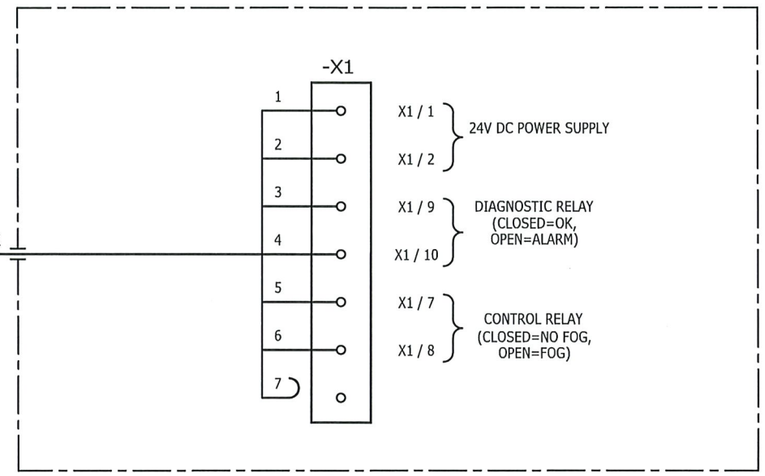
FROM	TO

DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2



BK — 72217-CEC 7C X 1.5 mm² — BK

DESCRIPTION: NAV AIDS VISIBILITY METER
TAG NUMBER: EVM-200-01



NO MARK UP
MARCO MORETTO
20/3/25

AS COMMISSIONED: MATTIA GIROTTI
20/3/25

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 NC-200F2

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	036	02

F.to UNI A3: 420mmx297mm

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

BASE LOAD POWER HUB (BLPH)

NAVIGATION AIDS SYSTEM

ELECTRICAL INTERCONNECTION DIAGRAMS

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-4

sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTION DIAGRAMS
FRONT PAGE

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

A3 | DRAWING NO. 1724000775-EL-DG-00007 | SHEET 001 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00007 REV.5.DWG

REV. No.	SHEET No.	DESCRIPTION	REF. CODE
05	001	FRONT PAGE	
05	002	SUMMARY AND GENERAL NOTES	
05	003	NAVIGATION AIDS SYSTEM – ELECTRICAL INERCONNECTION DIAGRAMS	

GENERAL NOTES

(1) = EQUIPMENT TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(2) = INTERCONNECTING CABLES TO BE PROVIDED BY OTHERS (NOT INCLUDED IN SICE SCOPE OF SUPPLY).

(3) = FOR A DETAILED LIST OF THE REMOTE SIGNALS, PLEASE REFER TO THE I/O LIST (DOC. No. 1724000775-EL-LIS-00011).

(4) = FEEDER TO BE CURVE D/K WITH RATED CURRENT 16A.

(5) = TEMPERATURE PROBE TO BE INSTALLED BY CUSTOMER IN THE BATTERY BOX.

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-4

sice

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

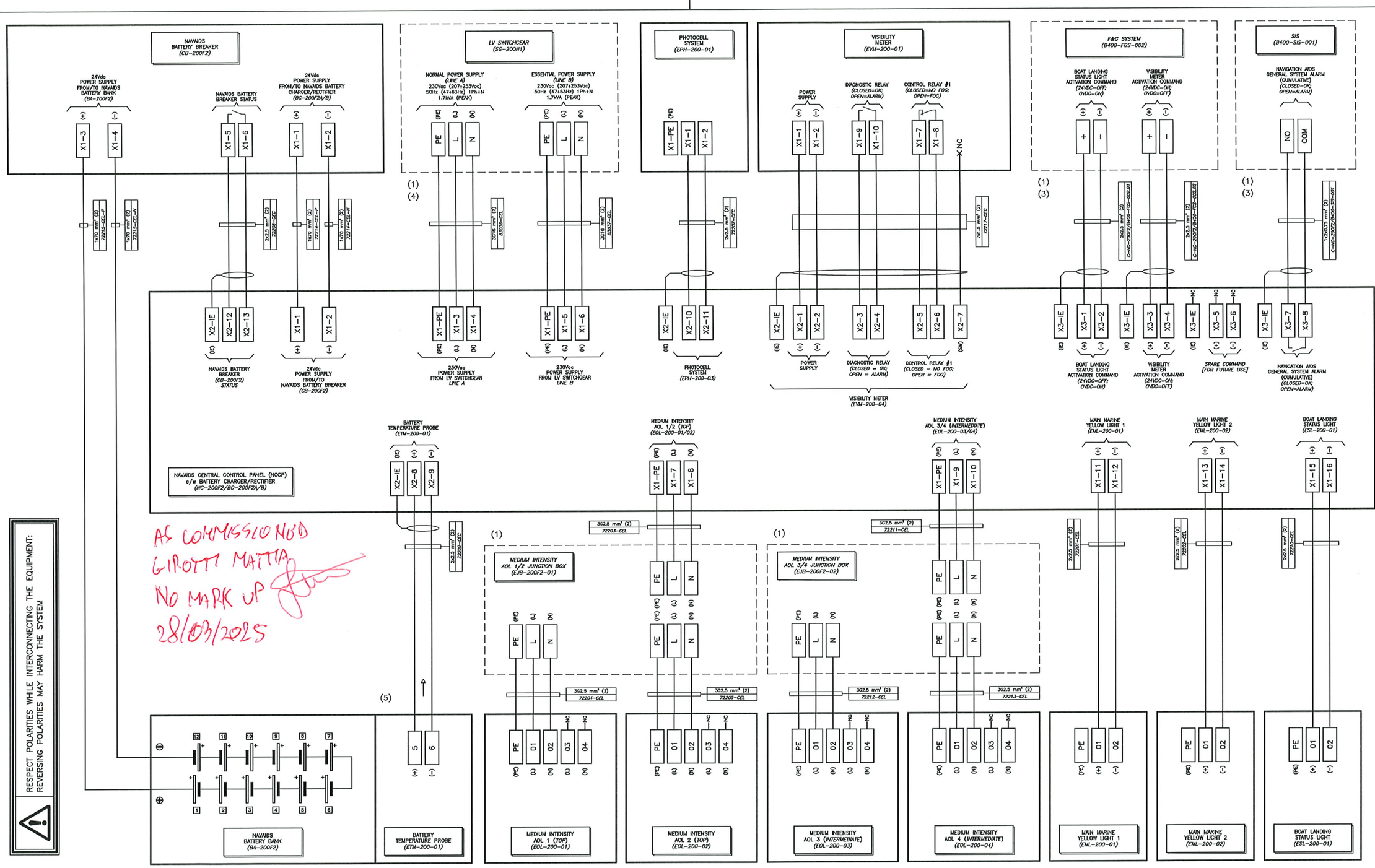
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTION DIAGRAMS
SUMMARY AND GENERAL NOTES

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

A3 | DRAWING NO. 1724000775-EL-DG-00007 | SHEET 002 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00007 REV.5.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

RESPECT POLARITIES WHILE INTERCONNECTING THE EQUIPMENT: REVERSING POLARITIES MAY HARM THE SYSTEM

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
04	16/10/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	31/05/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-4

sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
NAVIGATION AIDS SYSTEM
ELECTRICAL INTERCONNECTION DIAGRAMS

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

A3 | DRAWING NO. 1724000775-EL-DG-00007 | SHEET 003 | REV. 05

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00007 REV.5.DWG

Section 4.3 Instrumentation functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00 & discipline : I

Instrumental	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
72-XA-001	Wave-off light system fault (NAVAIDS FAULT ALARM)	ONSHORE	C10003830	FJ01D	100	2025-02-13	RFO 1
72-XS-001	Wave-off lights activation	ONSHORE	C10004877	FJ01D	100	2025-02-13	RFO 1
72-XS-002	B-300 Visibility meter power cut-off	ONSHORE	C10004878	FJ01D	100	2025-02-13	RFO 1

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	72-XA-001	: Wave-off light system fault (NAVAIDS FAULT ALARM)			Dwg	123A90-DDL-IN-LIS-40089
	S/Sys	72-00	: NAVAID			Module	
TASK	code	C10003830		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form	FJ01D Digital Loop

LOOP DATA

Loop TAG	72-XA-001				TSLD	123A90-FDL-IN-DG-40014 rev.1A			
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-SIS-001	Terminal	11A/11B		Slot	01	Rack	03	Chanel 11

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	Yes	Alarm/trip	No	OK
4	De-Energise Loop (open loop) and record status	Normal	No	Alarm/trip	Yes	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action	Alarm / Control			Display	
		Trip	GA	DCS	SOE	DCS	
6	Loop energized	No		Yes		OK	OK
7	Loop not energized	Yes		Yes		OK	OK
8	Checking of line monitoring	No		No		OK	OK
9	Checking of Maintenance Inhibition	NA	NA	NA	NA	NA	NA
10	Associated safety Level / bar						
11	Associated outputs						

LOOP DOCUMENTATION

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

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
MULTIMETER FLUKE 175	AW1/018 17140769	7715/24	10/07/2025

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-02-04	2025-02-05	2025-02-13

PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-02-04T13:18:58.136Z

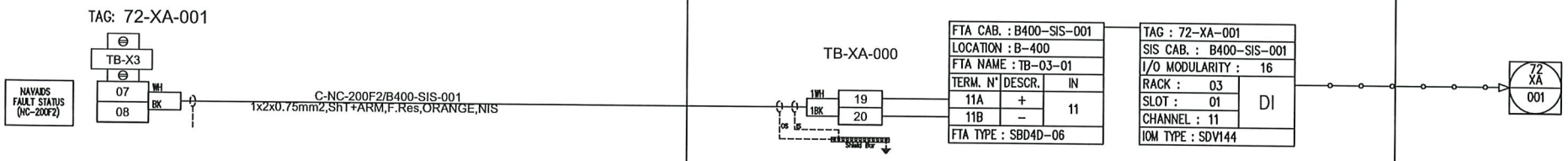
PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-05T13:49:53.324Z

PROVERLIS Digitaly signed by Jamie McAllister 2025-02-13T09:39:17.904Z

Signature			

DRAWING NR. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	SAFETY INSTRUMENTED SYSTEM	OPERATOR CONSOLE



NO MARK UP
L Gugarin
29/01/25

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
72-XA-001
WAVE-OFF LIGHT SYSTEM FAULT

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 133 | REV. 01

File Name : 123A90-DDL-IN-DG-40014_R01.pdf

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	72-XS-001	: Wave-off lights activation		Dwg	123A90-DDL-IN-LIS-40089	
	S/Sys	72-00	: NAVAID		Module		
TASK	code	C10004877	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	COMM	Activity FTS	Discipline Instrumental	Form	FJ01D	Digital Loop

LOOP DATA

Loop TAG	72-XS-001			TSLD	123A90-FDL-IN-DG-40014 rev.1A				
IO Type	Input	No	Output	Yes	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-FGS-001	Terminal	09A/09B	Slot	03	Rack	06	Chanel	09

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	Yes	Alarm/trip	No	OK
4	De-Energise Loop (open loop) and record status	Normal	No	Alarm/trip	Yes	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action	Alarm / Control		Display	
		Trip	GA	DCS	SOE	DCS	
6	Loop energized	No		Yes		OK	OK
7	Loop not energized	Yes		Yes		OK	OK
8	Checking of line monitoring	No		No		OK	OK
9	Checking of Maintenance Inhibition	NA	NA	NA	NA	NA	NA
10	Associated safety Level / bar						
11	Associated outputs						

LOOP DOCUMENTATION

12	Loop diagram is marked up and attached to this test sheet	OK
13	Cause and effect chart is highlighted accordingly	
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TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
MULTIMETER FLUKE 175	AW1/018 17140769	7715/24	10/07/2025

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-02-04	2025-02-05	2025-02-13

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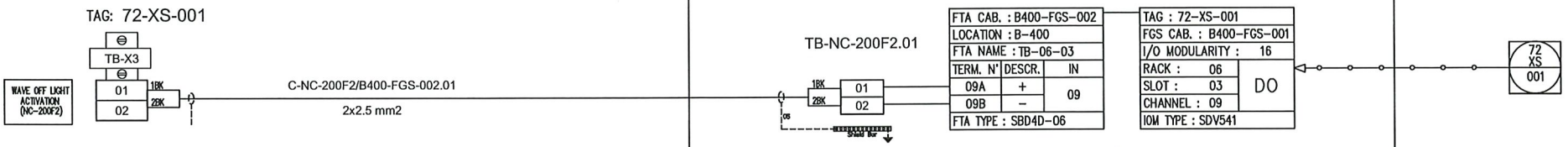
PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-05T13:50:22.684Z

PROVERLIS Digitaly signed by Jamie McAllister 2025-02-13T09:45:31.504Z

Signature			

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

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



NO MARK UP
29/09/25

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
72–XS–001
WAVE–OFF LIGHTS ACTIVATION

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 351 | REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	72-XS-002	: B-300 Visibility meter power cut-off	Dwg	123A90-DDL-IN-LIS-40089		
	S/Sys	72-00	: NAVAID	Module			
TASK	code	C10004878	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	COMM	Activity FTS	Discipline	Instrumental	Form FJ01D	Digital Loop

LOOP DATA

Loop TAG	72-XS-002			TSLD	123A90-FDL-IN-DG-40014 rev.1A		
IO Type	Input No	Output Yes		Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-FGS-001	Terminal 11A/11B		Slot 05	Rack 06	Chanel 11	

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	Yes	Alarm/trip	No	OK
4	De-Energise Loop (open loop) and record status	Normal	No	Alarm/trip	Yes	OK
5	Record Fail Safe position	Open	NA	Closed	NA	NA

LOOP SERVICE

		Action	Alarm / Control		Display	
		Trip	GA	DCS	SOE	DCS	
6	Loop energized	No		Yes		OK	OK
7	Loop not energized	Yes		Yes		OK	OK
8	Checking of line monitoring	No		No		OK	OK
9	Checking of Maintenance Inhibition	NA	NA	NA	NA	NA	NA
10	Associated safety Level / bar						
11	Associated outputs						

LOOP DOCUMENTATION

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

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
MULTIMETER FLUKE 175	AW1/018 17140769	7715/24	10/07/2025

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW OPS
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-02-04	2025-02-05	2025-02-13

PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-02-04T13:25:50.924Z

PROVERLIS Digitaly signed by Giandonato Delmissier 2025-02-05T13:50:49.245Z

PROVERLIS Digitaly signed by Jamie McAllister 2025-02-13T10:04:12.754Z

Signature			

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

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

72-XS-002

TAG: ~~72-XS-001~~

TB-X3

CUT OFF ITEM NOT ATEX (NC-200F2)

03 — 1BK

04 — 1BK

C-NC-200F2/B400-FGS-002.02

2x2.5 mm2

TB-NC-200F2.02

1BK — 01

2BK — 02

05 — Shield

FTA CAB. : B400-FGS-002		
LOCATION : B-400		
FTA NAME : TB-06-05		
TERM. N°	DESCR.	IN
11A	+	11
11B	–	
FTA TYPE : SBD4D-06		

TAG : 72-XS-002		
FGS CAB. : B400-FGS-001		
I/O MODULARITY : 16		
RACK : 06	SLOT : 05	DO
CHANNEL : 11		
IOM TYPE : SDV541		

72 XS 002

LGuyaux

29/01/25

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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
72-XS-002
B-300 VISIBILITY METER POWER CUT-OFF

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 352 | REV. 01

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

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

Section 5.2 Operational Test Certificates

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 72-00

Miscellaneous	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
123A90-PML-COM-PRO-03053	OTP - Navaids System	ONSHORE	C10004618	5300	100	2025-04-19	RFO 1
		OFFSHORE	C10004942	5300	0	-	-

ITEM	Tag	123A90-PML-COM-PRO-03053 : OTP - Navaids System				Dwg	123A90-PML-COM-PRO-03053
	S/Sys	72-00 : NAVAID				Module	
TASK	code	C10004618		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity OTS	Discipline	Miscellaneous Form 5300		Operational Test Procedure

OTP - OPERATIONAL TEST PROCEDURE

Attached procedure number: 123A90-PML-COM-PRO-03053

Associated subsystems: 72-00

Completion date: 15/04/2025

Comments/Remarks:

	Performed by	☉ WITNESS ☐ REVIEW	☉ WITNESS ☐ REVIEW
	COMMISSIONING DISCIPLINE LEAD	RM COMMISSIONING MANAGER	CPY COMMISSIONING MANAGER
Name	Kristian Castellani	Anthony Iveson	Jamie McAllister
Date	2025-04-17	2025-04-17	2025-04-19
Signature	PROVERLIS Digitaly signed by Kristian Castellani 2025-04-17T13:26:02.106Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-17T13:48:12.109Z	PROVERLIS Digitaly signed by Jamie McAllister 2025-04-19T06:29:44.177Z

Base Load Power Hub (BLPH)

OTP: NAVAIDS SYSTEM

Document Number: 123A90-PML-COM-PRO-03053

Document Class: 2

01	10/02/2025	Accepted for Construction (AFC)	K. CASTELLANI	A. IVESON	M.BRUNELLI
00	08/10/2024	Issue for Review (IFR)	K. CASTELLANI	A. IVESON	M.BRUNELLI
Rev.	Date	Description	Prepared	Reviewed	Approved

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
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4	

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1 INTRODUCTION

1.1 Project Overview

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.2 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.



Figure 1 - HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile is located on coordinates E 590719.1, N 5841602.3 and is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.3 Project Concept

All components included in the BLPH will be integrated onshore on a topside and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

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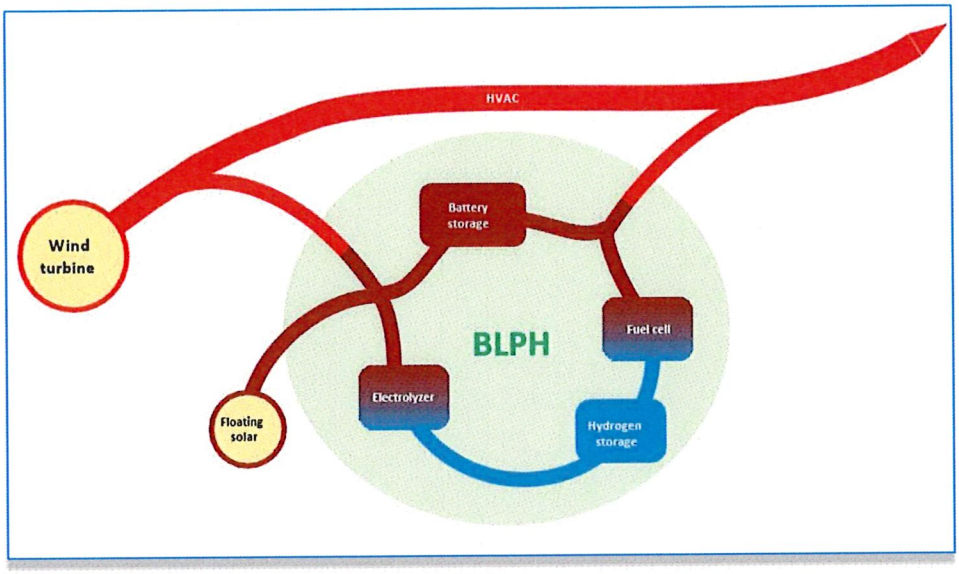


Figure 3 - BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.
The purpose of the BLPH is to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT SCOPE

The purpose of this document is to describe the methodology and the planned actions to be implemented for the preparation and execution of Mechanical Completion, Pre-commissioning, Commissioning & Start-Up activities to be performed on the PLANT, including COMPANY PROVIDED ITEMS, at the onshore premises of CONTRACTOR located in Milan (Italy) offices and Piomboni yard - Marina di Ravenna (Italy).

CONTRACTOR, pursuant to CONTRACT and PROJECT requirements, shall implement an exacting methodology, complete with a distinct set of tools and documentation to meet the following key objectives:
Perform the Mechanical Completion, Pre-commissioning and Commissioning on the WORKSITE to the maximum extent possible so as to minimise the commissioning operations on SITE;

- Ensure safety for the people, environment and facilities during the execution of the Commissioning activities at WORKSITE,
- Ensure integrity and operation of the equipment for their lifetime in accordance with PROJECT design and specifications,
- Plan a smooth and flawless execution of the Commissioning activities avoiding unforeseen downtimes and delays.

Achievement of the above objectives shall be obtained by:

- Defining and prioritizing a predetermined sequence of the Mechanical Completion checks, Pre-commissioning and Commissioning tests and tasks,
- Checking, testing systematically and exhaustively all the components of PLANT in compliance with PROJECT approved procedures and CONTRACT terms, managed by a dedicated team of inspectors, technicians and field engineers who will perform the Mechanical Completion, Pre-commissioning, Commissioning and Start-Up tasks and subsequently record the results via discipline specific check, inspection and test sheets (ITR's) & where applicable via discrete Operational Test Procedures (OTP's).
- Ensuring full traceability of the performed checks and tests, through implementation of a dedicated Project Completions Management System (CMS) containing individual references to all tagged items.

3 OTP SUMMARY

3.1 Test Objective

The operating test of NAVAID system is executed to ensure that the system is started up in a safe and controlled manner and to verify the correct operation according to the project requirements.

Activities shall be developed as follows:

- Onshore pre-commissioning and commissioning activities at Contractor site (WORKSITE)
    - PHASE 1: NAVAID with battery bank first charging, discharging and autonomy tests, full system functional tests, hardwired I/O function tests.
- Offshore commissioning (SITE)
    - Visual inspection of all components, NAVAID start up.

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The overall system design is composed of the two following specific sub-systems.

1) NAVIGATION AIDS — system components consisting of flashing lanterns used for visually signalling the fixed offshore platform as an obstacle to local sea-born traffic according to IALA regulations

2) OBSTRUCTION LIGHTS — system components consisting of low and medium intensity lanterns used for signalling the fixed offshore platform as an obstacle to local air-born traffic according to ICAO regulations

Furthermore, all navigation and obstruction lighting system components can be controlled both manually and automatically (local and remote) – in local mode, system installed photocells are utilised to automatically manage lighting circuits, in remote mode all circuits will be managed by the ESD system.

In the event of a double AC supply black-out to the navigation aids power supply system, a dedicated set of batteries will ensure full continuous system operation with an autonomy of at least 96h.
Battery chargers are installed in the system control panel to restore battery autonomy upon return of either AC supply.

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3.2 System Boundary Limits

See below the affected systems and subsystems on the Overall Single Line Diagram

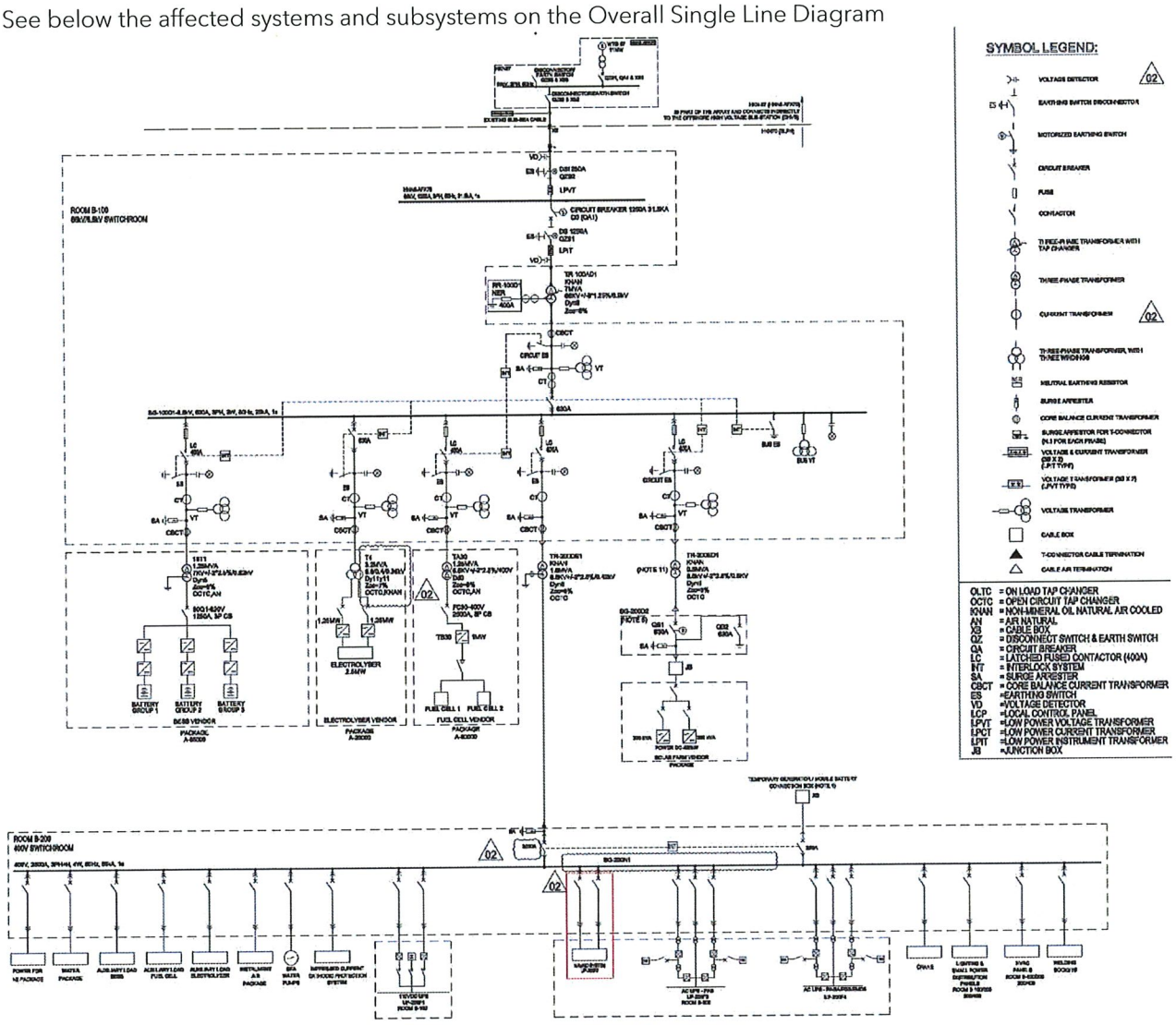


Figure 4 – OTP System Boundary Limits

3.3 Test and System Description

This document is related to the following systems/ subsystems:

- 83-00: 400/230V Switchboard SG-200N1
- 72-00: NAVAIDS BATTERY RACK BANK (BA-200F2)
- 72-00: NAVAIDS BATTERY CUT OFF BREAKER (CB-200F2)
- 79-00: EMERGENCY SHUTDOWN SYSTEMS (SIS)
- 87-10: FIRE&GAS SYSTEM (F&G)

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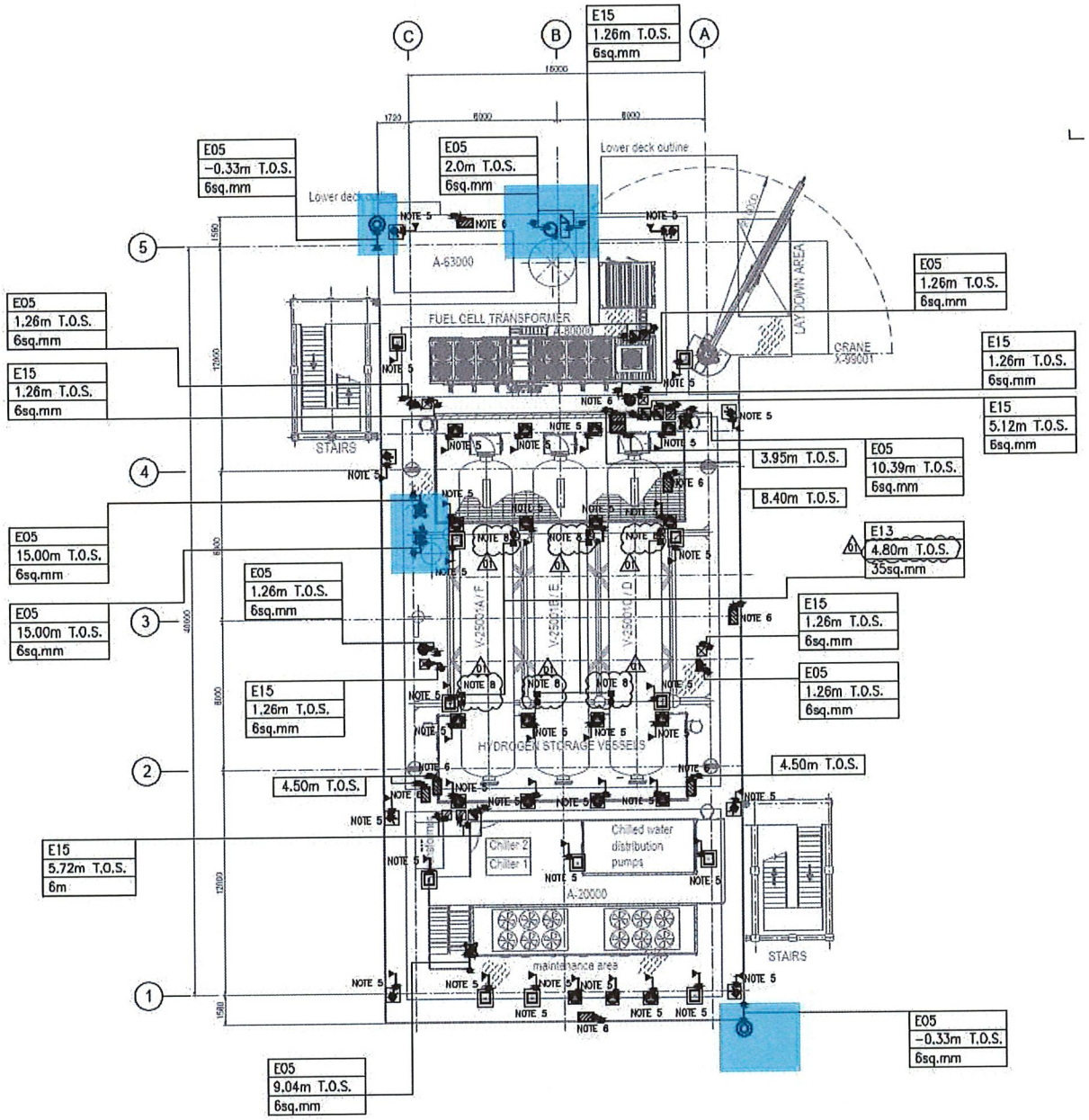


Figure 5 - Layout Installation Navaids Devices

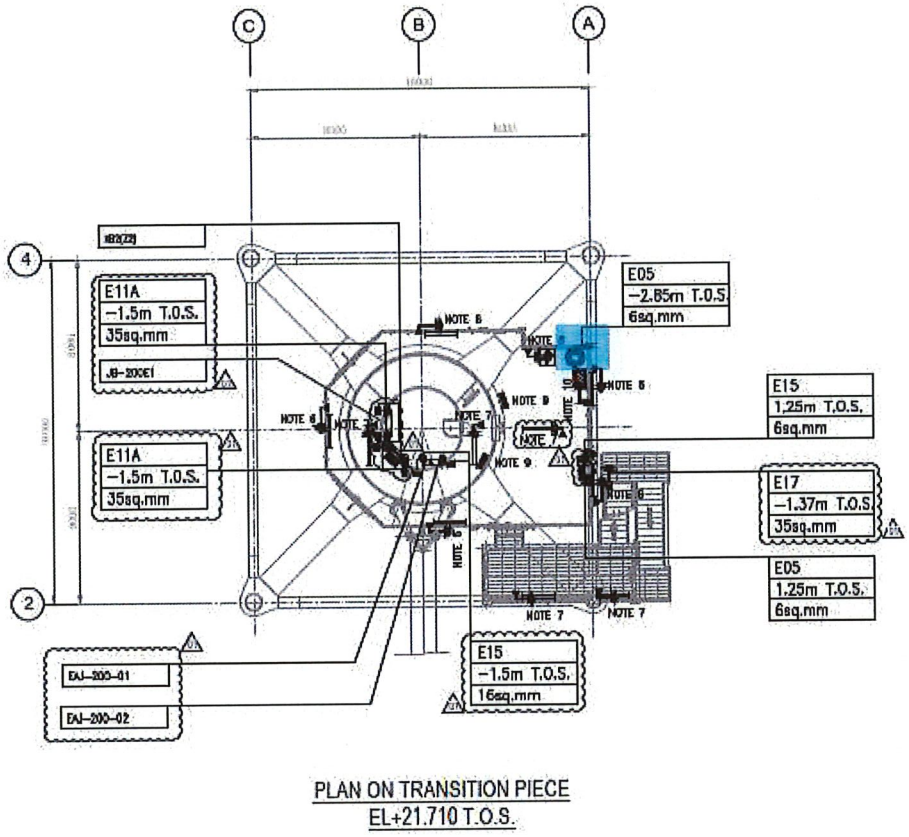
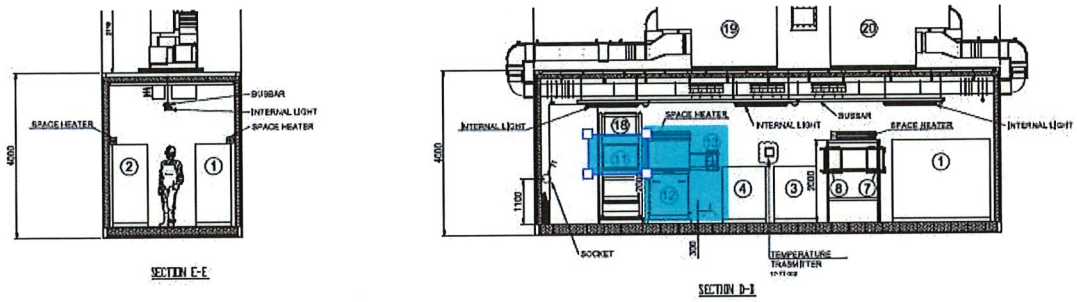


Figure 6 – Layout Installation Navaids Device



EQUIPMENT LIST						
REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	WEIGHT (Kg)
1	UP-200F3	AC UPS 35kVA	2400	860	1915	2258
2	UP-200F4	AC UPS 15kVA	2400	860	1915	2258
3	BA-200F3A	BATTERY RACK GEL VRLA 7y AC UPS 35kVA	1060	725	1272	914
4	BA-200F3B	BATTERY RACK GEL VRLA 7y AC UPS 35kVA	1060	725	1272	914
5	BA-200F4A	BATTERY RACK GEL VRLA 7y AC UPS 15kVA	1890	725	1761	3429
6	BA-200F4B	BATTERY RACK GEL VRLA 7y AC UPS 15kVA	1890	725	1761	3429
7	CB-200F3A	ISOLATOR BOX AC UPS 35kVA	600	300	800	100
8	CB-200F3B	ISOLATOR BOX AC UPS 35kVA	600	300	800	100
9	CB-200F4A	ISOLATOR BOX AC UPS 15kVA	600	300	800	100
10	CB-200F4B	ISOLATOR BOX AC UPS 15kVA	600	300	800	100
11	NC-200F2	NAVAID PANEL	1000	800	2600	535
12	BA-200F2	BATTERY BOX NAVAID	958	993	1210	1552
13	CB-200F2	ISOLATOR BOX NAVAID	500	400	765	70
14	B300-HSB-001	DISTRIBUTION & HVAC PANEL - AC/UPS ROOM	1600	600	2300	500
15	-	EYE WASH STATION	228	80	290	5
16	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	20
17	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	20
18	BC-200F2	BATTERY CHARGER NAVAID	607	607	2157	500
19	HHU-77005	AIR HANDLING UNIT A	2100	1000	2158	650
20	HHU-77006	AIR HANDLING UNIT B	2100	1000	2158	650
21	HSS-77-007	SPACE HEATER 1	184	145	1100	5
22	HSS-77-008	SPACE HEATER 2	184	145	1100	5
23	HSS-77-009	SPACE HEATER 3	184	145	1100	5

Figure 7 - Layout B-300 UPS TECHNICAL ROOM. Installation Navaids Control, Cut off and battery box

The items of equipment are principally installed on the UPPER DECK.

These parts of the system shall be tested at worksite and at site.

The UPS are metal enclosed prefabricated self-supporting type, for floor installation in compliance to the requirements of IEC 61439 1&2.

The NAVAIDS main data are the following:

GENERAL CHARACTERISTICS CLIMATIC CONDITION:

- Installation: Marine Offshore-Outdoor
- Design Ambient Temperature: -8,4+40°C
- Rel. Humidity average 95%

ENCLOSURES:

- Type: Floor Standing
- Finish Colour: RAL 7035

CONNECTIONS:
- Cable Compartment Access: Front (Incoming & Outgoing)
- Cable Entry From: Top
- Cabinet Access: Front

POWER SUPPLY:
- Rated Service Voltage: 230V
- Rated Frequency: 50 Hz
- Cabinet Rated Current: 7 A

BUSBARS:
- Busbars: 2P+PE
- Maximum Operating Temperature: 70°C
- Protection: Eexd

BATTERY:
- Configuration 1x100%
- Autonomy: 96 h
- Temp. Design: -8,4 - 40 °C
- Humidity: 95%
- Number of batteries = 12
- Rated battery Voltage = 2,00 V
- Nominal Battery System Voltage = 24 V
- Lead ACID VLRA GEL
- Capacity 1680 Ah
- Recharge: 10h
- Minimum Cell Voltage: 1,80 V
- Maximum Cell Voltage: 2,25 V
- Minimum Bank Voltage: 21,60 V
- Maximum Bank Voltage: 27,00 V

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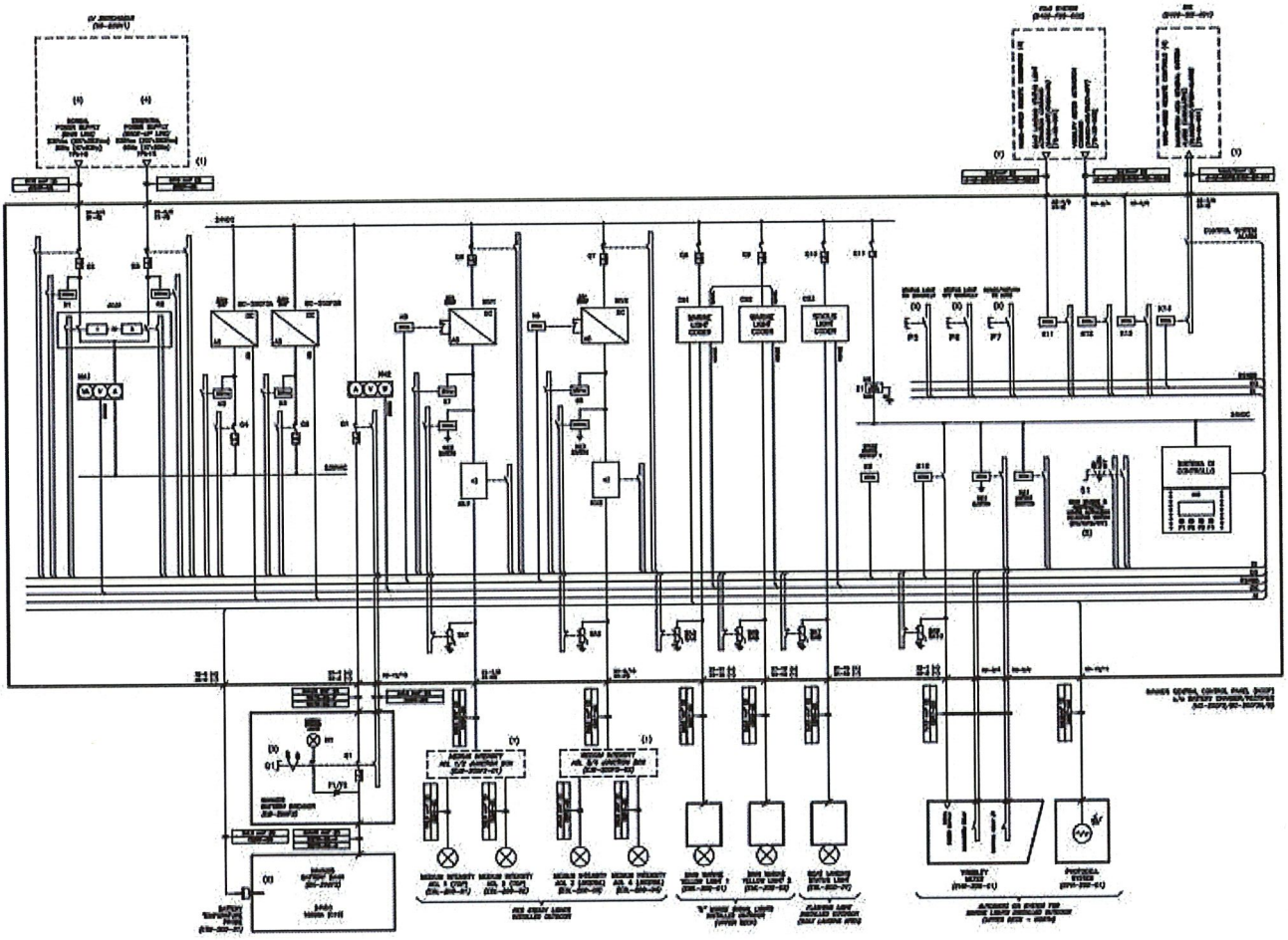


Figure 8 – NAVAIDS Single Line Diagram (ref. doc n° 172400075-EL-DG-00005)

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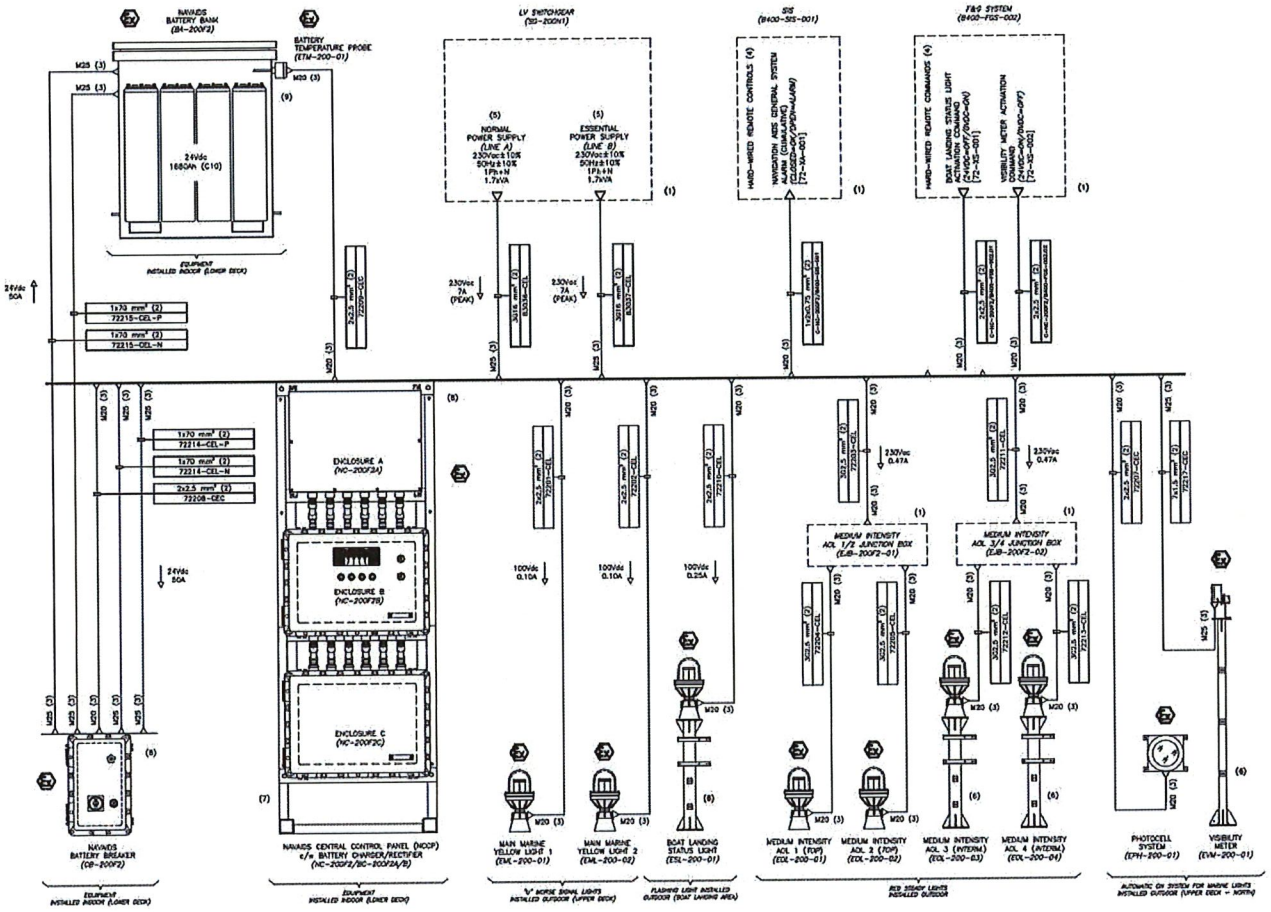


Figure 9 – NAVAIDS Diagram Block (ref. doc. n° 1724000775-EL-DG-00006

The basic Single Line Diagram of the NAVAIDS and relevant connections is shown in the document 123A90-DDL-EL-DG-20158 "Overall/Key Single Line Electrical Diagram".

3.4 Safety Devices

- Appropriate Personnel Protective Equipment (PPE) and safety equipment e.g., safety shoes, hand gloves, helmet, earplugs etc. are available and must be used in line with the site requirements.
- Warning safety signs are to be posted with restricted access to essential personnel only.
- Adequate firefighting equipment.

3.5 HSE Management

All necessary safety precautions must be taken to avoid any risk for personnel injury.

- All personnel involved in this operational test shall be competent for the tasks they will be required to undertake
- Place safety / warning signs and segregate the entire area with barrier tapes (safety barriers) of a colour distinguished (blue and white) from those used for construction activities
- Restrict access into area only to authorized personnel
- Conduct "Toolbox Talk" with all personnel prior to starting test work

- Appropriate Personnel Protective Equipment (PPE) and safety equipment e.g. safety shoes, hand gloves, helmet, earplugs etc. are available and must be used in line with the site requirements
- All activities carried out on the project shall be performed in accordance with the "Permit to Work" system Doc. PRO-HSE-23
- Electrical and mechanical isolations are to be assured as per Doc. PRO-HSE-08 and "Commissioning and start-up operation" procedure.
- Observe and enforce all international codes and regulations to safeguard personnel, plant and environment.
- Ensure that the working area is clean, tidy, well illuminated and that access and escape routes are free from obstructions.

Before starting work on any of the activities in this OTP it is the responsibility of the persons performing the work to:

- Familiarize themselves with the plant/equipment to be worked on
- Ensure they are aware of all other work activities that are taking place, or due to take place
- If necessary, re-plan any situation/activity
- Ensure proper communications between parties involved in the execution of the OTP
- Read the relevant Vendor documentation for the equipment covered by this OTP and observe any special requirements and limitations recommended or imposed by Vendor
- Verify that all personnel involved in the implementation of this procedure are familiar with its content as well as the associated safety requirements (Toolbox Talk)

3.6 Acceptance Criteria

Before Power ON:
Visual inspection and verification are a crucial step to identify any obvious issues with the installation, such as loose connections, missing components, or damage to the equipment.

Crosschecking the installation with engineering documentation ensures that the installation is done correctly and according to the manufacturer's guidelines. These steps can help identify any missing or incorrect components, and wrong connections.

Applicable panels:

- SS72-00 NC200F2
- SS72-00 BC-200F2A/B
- SS72-00 NCCP

The electrical ITEMS of the NAVAIDS system are summarised as follows:

Tag	Description	Sub-System	Quantity	Installation zone
NC-200F2A	Navaids Control Panel	1) Navigation Aids 2) Obstruction lights 3) Boat Landing Status Light	1	Electrical and Instrument Switchboards Room
BC-200F2A	Battery Charger	1) Battery Bank	1	Electrical and Instrument Switchboards Room
BC-200F2B	Rectifier	1) Navigation Aids	1	
CB-200F2	Battery Cut-Off Circuit Panel	1) Navigation Aids 2) Obstruction lights	1	HVAC UPS B-300 room
BA-200F2	Navaids Battery Bank	1) Navigation Aids 2) Obstruction lights	1	HVAC UPS B-300 room
EPH-200-01	General Photocell	1) Navigation Aids 2) Obstruction lights	1	ON TOP-DECK
EVM-200-01	Visibility Meter	1) Navigation Aids	1	ON TOP DECK
EML-200-01	Marine Yellow light 1	1) Navigation Aids	1	ON TOP DECK
EML-200-02	Marine Yellow Light 2	1) Navigation Aids	1	ON TOP DECK
ESL-200-01	BOAT LANDING Status Light	1) Boat Landing	1	ON TOP DECK
EOL-200-01	MIOL Obstruction Light 1	2) Obstruction lights	1	ON TOP DECK
EOL-200-02	MIOL Obstruction Light 2	2) Obstruction lights	1	Vent
EOL-200-03	MIOL Obstruction Light 3	2) Obstruction lights	1	Vent
EOL-200-04	MIOL Obstruction Light 4	2) Obstruction lights	1	Vent

Refer to Overall SLD with Marked-up Sub-systems.

After Power ON:
Powering ON the unit is an essential step to verify that the equipment is functioning correctly. Observing if everything is OK and any alarm will help detect possible errors or malfunctions.

Phase 1 will prove:
- Voltage, frequency and phase sequence to the terminals of Incoming power supplies A&B (Navaids) are according to specification
- NAVAIDS startup
- Charging/Discharging of battery bank
- System functional test
- System and battery bank autonomy test
- Validation of hardwired I/O

The scope of this procedure is to give the guidelines for the activities to be carried out on the NAVAIDS systems during the onshore and offshore commissioning phases to ensure that the system components are started up in a safe and controlled manner while verifying their correct operation according to the project requirements.

The document defines the commissioning activities to be completed at the construction site and offshore. This will require the document to be amended and updated to reflect the system status at both construction sites and the offshore location due to a possible shift in work scope.

Additionally, this document shall contain or reference all relevant vendor information including FAT results where applicable.

The NAVAID CONTROL PANELs are located inside the "Emergency Electrical & Instrumentation Switchboards Room, the NAVAID BATTERY BANK and CUT-OFF SWITCH are located inside the dedicated "Batteries Room".

See project layouts to locate all other system components.

Functional tests of the NAVAIDs sub-system 72-00 shall be performed onshore, summarised as follows according to availability of main power supplies and according to platform operational normal / emergency scenarios.

- SCENARIO 01 NORMAL system operation with line A SG-200N1 power supply available and line B SG-200N1 power supply available
- SCENARIO 02 NORMAL system operation with SG-200N1 power supply available Line A and Line B SG-200N1 power supply unavailable
- SCENARIO 03 NORMAL system operation with line A SG-200N1 power supply unavailable and Line B SG-200N1 power supply available
- SCENARIO 04 NORMAL system operation with Line A SG-200N1 power supply unavailable and Line B SG-200N1 power supply unavailable

4 DOCUMENTS REFERENCES AND ABBREVIATIONS

4.1 Reference Documents

4.1.1 Company Documents and Standards

Document ID	Document Title
[1] K559-2254-CG-PHI-001	Commissioning Philosophy
[2] K559-2254-EL-ELL-002	BLPH Electrical Load List (CCS MODE 2(A) 'HOT STANDBY')
[3] K559-2254-EL-ELL-003	BLPH Electrical Load List (CCS MODE 3(C) 'DISCHARGING')
[4] K559-2254-EL-ELL-004	BLPH Electrical Load List (CCS MODE 4(A) 'COLD STANDBY')
[5] K559-2254-EL-ELL-005	BLPH Electrical Load List (CCS MODE 4A(D) 'EMERGENCY MODE (Island))
[6] K559-2254-EL-ELL-006	BLPH Electrical Load List (CCS MODE 5(D) 'POWER OUT (Blackout))
[7] K559-2254-PR-PHI-001	Main process control philosophy

Table 1: Company Key Reference Documentation

These documents were produced in FEED and made available to RM for info. They have subsequently been superseded by Detailed Design, similar or same deliverables.

4.1.2 Project Documents

Document ID	Document Title
[1] 123A90-PML-PM-LIS-01001	Master Document Register
[2] 123A90-PML-PM-PL-00001	Project Execution Plan
[3] 123A90-PML-QHSE-PL-00001	Project HSE Plan
[4] 123A90-PRO-HSE-23	RM Yard Permit To Work Procedure
[5] 123A90-PML-COM-PL-03002	Mechanical Completion & Commissioning Execution Plan
[6] 123A90-PML-COM-PRO-03007	Commissioning Strategy
[7] 123A90-PML-COM-LIS-03011	System/Sub-Systems List
[8] 123A90-PML-COM-LIS-03012	System/Sub-System Boundary Limit Diagrams
[9] 123A90-PML-COM-PRO-03038	Leak Test Procedure
[10]123A90-PML-COM-SP-03032	Pre-Commissioning Functional Test Sheet Template Collection (ITR-B)
[11]123A90-PML-COM-SP-03014	Commissioning TDS - Temporary Equipment & Facilities
[12]123A90-PML-COM-PRO-03019	OTP – Onshore Performance & Integrated Test Procedure
[13]123A90-PML-COM-LIS-03034	Inhibit-Override Register
[14]123A90-PML-COM-LIS-03035	PSV Calibration Register
[15]123A90-PML-COM-PRO-03036	OTP - Black Start Procedure
[16]123A90-PML-COM-LIS-03024	Commissioning Spare Parts and Consumables List
[17]123A90-PML-COM-PRO-03022	Initial offshore START-UP procedures
[18]123A90-PML-COM-SP-03057	Worksite WEF (Work Execution Flow Scheme)
[19]123A90-PML-COM-SP-03058	Site WEF (Work Execution Flow Scheme)
[20]123A90-PML-COM-RE-03001	Commissioning Final Dossier (ITR-B)
[21]123A90-PML-QHSE-PRO-00116	Flushing and Cleaning Procedures
[22]123A90-PML-QHSE-SP-00118	Mechanical Completion Check Sheet Template Collection (ITR-A)
[23]123A90-PML-QHSE-RE-00115	Mechanical Completion Final Dossier (ITR-A)
[24]123A90-PML-QHSE-PRO-00117	Punch list Management Procedure
[25]123A90- 123A90-PML-COM-PRO-03041	OTP - Hydrogen Storage & Venting Systems

Document ID	Document Title
[26]123A90- 123A90-PML-COM-PRO-03042	OTP - Sea Water Intake & Fresh Water Treatment Syst.
[27]123A90- 123A90-PML-COM-PRO-03043	OTP - Instrument Air System
[28]123A90- 123A90-PML-COM-PRO-03055	OTP - Nitrogen Generation System
[29]123A90- 123A90-PML-COM-PRO-03044	OTP - HVAC Systems
[30]123A90- 123A90-PML-COM-PRO-03045	OTP - HV Switchgear & 66 kV Transformer Systems
[31]123A90- 123A90-PML-COM-PRO-03046	OTP - MV Switchgear & 6.6 kV Transformer Systems
[32]123A90- 123A90-PML-COM-PRO-03047	OTP - LV Switch Boards & LV Distribution Board Syst.
[33]123A90- 123A90-PML-COM-PRO-03048	OTP - Lighting & Small Power Systems
[34]123A90- 123A90-PML-COM-PRO-03049	OTP - Electrical Heat Tracing Systems
[35]123A90- 123A90-PML-COM-PRO-03050	OTP - DC UPS System 10kVA UP-200F1
[36]123A90- 123A90-PML-COM-PRO-03051	OTP - Data Network Systems
[37]123A90- 123A90-PML-COM-PRO-03052	OTP - Telecom & Surveillance Systems
[38]123A90- 123A90-PML-COM-PRO-03053	OTP - Navaid System
[39]123A90- 123A90-PML-COM-PRO-03054	OTP - F&G and ESD C&E Logics
[40]123A90-PML-QHSE-PRO-00120	Proverlis Management Procedure
[41]123A90-PML-COM-PRO-03056	OTP – Document Template
[42]123A90-PML-COM-PRO-03059	OTP - AC UPS System 35kVA UP-200F3
[43]123A90-PML-COM-PRO-03060	OTP - AC UPS System 15kVA UP-200F4

Table 2: Reference Project Deliverables

4.1.3 Vendor Documents

Document ID	Document Title
1724000775-COM-LIS-00020	SPARE PART INDEX REGISTER (COMMISSIONING,2-YEAR'S OPERATION INSURANCE)
1724000775-QC-ITP-00002	INSPECTION AND TEST PLAN
[1] 172400075-EL-DA-00003	GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS
[3] 172400075-EL-DG-00005	NAVAIDS SINGLE LINE DIAGRAM AND INTERCONNECTING DIAGRAM
[4] 172400075-EL-DG-00006	NAVAIDS -WIRING DIAGRAM
[5] 172400075-EL-DG-00011	NAVAIDS- INTERCONNECTING DIAGRAM
[6] 172400075-EL-CAL-00010	BATTERY SIZING CALCULATION
[8] 172400075-EL-LIS-00011	I/O LIST
[9] 172400075-MAT-PRO-00012	PAINTING PROCEDURE
[10] 172400075-EL-PRO-00013	NAVAIDS-FACTORY ACCEPTANCE TEST PROCEDURE
[11] 172400075-EL-PRO-00014	NAVAIDS-SITE ACCEPTANCE TEST PROCEDURE/PRE - COMMISSIONING/COMMISSIONING PROCEDURE
[24] 172400075-QC-PRO-00021	PACKING, SHIPPING, HANDLING AND STORAGE PROCEDURES

Table 3: Vendor Reference Documentation

4.2 Acronyms and Abbreviations

Acronyms / Abbreviations	Description
AIS	Automatic Identification System
AHU	Air Handling Unit
AOC	Achievement of Commissioning
C&E	Cause & Effects
CCS	Central Control System
CCTV	Closed Circuit Television
CMS	Completions Management System
CPI	Company Provided Item
CRS	Comments Response Sheet
CSU	Commissioning & Start-Up
E&I	Electrical & Instrumentation
EMCS	Electrical Monitoring & Control System
ESD	Emergency Shut Down
FAT	Factory Acceptance Test
FT	Functional Test
F&G	Fire & Gas
GALT	Gross Air Leak Test
HAZID	Hazard Identification Studies

Acronyms / Abbreviations	Description
HAZOP	Hazard and Operability Studies
HKN	Hollandse Kust Noord
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
HSE	Health, Safety, & Environment
ICSS	Integrated Control and Safety System
ITR	Inspection & Test Record
LC	Locked Closed
LO	Locked Open
LoSH	Limits of System Handover
LOTO	Lock-Out / Tag-Out
LV	Low Voltage
MC	Mechanical Completion
MDR	Master Document Register
MOC	Management of Change
NUI	Normally Unmanned Installation
OEM	Original Equipment Manufacturer
OMAR	Operating Modes Assurance Review
OTP	Operational Test Procedure (Commissioning)
OR	Operations Readiness
ORR	Operations Readiness Review
PACO	Process Automation, Control and Optimisation
PC&C	Pre-Commissioning & Commissioning
PCS	Process Control System
PID (P&ID)	Piping and Instrumentation Diagram
PSSR	Pre-Start-up Safety Review
PSUA	Pre-Start-Up Audit
PSV	Pressure Safety Valve
PTW	Permit to Work
PVP	Piping and Vessels Preparation
RFC	Ready for Commissioning
RFO	Ready for Operation
RFSA	Ready For Sail Away
RFSU	Ready For Start-Up
SAT	Site Acceptance test

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Acronyms / Abbreviations	Description
SECE	Safety Environmental Critical Element
SIF	Safety Instrumentation Function
SIL	Safety Integrity Level
SIMOPS	Simultaneous Operations & Maintenance
SIS	Safety Instrumented System
SLD	Single Line Diagram
SoF	Statement of Fitness
TA	Technical Authority
TQ	Technical Query
TIV	Technical Integrity verification
UPS	Uninterruptible Power Supply
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal

Table 4: Acronyms and Abbreviation

5 OTP AT ONSHORE WORKSITE

This chapter refer to the activities on the Contractor worksite (construction yard).
Upon receipt of the Ready for Commissioning Certificate (RFC) the detailed system testing shall commence, with time and manpower estimation as follows.

NAVAIDs Sub-system 72-00:

- Energise the two feeders 230Vac 50Hz to the main NAVAIDs Control Panel, both supplied from SG-200N1,
- Conduct the specific battery bank testing according to the attached procedures:
- Close the battery cut-off switch to energise and charge the Battery Bank
- Verify correct start-up operation of main Control Panel
- ANNEX 1) Measurement of Battery Bank voltages before first charging sequence
- ANNEX 2) Measurement of Battery Bank cell voltages after first charging sequence (duration of first charge 12h min)
- ANNEX 3) Battery Bank capacity discharge test utilizing the installed equipment as electrical loads (NAVAIDS System to be powered and fully operational for a period of ≥96,0h)
- ANNEX 4) Measurement of Battery Bank cell voltages after first discharging sequence (as detailed in ANNEX 3)
- ANNEX 5) Measurement of Battery Bank cell voltages after second charging sequence (duration of second charge 12h min per Battery Bank)
- Verify Normal / Emergency OPERATING SCENARIOS 01 ... 04
- Verify with dynamic testing all interface points with separate platform sub-systems, I/O from /to the F&G (F&G & SIS sections), correct functioning of panel meters, control systems, transducers and protection devices
- Verify correct operation of installed photocell sensors in normal / emergency operating scenarios, correct operation of NAVAID lanterns and anticollision lamps.

5.1 Planning and Manpower

5.1.1 Planned tasks with estimated manpower

Estimated manpower for the entire duration of the Test:

- 1 E&I commissioning superintendent
- 1 E&I commissioning supervisor from Contractor
- 1 E&I commissioning technicians from Contractor
- 1 Vendor technician
- 1 F&G/SIS Workstation Operators

5.1.2 Test duration estimate

The test duration should be as follows:

- 5 days approx.

If necessary, the estimated time can be extended to complete all required pre-commissioning and commissioning activities.

5.1.3 Vendor Assistance

Equipment vendor SICE srl will provide a qualified specialist to assist with all aspects of commissioning of the NAVAIDS system.

5.1.4 Items Postponed to C&E OTP

Not applicable

5.1.5 HOLDS

Not applicable

5.2 OTP Test Requirements – Onshore WORKSITE

5.2.1 Pre-Commissioning Achievement

Prior the commissioning operation starts, the relevant pre-commissioning ITRs should be fully signed.
Specific details shall be reviewed on the completion management database Proverlis in order to access the latest updated status in real time.

5.2.2 Commissioning Achievement

The commissioning achievement will be the successful operation, functionality and safeguarding test of NAVAIDS, installed and put in operation during the WORKSITE phase:

- 83-00: 400V Switchboard SG-200N1

5.2.3 Status of Required Associated Subsystems

PHASE 1 – Battery Bank Charging/discharging tests, System Function Tests, Autonomy Test, I/O Tests.

Subsystems required RFC for Commissioning of NAVAIDS and the power supply from SG200N1:

- 83-00 400V Switchboard SG200N1
- 72-00 230V NAVAIDS System
- 88-00: Earthing Systems
- 79-00: F&G System
- 80-00: SIS System

5.2.4 Special Tools & Test Equipment

The following special tool and Test Equipment are required (see vendor document 1723002197-EL-LIS-00053):

- Voltage, frequency, continuity tester (Multimeter)
- Phases sequence tester
- Infrared temperature instrument
- Portable radios

TESTING & MEASUREMENT INSTRUMENT USED			
Type	Serial N.	Calibration certificate	Validity

5.2.5 Consumable List

Not applicable

5.2.6 Commissioning Spare Parts

Reference is made to SICE document 1723002197-COM-LIS-00052 "Commissioning and operation Spare Parts Index Register" regarding the NAVAIDS spare parts.
Below the table list of spare part commissioning.

Item Number	Total number of identical spares installed	MATERIALS DATA																		Commissioning spares
		Description of recommended spare parts	Parts/drawing ref.			Material	Corrosion Type (if applicable)	Corrosion 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.	Manufacturer name	Quantity ordered
			Project Datasheet no.	Project Detail dwg. no.	Item ref.															
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	2	BATTERY CHARGER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00005	BC	VARIOUS	NA	NA	3	2.1							RPB-1600-24	RPB-1600-24	MEAN WELL	0
2	2	POWER INVERTER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00005	INV	VARIOUS	NA	NA	2	2.4							PHOENIX 24/250	PHOENIX 24/250	VICTRON ENERGY	0
3	2	CODER/DRIVER CIRCUIT MARINE SIGNAL LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00005	CG	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0
4	1	CODER/DRIVER CIRCUIT BUAT LANDING STATUS LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00005	CG	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0
5	1	EX-d PHOTOCELL (M23)	1724000775-EL-DS-00004	1724000775-EL-DG-00005	FTC	VARIOUS	NA	NA	10	NA							FTC M23	FTC M23	SICE	0
6	1	INSULATION MONITORING RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00005	KE	VARIOUS	NA	NA	2	0.2							RI-R48	RI-R48	CONTREL	0
7	2	INSULATION MONITORING RELAY (230VAC)	1724000775-EL-DS-00004	1724000775-EL-DG-00005	KE	VARIOUS	NA	NA	3	0.3							RI-R22	RI-R22	CONTREL	0
8	1	POWER RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00005	K	VARIOUS	NA	NA	2	NA							55.34.9.024.0094	55.34.9.024.0094	FINDER	1
9	1	DIN RAIL SOCKET FOR POWER RELAY	1724000775-EL-DS-00004	1724000775-EL-DG-00005	K	VARIOUS	NA	NA	2	NA							94.04	94.04	FINDER	1
10	3	INTERFACE RELAY (24VDC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00005	K	VARIOUS	NA	NA	2	0.03							TRS 24VDC 1CO	TRS 24VDC 1CO	WEIDMULLER	1
11	6	INTERFACE RELAY (230VAC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00005	K	VARIOUS	NA	NA	2	0.03							TRS 230VAC RC 1CO	TRS 230VAC RC 1CO	WEIDMULLER	1
12	6	35sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.3							WDU35N/120N	WDU35N/120N	WEIDMULLER	1
13	6	35sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.05							WDU35	WDU35	WEIDMULLER	1
14	4	16sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.03							WDU16	WDU16	WEIDMULLER	1
15	2	6sqmm TERMINAL WITH FUSE HOLDER	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.02							WSI6	WSI6	WEIDMULLER	1
16	14	6sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.01							WDU6	WDU6	WEIDMULLER	1
17	52	4sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.01							WDU4	WDU4	WEIDMULLER	2
18	65	2.5sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00005	X	VARIOUS	NA	NA	2	0.01							WDU2.5	WDU2.5	WEIDMULLER	2

Table 5: Spare parts

5.2.7 Temporary Facilities

N/A.

5.3 OTP Description – Onshore WORKSITE

5.3.1 OTP Test Preparation

Step	Description	Result	Verified by	Date
1	System Ready for Commissioning Certificate (RFC) is issued and approved.	OK	M Castelli	30/05/2025
2	No Mechanical Completion or Pre-commissioning punch list 'A' items are outstanding against the system to be commissioned.	ok	M Castelli	30/05/2025

Step	Description	Result	Verified by	Date
3	Factory Acceptance Test Procedure has been carried out successfully (refer to Doc. 1723002197-QC-PRO-00045)	ok		30/01/2025
4	All personnel involved in the implementation of this procedure are familiar with its content as well as with associated safety requirements (Toolbox Talk to be conducted before initiation of activities).			
5	A final walkdown of the system has been completed, to ensure that the system and the area are ready for commissioning.			
6	Check that areas are free for work and escape routes are clear of any obstructions.			
7	All safety barriers and warning signs have been installed.			
8	Ensure that proper communications have been established between parties involved in the implementation of the procedure.			
9	Verify availability of test equipment and consumables as per section 3.6 on the table			
10	System(s) isolations as per LOTO procedure defined within HSSE Permits to Work and Commissioning procedures duly prepared and approved			
11	All yard personnel have been duly notified by dedicated LUN (Livening Up Notification) that the system(s) is ready for commissioning.			

5.3.2 Electrical Preparation

Step	**Description**	**Result**	**Verified by**	**Date**
1	Check related punch list 'B' items and confirm acceptability for start of commissioning activities.	ok		30/01/2025
2	Verify that all relevant associated systems / subsystems are completed.			
3	Check that grounding and bonding are in accordance with applicable documents.			
4	Review and confirmation of protection settings on up-stream LV Switchboards feeder power supply circuit breakers.			
5	Verify finalization of NAVAIDS, and Units internal power circuit connections in accordance with manufacturers documentation.			

Step	Description	Result	Verified by	Date
6	Verify finalization of the auxiliary contact connection between NAVAIDS System and MAIN DISTRIBUTION SWITCHBOARD SG-200N1 related to acquisition of the simultaneous CLOSED status of two circuit breakers NORMAL POWER SUPPLY (LINE A) A7/+05, ESSENTIAL POWER SUPPLY (LINE B) A7/+06	ok		30/01/2025

5.3.3 Mechanical Preparation

Not applicable.

5.3.4 Instrument Preparation

Step	Description	Result	Verified by	Date
1	Check related punch list 'B' items and confirm acceptability for start of commissioning activities.	ok		30/01/2025
2	Verify that all relevant associated systems / subsystems are ready.	"	"	"
3	Check Inhibit and Override register has been prepared and validated.	"	"	"
4	Verify that relevant equipment/ components are available and in operation for start of commissioning activities.	"	"	"

5.3.5 Piping Preparation

Not applicable

5.3.6 Additional Discipline Preparation

Not applicable.

5.4 OTP Test Steps – Onshore WORKSITE - PHASE 1

During the PHASE 1 will be tested:

- Startup NAVAIDS System
- First charge of battery rack (12 hours)
- Discharge of battery rack (≥96 hours) Autonomy Test
- Second recharge rack (battery bank in normal operation)
- Full system functionality test

- Validation of hardwired I/O signal with F&G and SIS

5.4.1 Test Preparation

Need to Verify:

- 230V Power supply is available
- All systems and subsystems involved in this procedure must be ready for commissioning and available.

5.4.1.1 NAVAIDS Start-Up Procedure

Step	Description	Result	Verified by	Date
TEST PREPARATION NAVAIDS				
	Preparation before start-up:			
1	Verify that 1P+N+PE power supply cable from switchboard SG200N1 position A7/+05 is correctly connected to main NAVAIDS CONTROL PANEL NC-200F2 terminals X1:3-4	ok	M Rotella	30/01/2025
2	Verify that 1P+N+PE power supply cable from switchboard SG200N1 position A7/+06 is correctly connected to main NAVAIDS CONTROL PANEL NC-200F2 terminals X1:5-6			
3	Verify the correct polarity of all power cables between the main NAVAIDS CONTROL PANEL NC-200F2, the BATTERY CUT-OFF CIRCUIT PANEL CB-200F2, the battery bank terminals X1-3 X1-4, the LIOL OBSTRUCTION Lights, the MIOL OBSTRUCTION LIGHTS			
4	Ensure that all circuit breakers and switches on the main NAVAIDS CONTROL PANEL and BATTERY CUT-OFF CIRCUIT PANEL are open (de-energized off position) before starting this procedure.			
5	Verify correct installation and orientation of GENERAL PHOTOCELL SYSTEM EPH-200-01. Verify cable connections. If power supply is absent, then the panel will not be powered.			

Step	Description	Result	Verified by	Date
6	Verify correct installation of NAVAIDS and default position of selector switches: - S1 = AUTO ('ON / activated' command provided by the main NAVAIDS CONTROL PANEL	Ok	[illegible]	30/01/2025
7	Verify correct installation of LIOL OBSTRUCTION LIGHTS and default position of selector switch: - S1 = AUTO ('ON / activated' command Provided by main NAVAIDS CONTROL PANEL			
8	Verify correct installation of MIOL OBSTRUCTION LIGHTS and default position of selector switch: - S1 = AUTO ('ON / activated' command Provided by main NAVAIDS CONTROL PANEL			
Commissioning NAVAIDS				
9	Locate circuit breaker position A7/+05 switchboard SG-200N1 and close to energize first of Navaids Control Panel mains incomers			
10	Verify correct voltage 230Vac and phase to neutral configuration on terminals X1:3-4			
11	Locate circuit breaker position A7/+06 on switchboard SG-200N1 and close to energize second of two Navaids Control panel mains incomers			
12	Verify correct voltage 230Vac and phase to neutral configuration on terminals X1:5-6			
13	Activate the NAVAIDS CONTROL PANEL by following the instructions given in the General Operative Manual (together with Vendor personnel). Confirmation of correct operation required for all internal systems, comprising:			

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Step	Description	Result	Verified by	Date
	one battery chargers, automatic incoming power supply circuit, control system with LCD display installed on panel door, pilot light for power supply status indication installed on panel door, U-coders and current relays suitable to drive the marine signaling lights, and red obstruction lights.	OK		30/01/2025
14	Confirm that the internal inverter driver units, each with its own 'on /off /remote' switch are set to the 'remote' position			
15	Confirm that the internal battery charger unit, each with its own 'on/off' switch are set to the 'on' position			
16	Confirm that the control system with LCD display on panel door is operational with no alarms present (after full system start-up completion), white pilot light H1 located on panel door is lit			
	BATTERY CUT-OFF PANEL			
17	Locate BATTERY CUT-OFF CIRCUIT PANEL CB-200F2 inside the Batteries Room and confirm status of all internal circuit breakers = OPEN (dc line to battery bank BA-200F2 isolated, main distribution isolated)			
18	Locate internal circuit breaker Q1 and close to energize auxiliary control circuit of main contactor KM1.			
19	Confirm that RED light H1 located on front panel is lit when battery power contactor Q1 is ON position			

5.4.1.2 Charge And Discharge Battery

Here follows the installed battery type datasheet:

Step	Description	Result	Verified by	Date
Battery bank FIRST Charging operation (commissioning charge)				
This mode can be used to fully charge the battery before operation. This activity will be performed with Vendor Technician.				
	Verification of system status for CHARGING:			
20	Locate BATTERY BA-200F2 inside Technical Room B-300 and verify correct polarity of connections.	OK	M. Pistolesi	30/01/2025
21	Confirm the following circuit breaker status of BATTERY CUT-OFF CIRCUIT PANEL: - Q1 = Closed			
22	With battery bank isolated, measure individual cell voltages and compile the following: ANNEX 1: Measurement of Battery Bank cell voltages before 1st charging sequence			
23	Close main circuit breaker Q1 on BATTERY CUT-OFF CIRCUIT PANEL in order to initiate battery charging process from main NAVAIDS CONTROL PANEL. After 12h continuous charging, measure individual cell voltages and compile the following: ANNEX 2: Measurement of Battery Bank cell voltages after 1st charging sequence			
24	Remaining performance testing of battery bank cells with compilation of documents ANNEX 3 /4 and /5 shall be completed after end of NAVAIDS system testing.			

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Step	Description	Result	Verified by	Date
	General photocell			
25	Locate GENERAL PHOTOCELL EPH-200-01 and confirm correct installation and orientation	OK		30/01/2025
26	There is n°1 photocell connected to system controller with LCD display installed on the main NAVAIDS CONTROL PANEL. The status of the photocell is displayed on page 3/12. Confirm the correct operation and night / day detection status of the photocell.			
	Visibility meter			
27	Locate VISIBILITY METER device EVM-200-01 and confirm correct installation and orientation			
28	The VISIBILITY METER is used to control the switching on/off of the marine lanterns. The poor visibility detection signal is received by the system controller with LCD display installed on the main NAVAIDS CONTROL PANEL. The status of the VISIBILITY METER is displayed on page 8/12. Confirm the correct operation of poor visibility detection and device fault by obscuring the devices optical system.			
	FUNCTIONALITY TEST NAVAID CONTROL PANEL AND MARINE/AERONAUTICAL LIGHTS			
29	The following procedures define the activities necessary to demonstrate to correct operation of the following components when supplied and controlled from the main NAVAIDS CONTROL PANEL NC-200F2: - n°2 Marine White Lights NAV-000-4-4A/B - n°2 Marine Yellow Morse Signaling Light Auxiliary Lights EML-200-01/02	OK		30/01/2025

Step	Description	Result	Verified by	Date
	- n°1 Boat Landing status light ESL-200-01 - n°4 MIOL Red Obstruction Lights EOL-200-01/02/03/04 Verify the correct diagnostic system of Yellow Marine Lamps, Boat Landing status light and white light on the HMI of the controller.	ok	[signature]	30/01/2025
30	Simulate automatic operation of n°2 Marine Yellow Lights by obscuring the n°1 photocell installed on the GENERAL PHOTOCELL panel. Confirm correct operation of both lights; - check on / off intermittence to IALA standard U-code morse with frequency of 15 seconds, generated by each marine signal light - check the synchronization between the lights, they must flash perfectly synchronized when activated			
31	The status of the marine yellow lights is displayed on the system controller with LCD display installed on the main NAVAIDS CONTROL PANEL. Confirm the correct status of operation displayed on the dedicated page of HMI of controller of "Marine yellow Lamps Page".			
32	Simulate an internal fault (i.e. open circuit breaker to U-coder or inverter) on marine yellow lights circuits and confirm local / remote signaling of alarm on LCD display and 'Navaids System General Alarm' on terminals X3:7-8			
33	Simulate automatic operation of n°4 MIOL Obstruction Lights by obscuring the n°1 photocell installed on the UPPER DECK. - EOL-200-01/02/03/04 Confirm the correct operation of all four lights.			

Step	Description	Result	Verified by	Date
34	The status of the MIOL Obstruction Lights is displayed on the system controller with LCD display installed on the main NAVAIDS CONTROL PANEL. Confirm the correct status of operation displayed on dedicated page of diagnostic.	OK		30/05/2025
35	Simulate an internal fault (i.e. open circuit breaker to inverter) and confirm local / remote signaling of alarm on LCD display and 'Navaids System General Alarm' on terminals X3:7-8	OK		
	F&G VALIDATION			
36	Verify that 0Vdc 'BOAT LANDING STATUS Lights ACTIVATION Command' signal from F&G panel is correctly activated to terminals X3:1-2 (OPEN circuit +0Vdc command = ON) Confirm activation of ESL-200-01 when command is 0V			
37	Verify that +24Vdc 'Visibility meter ACTIVATION Command' signal from F&G panel is correctly activated to terminals X3:3-4 (close circuit +24Vdc command = ON) Confirm activation of EVM-200-01 when command is 24V			
	DYNAMIC SYSTEM TESTING IN NORMAL OPERATION OF NAVAID CONTROL PANEL WITH 230Vac POWER SUPPLIES, POWER SUPPLIES BLACKOUT:			
38	Reference ANNEX SCENARIO 01 With Navaid system operation NORMAL, verify and confirm each item on annexed functional table SCENARIO 01 Battery chargers operational, battery cut-off closed, batteries are charging - power supply from SG-200N1 A7/+05 = 230Vac - power supply from SG-200N1 A7/+06 = 230Vac	OK		30/05/2025

Step	Description	Result	Verified by	Date
	Confirm normal working system operation.	Ok	[signature]	30/01/2025
39	Reference ANNEX SCENARIO 02 With Navaid system operation NORMAL, verify and confirm each item on annexed functional table SCENARIO 02 Battery chargers operational, battery cut-off closed, batteries are charging - power supply from SG-200N1 A7/+05 = 220Vac - power supply from SG-200N1 A7/+06 = 0Vac Confirm normal working system operation.			
40	Reference ANNEX SCENARIO 03 With Navaid system operation NORMAL, verify and confirm each item on annexed functional table SCENARIO 03 Battery chargers operational, battery cut-off closed, batteries are charging - power supply from SG-200N1 A7/+05 = 0Vac - power supply from SG-200N1 A7/+06 = 230Vac Confirm normal working system operation.			
41	Reference ANNEX SCENARIO 04 With Navaid system operation NORMAL, verify and confirm each item on annexed functional table SCENARIO 04 Battery chargers non-operational, battery cut-off closed, batteries are discharging - power supply from SG-200N1 = 0Vac - power supply from SG-200N1 = 0Vac Confirm normal working system operation.			

Step	Description	Result	Verified by	Date
	BATTERY BANK CAPACITY TEST:			
42	Refer to the following ANNEXED documents for final commissioning of battery cells, with complete registration of overall battery terminal voltages and individual battery cell voltages. - ANNEX 3: Battery Bank BA-200-F2 96 hours capacity test - ANNEX 4: Measurement of discharge Battery cell voltages after 1st discharging sequence	OK		30/01/2025

5.4.2 OT WORKSITE Phase 1 – Tests Notes and Remarks

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5.4.2.1 OTP Worksite Phase 1 - Tests Certifying Authority Table of Attendances

Name and Surname	Certifying Authority	Position	Signature

5.4.2.2 OTP WORKSITE Phase 1 - Tests Final Signatures and Company Acceptance

Name and Surname	Company Representative	Position	Signature
KRISTIAN CASTELLANI	ROSETTI M.	LEAD ELECTRICAL COMMISSIONER	
JAMIE McALLISTER	CW	OIS COM ENG	
ANTHONY IVESON	ROSETTI MARINO	COMMISSIONING MGR.	

5.5 Post-test Conditions

All the electrical contacts which were disconnected for the testing purposes must be reconnected.
After functional tests have been completed, system / sub-systems are left in healthy and safety condition and that they are operational.

5.6 Reinstatement and Preservation Tasks

Generally, the system/ sub-system shall be reinstated at its initial condition; and the following activities must be carried out as minimum:

- all inhibition done for the test shall be removed (as per Inhibit / Override List)
- all equipment/devices shall be returned in healthy functional conditions.

All preservation routines identified and required will be included in relevant Preservation ITR within the Proverlis Completions System.

6 OTP AT SITE

6.1 Planning and Manpower

6.1.1 Offshore Site overview

It is expected that all pre-commissioning tests, systems energization and commissioning steps will have been successfully performed during the Onshore Phases.
Consequently, during the offshore SITE phase, the respective systems will be inspected prior to re-energization.
Offshore commissioning includes a re-check of all tests carried out during the onshore phase.

Attention shall be paid to verify that there was no damage to components during transit and that all systems are fully functioning in the permanent platform configuration.

6.1.2 Planned tasks with estimated manpower

Estimated manpower for the entire duration of the Test:

- 1 E&I commissioning superintendent
- 1 E&I commissioning supervisor from Contractor
- 1 E&I commissioning technicians from Contractor

6.1.3 Test duration estimate

The test duration should be as follows:

- 1 day approx.

If necessary, the estimated time can be extended to complete all required pre-commissioning and commissioning activities.

6.1.4 Vendor Assistance

- Not applicable

6.1.5 Items Postponed to C&E OTP

- Not Applicable

6.1.6 HOLDS

- Not Applicable

6.2 OTP Test Requirements – Offshore SITE

6.2.1 Pre-Commissioning Achievement

- Not applicable

6.2.2 Commissioning Achievement

The commissioning achievement will be the successful operation, functionality and safeguarding test of NAVAIDS, installed and put in operation during the WORKSITE phase:

The successful commissioning result, achieved during the WORKSITE commissioning phase for the functionality and safeguard of the UPS system, will allow for a smoother commissioning phase of the offshore SITE.
The systems and subsystems involved:

- 88-00: Earthing System
- 72-00: NAVAIDS System
- 83-00: 400V Switchboard SG-200N1
- 79-00: SIS (ESD)
- 70-00: Fire & Gas System (F&G)

6.2.3 Status of Required Associated Subsystems

The systems involved has been already energized and commissioned in WORKSITE Phase.
The subsystem SS 83-00 SG-200N1,must be already available, functioning and commissioned.

6.2.4 Special Tools & Test Equipment

The following special tool and Test Equipment are required (see vendor document 1723002197-EL-LIS-00053):

- Voltage, frequency, continuity tester (Multi-meter)
- Phases sequence tester
- Radios
- Portable

TESTING & MEASUREMENT INSTRUMENT USED			
Type	Serial N.	Calibration certificate	Validity

6.2.5 Consumable List

- Not applicable

6.2.6 Commissioning Spare Parts

Reference is made to SICE document 1724000725-COM-LIS-00020 "Commissioning and operation Spare Parts Index Register" regarding the NAVAIDS spare parts.

Item number	Total number of identical items installed	MATERIALS DATA																		Commissioning spares
		Description of recommended spare parts	Parts/drawing ref.			Material	Cerniera Type (if applicable)	Cerniera Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% LEC Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturer name	Quantity ordered
			Project Datasheet no.	Project Detail dwg. no.	Item ref.															
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	2	BATTERY CHARGER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00006	BC	VARIOUS	NA	NA	3	2.1							RPB-1600-24	RPB-1600-24	MEAN WELL	0
2	2	POWER INVERTER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00006	INV	VARIOUS	NA	NA	2	2.4							PHOENIX 24/250	PHOENIX 24/250	VICTRON ENERGY	0
3	2	CODER/DRIVER CIRCUIT MARINE SIGNAL LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00006	CD	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0
4	1	CODER/DRIVER CIRCUIT BOAT LANDING STATUS LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00006	CD	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0
5	1	LK-d PHOTOCELL (M25)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	FTC	VARIOUS	NA	NA	10	NA							FTC M25	FTC M25	SICE	0
6	1	INSULATION MONITORING RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	RE	VARIOUS	NA	NA	2	0.2							RI-R48	RI-R48	CONTREL	0
7	2	INSULATION MONITORING RELAY (230VAC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	RE	VARIOUS	NA	NA	2	0.3							RI-R22	RI-R22	CONTREL	0
8	1	POWER RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	NA							55.34.9.024.0094	55.34.9.024.0094	FINDER	1
9	1	DIN RAIL SOCKET FOR POWER RELAY	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	NA							94.04	94.04	FINDER	1
10	3	INTERFACE RELAY (24VDC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	0.09							TRS 24VDC 1CO	TRS 24VDC 1CO	WEIDMULLER	1
11	6	INTERFACE RELAY (230VAC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	0.03							TRS 230VAC RC 1CO	TRS 230VAC RC 1CO	WEIDMULLER	1
12	6	3 Sogmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.3							WDU35N/1209	WDU35N/1209	WEIDMULLER	1
13	6	3 Sogmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.05							WDU35	WDU35	WEIDMULLER	1
14	4	16sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.03							WDU16	WDU16	WEIDMULLER	1
15	2	6sqmm TERMINAL WITH FUSE HOLDER	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.02							WSI6	WSI6	WEIDMULLER	1
16	14	6sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU6	WDU6	WEIDMULLER	1
17	52	4sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU4	WDU4	WEIDMULLER	2
18	65	2.5sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU2.5	WDU2.5	WEIDMULLER	2

Table 6: Spare parts

6.2.7 Temporary Facilities

- Not applicable

6.3 OTP Description – Site

The pre-requisite of energization in SITE of NAVAIDS are the following ITEMS:

- FAT for entire NAVAIDs systems is completed
- Mechanical completion for entire NAVAIDs system is completed
- Any modifications required during the construction / commissioning phases shall be completed
- Clearance of any punch list items on NAVAIDs system with an impact on the testing
- Remove any accumulated dust, dirt or waste residues left over from the construction phase with a clean dry cloth and suitable vacuum cleaner
- Panels correctly earthed
- Electrical interconnection completed, conduct visual inspection
- Pay particular attention to the ± polarity on connected direct current circuits
- Control and instrumental interconnection completed, conduct visual inspection
- Inspect and verify that all components are tight and well connected (e.g. relays on sockets, fuses on holders, etc.), electronic control boards and cards are properly secured, control boards connectors properly inserted, components free from damage after transportation and installation
- Check for proper ventilation of technical rooms (in particular the HVAC UPS B-300 Room)

In SITE (offshore) phase the first energization of main SWBD SG-200N1 will be done feeding the drawer A2/+08 via Temporary Diesel Generator and will be performed all steps starting with first energization.
NOTE: When it's confirmed the availability of permanent 66kV high voltage, the temporary power supply from the Temporary Diesel Generator will be removed. A final check on the correct functioning of the UPS system will be performed when BLPH will be energized via the permanent high voltage supply

N.B.: Kindly note that this procedure this note detail any activities related to BLACK START, consequently reference is made to dedicated document n. 123A90-PML-COM-PRO-03036.

6.3.1 OTP Test Preparation OFFSHORE

Step	Description	Result	Verified by	Date
1	System Ready for Operation (RFO from WORKSITE Phase) Certificate is issued and approved.			
2	No blocking punch list items are outstanding against the system to be commissioned.			
3	System(s), (de)isolations as per LOTO procedure enclosed within commissioning Work Permits procedures prepared and approved			
4	Verify and confirm that all steps performed at WORKSITE of this procedure are completed without any pending issues that would prevent from proceeding with the offshore SITE PROCEDURE			
5	All personnel involved in the implementation of this procedure are familiar with this procedure as well as with associated safety requirements (Toolbox Talk to be conducted before initiation of activities).			
6	A final walkdown after hook-up of the system has been completed, any preservation items have been removed and to ensure that the system and the area are ready for energization for following items: -NC-200F2 230V NAVAIDS			
7	Check that areas are free for work and escape routes are clear of any obstructions.			
8	Ensure that proper communications have been established between parties involved in the implementation of the procedure.			
9	Verify availability of test equipment and consumables as per chapters 6.2.4.			
10	Verify and confirm that the Temporary Diesel Generator is ready to start, that the diesel fuel tank is full.			
11	All personnel have been duly notified during dedicated daily SIMOPS meetings that the system(s) is ready for commissioning.			

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6.3.2 Electrical Preparation

Step	Description	Result	Verified by	Date
12	No blocking punch list items are outstanding against the system to be commissioned.			
13	Review and confirm no changes are required to be performed on existing protection settings.			
14	Verify and confirm that the Temporary Diesel Generator power cables connections have been tested with correct phase rotation before sail away. Perform walk down on Diesel Generator for a final check before energization			

6.3.3 Mechanical Preparation

Not applicable.

6.3.4 Instrument Preparation

Step	Description	Result	Verified by	Date
15	No blocking punch list items are outstanding against the system to be commissioned.			
16	Verify that all relevant associated control and protection systems / subsystems are ready.			
17	Verify as relevant Inhibit and Override list has been prepared and validated (as per JSA).			

6.3.5 Piping Preparation

Not applicable

6.3.6 Additional Discipline Preparation

Not applicable.

6.4 OTP Test Steps – Offshore SITE

The previous chapters must be successfully performed prior to commissioning of the NAVAIDS System.

In the next steps, the functionality of the NAVAIDS system will be tested:

- SS 72-00: NAVAIDS SYSTEM

6.4.1 Test Preparation

Verification of system and subsystem NAVAIDS.

Conduct system walkdown and thorough visual inspection of all related components.
Confirm no impediment to proceed with energization.

6.4.2 Energization of NAVAIDS.

Step	Description	Result	Verified by	Date
TEST PREPARATION OFFSHORE				
1	Confirm that diesel generator power supply is energized to upstream switchboard SG-200N1. A7/+05-line A A7/+06-line B			
2	Conduct a thorough visual inspection of all system components. Confirm absence of any visual damage, with nothing out of position.			
3	The Offshore commissioning procedure shall replicate the commissioning activities carried out Onshore. Once verified the system will remain in service.			
4	Confirm that 1P+N+PE power supply cable from switchboard SG.200N1 position A7/+05 is correctly connected to main NAVAIDS CONTROL PANEL NC-200F2 terminals X1:3-4			
5	Confirm that 1P+N+PE power supply cable from switchboard SG200N1position A7/+06 is correctly connected to main NAVAIDS CONTROL PANEL NC-200F2 terminals X1:5-6			
6	Conduct and confirm start-up operation for Navaids Control Panel NC-200F2 as defined on chapter 5.4.1.1 from pt.1			
7	Conduct and confirm start-up operation for Battery Cut-off Circuit panel CB-200F2 as defined on chapter 5.4.1.1 step 20			
8	Conduct and confirm start-up and charging operation for Navaids Battery Bank BA-200F2 as defined on chapter 5.4.1.1 step 25			
9	Conduct and confirm start-up operation for Navaids General Photocell EPH-200-			

Step	Description	Result	Verified by	Date
	01 as defined on chapter 5.4.1.1 step from 30			
10	Conduct and confirm start-up operation for Navaids Visibility Meter EVM-200-01 as defined on chapter 5.4.1.1 step from 32			
11	Conduct and confirm start-up operation for Navaids Control Panel NAV-000-4-1 as defined on chapter 5.4.1.2 from step29			
12	.Conduct and confirm normal and emergency operating scenarios as detailed on Annex01…05			
13	Confirm that the System is in normal working operation with no Alarms present.			

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6.4.3 OTP SITE Tests Notes and Remarks

6.4.4 OTP SITE Tests Certifying Authority Table of Attendances

Name and Surname	Certifying Authority	Position	Signature

6.4.5 OTP SITE - Tests Final Signatures and Company Acceptance

Name and Surname	Company Representative	Position	Signature

6.5 Post-test Conditions

All the electrical contacts which were disconnected for the testing purposes must be reconnected.
After functional tests have been completed, system / sub-systems are left in healthy and safety condition and that they are operational.

6.6 Reinstatement tasks

Generally, the system/ sub-system shall be reinstated at its initial condition; and the following activities must be carried out as minimum:

- all inhibition done for the test shall be removed (as per Inhibit / Override List)
- all equipment/devices shall be returned in healthy functional conditions.

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7 APPENDICES

7.1 Vendor SAT Procedure

N.A.

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7.2 Proverlis Summary System Reports

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CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on system: 72

Electrical	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
72201-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	ONSHORE	C10000569	CPX09	100	2025-01-11	RFC 1
72202-CEL	DC UPS NAVAID System / NAV AIDS Main White Lanterns	ONSHORE	C10000570	CPX09	100	2025-01-11	RFC 1
72203-CEL	DC UPS NAVAID System / NAV AIDS Aeronautical obstruction red led lights - Telecom mast	ONSHORE	C10000571	CPX09	100	2025-01-17	RFC 1
72204-CEL	Top Obstruction Lights Junction Box / Top Obstruction Red Lights	ONSHORE	C10002046	CPX09	100	2025-03-25	-
72205-CEL	Top Obstruction Lights Junction Box / Top Obstruction Red Lights	ONSHORE	C10002047	CPX09	100	2025-03-25	-
72207-CEC	DC UPS NAVAID System / NAV AIDS Battery Bank Temperature Probe	ONSHORE	C10001837	CPX10	100	2025-01-08	RFC 1
72208-CEC	DC UPS NAVAID System / NAV AIDS Battery Isolator	ONSHORE	C10002049	CPX10	100	2024-11-30	RFC 1
72209-CEC	NAVAIDS Communication (Status) / PCS	ONSHORE	C10001807	CPX10	100	2024-11-30	RFC 1
72210-CEL	DC UPS NAVAID System / Wave Off Status Light	ONSHORE	C10002050	CPX10	100	2025-02-27	-
		OFFSHORE	C10004689	CPX10	0	-	-
72211-CEL	DC UPS NAVAID System / Intermediate obstruction lights junction box	ONSHORE	C10002051	CPX09	100	2025-01-18	RFC 1
72212-CEL	Intermediate obstruction lights junction box / Intermediate Obstruction Red Lights	ONSHORE	C10002052	CPX09	100	2025-01-16	RFC 1
72213-CEL	Intermediate obstruction lights junction box / Intermediate Obstruction Red Lights	ONSHORE	C10002053	CPX09	100	2025-01-18	RFC 1
72214-CEL-N	NAVAID - Charger / NAVAID - Battery Isolator	ONSHORE	C10002062	CPX09	100	2024-12-05	RFC 1
72214-CEL-P	NAVAID - Charger / NAVAID - Battery Isolator	ONSHORE	C10002061	CPX09	100	2024-12-05	RFC 1
72215-CEL-N	NAVAID - Battery Isolator / NAVAID - Battery	ONSHORE	C10002064	CPX09	100	2024-12-05	RFC 1
72215-CEL-P	NAVAID - Battery Isolator / NAVAID - Battery	ONSHORE	C10002063	CPX09	100	2024-12-05	RFC 1
72217-CEC	DC UPS NAVAID System / NAV AIDS Visibility meter	ONSHORE	C10002048	CPX10	100	2025-01-07	RFC 1
83036-CEL	LV Switchgear / DC UPS NAVAID System - Feeder A	ONSHORE	C10000561	CPX09	100	2024-11-30	RFC 1
83037-CEL	LV Switchgear / DC UPS - NAVAID System - Feeder B	ONSHORE	C10000562	CPX09	100	2024-11-30	RFC 1
A7/+05-QF1	NAVAID SYSTEM FEEDER A - A7/+05-QF1	ONSHORE	C10002970	FP00	100	2025-02-04	-
		ONSHORE	C10002971	FTR-2	100	2024-10-02	-
		ONSHORE	C10002972	FTR-6	100	2024-10-02	-
		ONSHORE	C10003031	FTR-5	0	-	-
A7/+06-QF1	NAVAID SYSTEM FEEDER B - A7/+06-QF1	ONSHORE	C10002973	FP00	100	2025-02-04	-
		ONSHORE	C10002974	FTR-2	100	2024-10-02	-
		ONSHORE	C10002975	FTR-6	100	2024-10-02	-
		ONSHORE	C10003032	FTR-5	0	-	-

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on system: 72

Electrical	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
BA-200F2	Battery Bank for NAVAID	ONSHORE	C10000847	CPX17	100	2024-11-30	RFC 1
		ONSHORE	C10002977	FTR-4	100	2025-02-12	-
		ONSHORE	C10002978	FTR-4	100	2025-02-14	-
		ONSHORE	C10002979	FTR-3	100	2025-02-14	-
CB-200F2	NAVAID Battery Isolator / Breaker	ONSHORE	C10000854	CPX00	100	2024-11-30	RFC 1
EML-200-01	Main Lantern	ONSHORE	C10001198	CPX25	100	2025-01-11	RFC 1
EML-200-02	Main Lantern	ONSHORE	C10001619	CPX25	100	2025-01-11	RFC 1
EOL-200-04	Obstruction Lights	ONSHORE	C10001623	CPX25	100	2025-01-18	RFC 1
EPH-200-01	Photocell System	ONSHORE	C10001204	CPX25	100	2025-01-08	RFC 1
ESL-200-01	Status Lights - Main Access Platform	ONSHORE	C10001205	CPX25	0	-	-
EVM-200-01	NAV AIDS Visibility Meter	ONSHORE	C10001206	CPX25	100	2025-01-07	RFC 1
NC-200F2	NAVAID Central Control Panel (NCCP)	ONSHORE	C10000862	CPX32	100	2025-01-04	RFC 1
		ONSHORE	C10002976	FP25	100	2025-02-04	-
		ONSHORE	C10002980	FTR-6	100	2025-02-04	-

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on system: 72

Instrumental	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
72-XA-001	Wave-off light system fault (NAVAIDS FAULT ALARM)	ONSHORE	C10003830	FJ01D	100	2025-02-13	-
72-XS-001	Wave-off lights activation	ONSHORE	C10004877	FJ01D	100	2025-02-13	-
72-XS-002	B-300 Visibility meter power cut-off	ONSHORE	C10004878	FJ01D	100	2025-02-13	-
C-NC-200F2/B400-FGS-002.01	NAVAIDS NCCP / MARSHALLING PCS	ONSHORE	C10001468	CJX10	100	2024-11-28	RFC 1
C-NC-200F2/B400-FGS-002.02	NAVAIDS NCCP / MARSHALLING PCS	ONSHORE	C10001469	CJX10	100	2024-11-28	RFC 1
C-NC-200F2/B400-SIS-001	NAVAIDS FAULT ALARM / MARSHALLING PCS	ONSHORE	C10001460	CJX10	100	2024-11-30	RFC 1
ETM-200-01	NAV AIDS Battery Bank Temperature Probe	ONSHORE	C10002073	CJX08	100	2024-12-20	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on system: 72

ATEX	72-00 NAVAID

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
EJB-200F2-01	Top Obstruction Lights Junction Box	ONSHORE	C10002067	CJX01	100	2025-03-26	-
EJB-200F2-02	Intermediate obstruction lights junction box	ONSHORE	C10002068	CJX01	100	2025-01-18	RFC 1
EOL-200-01	Obstruction Lights	ONSHORE	C10001620	CJX01	100	2025-03-25	-
EOL-200-02	Obstruction Lights	ONSHORE	C10001621	CJX01	100	2025-03-25	-
EOL-200-03	Obstruction Lights	ONSHORE	C10001622	CJX01	100	2025-01-18	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on system: 72

Miscellaneous	72-00 NAVAID						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
123A90-PML-COM-PRO-03053	OTP - Navaids System	ONSHORE	C10004618	5300	99	-	-
		OFFSHORE	C10004942	5300	0	-	-

7.3 Equipment Related Technical Queries

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7.4 As Built Documentation

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7.5 Management of Change – Summary Table of Tasks and Details of Affected Related Documentation

7.6 ANNEX CHARGE-DISCHARGE BATTERY RECORDS

7.6.1 ANNEX 1 12h CAPACITY CHARGE TEST RECORD

CROSSWIND

CROSSWIND BLPH PROJECT - COMMISSIONING PROCEDURE OF NAVAIDS SYSTEM

ANNEX 1
SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

ROSETTI MARINO

EQUIPMENT	NAVAIDS BATTERY RACK BA-200-F2	TEST MEASUREMENT:	ANNEX 1): BEFORE FIRST CHARGE

NAVAIDS BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY CUT-OFF SWITCH CB-200F2) = _____ V

Pos.	TAG UTILITY / TYPE	MANFIACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	NOTES
1	CELL N°1/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
2	CELL N°2/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
3	CELL N°3/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
4	CELL N°4/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
5	CELL N°25/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
6	CELL N°6/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
7	CELL N°7/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
8	CELL N°8/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
9	CELL N°9/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
10	CELL N°10/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
11	CELL N°11/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
12	CELL N°12/ VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
13	TERMINAL VOLT. n.1~n.12							

Table 7: DATA RECORD SHEET CHARGE BATTERY BANK

7.6.2 ANNEX 2 MEASUREMENT AFTER FIRST CHARGING

CROSSWIND

CROSSWIND BLPH PROJECT - COMMISSIONING PROCEDURE OF NAVAIDS SYSTEM

ANNEX 2
SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

ROSETTI MARINO

EQUIPMENT	NAVAIDS BATTERY RACK BA-200-F2	TEST MEASUREMENT:	ANNEX 2): AFTER FIRST CHARGE

NAVAIDS BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY CUT-OFF SWITCH CB-200F2) = _____ V

Pos.	TAG UTILITY / TYPE	MANFIACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	NOTES
1	CELL N°1/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
2	CELL N°2/ NVRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
3	CELL N°3/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
4	CELL N°4/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
5	CELL N°5/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
6	CELL N°6/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
7	CELL N°7/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
8	CELL N°8/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
9	CELL N°9/ VRLA Cap. 1680AH/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
10	CELL N°10/ VRLA Cap.	FIAMM	SMG	UPS ROOM HVAC B-300				

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Table 8: DATA RECORD SHEET *AFTER FIRST CHARGE* BATTERY BANK

7.6.3 ANNEX 3 BATTERY DISCHARGE TEST RECORD WITH LOAD

CROSSWIND — ANNEX 3 — SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET — ROSETTI MARINO

NAVAIDS BATTERY RACK BA-200F2

ANNEX 3): CAPACITY TEST RECORD WITH APPLIED EQUIVALENT SYSTEM LOAD 367.6W, 12.79 A @ 24Vdc

N° Hours	0,0	0,25	0,5	0,75	1,0	2,00	4,0	6,00	8,00	16,0	24,00	32,00	40,0	48,00	56,0	64,00	72,0	80,00	88,0	96,00	Note:
Time (hh:mm)																					
Discharge Voltage (V)																					
Discharge Current (A)																					
Ambient Temp. (°C)																					
Battery Cell Temp. (°C)																					
Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	Note:
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Pagina 1

Table 9: DATA RECORD SHEET *DISCHARGE* BATTERY BANK

7.6.4 ANNEX 4 BATTERY AFTER FIRST DISCHARGE TEST RECORD

CROSSWIND

CROSSWIND BLPH PROJECT - COMMISSIONING PROCEDURE OF NAVAIDS SYSTEM

ANNEX 4
SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

ROSETTI MARINO

EQUIPMENT	NAVAIDS BATTERY RACK BA-200-F2	TEST MEASUREMENT:	ANNEX 4): AFTER FIRST DISCHARGE

NAVAIDS BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY CUT-OFF SWITCH NAV-000-5-1) = _____ V

Pos.	TAG UTILITY / TYPE	MANFIACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	NOTES
1	CELL N°1 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
2	CELL N°2 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
3	CELL N°3 / Ni-Cd Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
4	CELL N°4 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
5	CELL N°5 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
6	CELL N°6 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
7	CELL N°7 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
8	CELL N°8 / VRLA Cap. 1680 Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
9	CELL N°9 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
10	CELL N°10 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
11	CELL N°11 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
12	CELL N°12 / VRLA Cap. 1680Ah/10h	FIAMM	SMG	UPS ROOM HVAC B-300				
13	TERMINAL VOLT. n.1°n.12							

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Table 10: DATA RECORD SHEET *DISCHARGE* BATTERY BANK

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	BA-200F2	: Battery Bank for NAVAID	Dwg	123A90-DDL-EL-DL-20139
	S/Sys	72-00	: NAVAID	Module	LD_B-300
TASK	code	C10002977	Location Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM Activity FTS	Discipline Electrical Form FTR-4		Battery Charge/Discharge

FTR4 - Battery charge / discharge

Record sheet

BATTERY DATA

Manufacturer:	FIAMM	Serial N°:	NA	Type	SMG (VRLA GEL)
Rated voltage	24Vdc	Battery capacity (Ah):	1680	Number of cells	12
Rated autonomy (min)			5760		

Test type

Important notice:

Discharge and charge (if required) must be performed according to manufacturer's instructions

Manufacturer:	FIAMM	Serial N°:	NA	Type	SMG(VRLA GEL)
Test type: Charge	Discharge ●	Duration	100h	Time	SEE ATTACHED
CdNi	constant current	Current(A)	SEE ATTACHED	Ambiant T°	SEE ATTACHED
Pb	constant voltage	Volt/Cell	SEE ATTACHED	Initial T° 24.5	Final T° 29.7

N° Hours	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	...	24
Time (hh:mm)	9	13	17	8	12	16	8	12	16	8	12	16	8	9	10	11	12	13	14		
Charge Voltage (V)	25.8	24.9	24.8	24.8	24.8	24.8	24.6	24.6	24.6	24.5	24.5	24.4	24.3	24.3	24.3	24.3	24.3	24.3	24.3		
Charge Current (A)	7	9.7	8.7	8.3	8.1	7.7	8.2	7.8	7.7	8.4	7.9	7.8	8.5	8.1	8.1	7.9	8.3	8.5	8.4		
Ambient Temp. (°C)	24	24.5	24.1	27.4	26.9	23.6	21.1	20.1	22.5	20.7	20.3	25	27.7	27.4	26.8	26.8	25.8	25.6	23.6		
Battery Cell Temp. (°C)	24.5	24.9	25.2	26.1	26.6	22.6	22.8	22.2	22.4	22.5	21.7	23.1	26.2	25.9	25.9	25.9	25.3	25.2	29.7		
Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)
1	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
2	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
3	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
4	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
5	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
...	2.14	2.09	2.08	2.07	2.07	2.07	2.06	2.06	2.05	2.04	2.04	2.03	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
N	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT	SEE ATT		

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 62 MAX	53172376WS	7716/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025
FLUKE 175	17140769	7715/24	10/07/2025

Comments: See attachements for full test.

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-10	2025-02-12	2025-02-12
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-10T11:27:42.959Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-12T08:07:03.075Z	PROVERLIS Digitaly signed by Witness waived 2025-02-12T14:55:25.565Z

HKN ONE TEAM
CROSSWIND

123A90 BLPH - CROSSWIND OFFSHORE PROJECT
COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]
SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

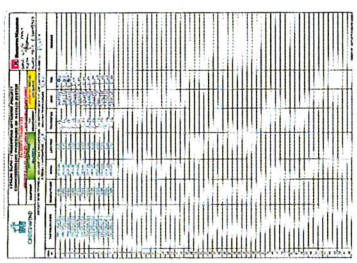
ROSETTI MARINO

NOME: GIRETTI NATTIA
FIRMA:
ANNEX MR-B. C 1000 2977

EQUIPMENT	BATTERY RACK BA-200F2	TEST MEASUREMENT:	ANNEX XX: BEFORE DISCHARGE

BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY BOX CUT-OFF SWITCH CB-200F2) 25,67 V
AMBIENT TEMPERATURE 24 C° BATTERY TEMPERATURE 24,5 C°

CELL N°	TAG UTILITY / TYPE	MANIFACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	REMARKS
1	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	9:00	
2	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	9:00	
3	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,12	3/02/25	9:00	
4	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	8:00	
5	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
6	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
7	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
8	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
9	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
10	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,13	3/02/25	8:00	
11	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
12	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	2,14	3/02/25	8:00	
13								
14								
15								
16								
17								
18								
19								
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HKN ONE TEAM
CROSSWIND

BLPH - CROSSWIND PROJECT - COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]
SUBSYSTEM 72-00: BATTERY DISCHARGE RECORD SHEET

BATTERY RACK
BA-200F2

ANNEX XX): 96h CAPACITY DISCHARGE TEST RECORD WITH FULL CHARGE

ROSETTI MARINO

N° Hours	0:00	4:00	8:00	23:00	27:00	31:00	47:00	51:00	55:00	71:00	75:00	79:00	95:00	96:00	97:00	98:00	99:00	100:00	101:00	Note:
Time (hh:mm)	9:00	13:00	17:00	8:00	12:00	16:00	8:00	12:00	16:00	8:00	12:00	16:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	
Discharge Voltage (V)	25,8	24,9	24,8	24,8	24,8	24,8	24,6	24,6	24,6	24,5	24,5	24,4	24,3	24,3	24,3	24,3	24,3	24,3	24,3	
Discharge Current (A)	7	9,7	8,7	3,3	8,1	7,7	3,2	7,8	7,3	8,4	7,9	7,8	8,5	8,1	8,1	7,9	8,3	8,5	8,4	
Ambient Temp. (°C)	24	24,5	24,1	27,4	26,9	23,6	21,1	20,1	22,5	20,7	20 3	25,0	27,7	27,4	26,8	26,8	25,8	25,6	23,6	
Battery Cell Temp. (°C)	24,5	24,9	25,2	26,1	26,6	22,6	22,8	22,2	22,4	22,5	21,7	23,1	26,2	25,9	25,4	25,9	25,3	25,2	23,7	

Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	Note:
1	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
2	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
3	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
4	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
5	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
6	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,01	2,02	2,02	2,02	2,02	2,01	
7	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
8	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
9	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
10	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
11	2,14	2,08	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	
12	2,14	2,09	2,08	2,07	2,07	2,07	2,06	2,06	2,05	2,04	2,04	2,03	2,02	2,02	2,02	2,02	2,02	2,02	2,02	

NOME: MATTIA GIOTTI

FIRMA:

ANNEX ITR-B: C1002977

ROSETTI MARINO — CROSSWIND

ITEM	Tag	BA-200F2	: Battery Bank for NAVAID	Dwg	123A90-DDL-EL-DL-20139
	S/Sys	72-00	: NAVAID	Module	LD_B-300
TASK	code	C10002978	Location Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form FTR-4		Battery Charge/Discharge

FTR4 - Battery charge / discharge

Record sheet

BATTERY DATA

Manufacturer:	FIAMM	Serial N°:	NA	Type	VRLA (GEL)
Rated voltage	24Vdc	Battery capacity (Ah):	1680	Number of cells	12
Rated autonomy (min)			720		

Test type

Important notice:

Discharge and charge (if required) must be performed according to manufacturer's instructions

Manufacturer:	FIAMM	Serial N°:	NA	Type	VRLA (GEL)
Test type: Charge ● Discharge		Duration	12h	Time	10:35/8:30
CdNi	constant current	Current(A)	40	Ambiant T°	NA
Pb	constant voltage	Volt/Cell	NA	Initial T° 23.7	Final T° 27.9

N° Hours	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	...	24
Time (hh:mm)	10:35	11:35	12:35	15	17	8	8:30														
Charge Voltage (V)	24.3	24.7	24.9	25.1	25.2	26.4	25.3														
Charge Current (A)	40.5	40.3	39.8	41.3	40.7	44.3	1.2														
Ambient Temp. (°C)	23.2	23.3	24.6	24.5	25.0	25.1	25.8														
Battery Cell Temp. (°C)	23.7	23.9	24.2	24.3	25.3	27.5	27.9														
Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)
1	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
2	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
3	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
4	2.03	2.06	2.08	2.09	2.10	2.20	2.11														
5	2.03	2.06	2.08	2.09	2.10	2.20	2.12														
...	2.03	2.06	2.08	2.09	2.10	2.20	2.12														
N	NOTE	NOTE	NOTE	NOTE	NOTE	NOTE	NOTE														

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 62 MAX	53172376WS	7716/24	10/07/2025
FLUKE 376	A1711003	7710/24	10/07/2025
FLUKE 175	17140769	7715/24	10/07/2025

Comments: NOTE: See attachment fo full measures.

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-12	2025-02-13	2025-02-14
Signature	Digitaly signed by Mattia Girotti 2025-02-12T08:00:45.559Z	Digitaly signed by Kristian Castellani 2025-02-13T09:08:11.850Z	Digitaly signed by Witness waived 2025-02-14T07:12:11.153Z

HKN ONE TEAM
CROSSWIND

123A90 BLPH - CROSSWIND OFFSHORE PROJECT
COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]

SUBSYSTEM 72-00: BATTERY CHARGE / DISCHARGE RECORD SHEET

ROSETTI MARINO

NOME: MATTIA GIGLI
ANNEX: C 1000 2878
FIRMA:

EQUIPMENT	BATTERY RACK BA-200F2	TEST MEASUREMENT:	ANNEX XX: BEFORE CHARGE

BATTERY BANK TERMINAL VOLTAGE (TAKE MEASUREMENT ON BATTERY BOX CUT-OFF SWITCH CB-200F2) 23,9V
AMBIENT TEMPERATURE 23,6°C BATTERY TEMPERATURE 24,3°C

CELL N°	TAG UTILITY / TYPE	MANIFACTURER	MODEL	LOCATION	VOLTAGE (V)	DATE	TIME	REMARKS
1	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
2	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
3	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
4	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
5	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
6	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
7	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
8	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
9	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
10	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
11	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
12	SMG (VRLA GEL)	FIAMM	VRLA GEL	B-300	1,99	10/2/25	10:30	
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HKN ONE TEAM
CROSSWIND

BLPH - CROSSWIND PROJECT - COMMISSIONING PROCEDURE OF NAVAID SYSTEM

BA-200F2 [ANNEX XX]
SUBSYSTEM 72-00: BATTERY CHARGE RECORD SHEET

ROSETTI MARINO

BATTERY RACK
BA-200F2

ANNEX XX): 12h CHARGE TEST RECORD

N° Hours	0:00	1:00	3:00	4:30	6:30	21:30	22:00																							Note:
Time (hh:mm)	10:35	11:35	12:35	15:00	17:00	8:00	8:30																							
Discharge Voltage (V)	24,3	24,7	24,9	25,1	25,2	26,4	25,3																							
Discharge Current (A)	40,5	40,3	39,8	41,3	40,7	44,3	1,2																							
Ambient Temp. (°C)	23,8	23,3	24,6	24,5	25,0	25,1	25,8																							
Battery Cell Temp. (°C)	23,7	23,8	24,2	24,3	25,3	27,5	27,9																							

Battery Cell N°	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	(V)	Note:
1	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
2	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
3	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
4	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
5	2,03	2,06	2,08	2,09	2,10	2,20	2,12																								
6	2,03	2,06	2,08	2,09	2,10	2,20	2,12																								
7	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
8	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
9	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
10	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								
11	2,04	2,06	2,08	2,09	2,10	2,20	2,11																								
12	2,03	2,06	2,08	2,09	2,10	2,20	2,11																								

NOME: MATTIA GIROTTI

ANNEX: C1000 2878

FIRMA:

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	**Commissioning and 2 years spare parts list**
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)** — Contract: **CW-I-WP4-2023-05**
Project ID	**123A90A** — Doc. n° **1724000775-COM-LIS-00020** — Rev. **Accepted For Construction** — Rev. Date **28-Nov-24** — Status **AFC** — Class **2**

The equipment consists of the following units/components

1	Tag no.	CB-200F2	NC-200F2/BC-200F2A/B	EPH-200-01				
2	Tag description	NAVAIDS BATTERY BREAKER	NAVAIDS CENTRAL CONTROL PANEL	PHOTOCELL SYSTEM				
3	Manufacturer model/type no.	CUT-OFF	NCCP	EMH-160FTC1				
4	Manufacturer serial no.	24-1241	24-1141	24-081				
5	No. of units	1	1	1				

Supplier: SICE SRL — PO Number: 1724000775 — PO description: NAVIGATION AIDS SYSTEM — Contact name: MR ANDREA BUFFONI

Address: VIA G.BARTOLUCCI 16, BORGO SANTA MARIA - PESARO (PU), ITALY — Supplier telephone no: +39 0721 201301 / 202635 — Contact mobile no:

E-mail: info@sicesrl.com — WEBSITE www.sicesrl.com

General Information:

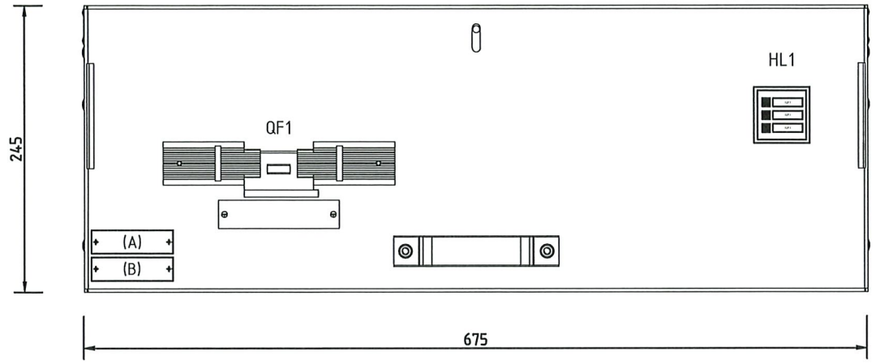
6 Quantity of parts FITTED / INSTALLED per unit/component

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certificate Type (if applicable)	Certificate 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.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																	
7	8		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	BATTERY CHARGER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00006	BC	VARIOUS	NA	NA	2	2.1							RPB-1600-24	RPB-1600-24	MEAN WELL	0	1	-
2	2	POWER INVERTER MODULE	1724000775-EL-DS-00004	1724000775-EL-DG-00006	INV	VARIOUS	NA	NA	2	2.4							PHOENIX 24/250	PHOENIX 24/250	VICTRON ENERGY	0	1	-
3	2	CODER/DRIVER CIRCUIT MARINE SIGNAL LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00006	CG	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0	1	-
4	1	CODER/DRIVER CIRCUIT BOAT LANDING STATUS LIGHT	1724000775-EL-DS-00004	1724000775-EL-DG-00006	CG	VARIOUS	NA	NA	10	NA							SICE266-10NM	SICE266-10NM	SICE	0	1	-
5	1	EX-d PHOTOCELL (M25)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	FTC	VARIOUS	NA	NA	10	NA							FTC M25	FTC M25	SICE	0	1	-
6	1	INSULATION MONITORING RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	KE	VARIOUS	NA	NA	2	0.2							RI-R48	RI-R48	CONTREL	0	1	-
7	2	INSULATION MONITORING RELAY (230VAC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	KE	VARIOUS	NA	NA	2	0.3							RI-R22	RI-R22	CONTREL	0	1	-
8	1	POWER RELAY (24VDC)	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	NA							55.34.9.024.0094	55.34.9.024.0094	FINDER	1	0	-
9	1	DIN RAIL SOCKET FOR POWER RELAY	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	NA							94.04	94.04	FINDER	1	0	-
10	3	INTERFACE RELAY (24VDC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	0.03							TRS 24VDC 1CO	TRS 24VDC 1CO	WEIDMULLER	1	0	-
11	6	INTERFACE RELAY (230VAC) C/W SOCKET	1724000775-EL-DS-00004	1724000775-EL-DG-00006	K	VARIOUS	NA	NA	2	0.03							TRS 230VAC RC 1CO	TRS 230VAC RC 1CO	WEIDMULLER	1	0	-
12	6	95sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.3							WDU95N/120N	WDU95N/120N	WEIDMULLER	1	0	-
13	6	35sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.05							WDU35	WDU35	WEIDMULLER	1	0	-
14	4	16sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.03							WDU16	WDU16	WEIDMULLER	1	0	-
15	2	6sqmm TERMINAL WITH FUSE HOLDER	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.02							WSI6	WSI6	WEIDMULLER	1	0	-
16	14	6sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU6	WDU6	WEIDMULLER	1	0	-
17	52	4sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU4	WDU4	WEIDMULLER	2	0	-
18	65	2.5sqmm TERMINAL	1724000775-EL-DS-00004	1724000775-EL-DG-00006	X	VARIOUS	NA	NA	2	0.01							WDU2.5	WDU2.5	WEIDMULLER	2	0	-
19																						
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Section 7.4 Vendor Data / Operations / Maintenance Manuals References

DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L1-n"

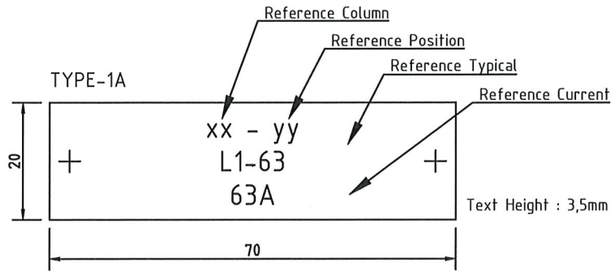


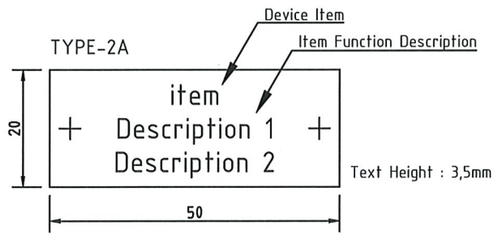
NOTE :

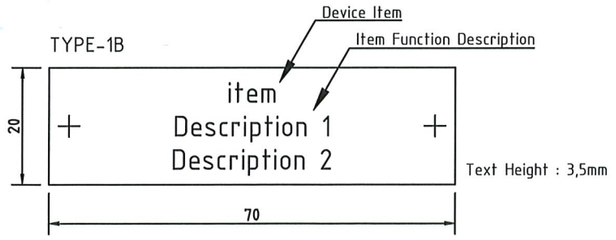
A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position [Column / Position inside SWB]
- Typical name [reference applicability typical used]
- Power [reference applicability typical used]

B) USER name plate (type-1B), with :
- Item User [to see SLD diagrams]
- User Description [to see SLD diagrams]

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate







VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031

REV.:	DATE:	SIGNATURE:
2_A	18/03/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x

DWG n° : 231298/SD/31
Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
1	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

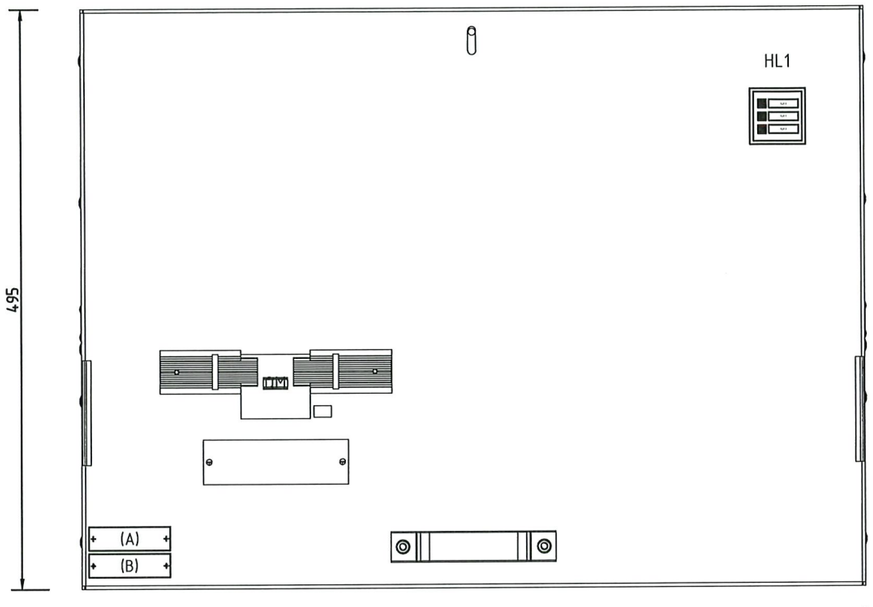
A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 023 | REV. 02

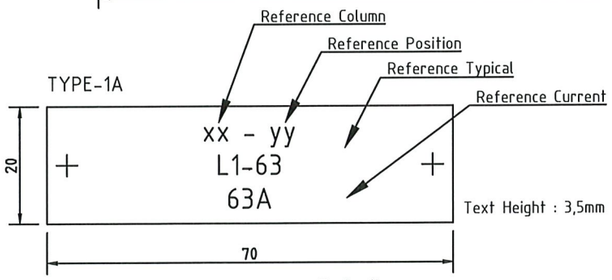
F.to UNI A3: 420mmx297mm

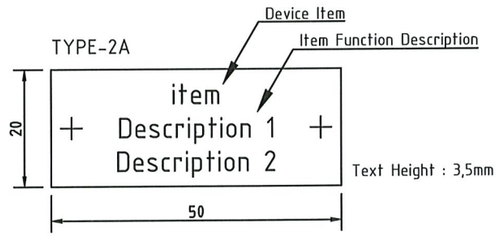
File Name : 1723002197-EL-DG-00031 Rev. 02

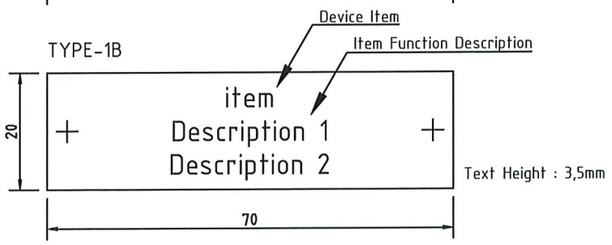
DOOR FRONT LAY-OUT

TYPICAL : LINE FEEDER "L2-n"









NOTE :

A) IDENTIFICATION name plate (type-1A) , with :
- Drawer position [Column / Position inside SWB]
- Typical name [reference applicability typical used]
- Power [reference applicability typical used]

B) USER name plate (type-1B), with :
- Item User [to see SLD diagrams]
- User Description [to see SLD diagrams]

DEVICES name plate			
ITEM	DESCRIPTION 1	DESCRIPTION 2	NOTE
QF1	Circuit Breaker	Signalling	NO plate
HL1	Multiled	Signalling	NO plate

NO MARK UP
AS COMMISSIONED: MATIA GIROTTI
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031
REV.: 2_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
1	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Door Front Lay-Out - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 024 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

USERS LEGEND

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

TYPICAL APPLICABILITY					
ITEM	ITEM TAG	DESCRIPTION TAG	REFERENCE POSITION (written on name name plate "type-1A)	REFERENCE NOMINAL CURRENT C.B. TRIP UNIT (written on name name plate "type-1A)	REFERENCE TYPICAL (written on name name plate "type-1A)
1	UP-200F4	AC UPS F&G - 8H UP-200F4 - BYPASS	A2 / +04	63A	L1-63
2	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE A	A3 / +01	100A	L1-100
3	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 - LINE B	A4 / +01	100A	L1-100
4	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE A	A6 / +05	63A	L1-63
5	UP-200F4	AC UPS F&G - 8H UP-200F4 - LINE B	A6 / +06	63A	L1-63
6	ESW-200N1	WELDING SOCKETS (TOP DECK)	A6 / +08	160A	L2-160
7	UP-200F3	AC UPS PAS - 30 MIN UP-200F3 (BYPASS)	A7 / +02	100A	L1-100
8	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER A	A7 / +03	63A	L1-63
9	UP-200F1	DC BATTERY SYSTEM SWTG CONTROL - FEEDER B	A7 / +04	63A	L1-63
10	UP-200F2	NAVAID SYSTEM FEEDER A	A7 / +05	63A	L1-63
11	UP-200F2	NAVAID SYSTEM FEEDER B	A7 / +06	63A	L1-63
12	ESW-200N2	WELDING SOCKETS (LOWER DECK)	A7 / +08	160A	L2-160

NO MARK UP
AS COMMISSIONED: MARIA GIRETTI
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031
REV.: 2_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

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0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Users Legend - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 025 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

ITEMS ACRONYM

TYPICAL : LINE FEEDER "L1-n" & "L2-n"

Composition of Typical :

L-x = Common Parts
L1-"nn" or L2-"nn"= Specific Parts

Example for Composition of L1-63:
- to take "L-x" plus "L1-63"

Example for Composition of L2-160:
- to take "L-x" plus "L2-160"

	ACRONYM ITEMS (Comun parts)	ACRONYM ITEMS (Specific parts)				
	L-x	L1-40 (In=40A) (Current Trip Unit)	L1-63 (In=63A) (Current Trip Unit)	L1-100 (In=100A) (Current Trip Unit)	L2-160 (In=160A) (Current Trip Unit)	
ASSOCIATED TYPICAL	This Item include all devices that are comun for both "Specific Parts" Items	This Items include only devices that are detail for "Specific Parts" Items				
L1-40	X	X				
L1-63	X		X			
L1-100	X			X		
L2-160	X				X	

NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
25/3/25

VALID FOR CONSTRUCTION
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123A90-FDL-1724002197-EL-DG-00031
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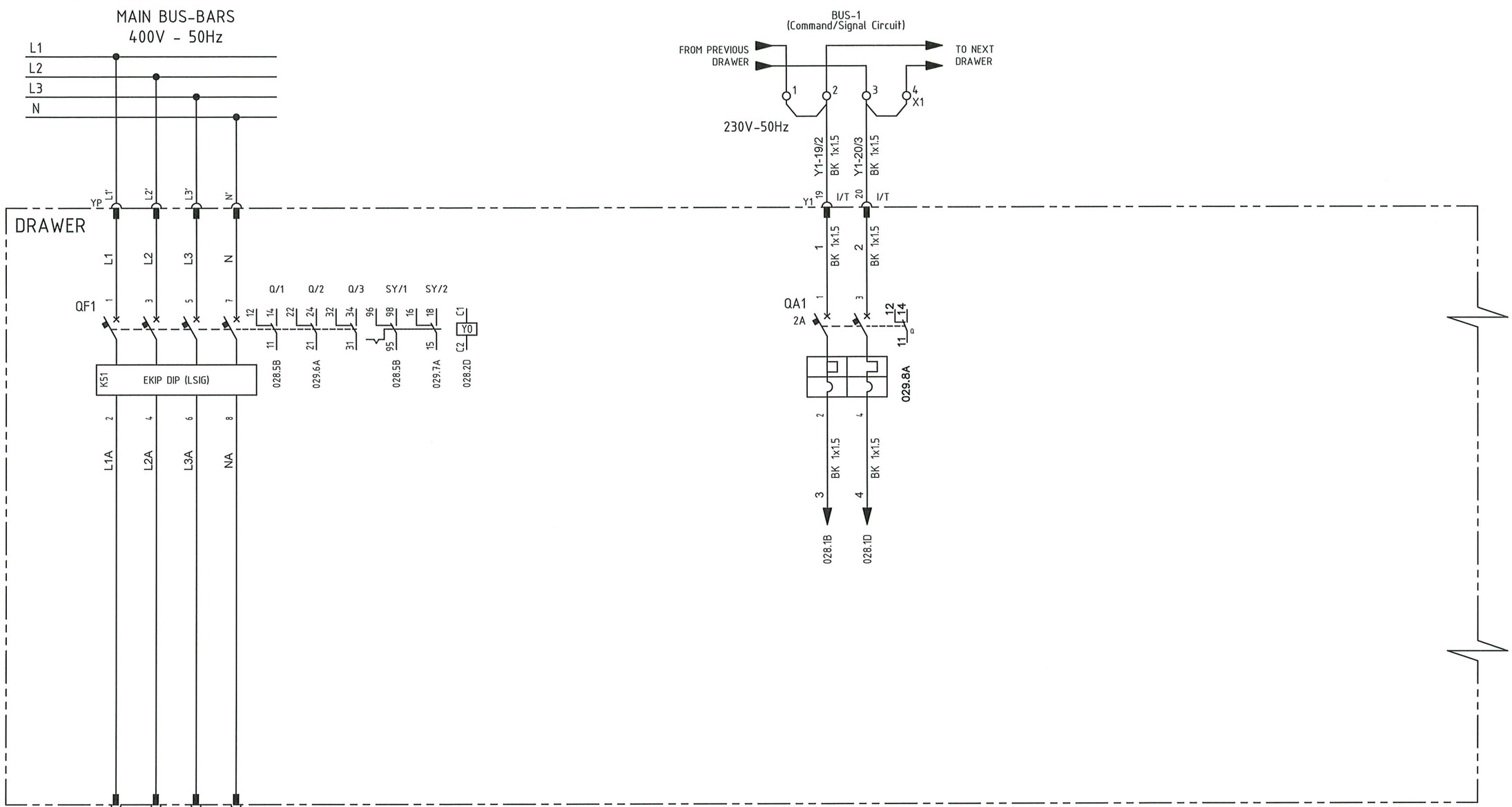
TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Items Acronym - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 026 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02



VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031

REV.:	DATE:	SIGNATURE:
2_A	18/03/25	G.Randi

ROSETTI MARINO SpA

NO MARK UP
AS COMMISSIONED: MATIA GIROTTI
25/3/25

=	TYPICAL						
+	L-x						
DWG n° : 231298/SD/31							
Item n° : PF1002983/26							
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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 027 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
25/3/25

EXT

9 X1 — 10 X1 — Y1-17/10 BK 1x1.5 — Y1 17 I/T
11 X1 — 12 X1 — Y1-18/11 BK 1x1.5 — 18 I/T
22 T — 21 I/T

027.6C 3 230V-50Hz → 3 /./

QF1 027.1B — 11 Q 12 14 — 96 98 SY 95 — QF1 027.1B

5 BK 1x1.5 — 6 BK 1x1.5 — 7 BK 1x1.5 — 8 BK 1x1.5 — 9 BK 1x1.5

HL1 230VAC 1 2 3 4
L1 GR — L2 RD — L3 AM
CIRCUIT BREAKER OPEN — CIRCUIT BREAKER CLOSE — FEEDER TRIPPED

QF1 027.1B C1 Y0 C2

KA1 A1 A2

027.6C 4 → 4 /./

DRAWER ON TEST

029.7A 11 12 14 | 21 22 24 | 31 32 34 | 41 42 44

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031

REV.:	DATE:	SIGNATURE:
2_A	18/03/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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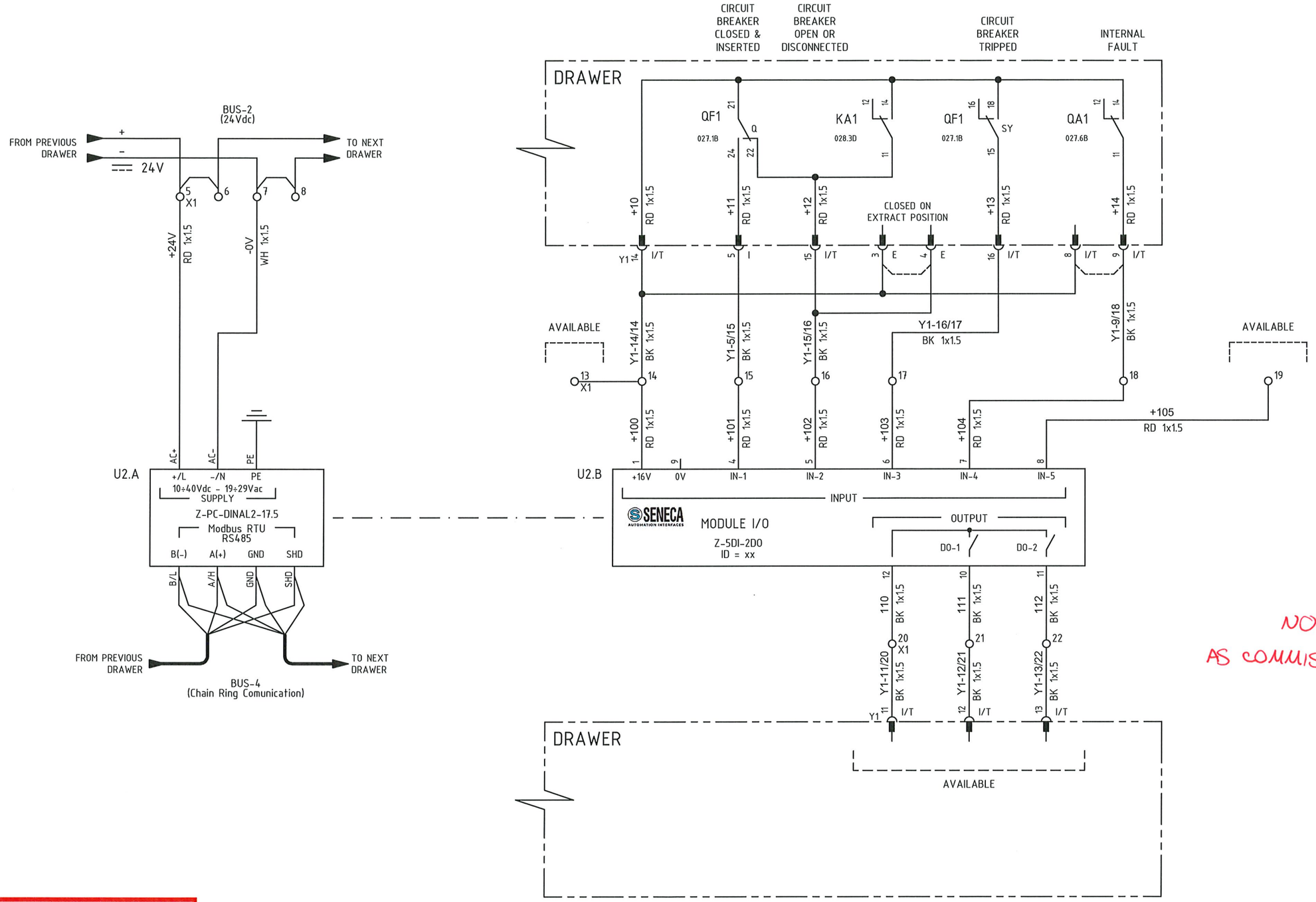
TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 028 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02



NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031
REV.: 2_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

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TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

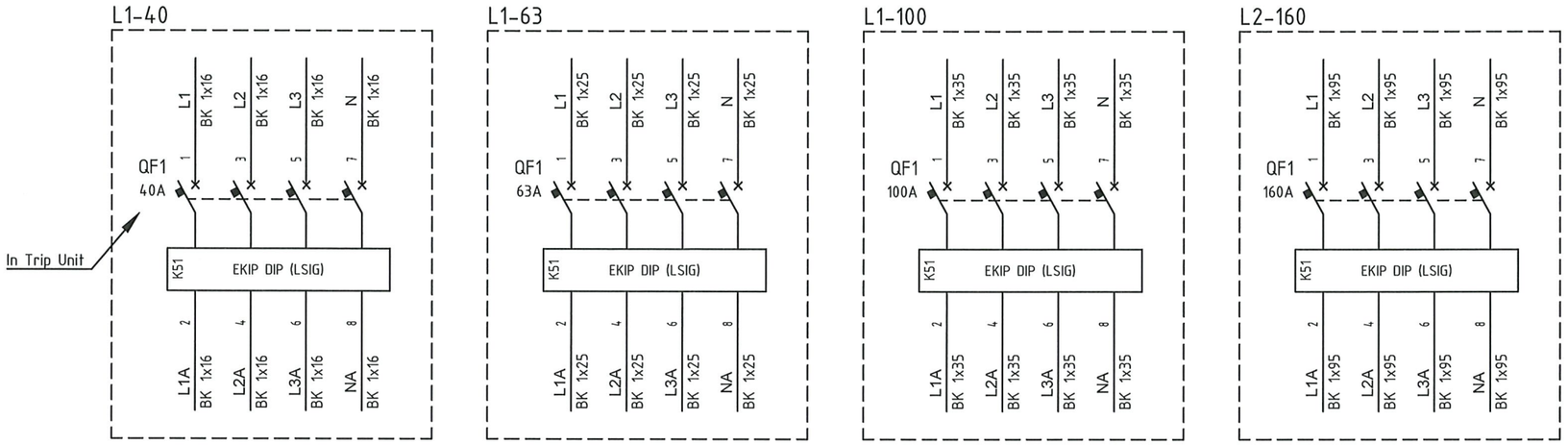
A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 029 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

SPECIFIC PARTS

TYPICAL : LINE FEEDER "L1-n" & "L2-n"



NO MARK UP
AS COMMISSIONED: MARIA GIROTTI.
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031
REV.: 2_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
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TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 030 | REV. 02

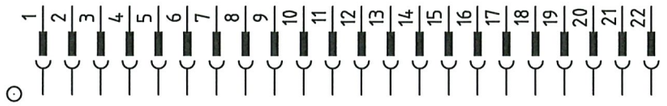
F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

AUXILIARY SOCKET

136450/001 (PF – 1 pcs) + 136458/004 (PM – 1 pcs)

N° PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
JUMP			●	●				●	●													
RACKED–OUT			X	X				X	X													
TEST								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
RACKED–IN					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PIN USED			029.6B	029.7B	029.6B			029.8B	029.8B		029.7D	029.7D	029.8D	029.5B	029.6B	029.7B	028.2B	028.3B	027.6A	027.6A	028.4B	028.3B



TYPICAL - L-x - Y1

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-OUT POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN TEST POSITION

← FIELD WHIT "X" - CONTACT CLOSE WHEN DRAWER IS IN RACKED-IN POSITION

← CROS-REFERENCE USED PIN

NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031

REV.:	DATE:	SIGNATURE:
2_A	18/03/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=	TYPICAL
+	L-x
DWG n° :	231298/SD/31
Item n° :	PF1002983/26

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TITLE : "SG–200N1"

LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS

Functional Drawing - Typical "L1-n" & "L2-n"

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

SCALE : NTS

A3

DRAWING NO. 1723002197–EL–DG–00031

SHEET 031

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197–EL–DG–00031 Rev. 02

TYPICAL - L-x

X1

NumM	Fg.	Sez.	Tipo	Descrizione	Costruttore
			BT003	BT/3 End bracket	Cabur
1	027.5A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
2	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
3	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
4	027.6A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
5	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
6	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
7	029.2A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
8	029.3A	2.5	HD100GR_	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD101GR	HMD/PT/GR End section - Grey	Cabur
9	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
10	028.2A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
11	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
12	028.3A	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
13	029.4B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
14	029.5B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
15	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
16	029.6B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
17	029.7B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
18	029.8B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
19	029.9B	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
20	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
21	029.7D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
22	029.8D	2.5	HD400GR_	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur
			HD201GR	HMD.1/PT/GR End section - Grey	Cabur
			BT003	BT/3 End bracket	Cabur

NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
25/3/25

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031
REV.: 2_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

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TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 032 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
HL1	028	ML22/483L230STLTTR	1	MULTILED 48x48 - 3 LED - Vaux=230Vac/dc + LAMP TEST + TROP	DOMO	TYPICAL L-x
KA1	028	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	TYPICAL L-x
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	TYPICAL L-x
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	TYPICAL L-x
QA1	027	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	TYPICAL L-x
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	TYPICAL L-x
U2.A	029	Z-PC-DINAL2-17.5	1	DIN RAIL 2SLOT WITH HEAD FOR "Z-5DI-2DO"	SENECA	TYPICAL L-x
U2.B	029	Z-5DI-2DO	1	I/O MODUL 5DI+2DO modbus RS485 Vaux=10÷40Vdc 19÷28Vac	SENECA	TYPICAL L-x
X1		HD100GR_	8	HMD.2/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		HD400GR_	14	HMD.2N/GR Two-level feed-through Terminal Block - Grey (2.5 mmq) - Spring type	Cabur	TYPICAL L-x
		BT003	2	BT/3 End bracket	Cabur	TYPICAL L-x
		HD101GR	1	HMD/PT/GR End section - Grey	Cabur	TYPICAL L-x
		HD201GR	1	HMD.1/PT/GR End section - Grey	Cabur	TYPICAL L-x

NO MARK UP
AS COMMISSIONED : MATIA GIROTTI
25/3/25

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S40LSIG4	1	XT2S 160 Ekip LSIG In=40A 4p F F	ABB	TYPICAL L1-40
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-40
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-40

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S63LSIG4	1	XT2S 160 Ekip LSIG In=63A 4p F F	ABB	TYPICAL L1-63
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-63
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-63

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	XT2S100LSIG4	1	XT2S 160 Ekip LSIG In=100A 4p F F	ABB	TYPICAL L1-100
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L1-100
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L1-100

Nome/Item	Fg/Sh	Tipo/Type	Q.ta/Q.ty	Descrizione/Description	Costruttore/Manufacturer	Quadro (descrizione)
QF1	030	1SDA068179R1	1	XT4S 250 BREAKING PART 4p F F	ABB	TYPICAL L2-160
		1SDA067536R1	1	SG.EL.Ekip LSIG In=160A XT4 4p	ABB	TYPICAL L2-160
		1SDA066436R1	1	AUX-C 3Q+2SY 250Vac/dc XT2-XT4 F/P	ABB	TYPICAL L2-160
		1SDA066325R1	1	SOR-C XT1..XT4 F/P 220-240Vac-220-250Vdc	ABB	TYPICAL L2-160

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00031

REV.:	DATE:	SIGNATURE:
2_A	18/03/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= TYPICAL
+ L-x
DWG n° : 231298/SD/31
Item n° : PF1002983/26

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
1	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
0	09/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

TITLE : "SG-200N1"
LV SWG FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
Functional Drawing - Typical "L1-n" & "L2-n"

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

A3 | DRAWING NO. 1723002197-EL-DG-00031 | SHEET 033 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00031 Rev. 02

BASE LOAD POWER HUB (BLPH)

NAVIGATION AIDS SYSTEM

SCHEMATIC WIRING DIAGRAMS

AS COMMISSIONED
MATTIA GIROTTI
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH) SCHEMATIC WIRING DIAGRAMS FRONT PAGE

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 001 | REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG

REV. No.	SHEET No.	DESCRIPTION	REF. CODE
04	001	FRONT PAGE	
04	002	SUMMARY AND GENERAL NOTES	
04	003	SYMBOL LIST	
04	004	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 1 of 17	
04	005	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 2 of 17	
04	006	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 3 of 17	
04	007	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 4 of 17	
04	008	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 5 of 17	
04	009	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 6 of 17	
04	010	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 7 of 17	
04	011	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 8 of 17	
04	012	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 9 of 17	
04	013	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 10 of 17	
04	014	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 11 of 17	
04	015	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 12 of 17	
04	016	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 13 of 17	
04	017	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 14 of 17	
04	018	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 15 of 17	
04	019	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 16 of 17	
04	020	NCCP & BATTERY CHARGER/RECTIFIER – SCHEMATIC WIRING DIAGRAM 17 of 17	
04	021	NAVAIDS BATTERY BREAKER – SCHEMATIC WIRING DIAGRAM 1 of 1	
04	022	PHOTOCELL SYSTEM – SCHEMATIC WIRING DIAGRAM 1 of 1	

GENERAL NOTES

(1) INTERNAL WIRING MADE BY SICE BY USING WIRES TYPE FG17 450/750V (CEI 20-38 CEI UNEL 35310 EN 50575:2014 + EN 50575/A1:2016)

(2) COLOR CODE OF INTERNAL WIRING AS FOLLOWS:

FOR AC SYSTEMS:

230VAC POWER SUPPLY (L1)	-> BLACK
230VAC POWER SUPPLY (L2)	-> GREY
230VAC POWER SUPPLY (L3)	-> BROWN
230VAC POWER SUPPLY (N)	-> BLUE
PROTECTIVE EARTH (PE)	-> GREEN/YELLOW
CONTROL/SIGNALLING	-> BLACK

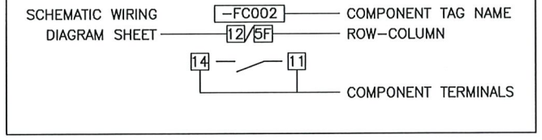
FOR DC SYSTEMS:

DC POSITIVE POLE (+)	-> RED
DC NEGATIVE POLE (-)	-> BLUE (WHITE)
CONTROL/SIGNALLING	-> BLACK
INSTRUMENT EARTH (IE)	-> GREEN

(3) FOR A DETAILED DESCRIPTION OF EACH ITEM, PLEASE REFER TO THE MATERIAL LIST & BILL OF MATERIAL (DOC. No. 1724000775-EL-LIS-00009).

(4)

CROSS-REFERENCE



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
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00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
SCHEMATIC WIRING DIAGRAMS
SUMMARY AND GENERAL NOTES

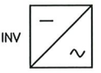
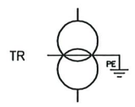
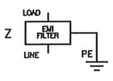
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 002 | REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG

SYMBOL LIST

 AUTOMATIC CIRCUIT BREAKER (MAGNETO–THERMIC)	 AUTOMATIC CIRCUIT BREAKER (ONLY MAGNETIC)	 AUXILIARY / RELAY CONTACT (NORMALLY OPEN)	 AUXILIARY / RELAY CONTACT (NORMALLY CLOSED)	 RELAY COIL (COIL POWERED AT 24VDC)	 RELAY COIL (COIL POWERED AT 230VAC)
 POWER CONTACTOR (COIL POWERED AT 24VDC)	 UNDERCURRENT MONITORING RELAY	 24VDC EARTH INSULATION MONITORING RELAY	 230VAC EARTH INSULATION MONITORING RELAY	 PHOTOCELL RELAY (POWERED AT 24VDC)	THERMIC SWITCH (CLOSED WHEN TEMPERATURE HIGHER THAN THRESHOLD)
 COOLING FAN	 230VAC SOCKET	 DIODE	 CURRENT SHUNT	 0...60mV TO 4...20mA TRANSDUCER	 TERMINAL
 TERMINAL WITH FUSE	 PILOT LIGHT	 CABINET INTERNAL LIGHT	 LIMIT SWITCH	 PHOTOCELL (RESISTANCE SENSIBLE TO LIGHT)	 MARINE SIGNAL LIGHT CODER CIRCUIT
 STATUS LIGHT CODER CIRCUIT	 MEDIUM INTENSITY OBSTRUCTION LIGHT CODER CIRCUIT	 BATTERY CHARGER MODULE (AC/DC)	 POWER AC/DC CONVERTER MODULE (AC/DC)	 POWER INVERTER MODULE (DC/AC)	 POWER DC/DC CONVERTER MODULE (DC/DC)
 VOLTAGE TRANSFORMER	 CONTROL SYSTEM	 MODBUS INTERFACE (SLAVE)	 MECHANICAL INTERLOCK BETWEEN POWER CONTACTORS (KM)	 PUSH–BUTTON	 2–POSITION SELECTOR SWITCH
 3–POSITION SELECTOR SWITCH	 AUTOMATIC CHANGE–OVER	 RJ–45 MODULAR JACK	 EMI FILTER	ASTRONOMIC SWITCH	SURGE ARRESTER

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
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00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

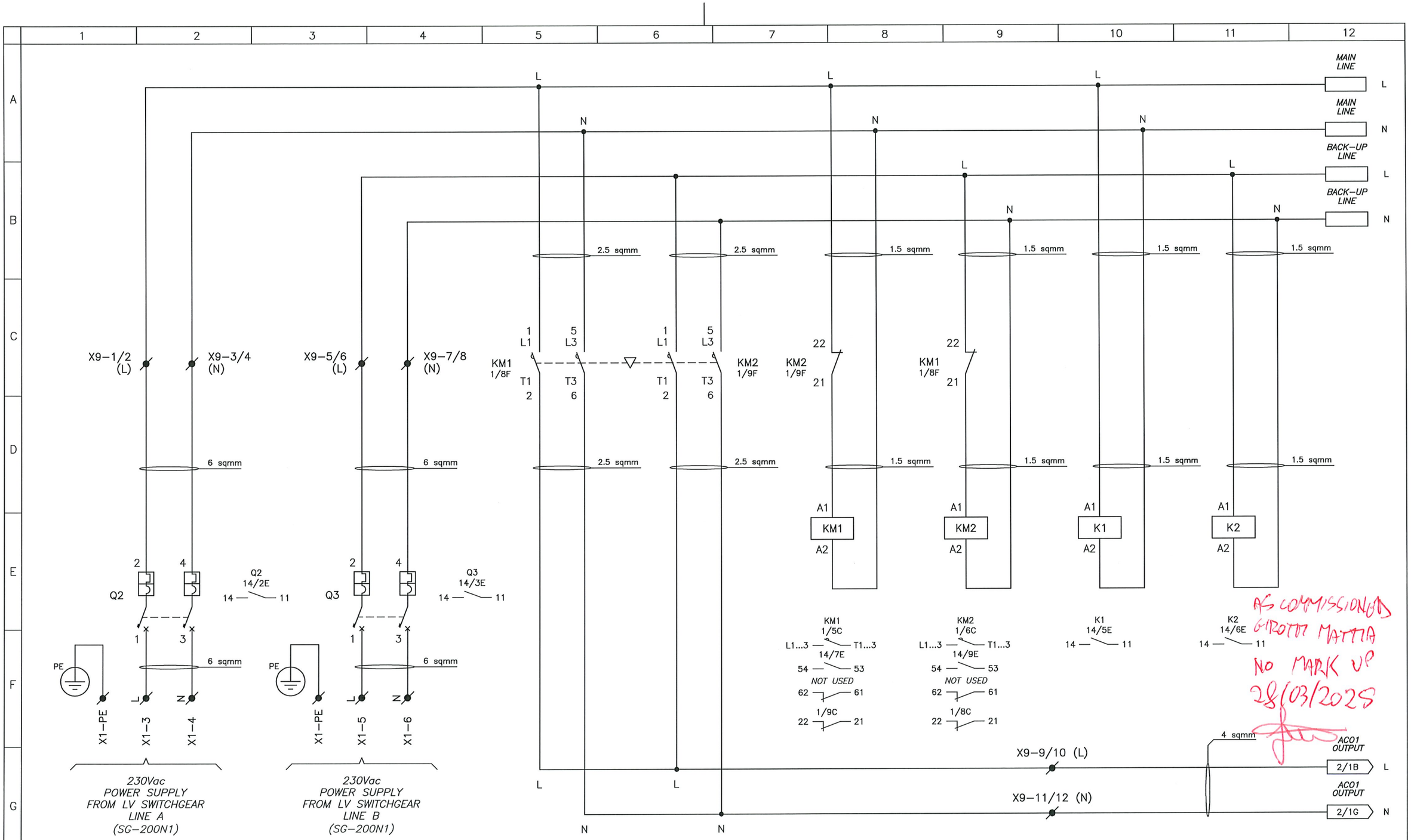
TITLE : BASE LOAD POWER HUB (BLPH)
SCHEMATIC WIRING DIAGRAMS
SYMBOL LIST

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 003 | REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
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00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice

CROSSWIND | ROSETTI MARINO

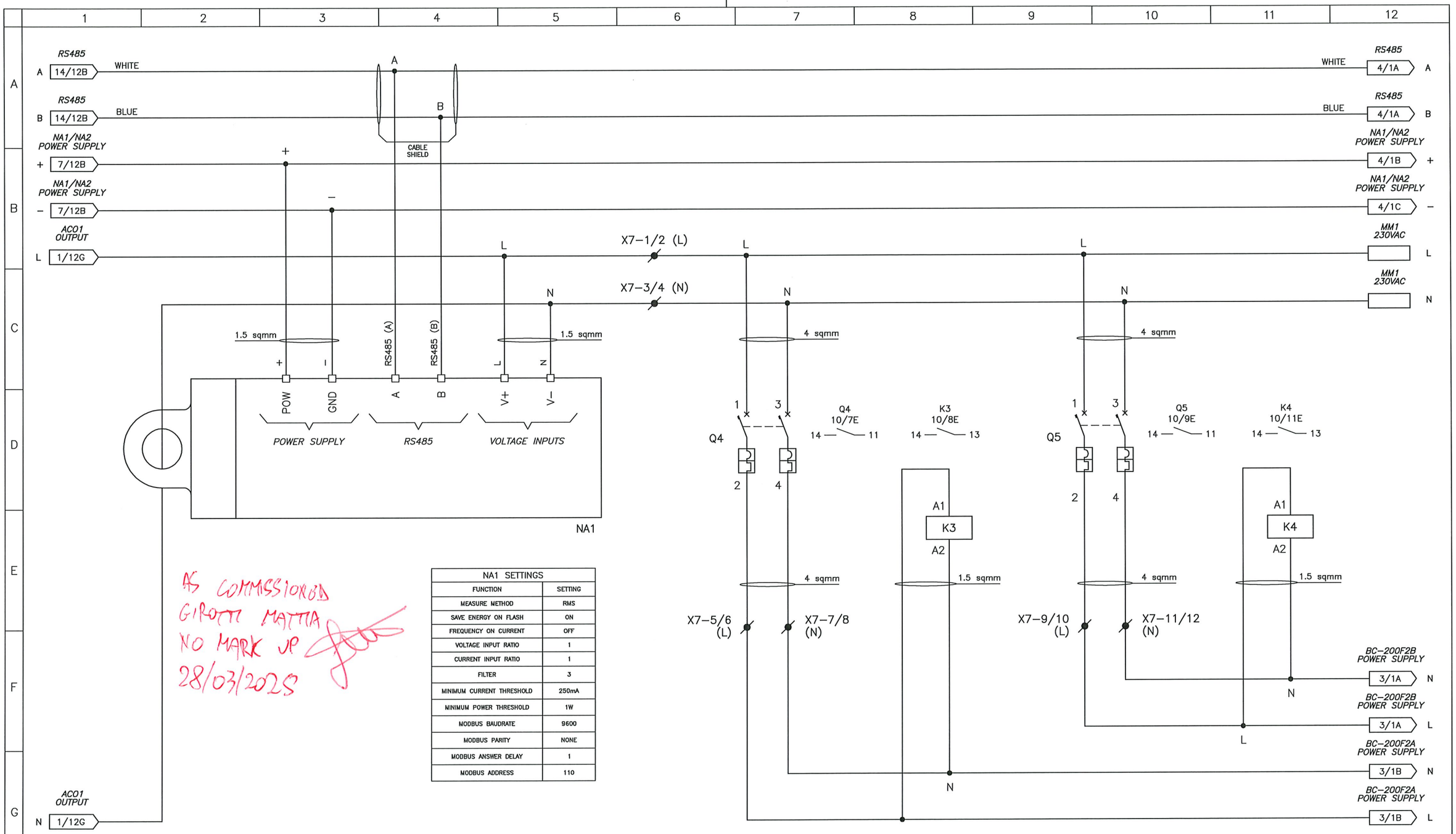
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 1 of 17

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 004 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

NA1 SETTINGS	
FUNCTION	SETTING
MEASURE METHOD	RMS
SAVE ENERGY ON FLASH	ON
FREQUENCY ON CURRENT	OFF
VOLTAGE INPUT RATIO	1
CURRENT INPUT RATIO	1
FILTER	3
MINIMUM CURRENT THRESHOLD	250mA
MINIMUM POWER THRESHOLD	1W
MODBUS BAUDRATE	9600
MODBUS PARITY	NONE
MODBUS ANSWER DELAY	1
MODBUS ADDRESS	110

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
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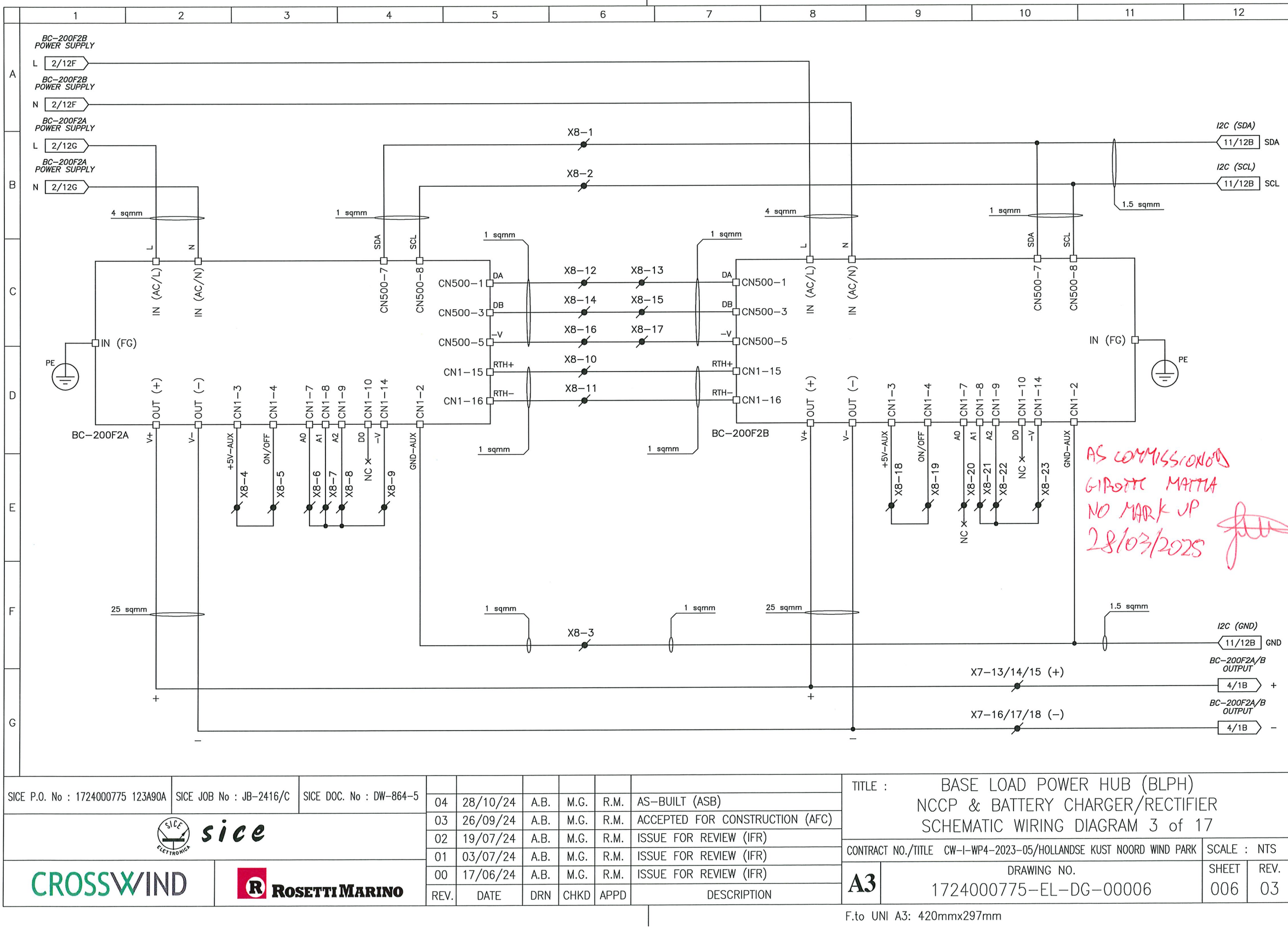
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 2 of 17

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 005 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB–2416/C	SICE DOC. No : DW–864–5			
sice					
CROSSWIND	ROSETTI MARINO				

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

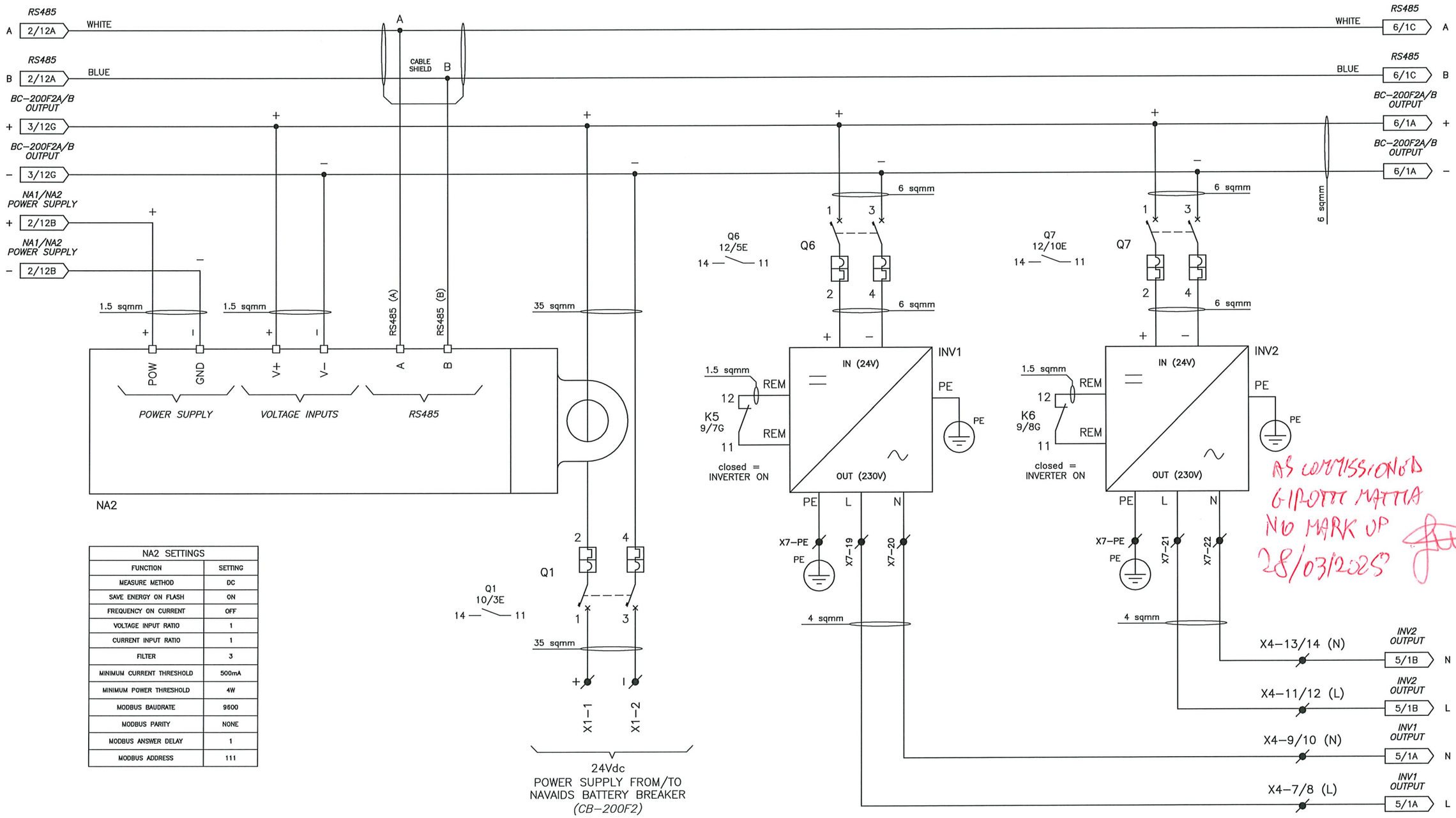
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 3 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 006 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



NA2 SETTINGS	
FUNCTION	SETTING
MEASURE METHOD	DC
SAVE ENERGY ON FLASH	ON
FREQUENCY ON CURRENT	OFF
VOLTAGE INPUT RATIO	1
CURRENT INPUT RATIO	1
FILTER	3
MINIMUM CURRENT THRESHOLD	500mA
MINIMUM POWER THRESHOLD	4W
MODBUS BAUDRATE	9600
MODBUS PARITY	NONE
MODBUS ANSWER DELAY	1
MODBUS ADDRESS	111

AS COMMISSIONED
G.PIROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND

ROSETTI MARINO

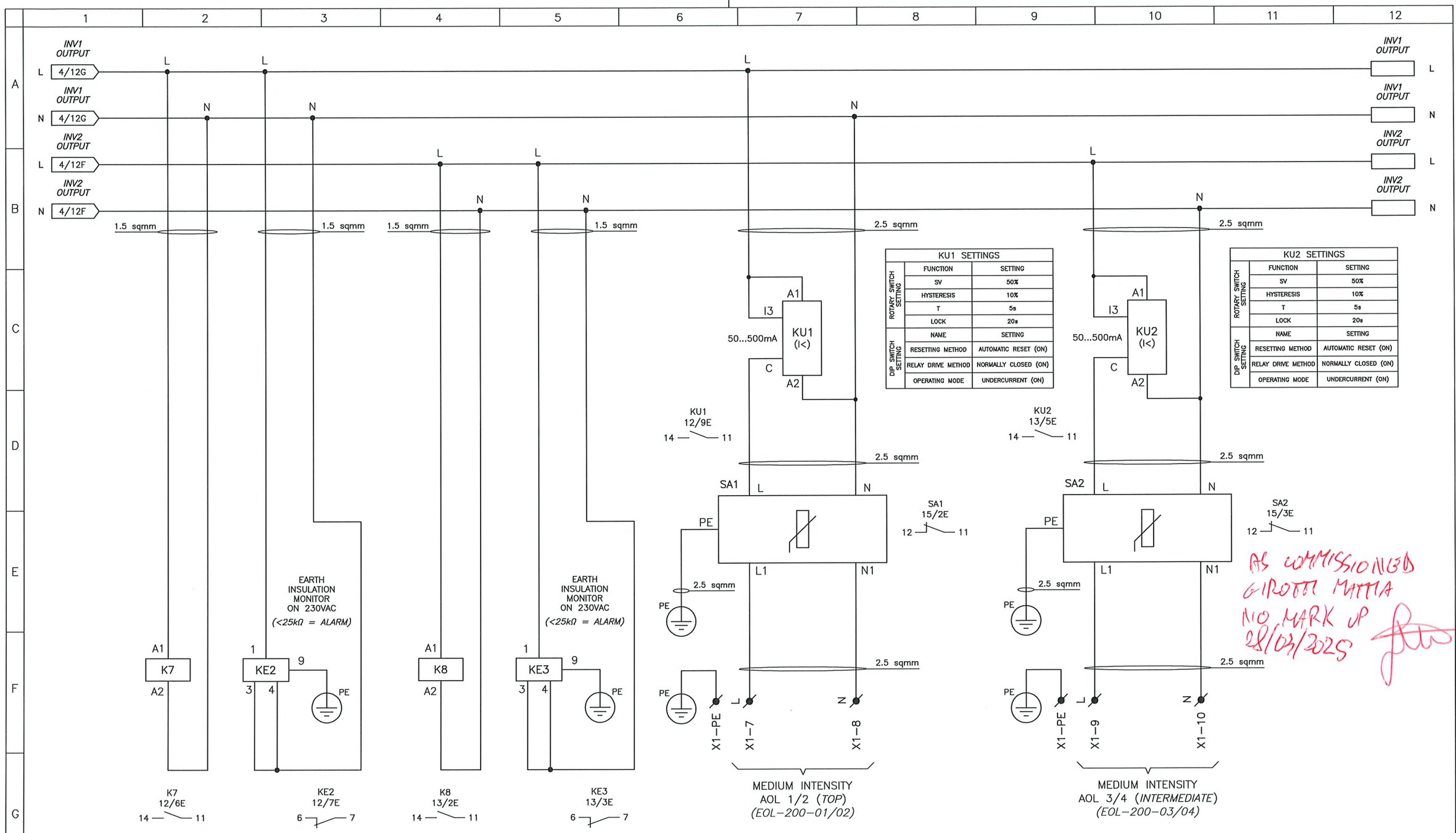
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 4 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 007 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND | ROSETTI MARINO

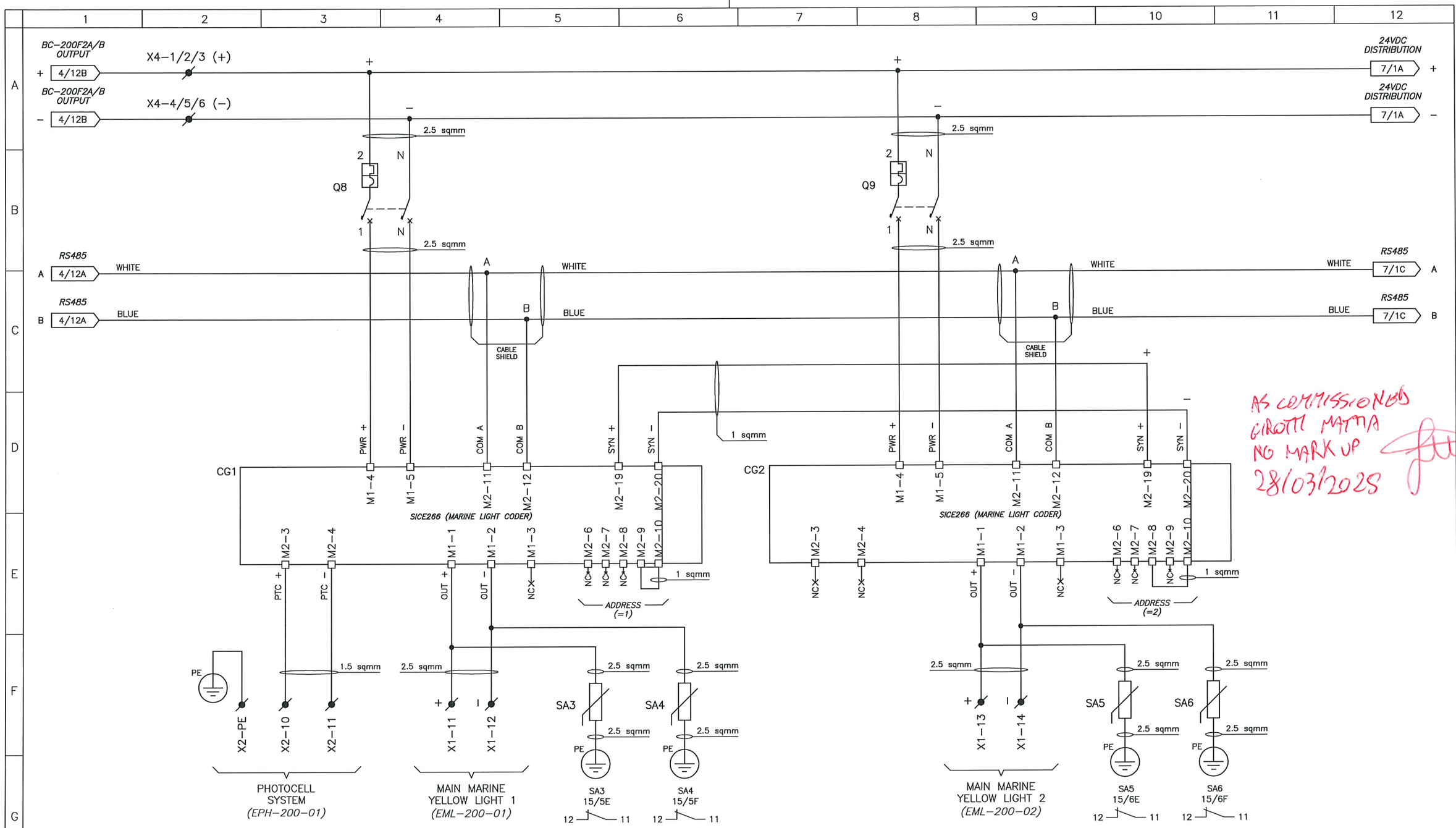
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 5 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 008 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND | ROSETTI MARINO

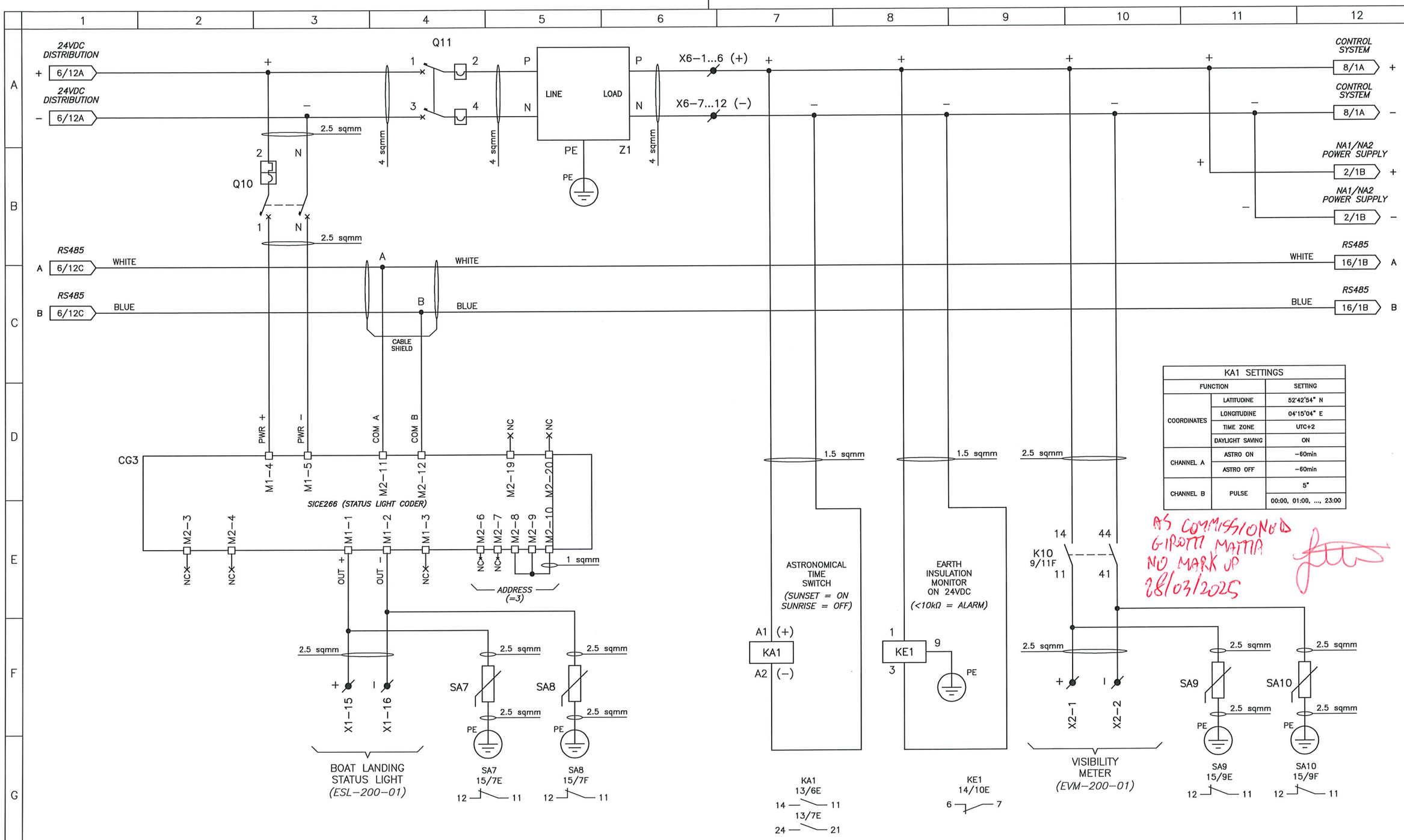
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 6 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 009 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



KA1 SETTINGS		
FUNCTION		SETTING
COORDINATES	LATITUDINE	52°42'54" N
	LONGITUDINE	04°15'04" E
	TIME ZONE	UTC+2
	DAYLIGHT SAVING	ON
CHANNEL A	ASTRO ON	–60min
	ASTRO OFF	–60min
CHANNEL B	PULSE	5°
		00:00, 01:00, ..., 23:00

AS COMMISSIONED
GIPOTTI MATTIA
NO MARK UP
28/03/2025

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice ELETTRONICA

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

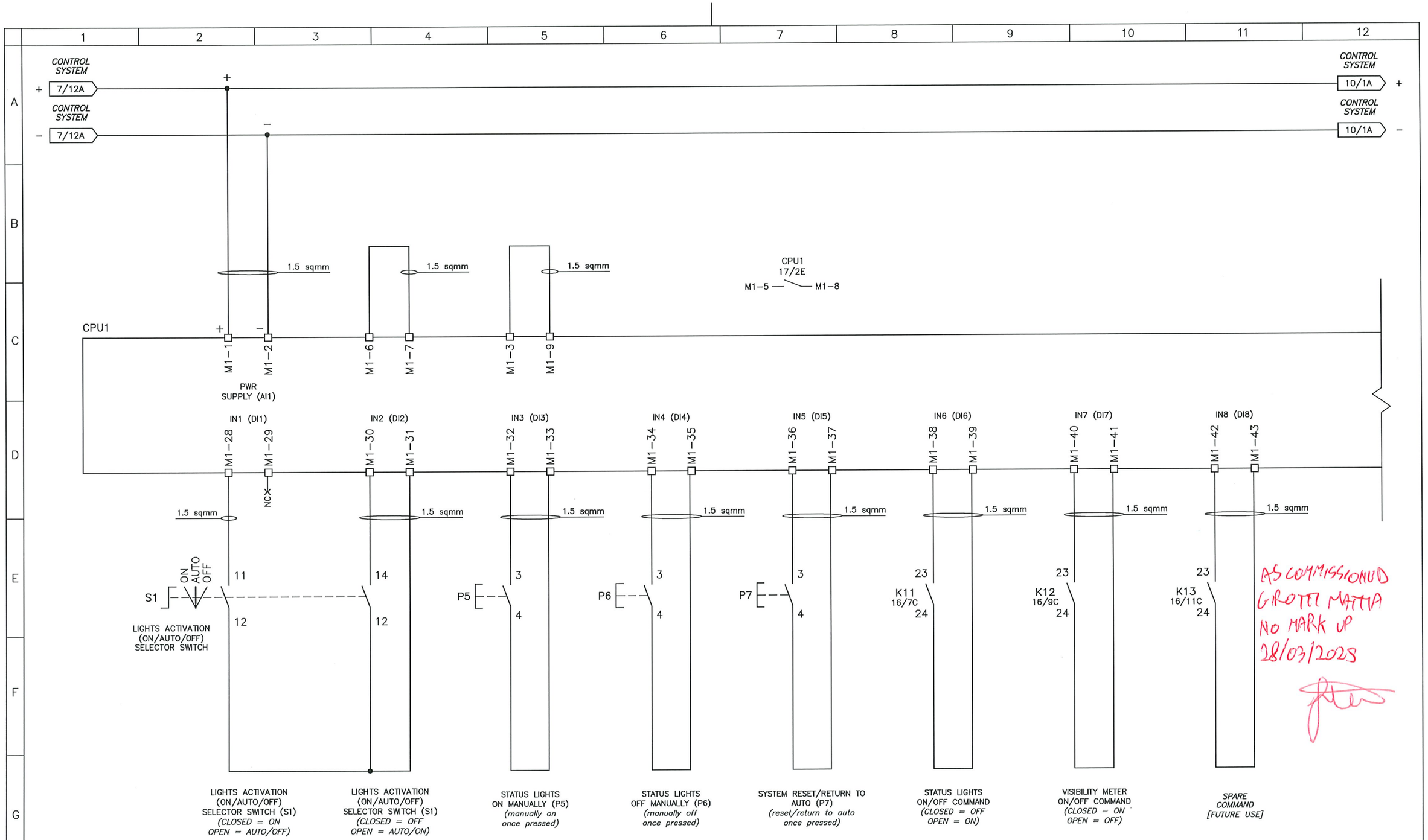
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 7 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 010 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-5			
			04	28/10/24	A.B. M.G. R.M. AS-BUILT (ASB)
			03	26/09/24	A.B. M.G. R.M. ACCEPTED FOR CONSTRUCTION (AFC)
			02	19/07/24	A.B. M.G. R.M. ISSUE FOR REVIEW (IFR)
			01	03/07/24	A.B. M.G. R.M. ISSUE FOR REVIEW (IFR)
			00	17/06/24	A.B. M.G. R.M. ISSUE FOR REVIEW (IFR)
			REV.	DATE	DRN CHKD APPD DESCRIPTION

sice

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 8 of 17

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

SCALE : NTS

A3

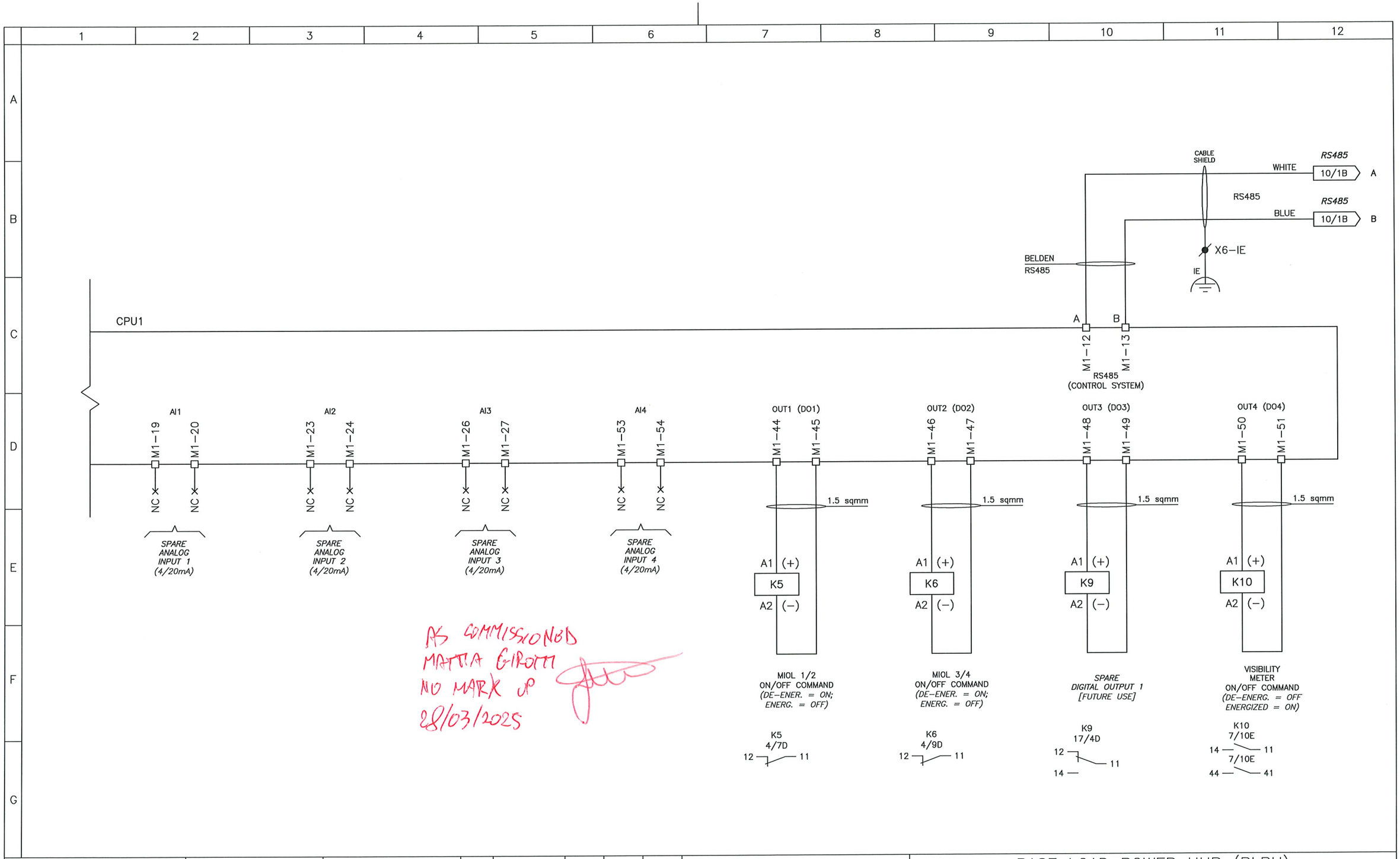
DRAWING NO. 1724000775-EL-DG-00006

SHEET 011

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



AS COMMISSIONED
MATTIA GIROTTI
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.		AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.		ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD		DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND | ROSETTI MARINO

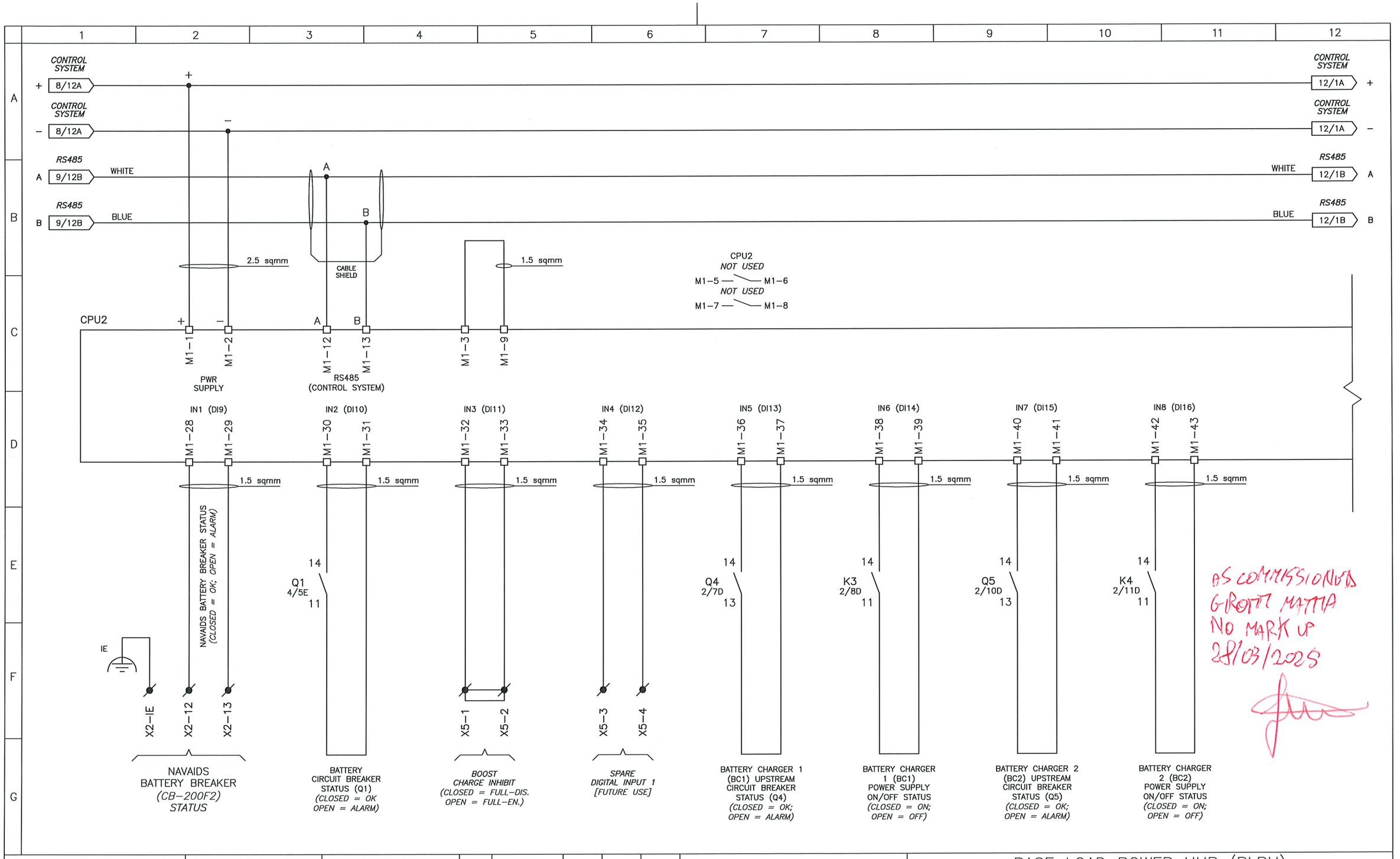
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 9 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 012 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-5			
CROSSWIND	ROSETTI MARINO				

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

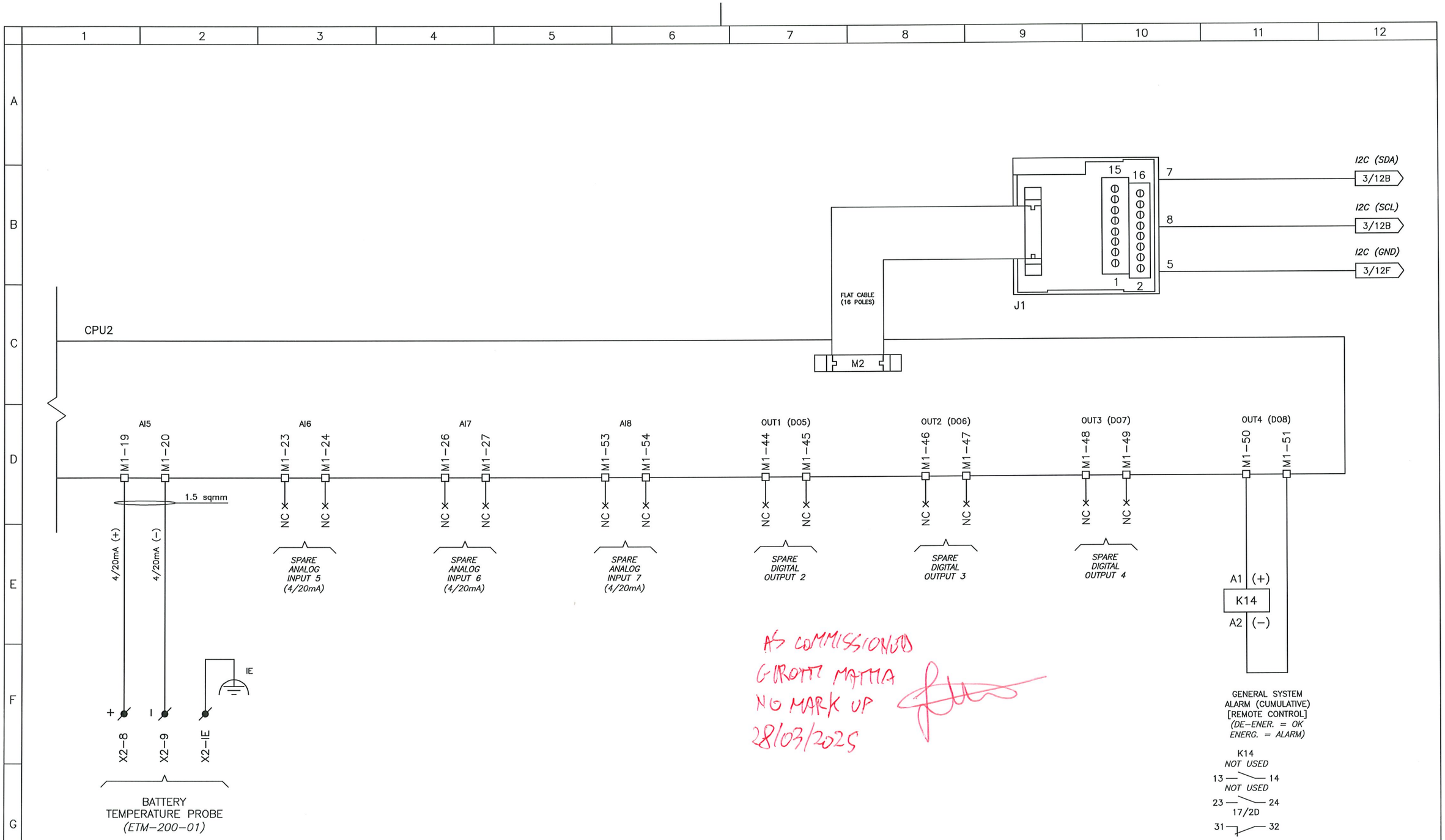
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 10 of 17

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

A3	DRAWING NO.	SHEET	REV.
	1724000775-EL-DG-00006	013	03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.		AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.		ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.		ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD		DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND | ROSETTI MARINO

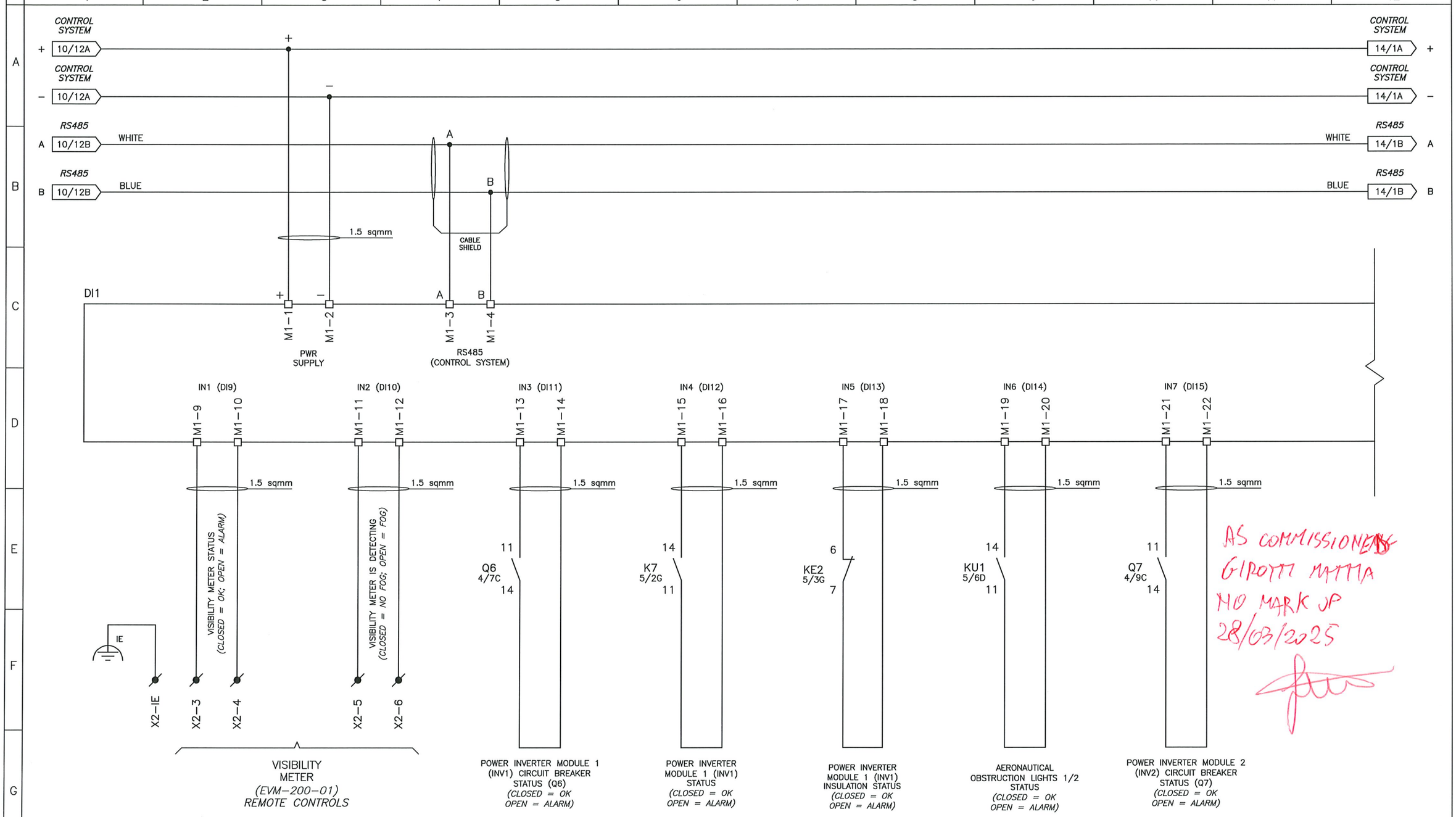
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 11 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 014 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

SICE ELETTRONICA sice

CROSSWIND | ROSETTI MARINO

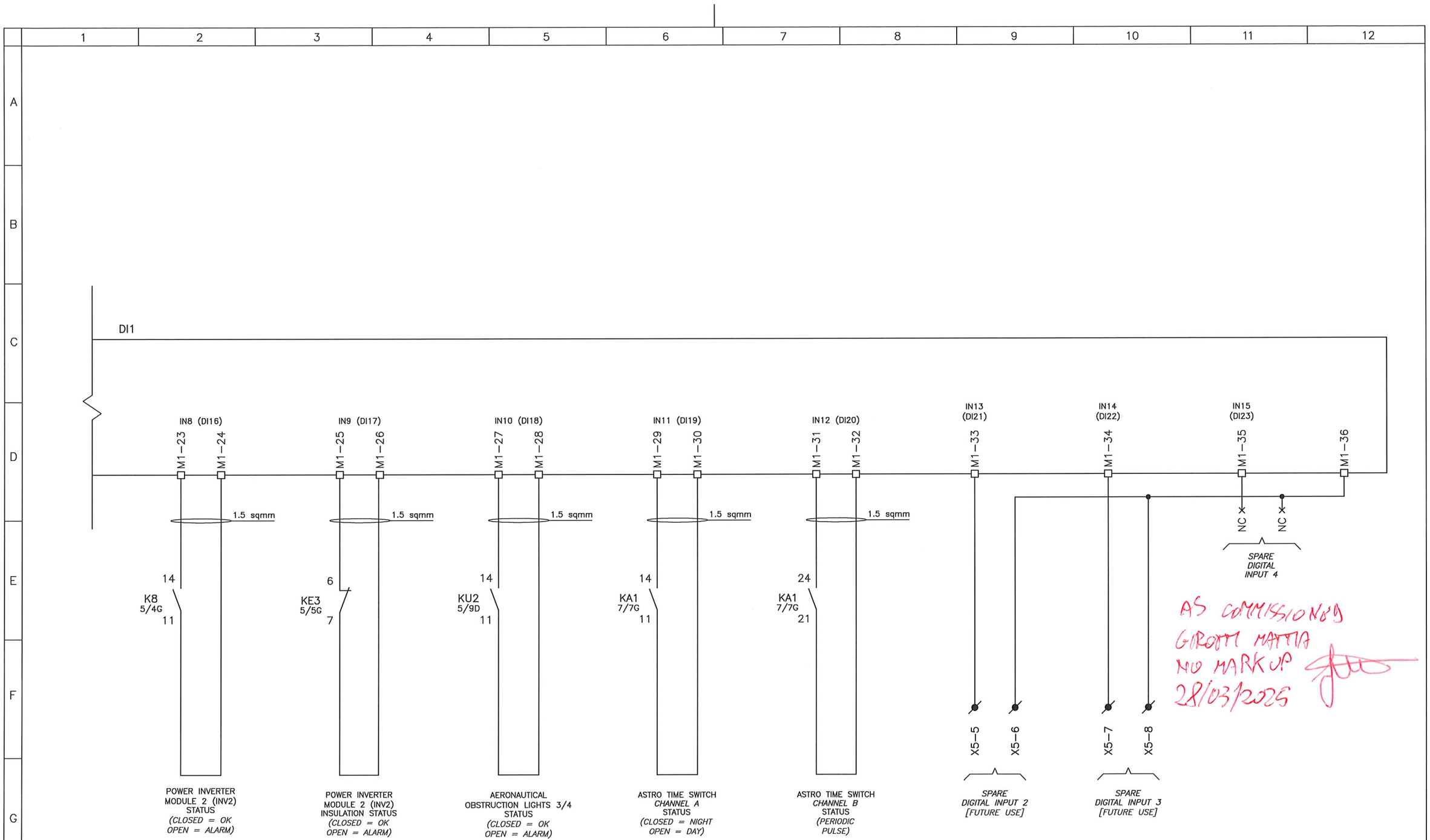
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 12 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 015 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice ELETTRONICA

CROSSWIND

ROSETTI MARINO

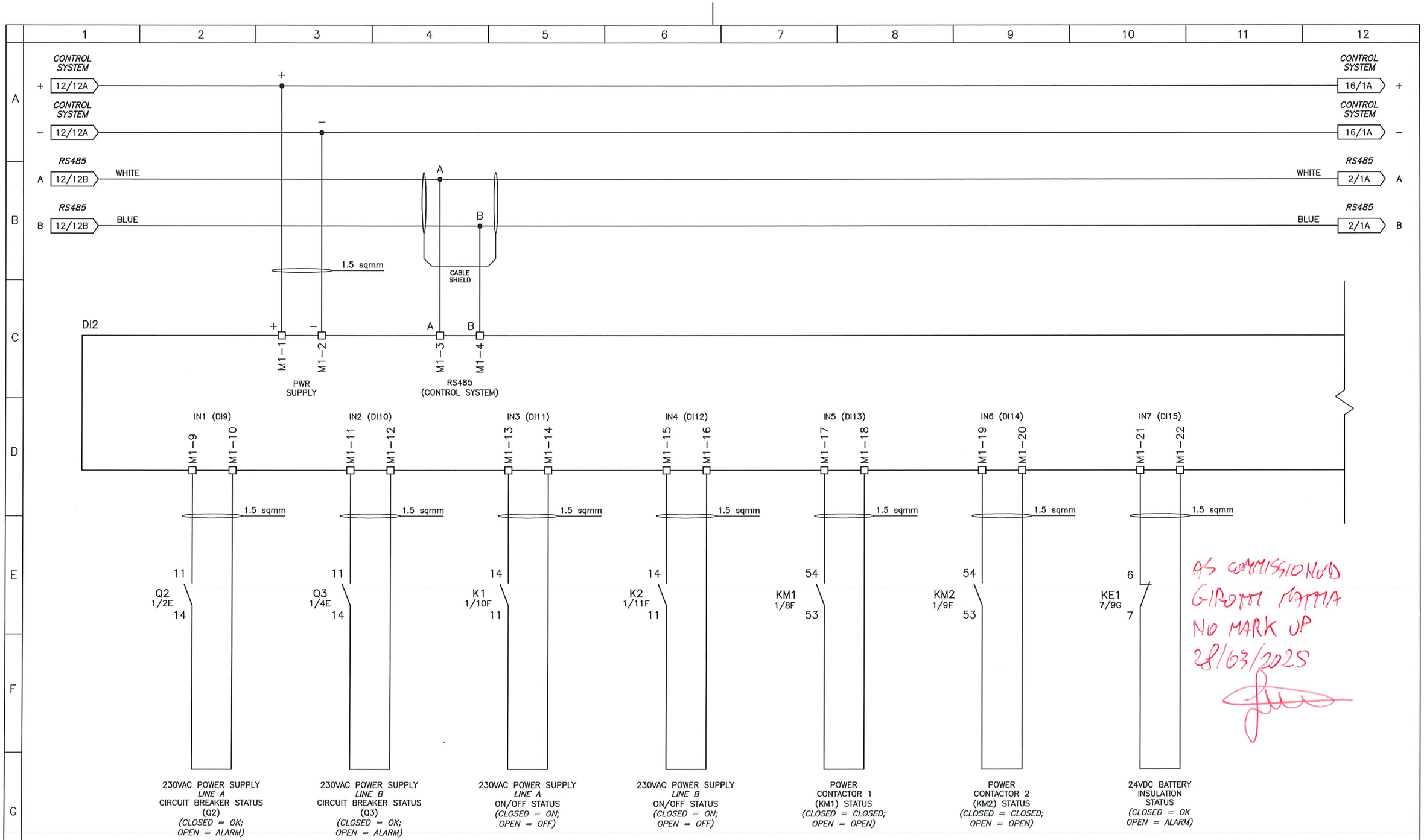
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 13 of 17

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 016 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

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CROSSWIND | ROSETTI MARINO

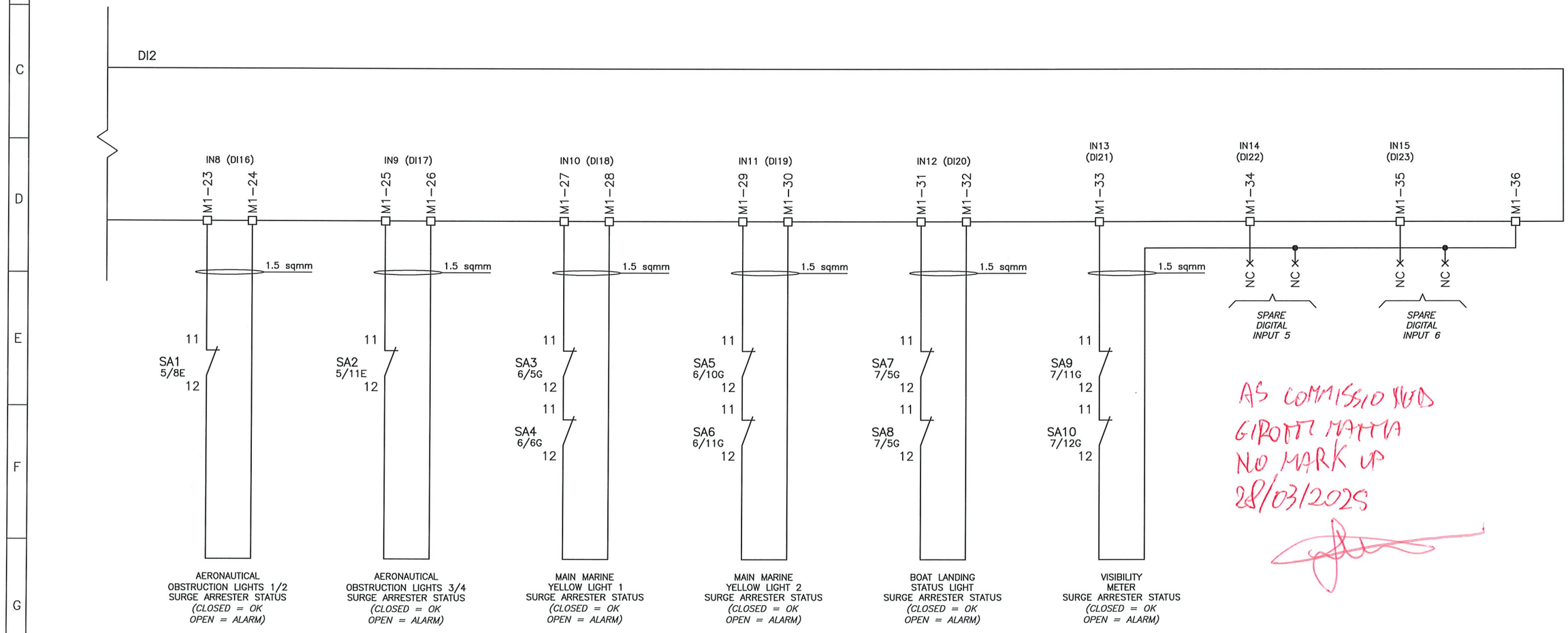
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 14 of 17

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 017 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

SICE P.O. No : 1724000775 123A90A	SICE JOB No : JB-2416/C	SICE DOC. No : DW-864-5

sice

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)

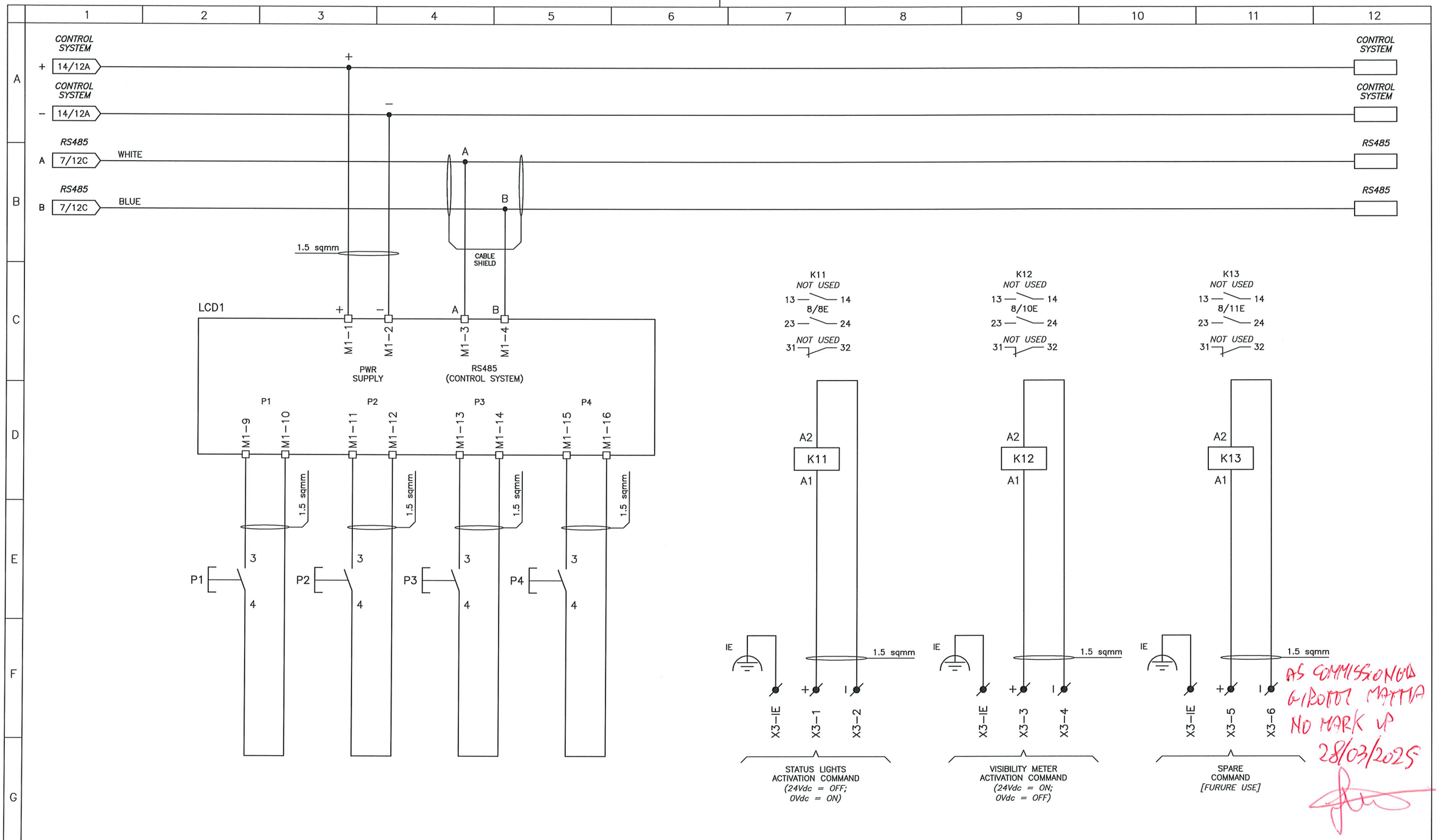
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 15 of 17

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 018 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

sice

CROSSWIND | ROSETTI MARINO

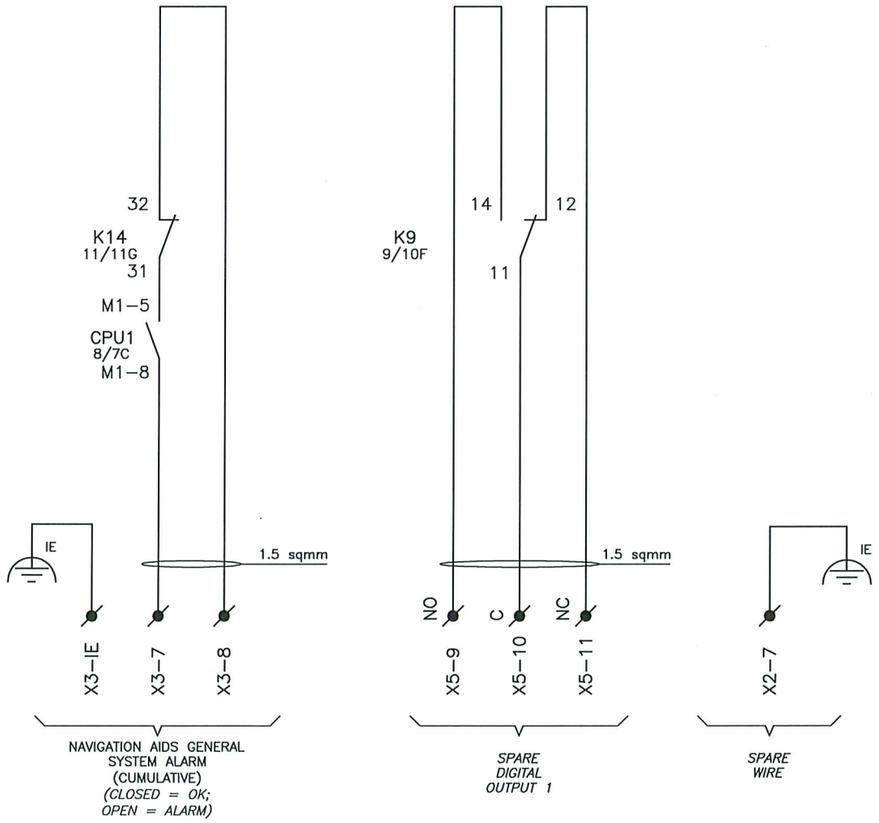
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 16 of 17

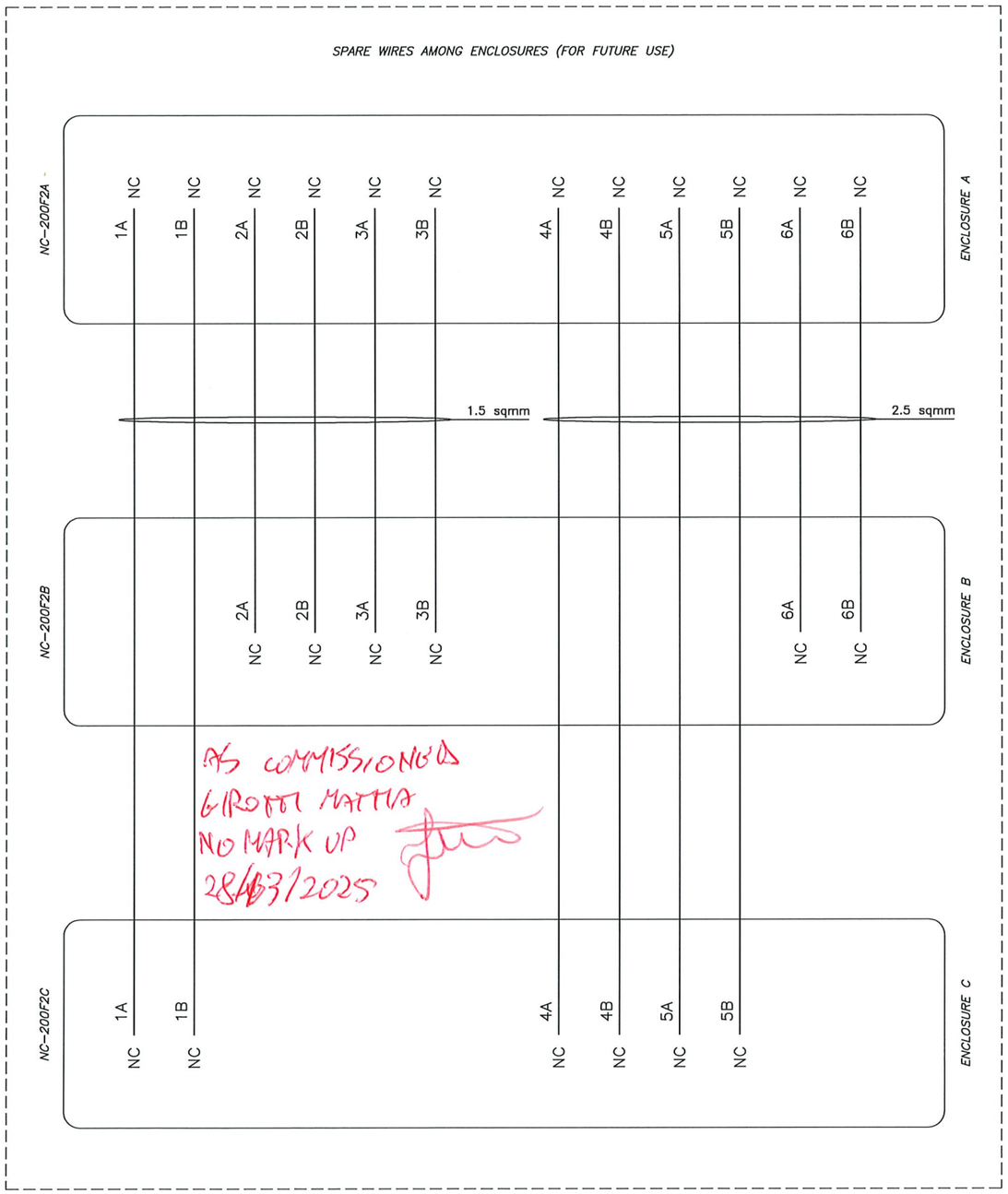
CONTRACT NO./TITLE CW–I–WP4–2023–05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 019 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG





04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice

CROSSWIND | ROSETTI MARINO

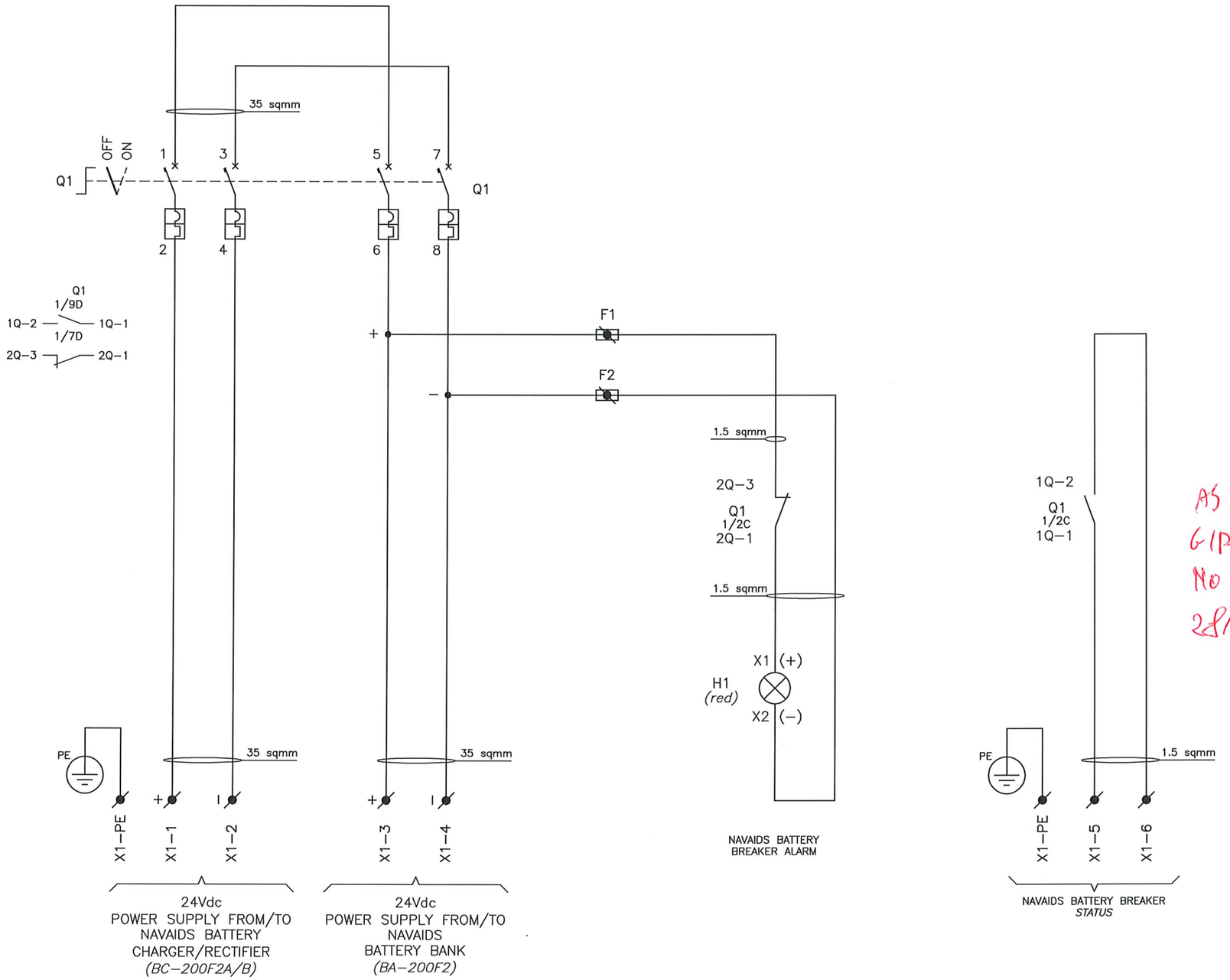
TITLE : BASE LOAD POWER HUB (BLPH)
NCCP & BATTERY CHARGER/RECTIFIER
SCHEMATIC WIRING DIAGRAM 17 of 17

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 020 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS–BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB–2416/C | SICE DOC. No : DW–864–5

SICE ELETTRONICA sice

CROSSWIND

ROSETTI MARINO

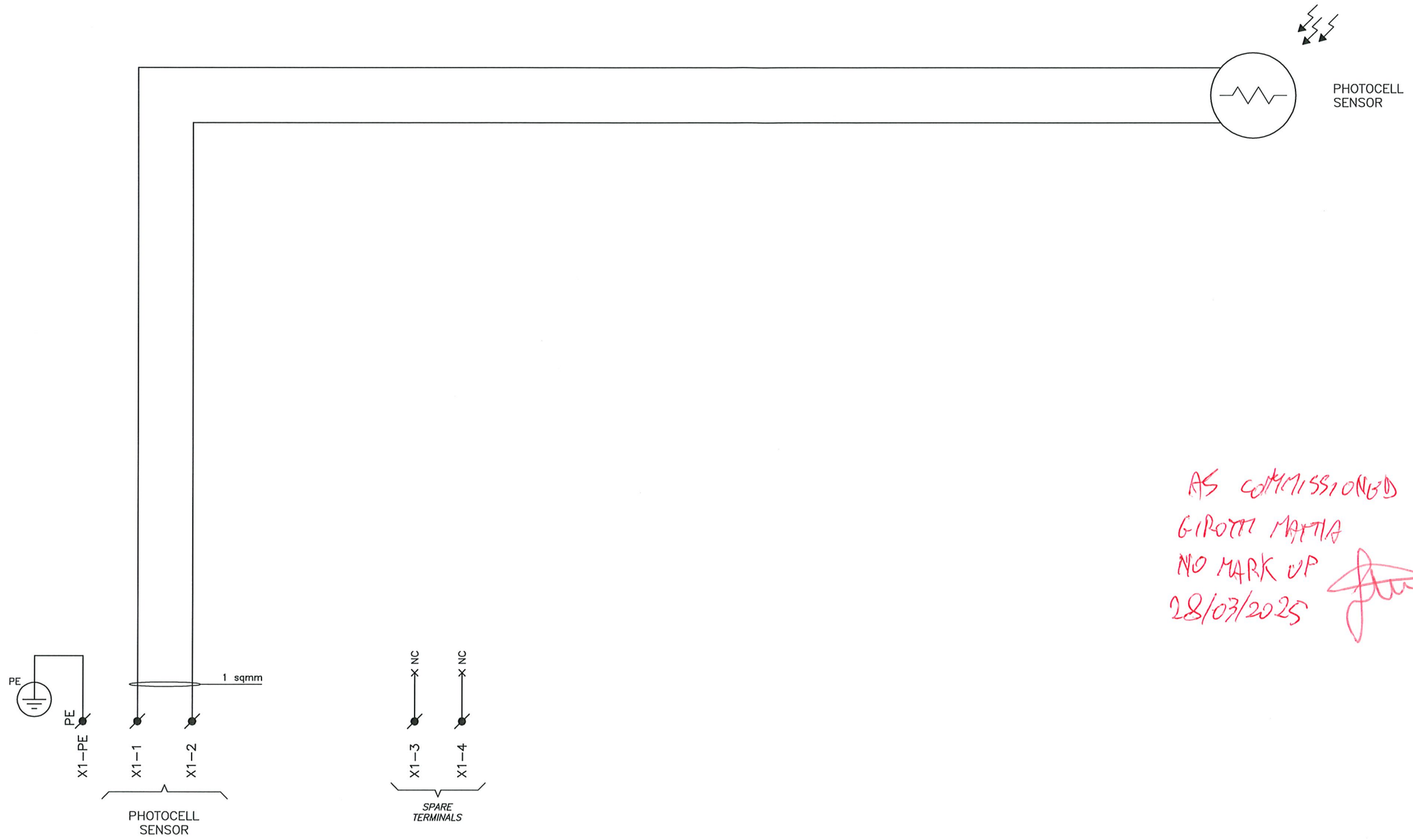
TITLE : BASE LOAD POWER HUB (BLPH)
NAVAIDS BATTERY BREAKER
SCHEMATIC WIRING DIAGRAM 1 of 1

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

A3 | DRAWING NO. 1724000775–EL–DG–00006 | SHEET 021 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775–EL–DG–00006 REV.4.DWG



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
28/03/2025

04	28/10/24	A.B.	M.G.	R.M.	AS-BUILT (ASB)
03	26/09/24	A.B.	M.G.	R.M.	ACCEPTED FOR CONSTRUCTION (AFC)
02	19/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
01	03/07/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
00	17/06/24	A.B.	M.G.	R.M.	ISSUE FOR REVIEW (IFR)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

SICE P.O. No : 1724000775 123A90A | SICE JOB No : JB-2416/C | SICE DOC. No : DW-864-5

sice

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PHOTOCELL SYSTEM
SCHEMATIC WIRING DIAGRAM 1 of 1

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

A3 | DRAWING NO. 1724000775-EL-DG-00006 | SHEET 022 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000775-EL-DG-00006 REV.4.DWG

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE