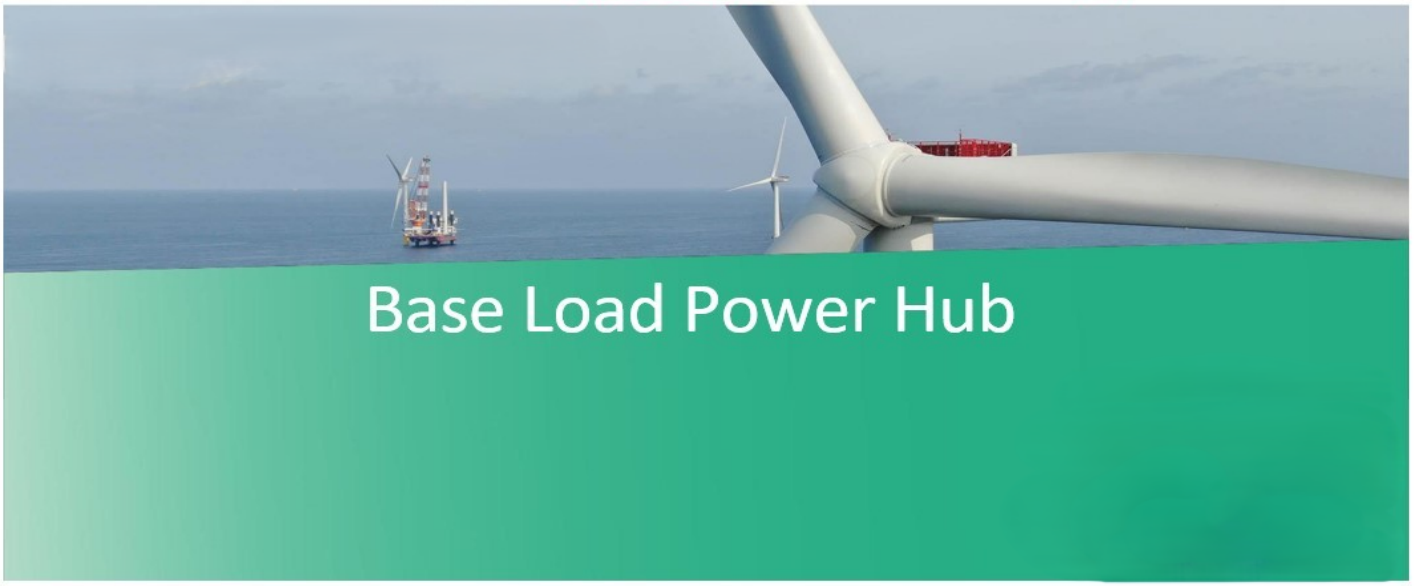
CROSSWIND

ROSETTI MARINO

PROVERLIS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	83 Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10 400 V Switchboard Solar (SG-200D2)

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

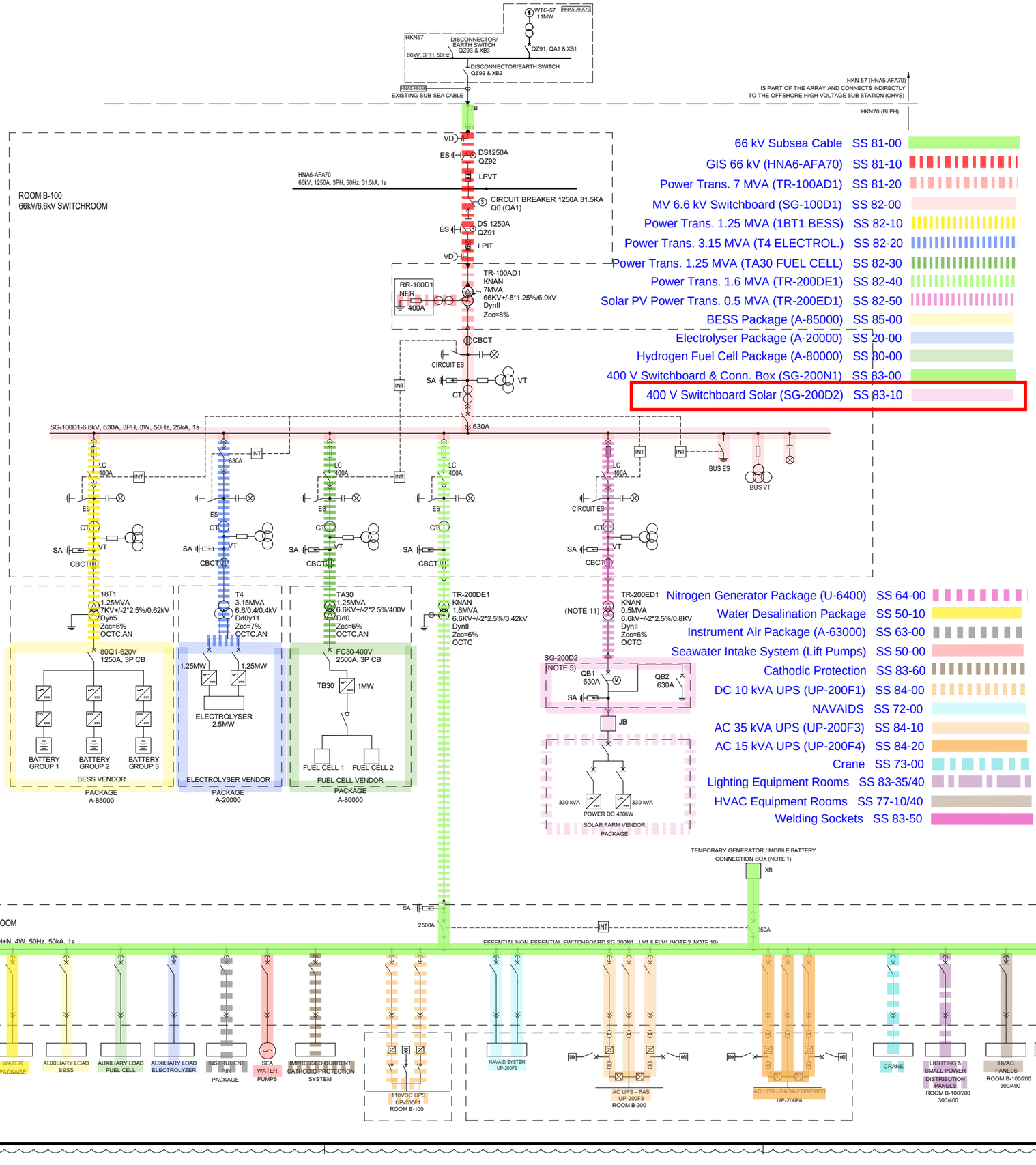
Sub System N°:	83-10	**Tick as appropriate**	ONSHORE	OK
Description:	400 V Switchboard Solar (SG-200D2)		OFFSHORE	

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:*	NA
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	2025-07-24	2025-07-24
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-07-24T06:35:12.416Z	PROVERLIS Digitaly signed by Martin Taylor 2025-07-24T08:02:45.179Z

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

ROSETTI MARINO

TITLE :

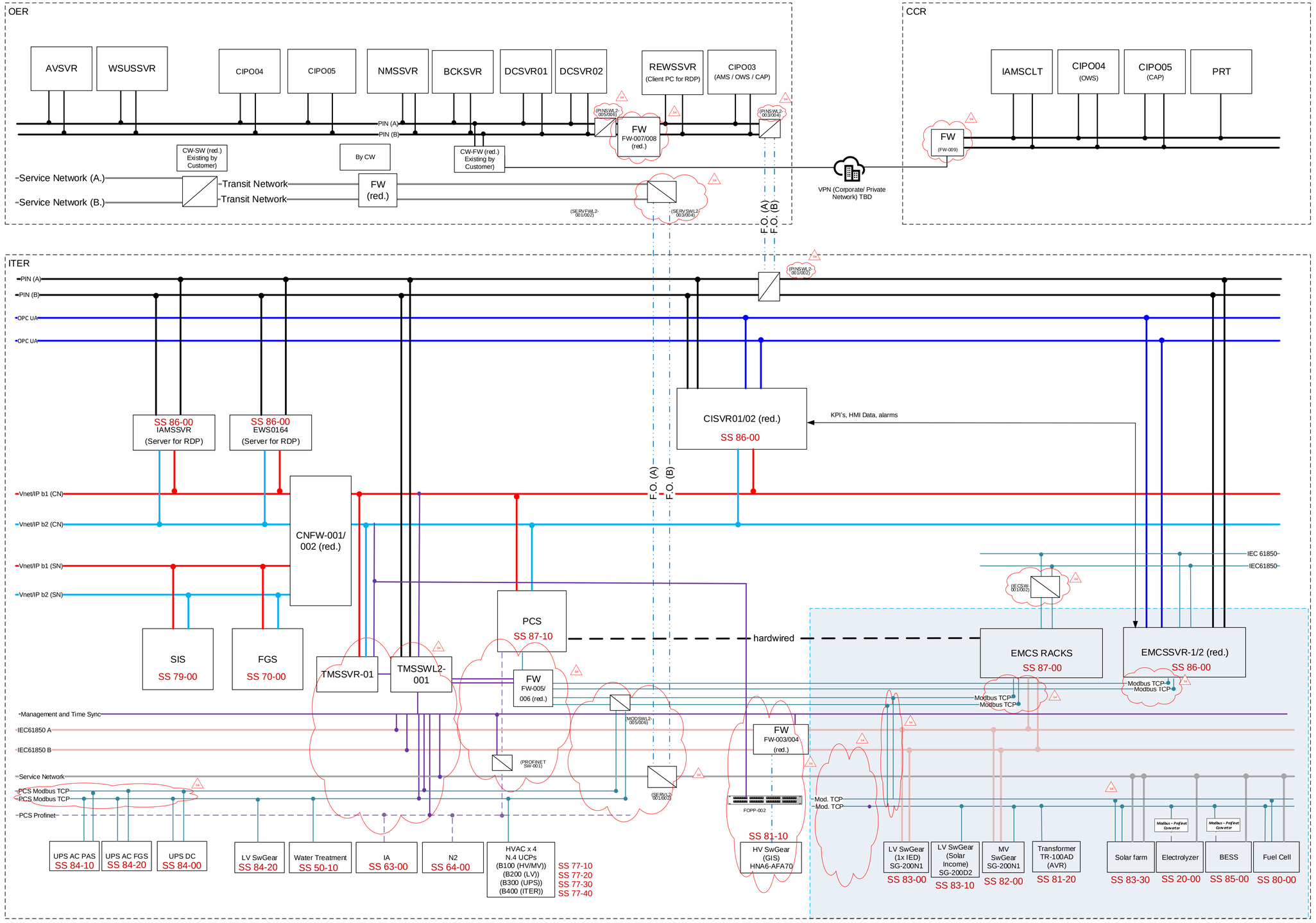
OVERALL/KEY SINGLE LINE DIAGRAM

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

CROSSWIND BLPH PROJECT - SYSTEM BLOCK DIAGRAM



AMS	: Alarm Management System	FCS	: Field Control Station
AV	: Anti-virus	FGS	: Fire & Gas System
BCK	: Backup Server	FO	: Fiber Optic
BESS	: Battery Energy Storage System	FOPP	: Fiber Optic Patch Panel (by others)
BLPH	: Base Load Power Hub	FTA	: Field Termination Assembly
CAP	: Critical Alarm Panel	HIST	: Historian
CCR	: Central Control Room	HKN	: Hollandse Kust Noord
CI	: Collaborative Infomation	IAMS	: Instrument Asset Management System
CN	: Control Network	ITER	: Instrument & Telecom Equipment Room
DC	: Domain Controller	LHVS	: Land High Voltage Station
DMZ	: De-militarized Zone	MCC	: Motor Control Center
ESB	: IO communication bus	MODB	: Modbus
EWS	: Engineering Work Station	MQTT	: Message Queuing Telemetry Transport
FC	: Field Communication (Vnet/IP)	NMS	: Network Management System
OER	: Onshore Equipment Room		
OHVS	: Offshore High Voltage Station		
OWS	: Operator Work Station		
PIN	: Plant Information Network		
PKG	: Package		
RDP	: Remote Desktop Protocol		
SCS	: Safety Control Station		
SIS	: Safety Instrumented System		
SN	: Safety Network		
SW	: Switch		
UCP	: Unit Control Panel (3rd party systems)		
VM	: Virtual Machine		
Vnet/IP	: Yokogawa's Control network		
WSUS	: Windows Security Update Services		

LEGEND:

- PIN (Plant Information Network)
- Vnet/IP BUS 1 PCS
- Vnet/IP BUS 2 PCS
- Vnet/IP BUS 1 SIS/FGS
- Vnet/IP BUS 2 SIS/FGS
- ESB bus connection
- IEC61850 connection
- OPC UA connection
- Service Network connection
- Modbus TCP connection
- Profinet (non redundant)
- Fiber Optic Patch Cords
- Fiber Optic connection (core by Crosswind)
- Fiber Optic backbone (by Crosswind)
- System Cable connection
- Management and Time sync.

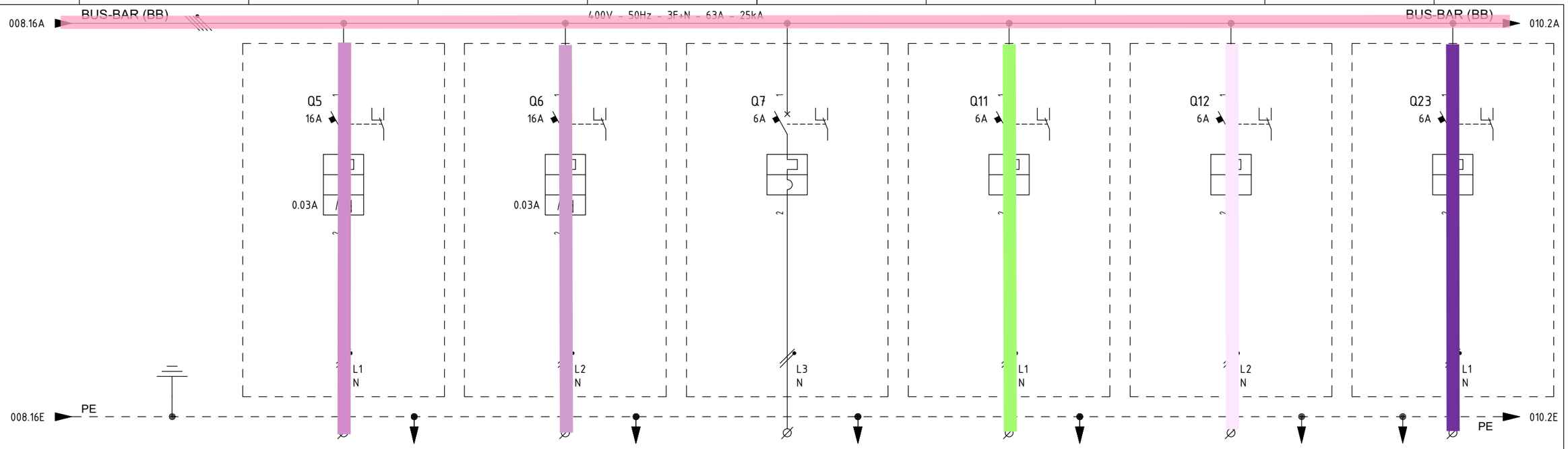
Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer Scope.
Note 5 : All Network Switches and Firewall is configured in VLAN.
Note 6 : Intermediate FO Connection between HNA5 and OER Intentionally not shown.

Zone-1	: PCS Control Zone	Zone-2	: Safety Control Zone
Zone-3	: PCS Zone	Zone-4	: Application Server Facility Zone
Zone-5	: Security Management Zone-1	Zone-6	: Security Management Zone-2
Zone-7	: Demilitirized Zone	Zone-8	: Croswind Zone
Zone-9	: Service Network Zone	Zone-10	: Application Server Facility Zone-OD
Zone-11	: Third Party System Zone		: Out of Scope

REV	DWG BY	CHK BY	APP BY	DATE
04	SKR	MP/AB	SC	12-Feb-25
03	SKR	MP/AB	SC	26-Aug-24
02	SKR	MP/AB	SC	28-Jun-24
01	SKR	MP/AB	SC	24-May-24
00	SKR	AB	SC	23-Apr-24

Doc No : 1724000594-IN-DD-00015
Doc Name : System Architecture

ROSETTI MARINO
HOLLANDSE KUST NOORD WIND PART Project
CROSSWIND
YOKOGAWA



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

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

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/13

Item n° : PF1002888/101

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

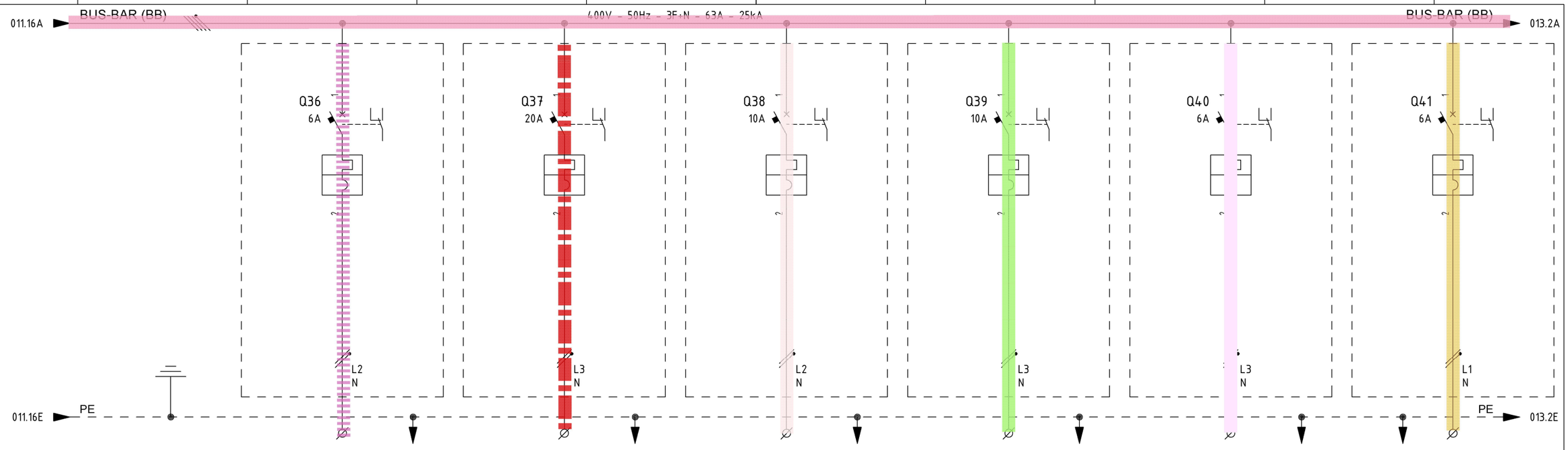
DRAWING NO. 1723002197-EL-DG-00013

SHEET 009

REV. 03

F.to UNI A3: 420mmx297mm

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



ITEM			1	CP-200E2	CP-100E1	SG-100D1	SG-200N1	SG-200D2	UP-200F3
UTILITY			2	AUXILIARY TRAFO SOLARE 0.5MVA	AUXILIARY GIS	AUXILIARY 6.6KV SWITCHBOARD	AUXILIARY LV SWITCHBOARD	AUXILIARY LV SWITCHBOARD 800/460V	AC UPS PAS AUXILIARY
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	3 KW | 16.3 A	1 KW | 5.43 A	1 KW | 5.43 A	0.5 KW | 2.72 A	0.2 KW | 0.82 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S302P-C20	S302P-C10	S302P-C10	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=20A - Curve C	In=10A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu KA		10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	SUBSYSTEM 82-50	SUBSYSTEM 81-10	SUBSYSTEM 82-00	SUBSYSTEM 83-00	SUBSYSTEM 83-10	SUBSYSTEM 84-10
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 6	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	3G6	3G2.5	3G2.5	3G2.5	3G2.5

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/13

Item n° : PF1002888/101

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

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00013

SHEET 012

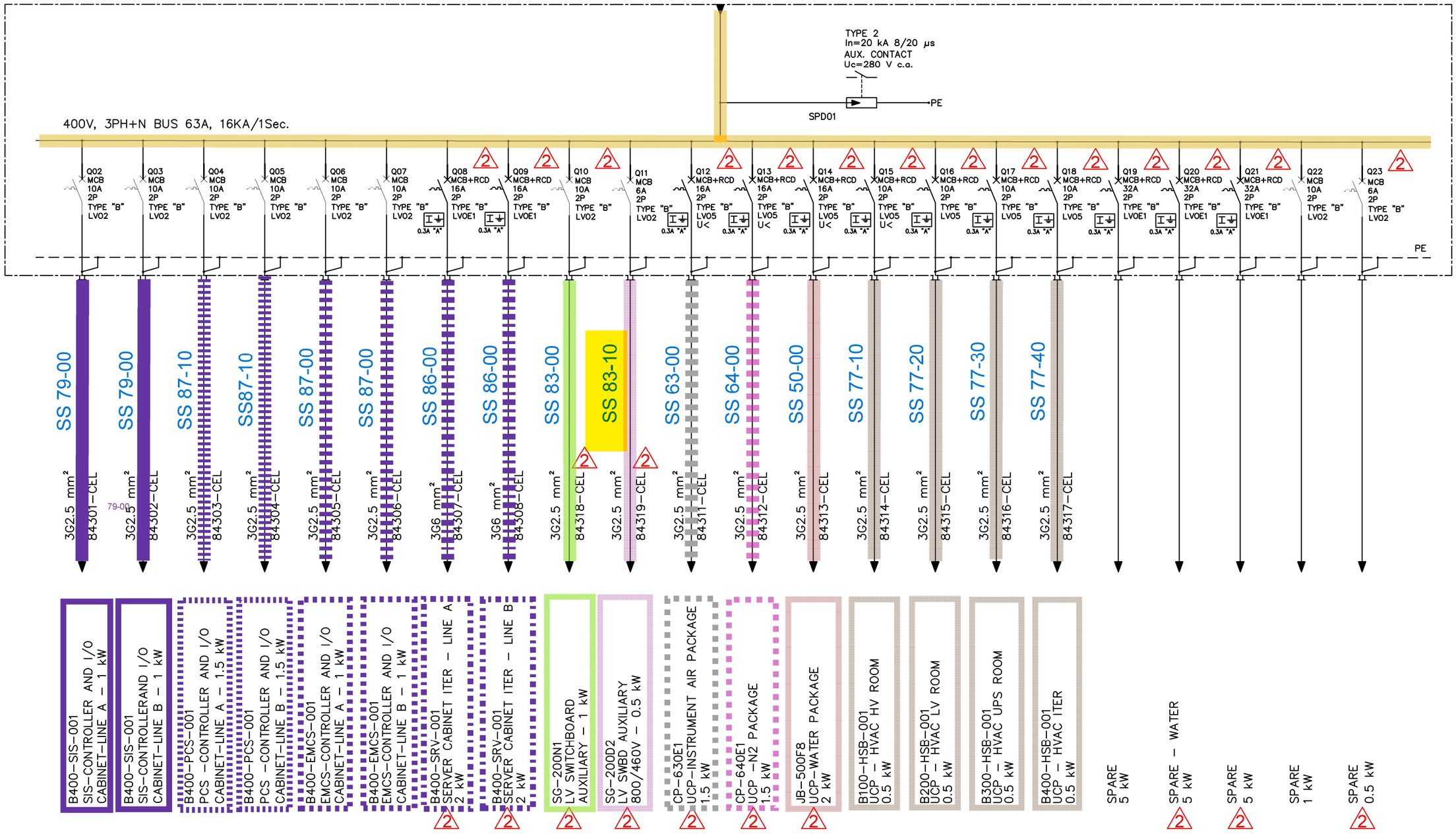
REV. 03

F.to UNI A3: 420mmx297mm

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

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

AC UPS DISTRIBUTION BOARD–PAS
DP–200F3



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

CROSSWIND

ROSETTI MARINO

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

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

SCALE : 1:X

A3

DRAWING NO. 123A90–DDL–EL–DG–20160

SHEET 005

REV. 02

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

F.to UNI A3: 420mmx297mm

Section 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Operation (RFO) Certificate

COMPLETE		PARTIAL	●

Revision:	1		Issued on:	2025-07-16	

System:	83	/	Main Power Distribution Low Voltage 440 V

SubSystem:	83-10	/	400 V Switchboard Solar (SG-200D2)

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

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

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

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Gerry McCann
Date	2025-07-17	2025-07-21
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-07-17T07:52:22.475Z	PROVERLIS Digitaly signed by Gerry McCann 2025-07-21T08:22:37.978Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 83-10 & process: COMM

Electrical	83-10 400 V Switchboard Solar (SG-200D2)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q40	BREAKER AUX LV SW 800/460V - DP-200N1-Q40	ONSHORE	C10002885	FTR-2	100	2024-10-29	RFO 1
SG-200D2	LV 0,4 kV MCC Switchgear (Solar)	ONSHORE	C10002992	FP05	100	2025-01-16	RFO 1
SG-200D2-QB1	INCOMER - SG-200D2-QB1	ONSHORE	C10002930	FTR-2	100	2024-11-19	RFO 1
		OFFSHORE	C10002931	FTR-6	0	-	-
UP-200F3-QF51	SG-200-D2 AUX	ONSHORE	C10004587	FTR-2	100	2024-11-08	RFO 1

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10	400 V Switchboard Solar (SG-200D2)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002360	A	84319-CEL C10002115	Missing cable gland earthing tag inside DP-200F3	.		Pschintu 2025-01-07	2025-01-09	Pschintu 2025-01-09	2025-01-09
C30000123	B	SG-200D2	Missing Ethernet Switch RSPS25		Installed	SLinari 2024-09-17	Vendor 2025-02-25	SLinari 2025-02-25	2025-02-25
C30000124	B	SG-200D2	EMAX E1.2N 1250A broken (only a part of auxiliary contacts)v. To be replace		Replaced- see attached picture	SLinari 2024-09-17	Vendor 2025-02-25	SLinari 2025-02-25	2025-02-25
C30000767	B	83016-CEC C10002116	Missing cable tag on SG-200D2 side.	.		Pschintu 2024-11-22	2025-03-25	Gtangianu 2025-03-25	2025-03-25
C30000768	B	83016-CEC C10002116	Missing core identification tags on SG-200D2 side.	.		Pschintu 2024-11-22	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001184	B	83121-CEL C10000640	Missing core identification tag both side	.		Pschintu 2024-12-03	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001185	B	83121-CEL C10000640	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-25	JKrizanic 2025-02-25	2025-02-25
C30002322	B	83015-CEC C10002324	Identification tag of wire are wrong side the SG-200D2 and side the SG-100D1 COLUMS:A2 is missing. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30002323	B	83015-CEC C10002324	MCT is not closed side the SG-200D2.. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 83 Main Power Distribution Low Voltage 440 V

SUBSYSTEM 83-10 400 V Switchboard Solar (SG-200D2)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002324	B	83015-CEC C10002324	Cable needs to be better dressed inside the panel SG.200D2. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30002357	B	82008-CEC C10002323	Missing cable tags inside and outside MCT (B-100/B-200) and inside and outside the panel SG-200D2	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002358	B	84319-CEL C10002115	Missing core identification tag side DP-200F3	.		Pschintu 2025-01-07	2025-02-12	APolo 2025-02-12	2025-02-12
C30002359	B	84319-CEL C10002115	Missing cable tags inside and outside MCT (B-300/B-200) and inside and outside the panels (DP-200F3 / SG-200D2)	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30004035	B	83002-CEL-L1 C10001823	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15
C30004036	B	83002-CEL-L2 C10001824	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15
C30004037	B	83002-CEL-L3 C10001825	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10	400 V Switchboard Solar (SG-200D2)

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000831	B	SG-200D2/B400 -NET-001 C10004516	Missing cable tags on routing, inside and outside the panels.	.		Gtangianu 2024-11-23	2025-02-27	JKrizanic 2025-02-27	2025-02-27

Section 2.2 Exception Punch Lists (per discipline)

Project CROSSWIND

PUNCH LIST REPORT

NO DATA AVAILABLE

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

BASE LOAD POWER HUB (BLPH)

"SG-200D2" LV SWBD 800V

ELECTRICAL
SINGLE LINE DIAGRAM

NO MARK UP
AS COMMISSIONED: MARIA GIROTTI
27/3/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	19/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/12

Item n° : PF1002669/3

TITLE : "SG-200D2"
SINGLE LINE DIAGRAM
Cover

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00012

SHEET 001

REV. 04

File Name : 1723002197-EL-DG-00012 Rev. 04

F.to UNI A3: 420mmx297mm

INDEX SHEETS

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9
001	Cover	X	X	X	X	X					
002	Index	X	X	X	X	X					
003	Graphical Symbols	X	X	X	X	X					
004	Graphical Symbols	X	X	X	X	X					
005	Single Line Drawing	X	X	X	X	X					

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9

NO MARK UP AS COMMISSIONED: MARIA GIROTTO 27/3/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
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1	19/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/12

Item n° : PF1002669/3

TITLE : "SG-200D2"
SINGLE LINE DIAGRAM
Index

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

SCALE : NTS

A3

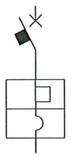
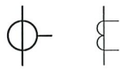
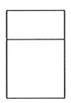
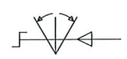
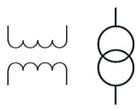
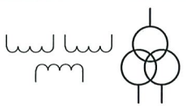
DRAWING NO. 1723002197-EL-DG-00012

SHEET 002

REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00012 Rev. 04

GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION
	CIRCUIT BREAKER WITH AUTOMATIC RELEASE		CAPACITOR (GENERAL SYMBOL)		BISTABLE RELAY		CHANGE-OVER BREAK BEFORE MAKE CONTACT
	CIRCUIT BREAKER WITH AUTOMATIC RELEASE AND BUILT-IN THERMOMAGNETIC RELEASE		CAPACITIVE VOLTAGE DIVIDER		COIL OF A MECHANICALLY LATCHED RELAY		DELAYED ACTION (IN THE DIRECTION OF MOVEMENT FROM THE ARC TOWARDS ITS CENTRE)
			CURRENT TRANSFORMER		INDICATOR, ELECTROMECHANICAL ELEMENT		POSITION SWITCH (LIMIT SWITCH), MAKE CONTACT
	SWITCH DISCONNECTOR		RING CURRENT TRANSFORMER		LAMP (GENERAL SYMBOL)		POSITION SWITCH (LIMIT SWITCH), MAKE CONTACT
	CONTACTOR		INDICATING INSTRUMENT GENERAL SYMBOL		SEMICONDUCTOR DIODE		POSITION SWITCH (LIMIT SWITCH), BREAK CONTACT
	LOCK WITH FREE KEY WHEN THE DEVICE IS IN OPEN POSITION		INTEGRATING INSTRUMENT (GENERAL SYMBOL)		LED		OPERATED BY TURNING
	LOCK WITH FREE KEY WHEN THE DEVICE IS IN CLOSE POSITION		DISCONNECTING FUSE, NOT WITH LIVE CIRCUIT AND WITH MECHANICAL LINKAGE (STRIKER FUSE))		TRANSDUCER OF ALTERNATING CURRENT MEASURE INTO DIRECT CURRENT SIGNAL		THREE HELD POSITIONS TURNING SWITCH
	PLUG AND SOCKET (MALE AND FEMALE)		OPERATING DEVICE (GENERAL SYMBOL)		EARTH, GROUND (GENERAL SYMBOL)		THREE POSITIONS TURNING SWITCH, WITH SPRING THROWBACK TO THE CENTRAL POSITION
	VOLTAGE TRANSFORMER WITH TWO WINDINGS		COIL OF A TIME DELAYED OPERATING RELAY		MAKE CONTACT		MECHANICAL INTERLOCK BETWEEN TWO DEVICES
	VOLTAGE TRANSFORMER WITH THREE WINDINGS		COIL OF A TIME DELAYED RELEASING RELAY		BREAK CONTACT		

NO MARK UP AS COMMISSIONED: MARIA GIROTTI 27/3/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
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0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

DWG n° : 231298/SD/12
Item n° : PF1002669/3

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
SINGLE LINE DIAGRAM
Graphical Symbols

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

SCALE : NTS

A3

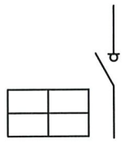
DRAWING NO. 1723002197-EL-DG-00012

SHEET 003

REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00012 Rev. 04

GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION
	RESISTOR (GENERAL SYMBOL)		AMPEROMETRIC TEST SOCKET				
	THERMISTOR (GENERAL SYMBOL)		3 PHASES LINE				
	HEATING ELEMENT		3 PHASES + NEUTRAL				
	INTERCONNECTION TERMINAL		SINGLE PHASE + NEUTRAL				
	WITHDRAWABLE TERMINAL SHORT-CIRCUITABLE ON C.T. SECONDARY CIRCUITS		CIRCUIT BREAKER SWITCH-DISCONNECTOR				
	WITHDRAWABLE TERMINAL FOR V.T. SECONDARY CIRCUITS						
	SWITCHBOARD TERMINAL	M	MOTOR FOR LOADING SPRINGS				
	ON - OFF SWITCH	YC	CLOSING COIL				
	SURGE ARRESTER	YO	OPENING COIL				
	VOLTMETRIC TEST SOCKET	YU	UNDERVOLTAGE COIL				

NO MARK UP AS COMMISSIONED: M.A. GIROTTI 27/3/25

=						
+	4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
	3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
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	1	19/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
	0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
	REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

DWG n° : 231298/SD/12
Item n° : PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
SINGLE LINE DIAGRAM
Graphical Symbols

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00012

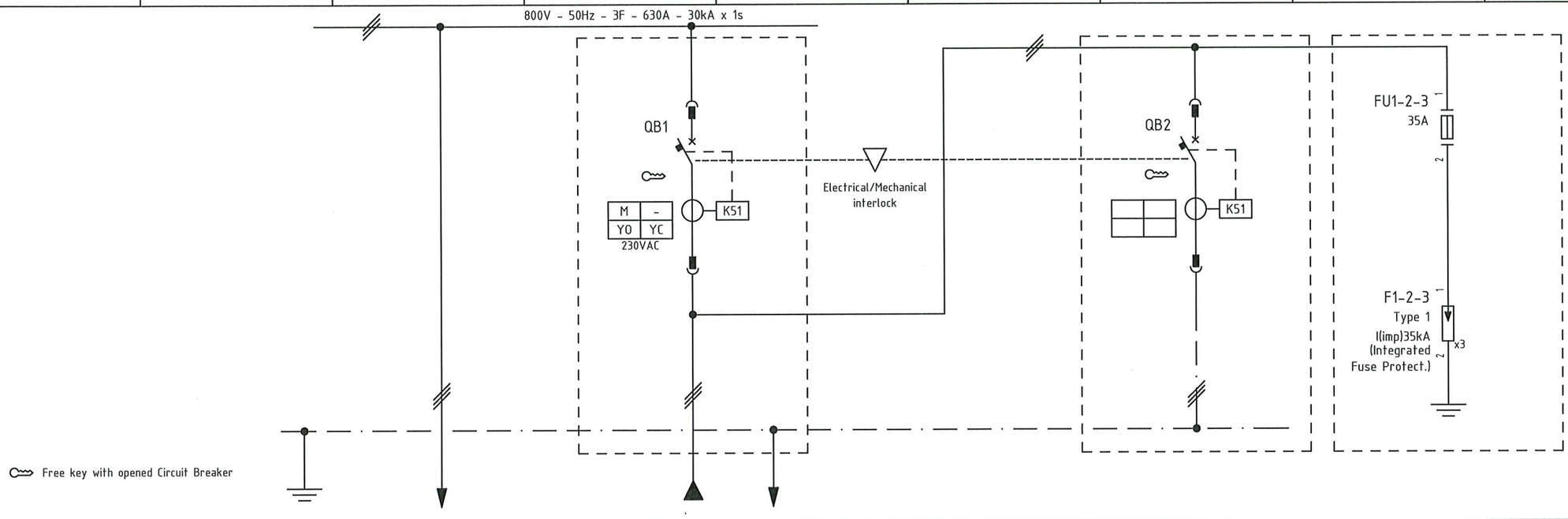
SHEET 004

REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00012 Rev. 04

NO MARK UP AS COMMISSIONED: MARIA GIROTTI 27/3/25



ITEM			1	-	-		-	-	
UTILITY			2	OUTGOING	INCOMING FROM SOLAR FARM		EARTHING SWITCH	SURGE ARRESTER	
COLUMN/CUBICLE			3	CL01 / 06	CL01 / 02		CL01 / 04	CL01 / 06	
RATED POWER | RATED CURRENT			4/5	- -	- -		- -	- -	
TYPICAL FUNCTIONAL			6	-	-		-	-	
CIRCUIT BREAKER (ABB)	TYPE		7	-	E1.2N/E9-1250 3P		E1.2N/E9-1250 3P	-	
	VERSION		8	-	WITHDRAWABLE		WITHDRAWABLE	-	
	TRIP UNITS		9	-	Ekip Hi Touch LSIG = 1250A		Ekip Touch LSIG = 1250A (with Rating Plug L=OFF)	-	
	Icu	KA	10	-	35KA		35KA	-	
OVERLOAD	L	Range A	11	-	0.4 ÷ 1 In		0.4 ÷ 1 In [EXCLUDABLE]	-	
		Range t	12	-	t=k/I^2		t=k/I^2	-	
SEL. SHORT-CIRCUIT	S	Range A	13	-	0.6 ÷ 10 In		0.6 ÷ 10 In [EXCLUDABLE]	-	
		Range t	14	-	t=k / t=k/I^2		t=k / t=k/I^2	-	
INST. SHORT-CIRCUIT	I	Range A	15	-	1.5 ÷ 15 In		1.5 ÷ 15 In [EXCLUDABLE]	-	
		Range t	16	-	instantaneous		instantaneous	-	
EARTH FAULT PROTECTION	G	Range A	17	-	0.1 ÷ 1 In		-	-	
		Range t	18	-	t=k / t=k/I^2		-	-	
CONTACTOR (ABB)			19	-	-		-	-	
THERMAL OVERLOAD RELAY (ABB)			20	-	-		-	-	
SURGE ARRESTERS (DEHN)			21	-	-		-	DBM 1 CI 440 FM (961146)	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-		-	-	
FUSE HOLDER (ITALWEBER)			23	-	-		-	Fuses NH-00 35A gG / 800V	
INSULATION SYSTEM (BENDER)			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	3x(1x300)	3x(1x300)		-	-	

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DWG n° : 231298/SD/12

Item n° : PF1002669/3

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
4	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
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0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"

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-00012

SHEET 005

REV. 04

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00012 Rev. 04

CAE EPLAN Electric P8

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

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

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

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

Not included in the AEG shipment

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

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

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

-Q28.1 NC
-Q28.2 NC

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

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

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

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

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

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

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

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

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

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

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

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

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

ROSETTI MARINO SpA

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

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

*2 Connection cables are not included.

1000007888_010

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

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10	400 V Switchboard Solar (SG-200D2)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002360	A	84319-CEL C10002115	Missing cable gland earthing tag inside DP-200F3	.		Pschintu 2025-01-07	2025-01-09	Pschintu 2025-01-09	2025-01-09
C30000123	B	SG-200D2	Missing Ethernet Switch RSPS25		Installed	SLinari 2024-09-17	Vendor 2025-02-25	SLinari 2025-02-25	2025-02-25
C30000124	B	SG-200D2	EMAX E1.2N 1250A broken (only a part of auxiliary contacts)v. To be replace		Replaced- see attached picture	SLinari 2024-09-17	Vendor 2025-02-25	SLinari 2025-02-25	2025-02-25
C30000767	B	83016-CEC C10002116	Missing cable tag on SG-200D2 side.	.		Pschintu 2024-11-22	2025-03-25	Gtangianu 2025-03-25	2025-03-25
C30000768	B	83016-CEC C10002116	Missing core identification tags on SG-200D2 side.	.		Pschintu 2024-11-22	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001184	B	83121-CEL C10000640	Missing core identification tag both side	.		Pschintu 2024-12-03	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001185	B	83121-CEL C10000640	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-25	JKrizanic 2025-02-25	2025-02-25
C30002322	B	83015-CEC C10002324	Identification tag of wire are wrong side the SG-200D2 and side the SG-100D1 COLUMS:A2 is missing. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30002323	B	83015-CEC C10002324	MCT is not closed side the SG-200D2.. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10	400 V Switchboard Solar (SG-200D2)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002324	B	83015-CEC C10002324	Cable needs to be better dressed inside the panel SG.200D2. See attached photo.	.		Gtangianu 2025-01-03	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30002357	B	82008-CEC C10002323	Missing cable tags inside and outside MCT (B-100/B-200) and inside and outside the panel SG-200D2	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30002358	B	84319-CEL C10002115	Missing core identification tag side DP-200F3	.		Pschintu 2025-01-07	2025-02-12	APolo 2025-02-12	2025-02-12
C30002359	B	84319-CEL C10002115	Missing cable tags inside and outside MCT (B-300/B-200) and inside and outside the panels (DP-200F3 / SG-200D2)	.		Pschintu 2025-01-07	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30004035	B	83002-CEL-L1 C10001823	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15
C30004036	B	83002-CEL-L2 C10001824	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15
C30004037	B	83002-CEL-L3 C10001825	What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)	.		APolo 2025-02-20	2025-04-15	Gtangianu 2025-04-15	2025-04-15

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	83	Main Power Distribution Low Voltage 440 V
SUBSYSTEM	83-10	400 V Switchboard Solar (SG-200D2)

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000831	B	SG-200D2/B400 -NET-001 C10004516	Missing cable tags on routing, inside and outside the panels.	.		Gtangianu 2024-11-23	2025-02-27	JKrizanic 2025-02-27	2025-02-27

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004037

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001825	1.4 Discipline	Electrical
1.2 Item	83002-CEL-L3		Solar PV Power Cable JB / LV SWBD 800/460V
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date: 2025-04-15
Signature:

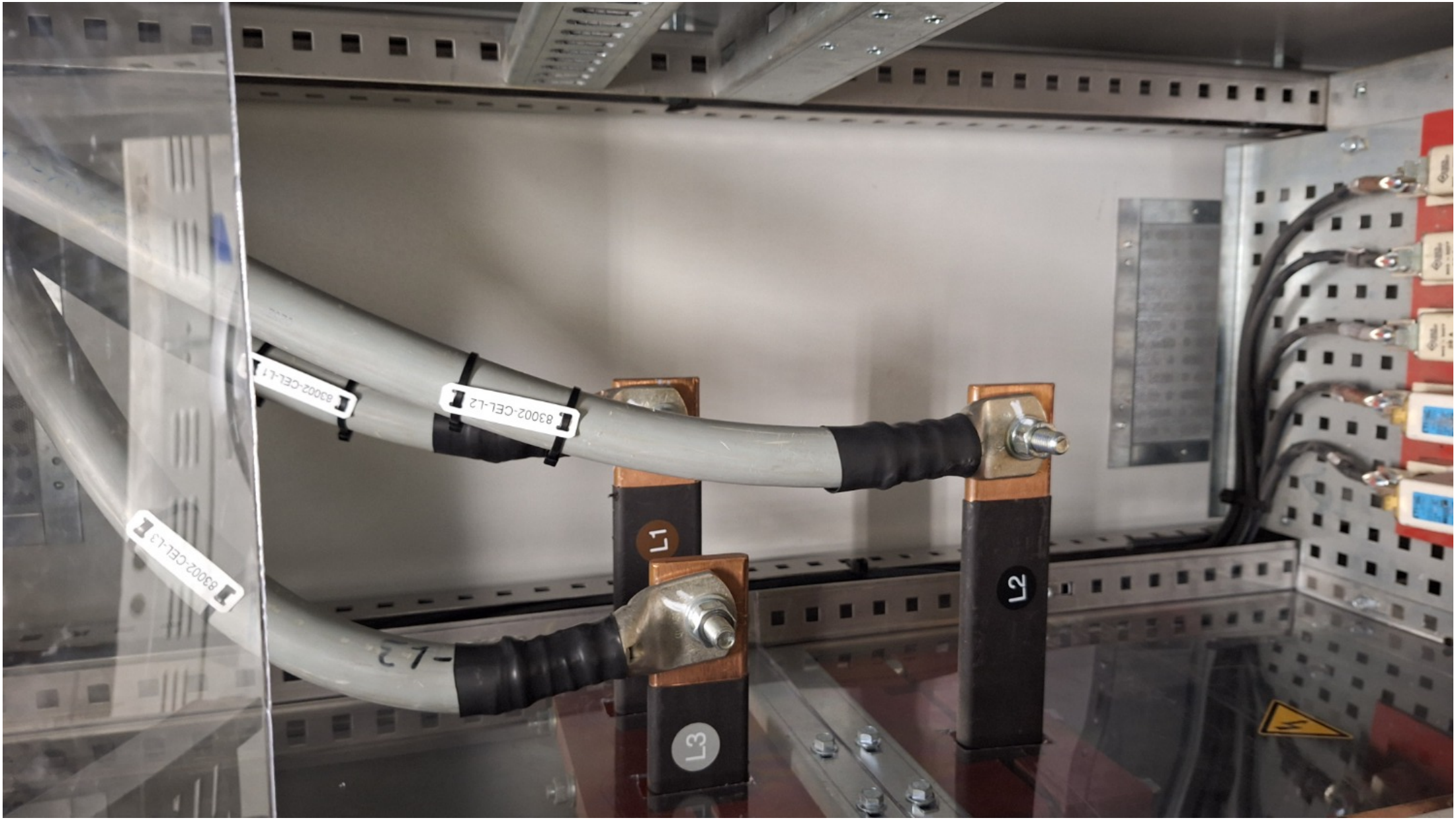
5 - CLEARANCE CHECK

The drawing was implemented.

Name: Giovanni Tangianu
Date: 2025-04-15
Signature:

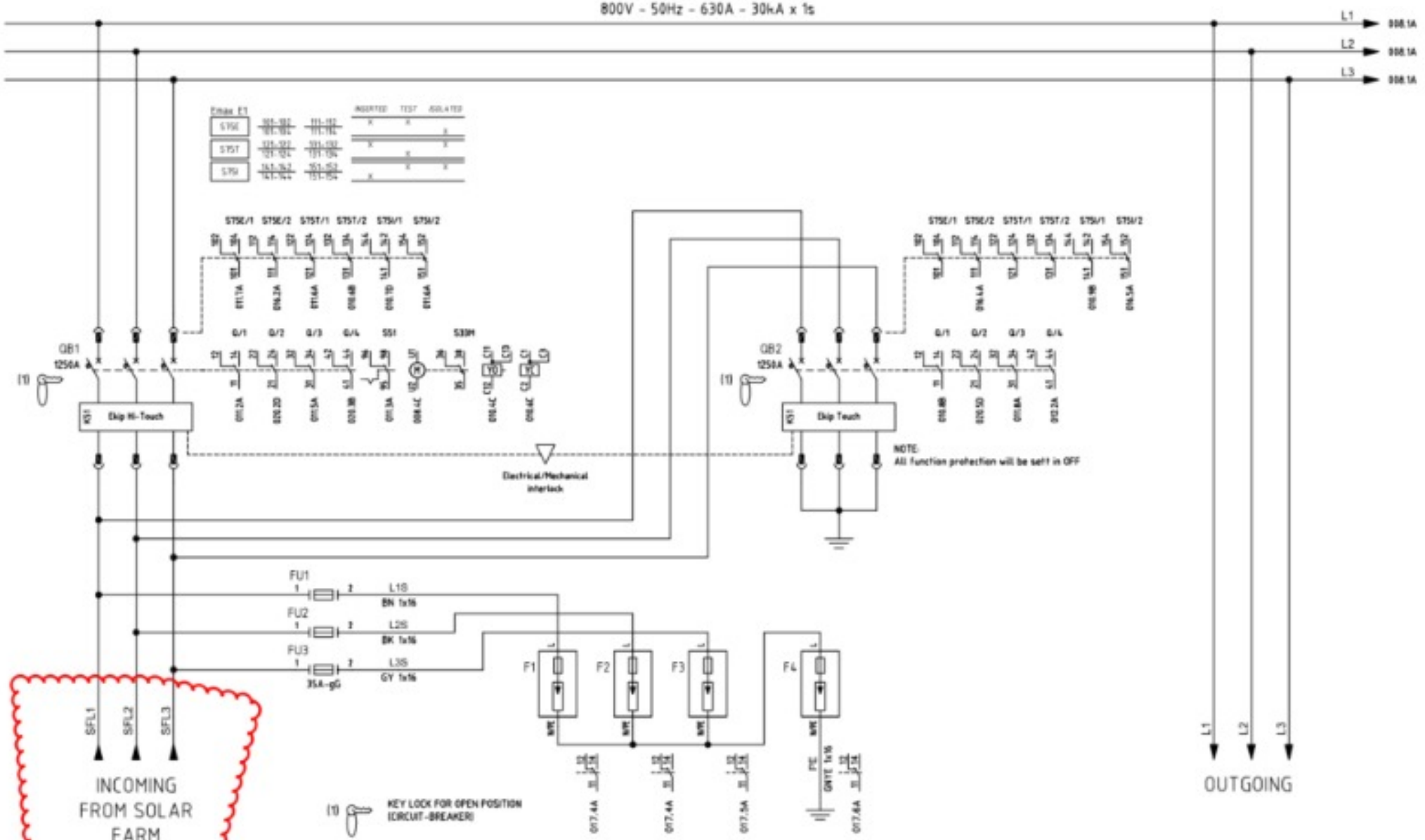
6- CLEARANCE APPROVAL

Name:
Date: 2025-04-15
Signature:


83002-CEL-L1
83002-CEL-L2
83002-CEL-L3
L1
L2
L3

POWER DISTRIBUTION

800V - 50Hz - 630A - 30kA x 1s



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	18/09/2024	Santinelli	Flaminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flaminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)

DWG n°: 231298/SD/32

Rev.n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 007

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

FROM

DESCRIPTION: SOLAR PV POWER CABLE JB
TAG NUMBER: JB-200E1

L1 — BK — 830E2-CEL-L1 1x300 mm² — BK — SPL1
L2 — BK — 830E2-CEL-L2 1x300 mm² — BK — SPL2
L3 — BK — 830E2-CEL-L3 1x300 mm² — BK — SPL3

TO

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (INCOMING)
CL01 A2/+03

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (OUTGOING)
CL01 A2/+01

L1 — BK — 830E3-CEL-L1 1x300 mm² — BK — IU
L2 — BK — 830E3-CEL-L2 1x300 mm² — BK — IV
L3 — BK — 830E3-CEL-L3 1x300 mm² — BK — IW

DESCRIPTION: 6.6/0.8 KV TRANSFORMER
TAG NUMBER: TR-200ED1

LV SIDE TERMINAL BOX

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

REV.	DATE	SIGNATURE
2_K	12/02/25	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
SOLAR PV POWER CABLE JB & LV SWBD 800/460V

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

SHEET 018

REV. 02

F.to UNI A3: 420mmx297mm

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

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000123

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-200D2		LV 0,4 kV MCC Switchgear (Solar)
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing Ethernet Switch RSPS25

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-09-17
3.5 Action by	VND Vendor	Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Installed

Name Vendor Crosswind

Date 2025-02-25

Signature

5 - CLEARANCE CHECK

The drawing was implemented.

Name Stefano Linari

Date 2025-02-25

Signature

6- CLEARANCE APPROVAL

Name

Date 2025-02-25

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000124

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-200D2		LV 0,4 kV MCC Switchgear (Solar)
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

EMAX E1.2N 1250A broken (only a part of auxiliary contacts)v. To be replace

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-09-17
3.5 Action by	VND Vendor	Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Replaced- see attached picture

Name Vendor Crosswind

Date 2025-02-25

Signature

5 - CLEARANCE CHECK

The drawing was implemented.

Name Stefano Linari

Date 2025-02-25

Signature

6- CLEARANCE APPROVAL

Name

Date 2025-02-25

Signature


QB2
Ekip Touch LSIG
ABB
SACE Emax 2
SACE E1.2N/E9
Iu 1250
MADE IN ITALY
IEC 60947-2
Cat.B
50-60 Hz
Trip Unit I/O
Module
Module
EKIP Supply Module
W3
K1
W4
K2
24Vac ONLY

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000767

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002116	1.4 Discipline	Electrical
1.2 Item	83016-CEC		LV SWBD 800/460V / LV Switchgear
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing cable tag on SG-200D2 side.

Name: Paolo Schintu

Date: 2024-11-22

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	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000768

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002116	1.4 Discipline	Electrical
1.2 Item	83016-CEC	LV SWBD 800/460V / LV Switchgear	
1.3 Subsystem	83-10	400 V Switchboard Solar (SG-200D2)	

2 - OBSERVATION

Missing core identification tags on SG-200D2 side.

Name: Paolo Schintu

Date: 2024-11-22

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	2024-11-22
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

C30000831

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004516	1.4 Discipline	Telecom
1.2 Item	SG-200D2/B400-NET-001		LV 0,8/0,4 kV MCC Switchgear (Solar) / Network Cabinet / EMCS System
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels.

Name: Giovanni Tangianu

Date: 2024-11-23

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-23
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001184

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000640	1.4 Discipline	Electrical
1.2 Item	83121-CEL		Lighting & Small Power DB BoP / Auxiliary SOLAR SWGR
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing core identification tag both side

Name: Paolo Schintu

Date: 2024-12-03

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	2024-12-03
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

C30001185

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000640	1.4 Discipline	Electrical
1.2 Item	83121-CEL		Lighting & Small Power DB BoP / Auxiliary SOLAR SWGR
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing SS cable tag

Name: Paolo Schintu

Date: 2024-12-03

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	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002322

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002324	1.4 Discipline	Electrical
1.2 Item	83015-CEC		LV SWBD 800/460V / 6.6KV HV Switchgear
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Identification tag of wire are wrong side the SG-200D2 and side the SG-100D1 COLUMS:A2 is missing.
See attached photo.

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

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

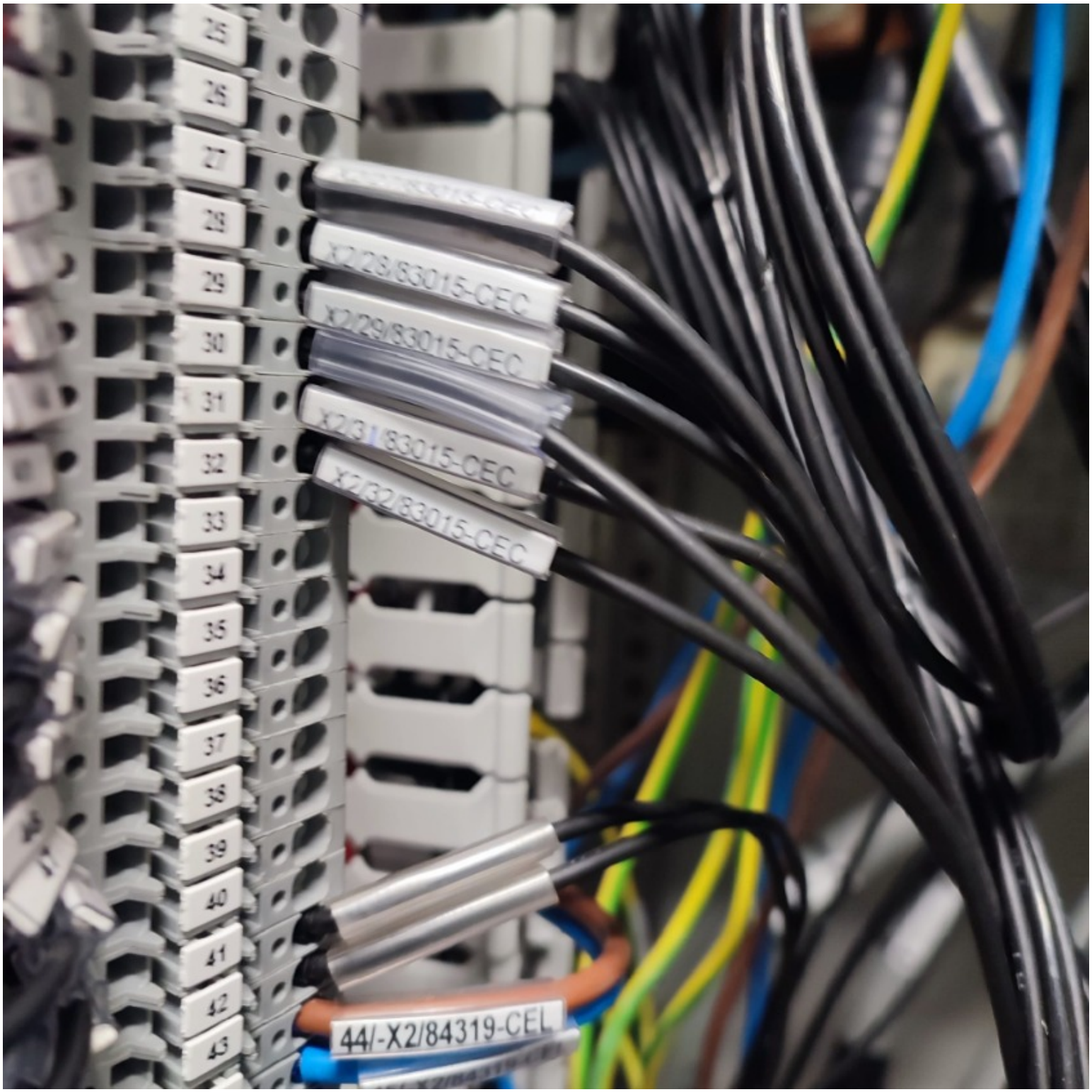
5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


X2/28/83015-CEC
X2/29/83015-CEC
X2/31/83015-CEC
X2/32/83015-CEC
44/-X2/84319-CEL


83011-CEC/3/XM/39
83012-CEC/4/XM/40
43
44
45
46
47
52

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002323

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002324	1.4 Discipline	Electrical
1.2 Item	83015-CEC		LV SWBD 800/460V / 6.6KV HV Switchgear
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

MCT is not closed side the SG-200D2.. See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

MCT is closed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


83003-CEL-L1

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002324

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002324	1.4 Discipline	Electrical
1.2 Item	83015-CEC		LV SWBD 800/460V / 6.6KV HV Switchgear
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Cable needs to be better dressed inside the panel SG.200D2. See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-02-21

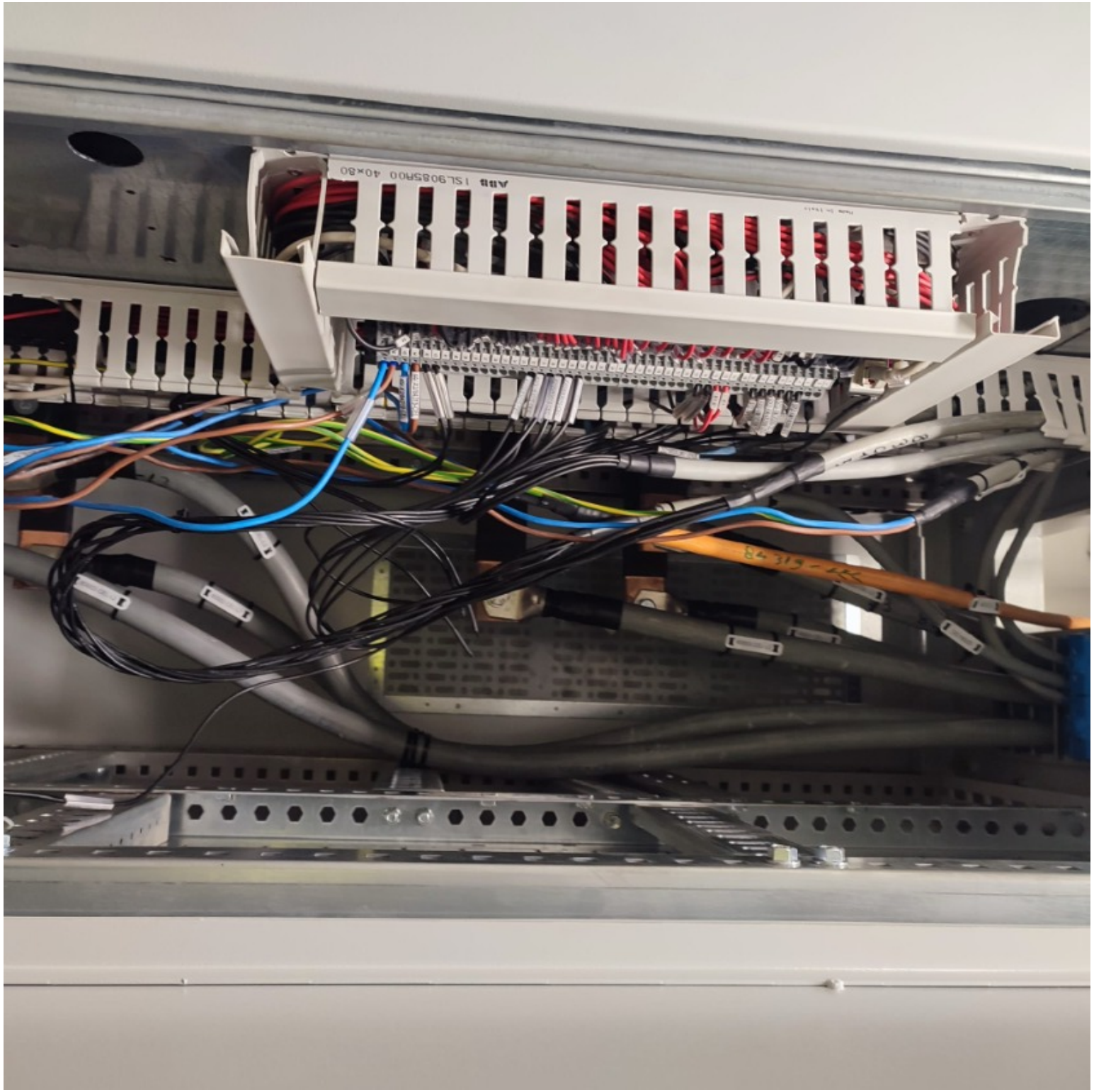
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


ABB 1SL9085R00 40×80

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002357

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002323	1.4 Discipline	Electrical
1.2 Item	82008-CEC		6.6KV HV Switchgear / Solar Switchgear
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing cable tags inside and outside MCT (B-100/B-200) and inside and outside the panel SG-200D2

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

C30002358

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002115	1.4 Discipline	Electrical
1.2 Item	84319-CEL		AC UPS - PAS DB / LV SWBD 800/460V Auxiliary
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing core identification tag side DP-200F3

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: 2025-02-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002359

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002115	1.4 Discipline	Electrical
1.2 Item	84319-CEL		AC UPS - PAS DB / LV SWBD 800/460V Auxiliary
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing cable tags inside and outside MCT (B-300/B-200) and inside and outside the panels (DP-200F3 / SG-200D2)

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

C30002360

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002115	1.4 Discipline	Electrical
1.2 Item	84319-CEL		AC UPS - PAS DB / LV SWBD 800/460V Auxiliary
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

Missing cable gland earthing tag inside DP-200F3

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

DONE

Name: Paolo Schintu

Date: 2025-01-09

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004035

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001823	1.4 Discipline	Electrical
1.2 Item	83002-CEL-L1		Solar PV Power Cable JB / LV SWBD 800/460V
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date: 2025-04-15
Signature:

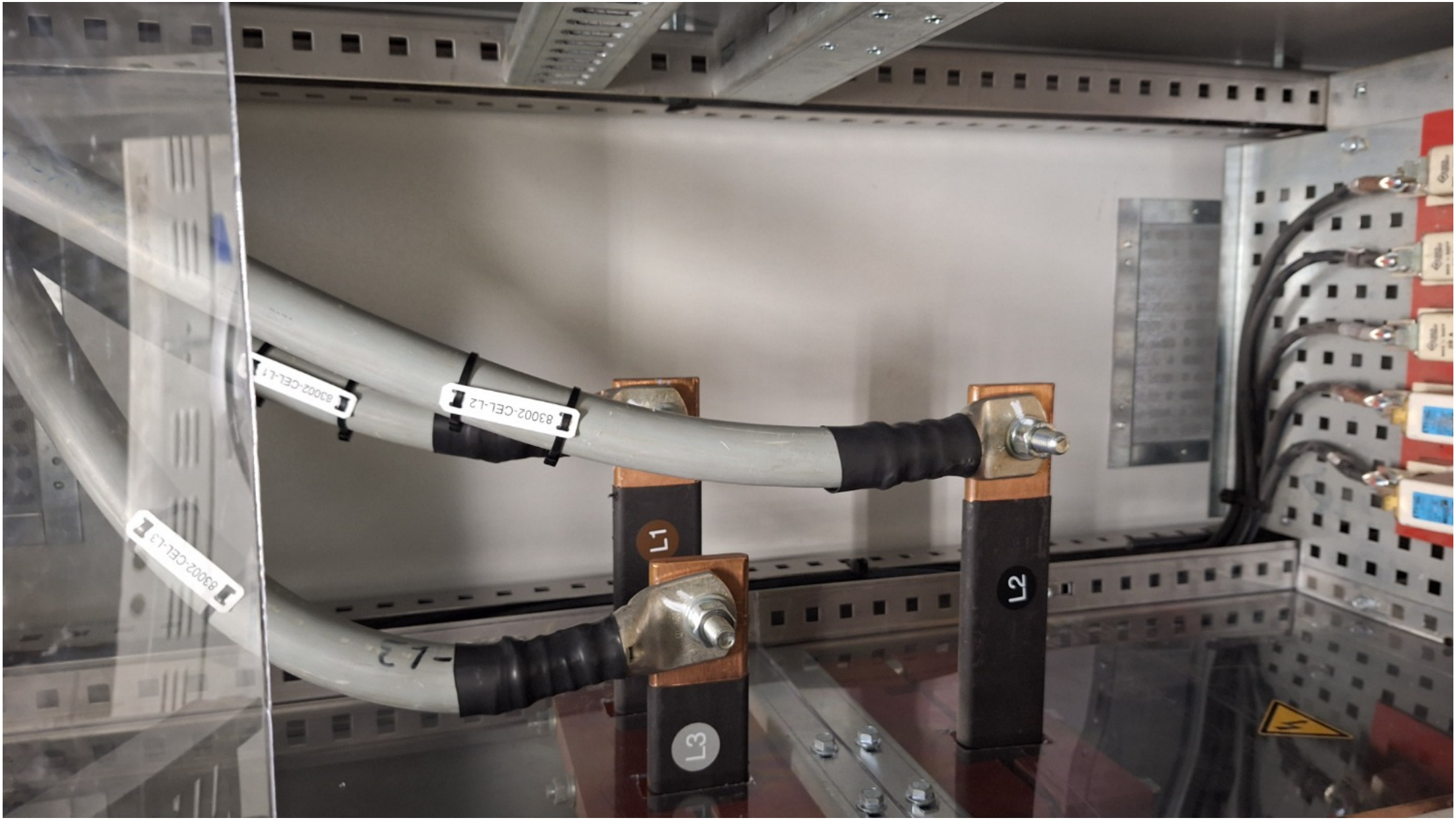
5 - CLEARANCE CHECK

The drawing was implemented.

Name: Giovanni Tangianu
Date: 2025-04-15
Signature:

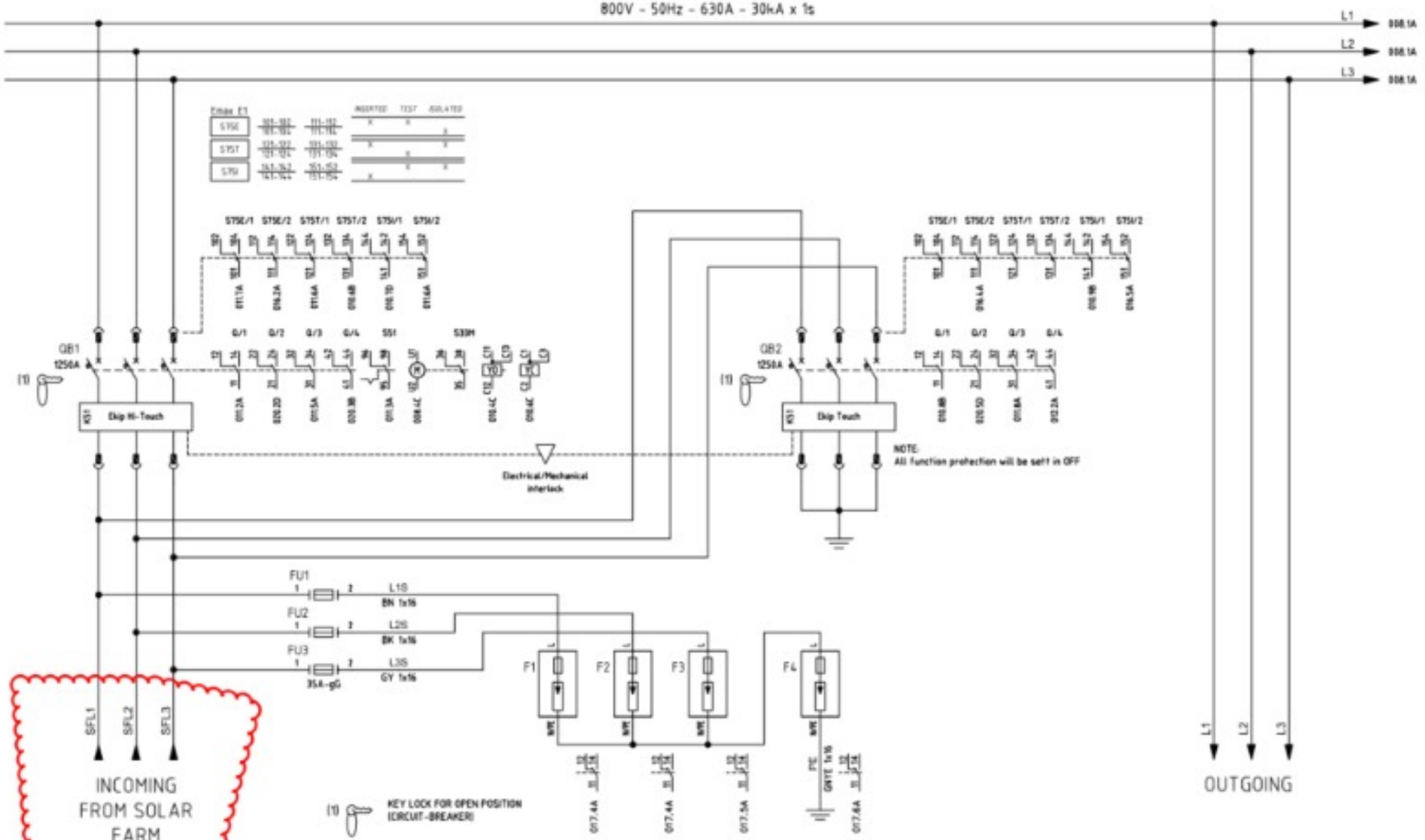
6- CLEARANCE APPROVAL

Name:
Date: 2025-04-15
Signature:


83002-CEL-L1
83002-CEL-L2
83002-CEL-L3
L1
L2
L3

POWER DISTRIBUTION

800V - 50Hz - 630A - 30kA x 1s



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	18/09/2024	Santinelli	Flaminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flaminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)

DWG n°: 231298/SD/32

Rev.n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 007

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

FROM

DESCRIPTION: SOLAR PV POWER CABLE JB
TAG NUMBER: JB-200E1

L1 — BK — 830E2-CEL-L1 1x300 mm² — BK — SPL1
L2 — BK — 830E2-CEL-L2 1x300 mm² — BK — SPL2
L3 — BK — 830E2-CEL-L3 1x300 mm² — BK — SPL3

TO

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (INCOMING)
CL01 A2/+03

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (OUTGOING)
CL01 A2/+01

L1 — BK — 830E3-CEL-L1 1x300 mm² — BK — IU
L2 — BK — 830E3-CEL-L2 1x300 mm² — BK — IV
L3 — BK — 830E3-CEL-L3 1x300 mm² — BK — IW

DESCRIPTION: 6.6/0.8 KV TRANSFORMER
TAG NUMBER: TR-200ED1

LV SIDE TERMINAL BOX

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

REV.	DATE	SIGNATURE
2_K	12/02/25	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
SOLAR PV POWER CABLE JB & LV SWBD 800/460V

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

SHEET 018

REV. 02

F.to UNI A3: 420mmx297mm

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

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004036

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001824	1.4 Discipline	Electrical
1.2 Item	83002-CEL-L2		Solar PV Power Cable JB / LV SWBD 800/460V
1.3 Subsystem	83-10		400 V Switchboard Solar (SG-200D2)

2 - OBSERVATION

What was installed in the field (busbar) does not report what is indicated in the project documentation (see picture)

Name: Alessio Polo
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date: 2025-04-15
Signature:

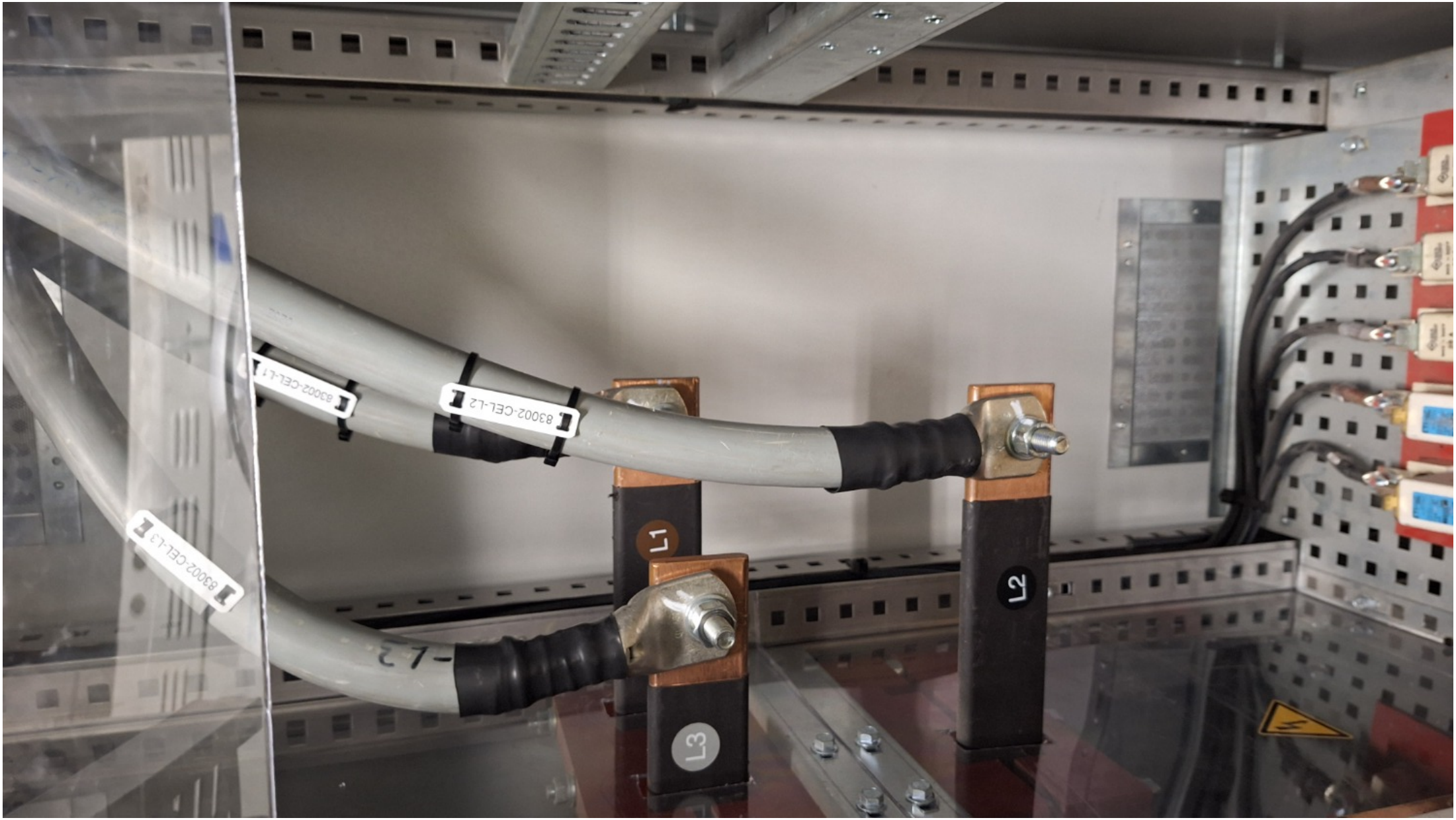
5 - CLEARANCE CHECK

The drawing was implemented.

Name: Giovanni Tangianu
Date: 2025-04-15
Signature:

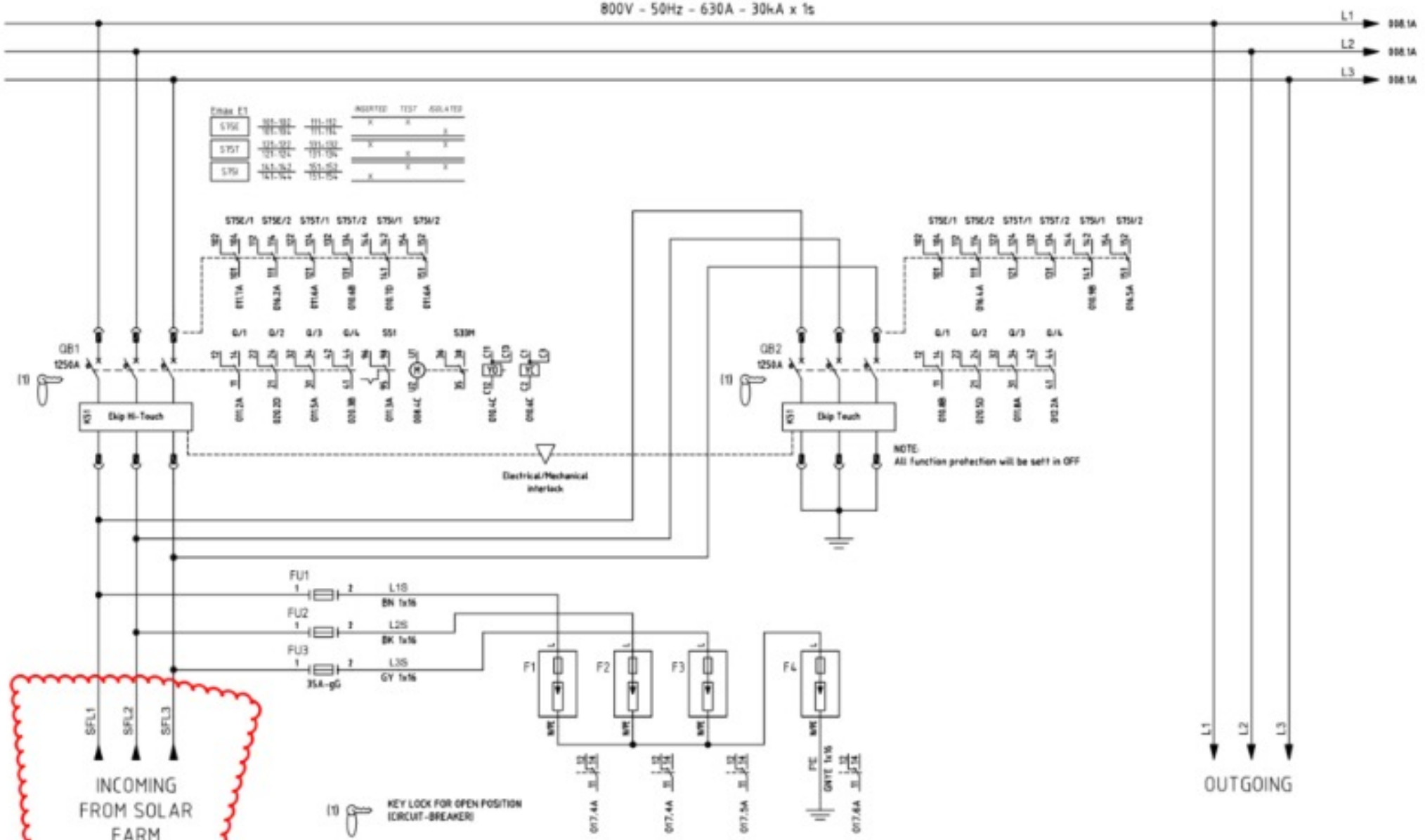
6- CLEARANCE APPROVAL

Name:
Date: 2025-04-15
Signature:


83002-CEL-L1
83002-CEL-L2
83002-CEL-L3
L1
L2
L3

POWER DISTRIBUTION

800V - 50Hz - 630A - 30kA x 1s



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	18/09/2024	Santinelli	Flaminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flaminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flaminio	Sigismondi	Issued for review (IFR)

DWG n°: 231298/SD/32

Rev.n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 007

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

FROM

DESCRIPTION: SOLAR PV POWER CABLE JB
TAG NUMBER: JB-200E1

L1 — BK — 830E2-CEL-L1 1x300 mm² — BK — SPL1
L2 — BK — 830E2-CEL-L2 1x300 mm² — BK — SPL2
L3 — BK — 830E2-CEL-L3 1x300 mm² — BK — SPL3

TO

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (INCOMING)
CL01 A2/+03

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (OUTGOING)
CL01 A2/+01

L1 — BK — 830E3-CEL-L1 1x300 mm² — BK — IU
L2 — BK — 830E3-CEL-L2 1x300 mm² — BK — IV
L3 — BK — 830E3-CEL-L3 1x300 mm² — BK — IW

DESCRIPTION: 6.6/0.8 KV TRANSFORMER
TAG NUMBER: TR-200ED1

LV SIDE TERMINAL BOX

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

REV.	DATE	SIGNATURE
2_K	12/02/25	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
SOLAR PV POWER CABLE JB & LV SWBD 800/460V

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

SHEET 018

REV. 02

F.to UNI A3: 420mmx297mm

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

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 83-10 & process: COMM & discipline : E

Electrical	83-10 400 V Switchboard Solar (SG-200D2)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q40	BREAKER AUX LV SW 800/460V - DP-200N1-Q40	ONSHORE	C10002885	FTR-2	100	2024-10-29	RFO 1
SG-200D2	LV 0,4 kV MCC Switchgear (Solar)	ONSHORE	C10002992	FP05	100	2025-01-16	RFO 1
SG-200D2-QB1	INCOMER - SG-200D2-QB1	ONSHORE	C10002930	FTR-2	100	2024-11-19	RFO 1
		OFFSHORE	C10002931	FTR-6	0	-	-
UP-200F3-QF51	SG-200-D2 AUX	ONSHORE	C10004587	FTR-2	100	2024-11-08	RFO 1

ITEM	Tag	DP-200N1-Q40	: BREAKER AUX LV SW 800/460V - DP-200N1-Q40	Dwg	1723002197-EL-DG-00013		
	S/Sys	83-10	: 400 V Switchboard Solar (SG-200D2)	Module			
TASK	code	C10002885	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

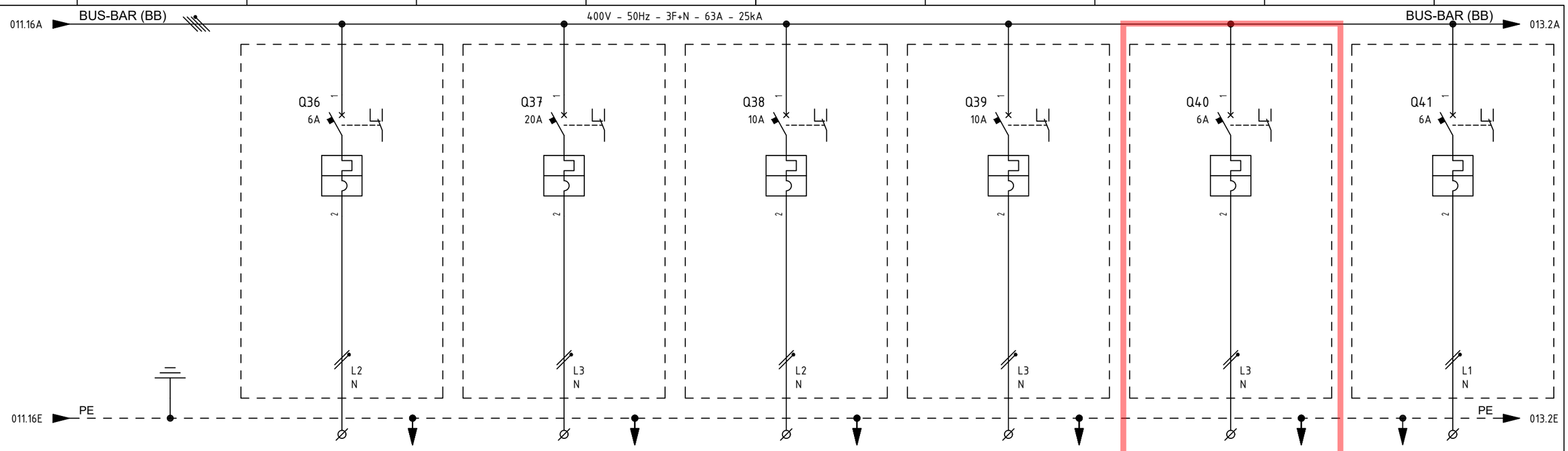
ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
I	6A	NA	NA	FIXED	NA

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
FLUKE 1663	5380144	7727/24	108/07/2025

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	2024-10-28	2024-10-29	2024-10-29
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-28T13:17:17.443Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-29T08:48:37.682Z	PROVERLIS Digitaly signed by Witness waived 2024-10-29T09:02:15.778Z



ITEM			1	CP-200E2		CP-100E1		SG-100D1		SG-200N1		SG-200D2		UP-200F3	
UTILITY			2	AUXILIARY TRAFO SOLARE 0.5MVA		AUXILIARY GIS		AUXILIARY 6.6KV SWITCHBOARD		AUXILIARY LV SWITCHBOARD		AUXILIARY LV SWITCHBOARD 800/460V		AC UPS PAS AUXILIARY	
CUBICLE			3	+03		+03		+03		+03		+03		+03	
RATED POWER	RATED CURRENT		4/5	0.5 KW	2.72 A	3 KW	16.3 A	1 KW	5.43 A	1 KW	5.43 A	0.5 KW	2.72 A	0.2 KW	0.82 A
TYPICAL FUNCTIONAL			6	-		-		-		-		-		-	
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6		S302P-C20		S302P-C10		S302P-C10		S302P-C6		S302P-C6	
	VERSION		8	2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE	
	TRIP UNITS		9	In=6A - Curve C		In=20A - Curve C		In=10A - Curve C		In=10A - Curve C		In=6A - Curve C		In=6A - Curve C	
	Icu	KA	10	25kA		25kA		25kA		25kA		25kA		25kA	
OVERLOAD	L	Range A	11	-		-		-		-		-		-	
		Range t	12	-		-		-		-		-		-	
SEL. SHORT-CIRCUIT	S	Range A	13	-		-		-		-		-		-	
		Range t	14	-		-		-		-		-		-	
INST. SHORT-CIRCUIT	I	Range A	15	-		-		-		-		-		-	
		Range t	16	-		-		-		-		-		-	
EARTH FAULT PROTECTION	G	Range A	17	-		-		-		-		-		-	
		Range t	18	-		-		-		-		-		-	
CONTACTOR (ABB)			19	-		-		-		-		-		-	
THERMAL OVERLOAD RELAY (ABB)			20	-		-		-		-		-		-	
SURGE ARRESTERS (DHENN)			21	-		-		-		-		-		-	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-		-		-		-		-		-	
FUSE HOLDER (ABB)			23	-		-		-		-		-		-	
TWILIGHT SWITCH (ABB)			24	-		-		-		-		-		-	
VOLTMETER (FRER)			25	-		-		-		-		-		-	
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-		-		-		-		-		-	
	PERFORMANCE/CLASS		27	-		-		-		-		-		-	
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-		-		-		-		-		-	
	PERFORMANCE/CLASS		29	-		-		-		-		-		-	
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4		SCREW / 6		SCREW / 4		SCREW / 4		SCREW / 4		SCREW / 4	
POWER CONDUCTOR		mm²	31	3G2.5		3G6		3G2.5		3G2.5		3G2.5		3G2.5	

=

+

DWG n° : 231298/SD/13

Item n° : PF1002888/101

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

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

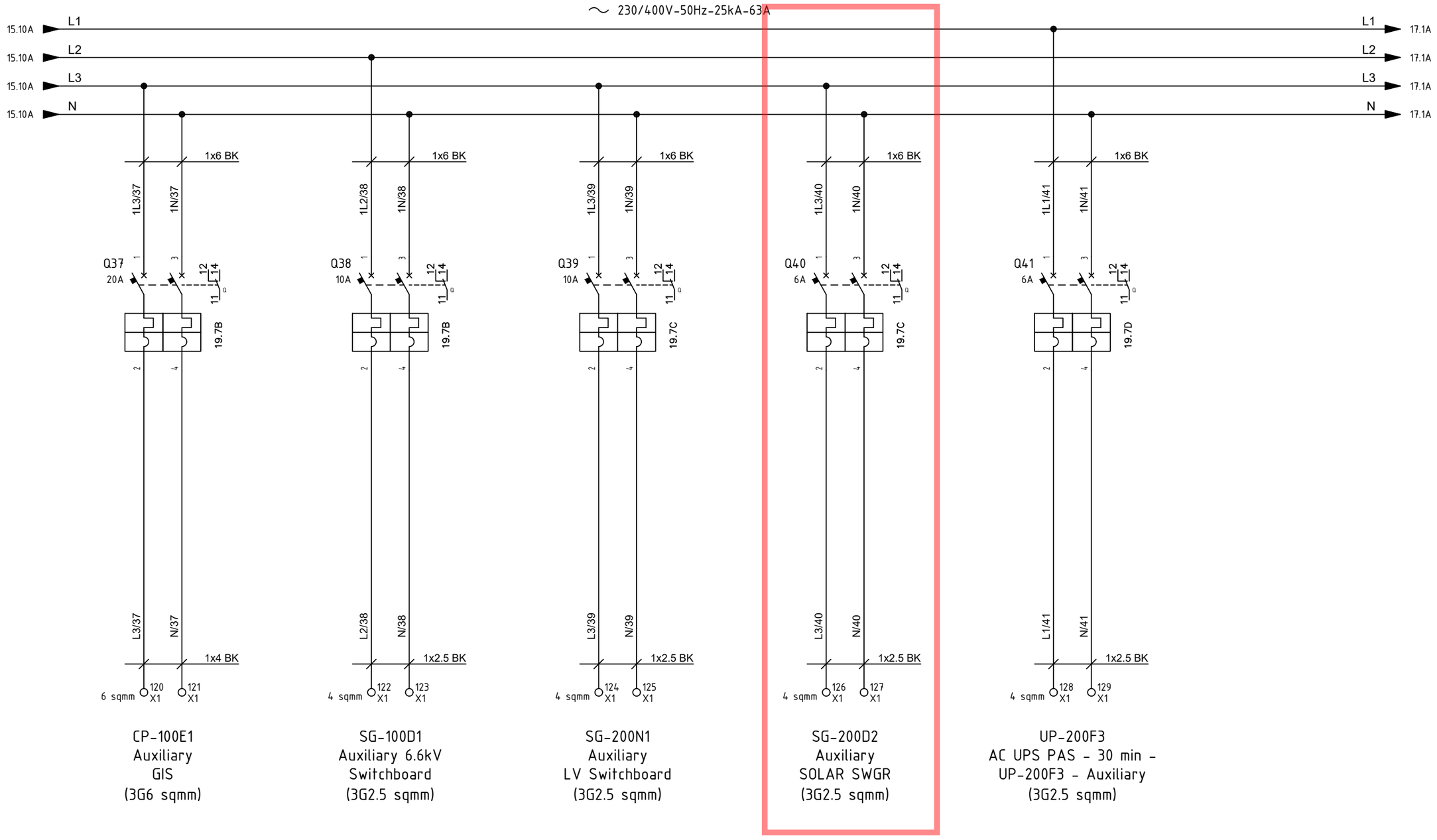
DRAWING NO. 1723002197-EL-DG-00013

SHEET 012

REV. 04

F.to UNI A3: 420mmx297mm

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



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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/33

Item n° : PF1002888/101

TITLE : "DP-200N1"

LV SWBD FUNCTIONAL DIAGRAMS

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.6

REV. 02

F.to UNI A3: 420mmx297mm

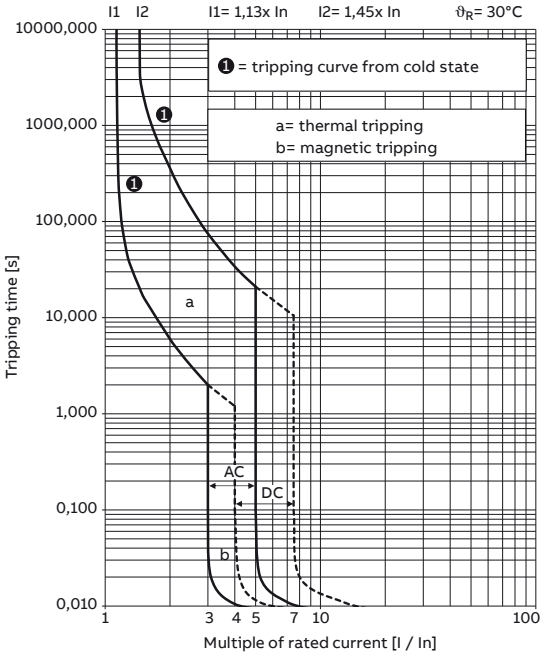
File Name : 1723002197-EL-DG-00033 Rev. 02

Miniature Circuit breakers S300P

Tripping characteristics

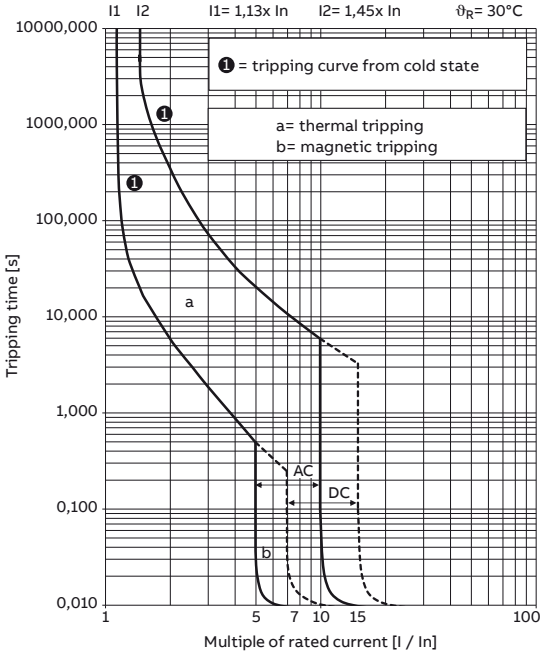
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



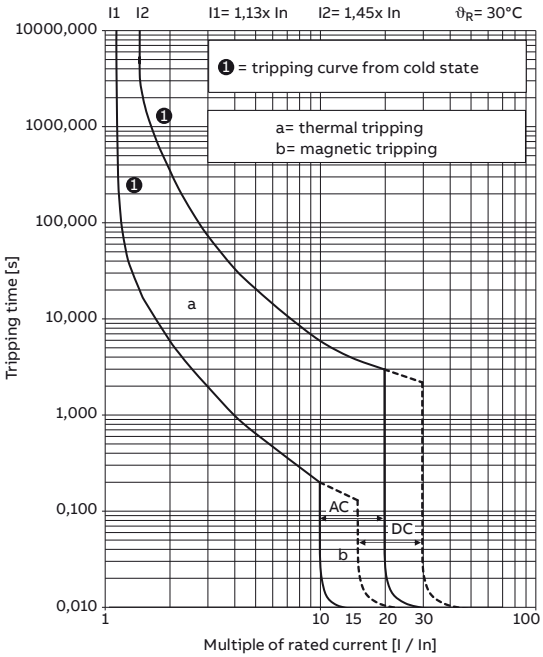
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1



ITEM	Tag	SG-200D2-QB1	: INCOMER - SG-200D2-QB1		Dwg	1723002197-EL-DG-00012	
	S/Sys	83-10	: 400 V Switchboard Solar (SG-200D2)		Module		
TASK	code	C10002930	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°:	ECNA8Z473390X000	Relay type:	EKIP HI TOUCH LSIG
Auxiliary supply:	230V	Location:	B200	Cubicle:	02
Switchboard:	SG-200D2				

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	500A			3s	
S	1250A			0.1s	
I	1875A	3750A		INSTANT	25ms
G	250A			0.1s	

Testing & measurement instruments used

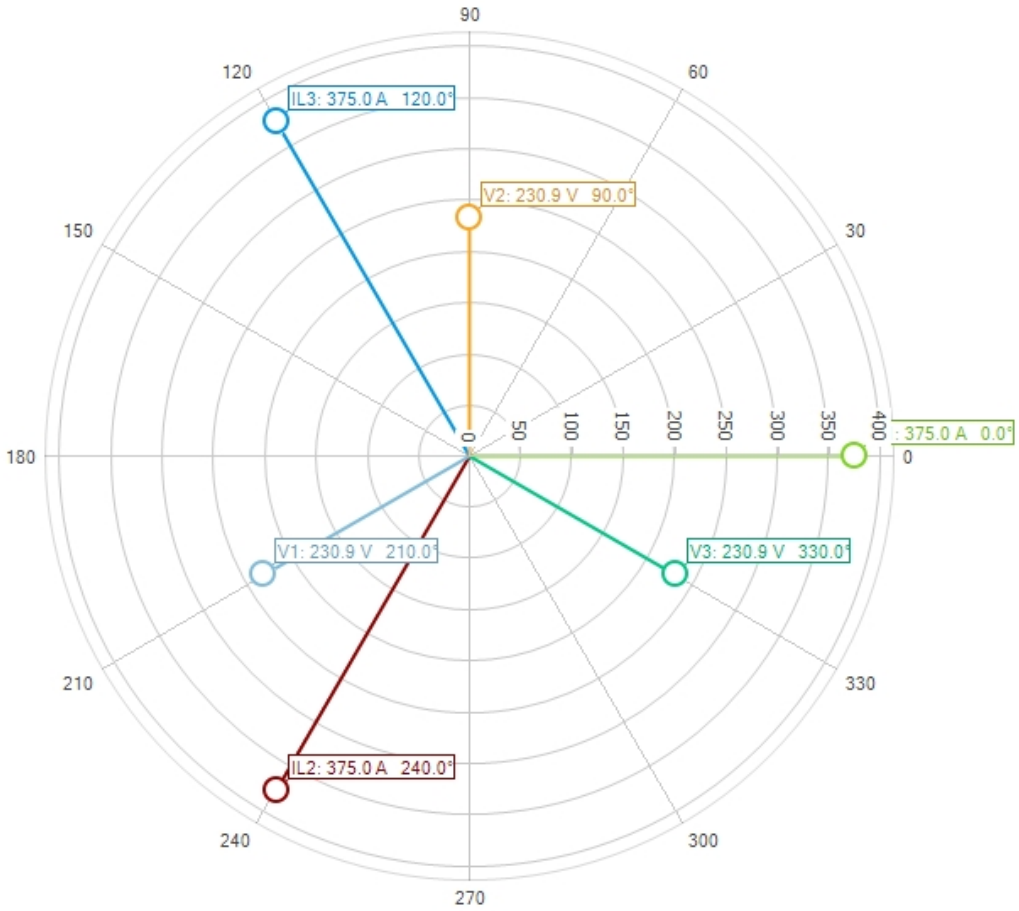
Type	Serial n°	Calibration certificate	Validity
ABB EKIP T&P	E34013804410W050		

Comments: See attachments for full tests

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	2024-11-19	2024-11-19	2024-11-19
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-11-19T06:57:36.785Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-19T07:30:29.390Z	PROVERLIS Digitaly signed by Witness waived 2024-11-19T08:02:38.989Z

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Settings A				
	Overload Protection (L - ANSI 49)			
		PU nominal current In	1250	
		Status	Enabled	
		Function	t=k/i^2	
		Prealarm I1	90	% I1
		Threshold I1	0.400	In
		Time t1 std	3.00	s
		Thermal memory (TM)	Disabled	
		TM Algorithm	RMS-independent	
		TM Time	Automatic	
		TM custom time	830	s
	Time-delayed overcurrent protection (S - ANSI 50 TD/68/51)			
		Status	Enabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Function	t=k	
		Threshold I2 (t=k)	1.00	In
		Time t2 (t=k) IEC - UL489	0.10	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	0.60	In
		Set Startup th. on ProgStatusD	--------	
		Thermal memory status	Disabled	
		Zone Selectivity status	Disabled	
		Zone Selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Second time-delayed overcurrent protection (S2 - ANSI 50 TD)			
		Status	Disabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I5 (t=k)	2.00	In
		Time t5 (t=k)	0.05	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	2.00	In
		Set Startup th. on ProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Instantaneous overcurrent protection (I - ANSI 50)			
		Status	Enabled	
		Threshold I3	1.50	In
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	1.50	In
		Set Startup th. on ProgStatusD	--------	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
	Second I			
		Prot Second I	---	
		Status	Disabled	
		Threshold I31	1.50	In
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
		Second I Mode	Function Dependent	
		Function	Disabled	
		Delay On	0.00	s
		Delay Off	15.00	s
	Earth fault protection (G - ANSI 50N TD/68/51N)			
		Status	Disabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Function	t=k	
		Prealarm I4	90	% I4
		Threshold I4 (t=k)	0.200	In
		Time t4 (t=k) IEC - UL489	0.10	s

		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	0.20	In
		Set Startup th. on ProgStatusD	--------	
		Zone selectivity status	Disabled	
		Zone selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Directional overcurrent protection (D - ANSI 67/68)			
		Status	Disabled	
		Trip enable	Disabled	
		tripOnlyForward	--------	
		tripOnlyBackward	--------	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I7 FWD	2.00	In
		Time t7 FWD	0.20	s
		Threshold I7 BWD	2.00	In
		Time t7 BWD	0.20	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold FWD	2.00	In
		Startup threshold BWD	2.00	In
		Set Startup th. on ProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity time FWD	0.13	s
		Zone Selectivity time BWD	0.13	s
		Zone Selectivity Type	Logic and Hardware	
		Direction minimum angle	3.6	°
	Closing on short-circuit protection (MCR)			
		Status	Disabled	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I3	6.00	In
		Time t3	0.04	s
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
	Over Temperature (T)			
		Trip enable	Disabled	



Test

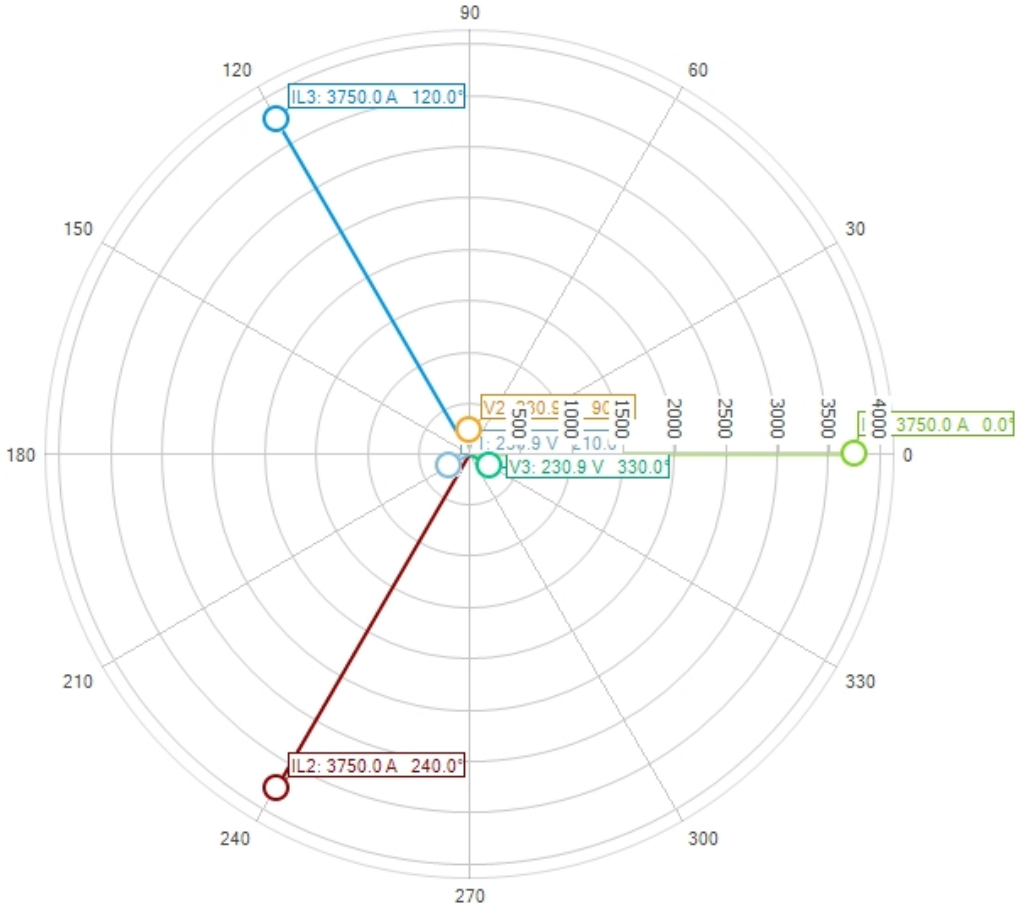
Name	Automatic test 1
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	SG-200D2
Relay Serial Number	ECNA8Z473390X000
Circuit Breaker Serial Number	CE61019336
	Ekip Touch Black
Device settings	In = 1250 A Un = 400 V fn = 50 Hz
Protection Settings	Protection = L Curve type = t=k/i^2 Threshold = 0.400 In Time = 3.00 s Protection = S Curve type = t=k Threshold = 1.00 In Time = 0.10 s Protection = I Threshold = 1.50 In
Preconditions	All preconditions satisfied.

Test result

⚠ Test completed without any trip in 3000 ms.



Test

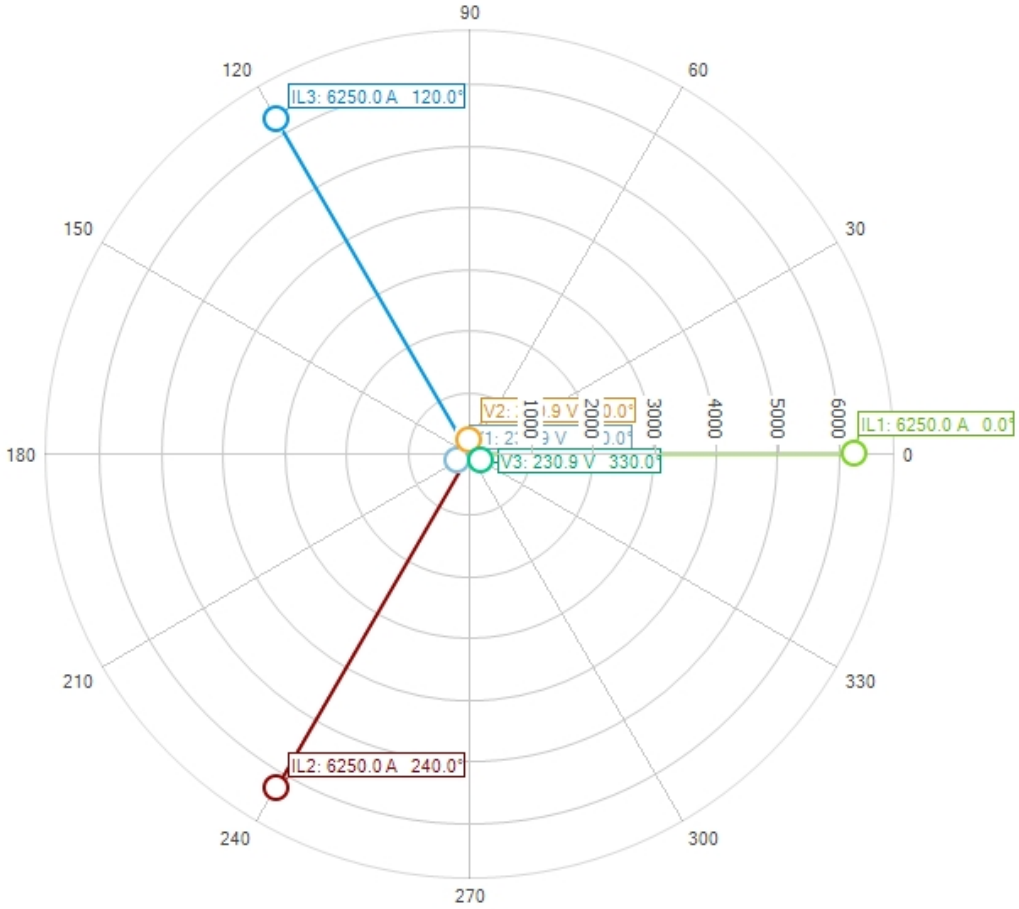
Name	Automatic test 2
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	SG-200D2
Relay Serial Number	ECNA8Z473390X000
Circuit Breaker Serial Number	CE61019336
	Ekip Touch Black
Device settings	In = 1250 A Un = 400 V fn = 50 Hz
Protection Settings	Protection = L Curve type = t=k/i^2 Threshold = 0.400 In Time = 3.00 s Protection = S Curve type = t=k Threshold = 1.00 In Time = 0.10 s Protection = I Threshold = 1.50 In
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 25 ms.
Trip time must be between 0 ms and 1000 ms.



Test

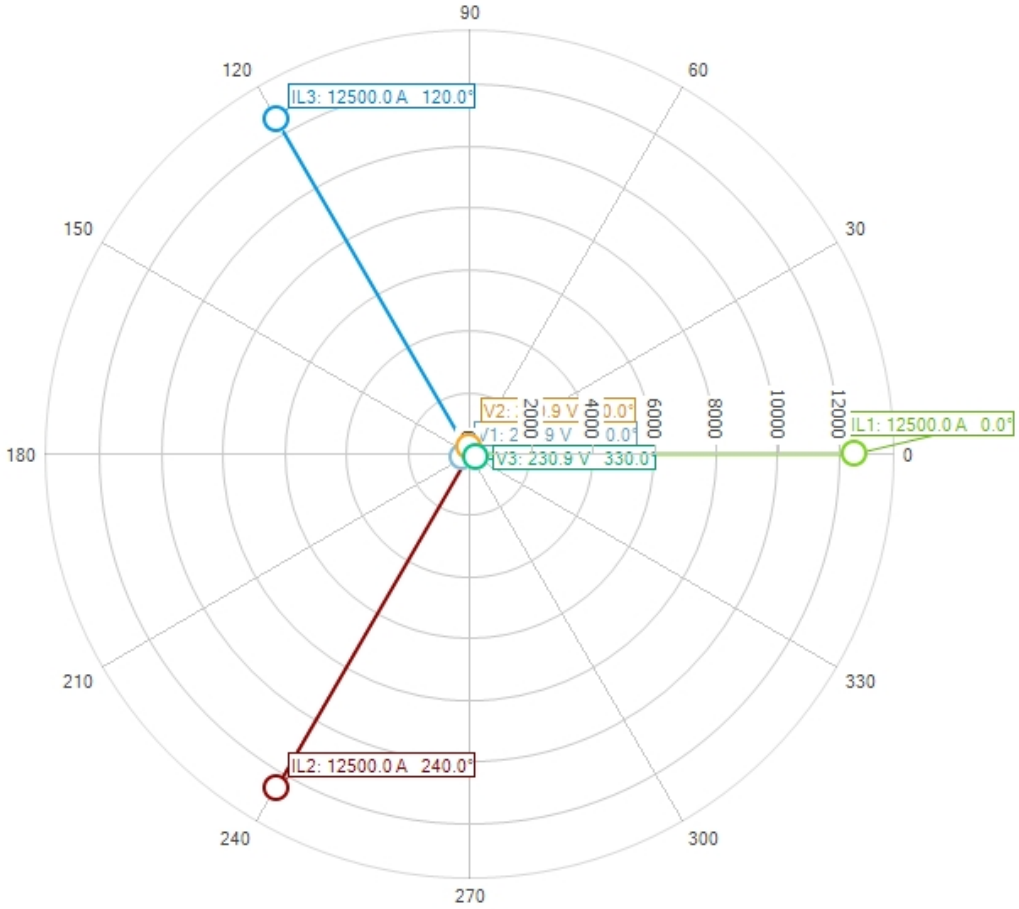
Name	Automatic test 3
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	SG-200D2
Relay Serial Number	ECNA8Z473390X000
Circuit Breaker Serial Number	CE61019336
	Ekip Touch Black
Device settings	In = 1250 A Un = 400 V fn = 50 Hz
Protection Settings	Protection = L Curve type = t=k/i^2 Threshold = 0.400 In Time = 3.00 s Protection = S Curve type = t=k Threshold = 1.00 In Time = 0.10 s Protection = I Threshold = 1.50 In
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 26 ms.
Trip time must be between 0 ms and 1000 ms.



Test

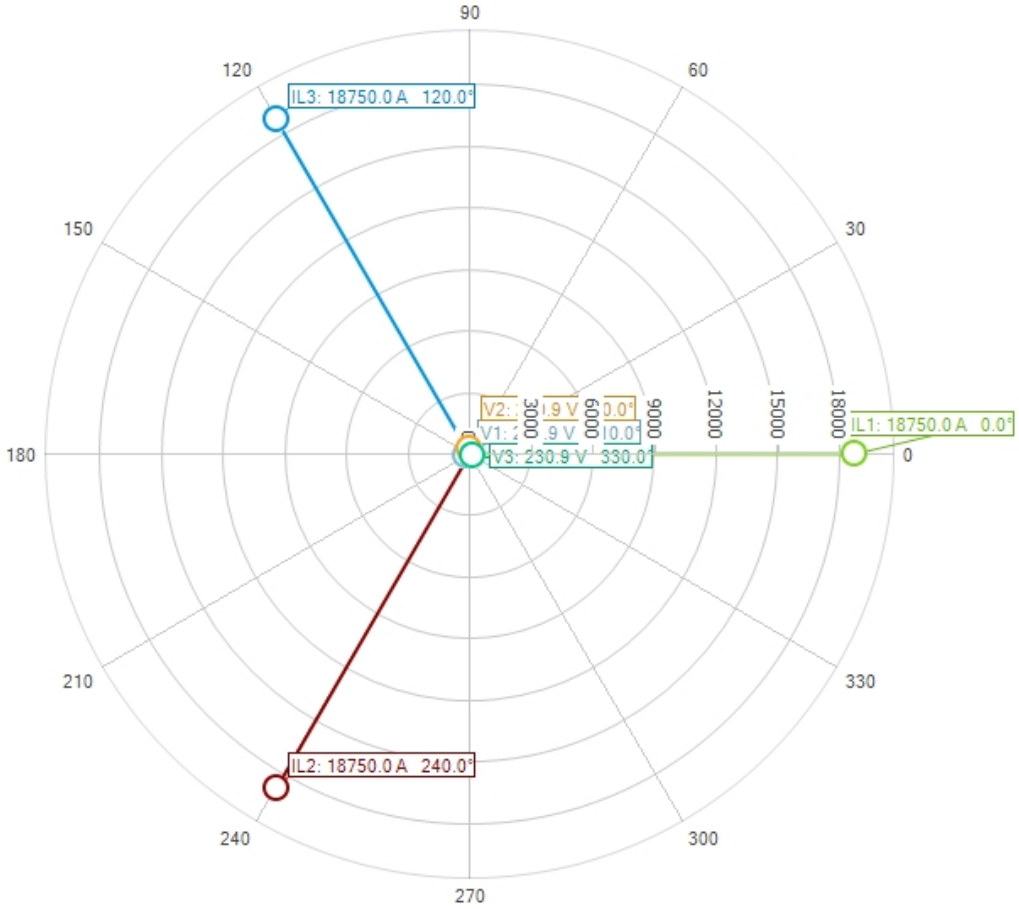
Name	Automatic test 4
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	SG-200D2
Relay Serial Number	ECNA8Z473390X000
Circuit Breaker Serial Number	CE61019336
	Ekip Touch Black
Device settings	In = 1250 A Un = 400 V fn = 50 Hz
Protection Settings	Protection = L Curve type = t=k/i^2 Threshold = 0.400 In Time = 3.00 s Protection = S Curve type = t=k Threshold = 1.00 In Time = 0.10 s Protection = I Threshold = 1.50 In
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 25 ms.
Trip time must be between 0 ms and 1000 ms.



Test

Name	Automatic test 5
Session	Default session
Customer	
Location	
Operator	

Device

Tag name	SG-200D2
Relay Serial Number	ECNA8Z473390X000
Circuit Breaker Serial Number	CE61019336
	Ekip Touch Black
Device settings	In = 1250 A Un = 400 V fn = 50 Hz
Protection Settings	Protection = L Curve type = t=k/i^2 Threshold = 0.400 In Time = 3.00 s Protection = S Curve type = t=k Threshold = 1.00 In Time = 0.10 s Protection = I Threshold = 1.50 In
Preconditions	All preconditions satisfied.

Test result

Test completed with trip. Protection I tripped in 25 ms.
Trip time must be between 0 ms and 1000 ms.

ITEM	Tag	SG-200D2-QB1	: INCOMER - SG-200D2-QB1			Dwg	1723002197-EL-DG-00012
	S/Sys	83-10	: 400 V Switchboard Solar (SG-200D2)			Module	
TASK	code	C10002931		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:	SG-200D2-QB1	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	MCB's HEALTHY	HW	DI	SG-200D2/X2:42/43	SG-200N1-A2/+02/X2:66/67	NA	NA	NA	Y	NA	NA	NA	NA	NA
2	C.B. CLOSED AND INSERTED	CM	DI	SG-200N1-MODBUS TCP-IP	PCS CABINET	NA	NA	NA	Y	NA	NA	NA	NA	NA
3	C.B. OPEN OR DISCONNECTED	CM	DI	SG-200N1-MODBUS TCP-IP	PCS CABINET	NA	NA	NA	Y	NA	NA	NA	NA	NA
4	C.B. TRIPPED	CM	DI	SG-200N1-MODBUS TCP-IP	PCS CABINET	NA	NA	NA	NA	NA	Y	NA	NA	NA
5														
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:

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM		
Name			
Date			
Signature			

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	SG-200D2	: LV 0,4 kV MCC Switchgear (Solar)	Dwg	123A90-DDL-EL-DS-20051		
	S/Sys	83-10	: 400 V Switchboard Solar (SG-200D2)	Module	LD_B-200		
TASK	code	C10002992	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FP05	LV Switchboard /MCC

DATA

Manufacturer	IMESA	Rated Voltage	800V	Bus Bar Rating A	630A
Serial N°	231286/SD/070	Fault Level kA/s	30kA/1s		
Type	PC	IP Rating	IP20/IP30		

FUNCTION TEST REQUIREMENT

1	CheckK MC activities have been carried out			OK
2	Check equipment for cleaness			OK
3	Measure I/R value of bus bars including circuit breakers at 1000V (Min 50 MΩ)	>1000	MΩ	OK
4	Measure I/R value of polarities buses at 500 V (Min value: 10 MΩ)	>1000	MΩ	OK
5	Check polarity of bus wiring in each cubicle.			OK
6	Energise anti-condensation heater and check hygrostat working and that the system is heating correctly.			OK
7	Test bus tie breaker(s) operation .			NA
8	Verify that the secondary injection test on the protection relays and metering is present in the system			OK
9	Check incomer protection devices rating and settings in accordance with relay protection study.			OK
10	Test interface trips and signals (remote alarms & status). Check the ITR relevant presence in the system			Note
11	Check presence of Warning posts, safety tool kit.			OK
12	Ensure all HV/LV intertrips and interlocks are tested			OK
13	Ensure bus tie is open.			NA
14	Test synchronisation device is ok.			NA
15	Energise switchboard incoming supplies.			OK
16	Phase out incoming supplies.			OK
17	Phase out switchboard across bus sections.			OK
18	Carry out all manual and automatic changeover sequences.			NA
19	For switchboard with emergency supply, carry out all automatic changeover sequences upon loss of main supply.			NA
20	Check meters and indicators			OK

Comments: NOTE: The test will be done with YOKOGAWA.

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-01-16	2025-01-16	2025-01-16

PROVERLIS Digitaly signed by Mattia Girotti 2025-01-16T12:41:41.847Z

PROVERLIS Digitaly signed by Kristian Castellani 2025-01-16T16:06:47.400Z

PROVERLIS Digitaly signed by Witness waived 2025-01-16T16:10:50.018Z

Signature			

ITEM	Tag	UP-200F3-QF51	: SG-200-D2 AUX		Dwg	1724000372-EL-DG-00009	
	S/Sys	83-10	: 400 V Switchboard Solar (SG-200D2)		Module		
TASK	code	C10004587	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

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

Testing & measurement instruments used

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

Comments:

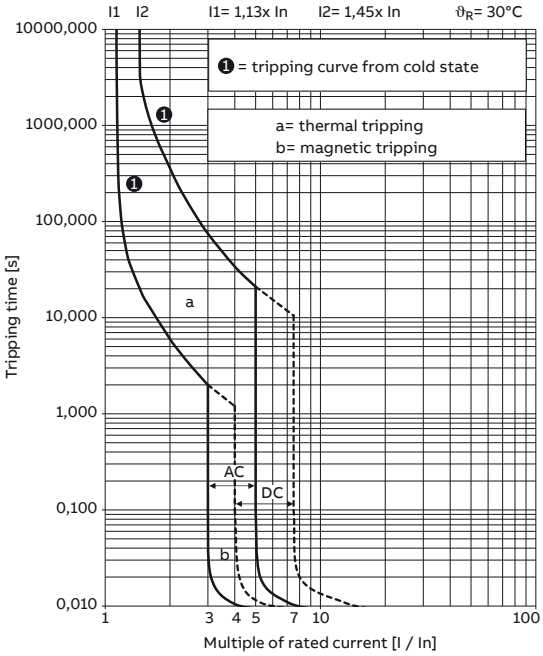
Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-11-08	2024-11-08	2024-11-08
Signature	Digitaly signed by Davide Zucconelli 2024-11-08T14:23:52.218Z	Digitaly signed by Kristian Castellani 2024-11-08T15:21:16.047Z	Digitaly signed by Witness waived 2024-11-08T16:29:24.904Z

Miniature Circuit breakers S300P

Tripping characteristics

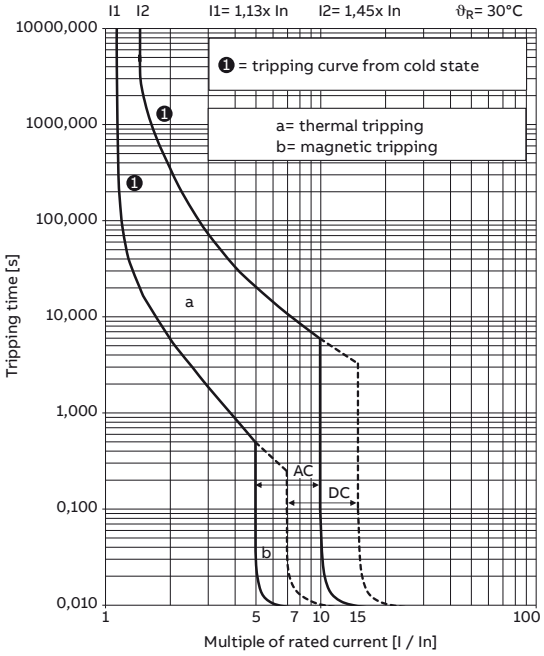
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



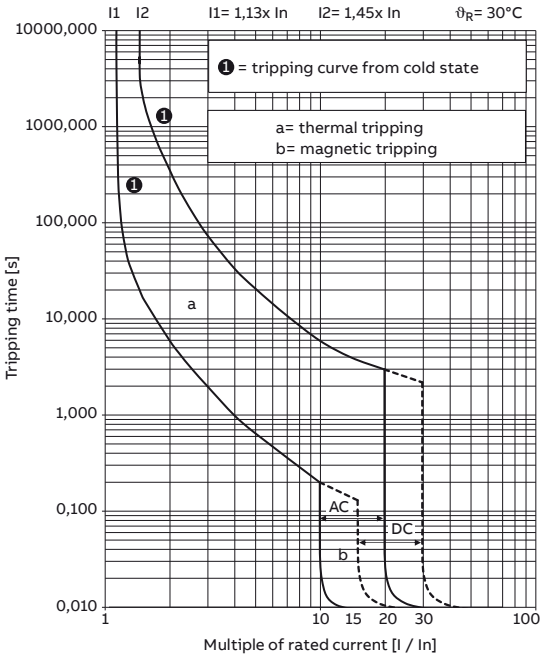
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1



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

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

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

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

Not included in the AEG shipment

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

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

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

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

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

-E1-X1 U,V,W,PE
-E4-X4 U,V,W,N,PE
-Q1 L=100/85A I=1,0kA Icu=50kA
-T40
-A1 REC
-A2 INV
-T1
-F1,-F2,-F3
-A3 SBS
-A4
-A18 Display
-A20 Parallel Adapter
INV CAN -X3 1-3 → 203 / 1.6
INV Sync -X5 1-4 → 205 / 1.6
-L11,-L12,-L13 Parallel preventive choke coil
-A24.1 BLÜ-PRO
-F91
-A12 ,-A13 Remote signaling
-E2-X2 L-,L+,PE
-X15 2,3
-X130 1,2
-E3-X3 U,V,W,N,PE
-X2 1L+,1L-,PE
-X91 1M
-X5 1U,1V,1W,1N,PE
-X2 2L+,2L-,PE
-X91 2M
-X130 1,2,1PE
-X5 2U,2V,2W,2N,PE
-X2 4L+,4L-,PE
-X91 4M
-X130 3,4,2PE
-X2 3L+,3L-,PE
-X15 6,7
-X91 3M
-X15 8,9
-Q71 NC
-Q72 NC
-Q29 INV operation / Manual bypass
-F25
DP-200F3
-QF31 B32A 300mA
-QF32 B32A ^^0mA
-QF33 B32A 300mA
-QF34 B16A 300mA
5pc
-QF38 B16A 300mA
-QF39 B10A 300mA
4pc
-QF42 B10A 300mA
-QF43 B10A
8pc
-QF50 B10A
-QF51 B6A
-QF52 B6A
-X31 U,N,PE
-X32 U,N,PE
-X33 U,N,PE
-X34 U,N,PE
-X38 V,N,PE
-X39 V,N,PE
-X42 W,N,PE
-X43 W,N,PE
-X50 U,N,PE
-X51 V,N,PE
-X52 V,N,PE
Not included in the AEG shipment
max. gG16A
max. gG16A
Load 400/230V;3/N/PE~50Hz
2(1x70 mm2)

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

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

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

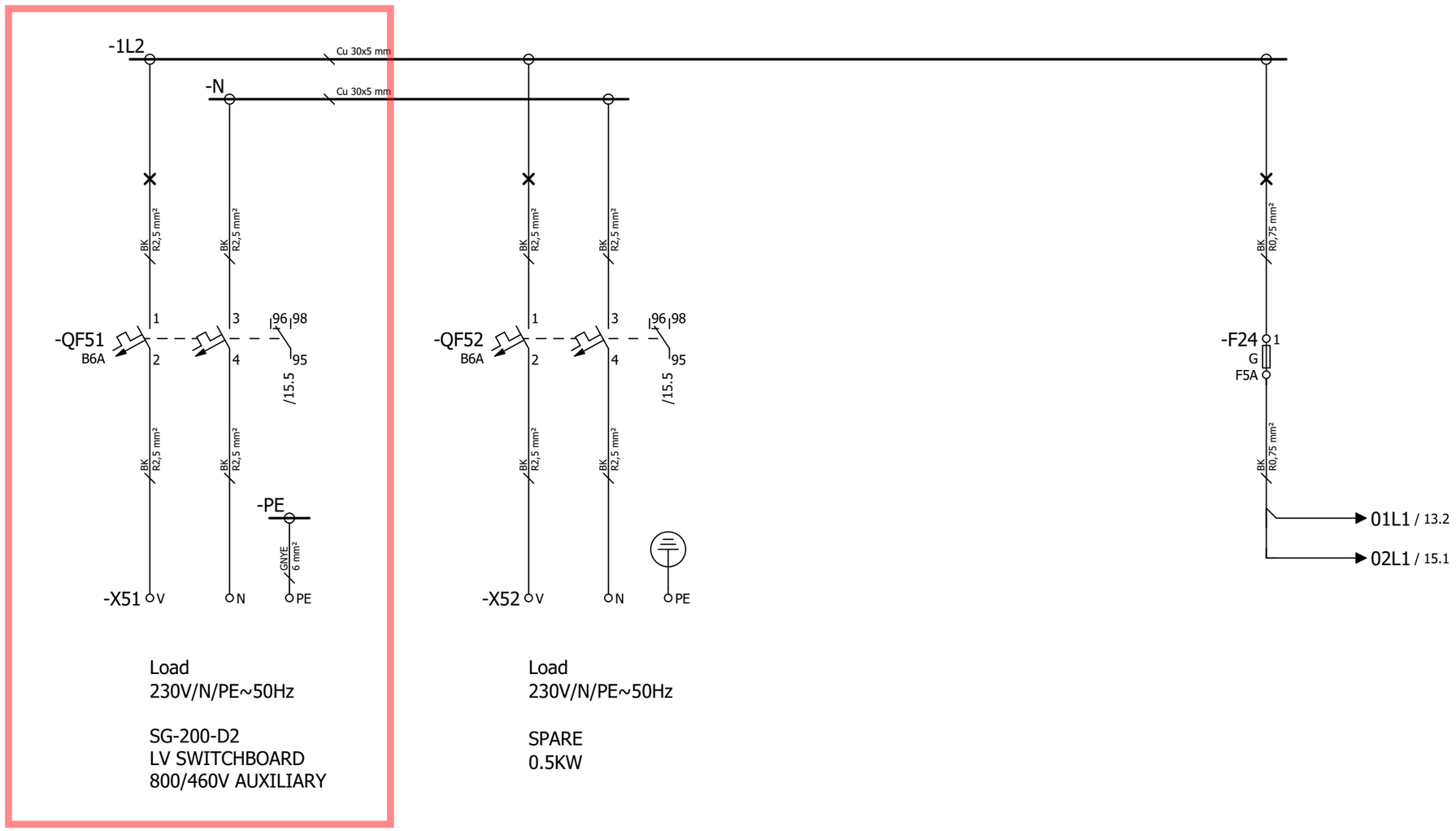
+BAT2
BA-200F3B
Batteries installed on rack
18 x FLG 12-150
Battery voltage 216V
Battery capacity 150Ah
string 1
-R81

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

*2 Connection cables are not included.

CAE EPLAN Electric P8

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Load
230V/N/PE~50Hz

SG-200-D2
LV SWITCHBOARD
800/460V AUXILIARY

Load
230V/N/PE~50Hz

SPARE
0.5KW

1000007888_010

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

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 40 kVA
Circuit diagram

1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

A3

sheet 11
sheets 17

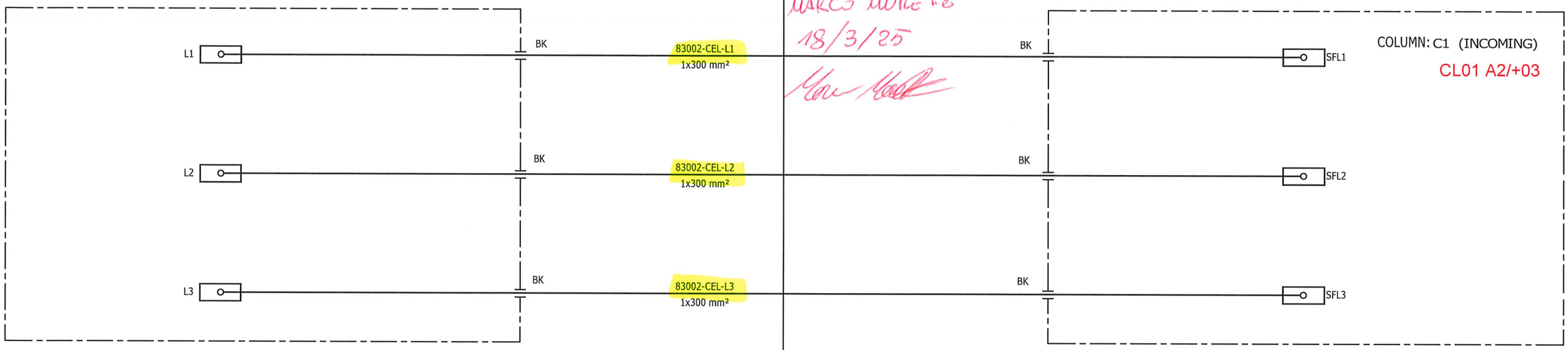
Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

FROM	TO

DESCRIPTION: SOLAR PV POWER CABLE JB
TAG NUMBER: JB-200E1

NO MARK UP
MARCO MORETTO
18/3/25

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

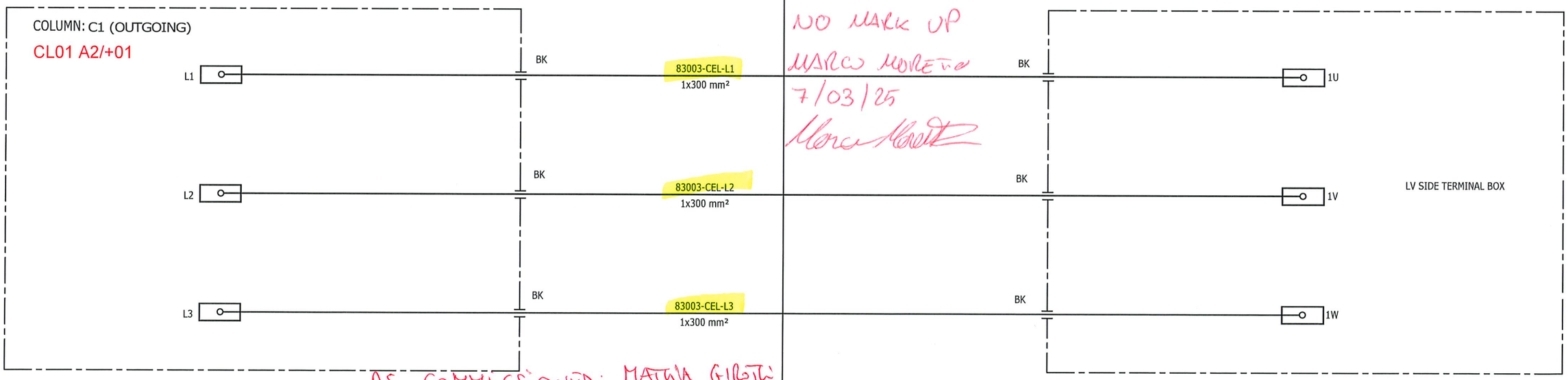


DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: C1 (OUTGOING)
CL01 A2/+01

NO MARK UP
MARCO MORETTO
7/03/25

DESCRIPTION: 6.6/0.8 KV TRANSFORMER
TAG NUMBER: TR-200ED1



AS COMMISSIONED: MATTIA GIRETTI

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
SOLAR PV POWER CABLE JB & LV SWBD 800/460V

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	018	02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN: -

PERMISSIVES FROM SOLAR LV TO 6.6KV FEEDER CB AND EARTHING SWITCH

-X2

CB OPEN	X2 / 27	1
	X2 / 28	2
CB ISOLATED / TEST POSITION	X2 / 29	3
	X2 / 30	4
CB TRIPPED	X2 / 31	5
	X2 / 32	6
		7

DO MARK UP

BK — 83015-CEC 7C X 1.5 mm² — BK

DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1

COLUMN: A2

-XM

1	XM / 31	CB OPENED FROM LV SWBD 800/460V
2	XM / 32	
3	XM / 43	CB IN TEST POSITION FROM LV SWBD 800/460V
4	XM / 44	
5	XM / 45	FROM LV SWBD 800/460V TRIPPED
6	XM / 46	
7		

MARCO MORENO 10/1/25

DESCRIPTION: BESS
TAG NUMBER: A-85000

COLUMN: -

-XT1

INCOMING CB IS OPEN	17	1
	18	2
	13	3
PHASE IN SYNC	14	4
		5
		6
		7

BK — 85001-CEC 7C X 1.5 mm² — BK

DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1

COLUMN: A6

-XM

1	XM / 59	CLOSING COMMAND BY SYNCHRO
2	XM / 60	
3	XM / 87	ISLAND SIGNAL
4	XM / 88	
5		
6		
7		

AS COMMISSIONED: MATWA GIRTZ

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
INTERLOCKS BETWEEN BESS & 6.6KV HV SWITCHGEAR

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	084	02

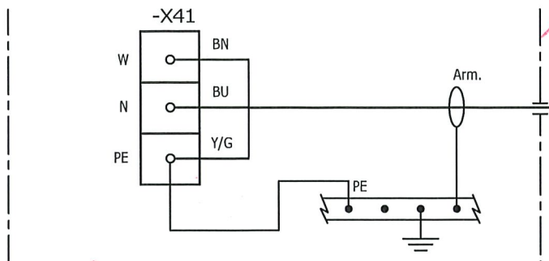
F.to UNI A3: 420mmx297mm

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

FROM	TO

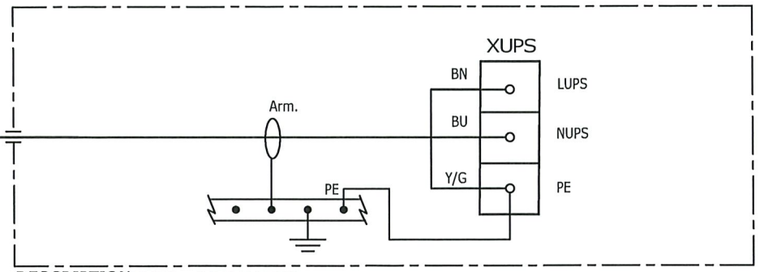
DESCRIPTION: AC UPS - PAS DB
TAG NUMBER: ~~DP-200F3~~ DP-200F3

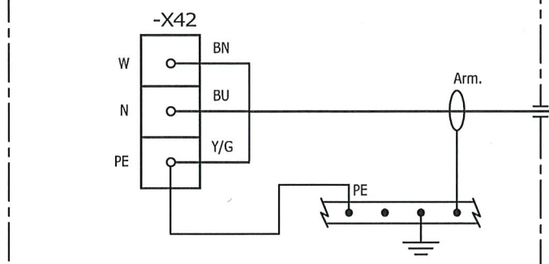
MARCO MORETTO
15/3/25



84316-CEL
3G2.5 mm²

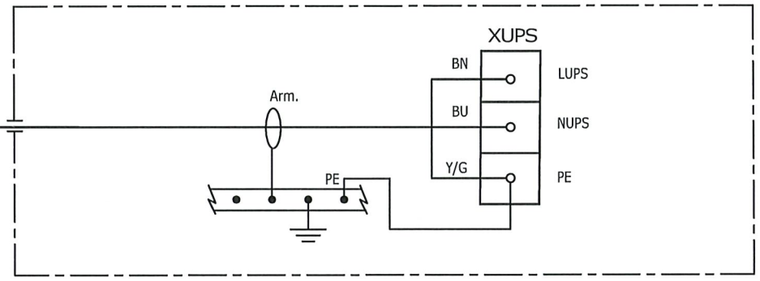
DESCRIPTION: UCP - HVAC UPS ROOM
TAG NUMBER: B300-HSB-001





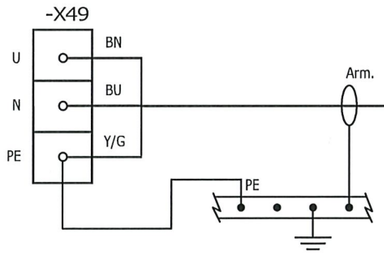
84317-CEL
3G2.5 mm²

DESCRIPTION: UCP - HVAC ITER
TAG NUMBER: B400-HSB-001

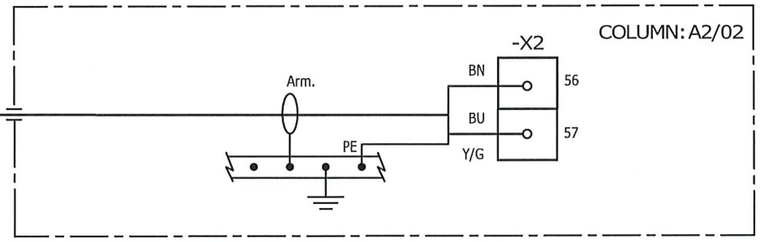


NO MARK UP
19/3/25
MARCO MORETTO

DESCRIPTION: LV SWITCHBOARD AUXILIARY
TAG NUMBER: SG-200N1

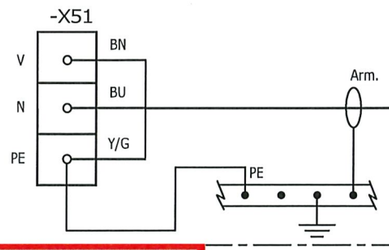


84318-CEL
3G2.5 mm²

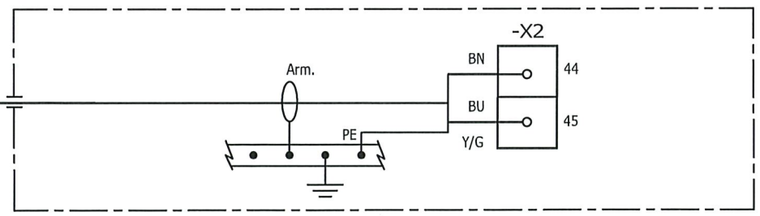


NO MARK UP
18/3/25
MARCO MORETTO

DESCRIPTION: LV SWBD 800/460V AUXILIARY
TAG NUMBER: SG-200D2



84319-CEL
3G2.5 mm²



AS COMMISSIONED: MATTIA GIGLI

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
AC UPS – PAS DB DP-200F3

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	042	02

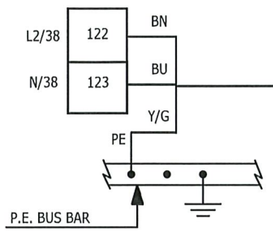
F.to UNI A3: 420mmx297mm

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

FROM	TO

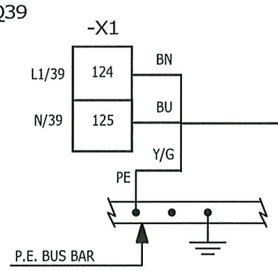
DESCRIPTION: LIGHTING & SMALL POWER DB BOP
TAG NUMBER: DP-200N1

CUBICLE/CB: +03/Q38



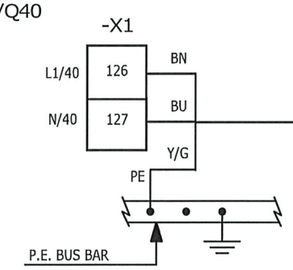
83119-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q39



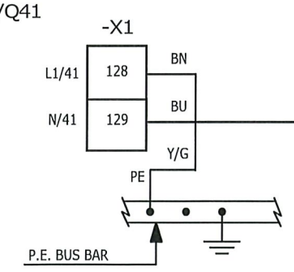
83120-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q40



83121-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q41



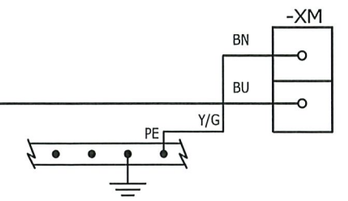
83122-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
18/3/25

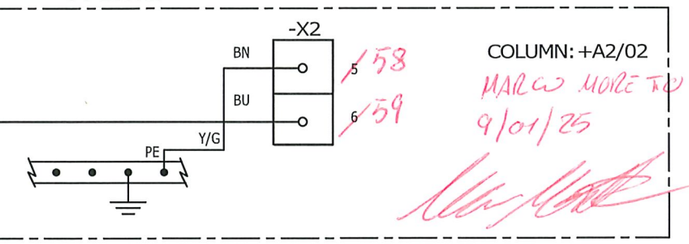
NO MARK UP
18/3/25
MARCO MORETTO

AS COMMISSIONED: MATTIA GIROTTI

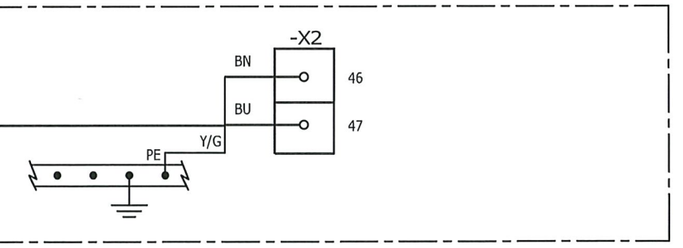
DESCRIPTION: AUXILIARY 6.6KV SWITCHBOARD
TAG NUMBER: SG-100D1



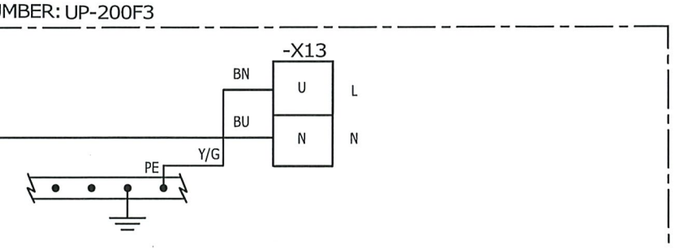
DESCRIPTION: AUXILIARY LV
TAG NUMBER: SG-200N1



DESCRIPTION: LV SWBD 800/460V AUXILIARY
TAG NUMBER: SG-200D2



DESCRIPTION: AC UPS PAS AUXILIARY
TAG NUMBER: UP-200F3



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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

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

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

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 056 | REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: ELECTROLYSER
TAG NUMBER: A-20000

RECTIFIER HCU

-X121 29
-X121 30

OPENING H.V. CELL

1
2
3
4
5
6
7

REFER C63-NID-ELO-DED01-A.5 SHT 182

BK

20001-CEC
7C X 1.5 mm²

BK

DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1

COLUMN: A1

K94WT
-25 XM
-26 XM

TRANSFORMER
DGPT2 PROTECTION
TRIP

REFER 1723002197-EL-DG-00018 SHT 23

DESCRIPTION: SIGNALS FOR CONTROL SYSTEM
TAG NUMBER: SG-200D2

-X2

MCB HEALTY ON SG-200D2
MCB HEALTY ON SG-200N1

X2 / 42
X2 / 43
X2 / 13
X2 / 14

1
2
3
4
5
6
7

BK

83016-CEC
7C X 1.5 mm²

NO MARK UP
MARCO MORETTO
18/3/25

BK

DESCRIPTION: AUXILIARY LV
TAG NUMBER: SG-200N1

COLUMN: +A2/02

-X2

1
2
3
4
5
6
7

X2 / 66
X2 / 67
X2 / 45
X2 / 46

AS COMMISSIONED: MATTIA GIROTTI

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)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
SIGNALS FOR CONTROL 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 086

REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1

COLUMN/CUBIC.:A2

-XM

INTER TRIP	XM / 53	1
	XM / 54	2
TRIP	XM / 55	3
	XM / 56	4
	XM / 57	5
CB OPEN POSITION	XM / 58	6
		7

BK

82008-CEC
7C X 1.5 mm²

NO MARK UP
MARCO MORETTO
18/3/25

BK

DESCRIPTION: LV SWBD 800/460V
TAG NUMBER: SG-200D2

COLUMN/CUBIC.:CL01/+03

-XM

1	X2 / 3
	INTERTRIP FROM 6.6 KV SWBD.
2	X2 / 4
3	X2 / 5
	TRIP FROM 6.6 KV SWBD.
4	X2 / 6
5	X2 / 7
	CONSENT TO CLOSE FROM 6.6KV SWBD.
6	X2 / 8
7	

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
6.6KV SWBD AND LV SWBD 800/460V INTER TRIP

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 075 | REV. 02

F.to UNI A3: 420mmx297mm

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

Section 4.3 Instrumentation functional test sheets index

NOT APPLICABLE

Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.5 Telecommunication functional test sheets index

NOT APPLICABLE

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

NOT APPLICABLE

Section 5 SITE / OPERATIONAL

Section 5.1 Operational Test Procedure

Section 5.2 Operational Test Certificates

NOT APPLICABLE

Section 6 PIPING AND VESSEL PREPARATION

Section 6.1 Final Mechanical / Vessel Inspection Checks Index

NOT APPLICABLE

Section 6.2 Leak Test / Drying / Inerting Test Sheets Index

NOT APPLICABLE

Section 6.3 Chemical Loading & First Fill records Index

NOT APPLICABLE

Section 6.4 Chemical Cleaning Reports and Records Index

NOT APPLICABLE

Section 6.5 Lubrication Schedule

NOT APPLICABLE

Section 7 VENDOR

Section 7.1 Vendor Package Summary Index

NOT APPLICABLE

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

NOT APPLICABLE

Section 7.3 Vendor Spares & Special Tools lists references

NOT APPLICABLE

Section 7.4 Vendor Data / Operations / Maintenance Manuals References

BASE LOAD POWER HUB (BLPH)

"SG-200D2" LV SWBD 800V

ELECTRICAL FUNCTIONAL DIAGRAM

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32
Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2" FUNCTIONAL DIAGRAM
Cover

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 001

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

INDEX SHEETS

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9
001	Cover	X	X	X	X						
002	Index	X	X	X	X						
003	Graphical Symbols	X	X	X	X						
004	Graphical Symbols	X	X	X	X						
005	Door Layout	X	X	X	X						
006	Selector Switch Diagram	X	X	X	X						
007	Functional Drawing	X	X	X	X						
008	Functional Drawing	X	X	X	X						
009	Functional Drawing	X	X	X	X						
010	Functional Drawing	X	X	X	X						
011	Functional Drawing	X	X	X	X						
012	Functional Drawing	X	X	X	X						
013	Functional Drawing	X	X	X	X						
014	Functional Drawing	X	X	X	X						
015	Functional Drawing	X	X	X	X						
016	Functional Drawing	X	X	X	X						
017	Functional Drawing	X	X	X	X						
018	Functional Drawing	X	X	X	X						
019	Functional Drawing	X	X	X	X						
020	Functional Drawing	X	X	X	X						
021	Terminal Block	X	X	X	X						
022	Bill of Materials	X	X	X	X						
023	Bill of Materials	X	X	X	X						
024	Bill of Materials	X	X	X	X						

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9

AS COMMISSIONED GIROTTI MATTIA

NO MARK UP 27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+					
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Index

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

SCALE : NTS

A3

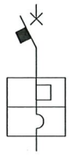
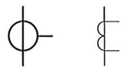
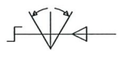
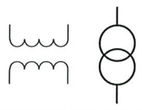
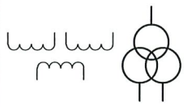
DRAWING NO. 1723002197-EL-DG-00032

SHEET 002

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION
	CIRCUIT BREAKER WITH AUTOMATIC RELEASE		CAPACITOR (GENERAL SYMBOL)		BISTABLE RELAY		CHANGE-OVER BREAK BEFORE MAKE CONTACT
	CIRCUIT BREAKER WITH AUTOMATIC RELEASE AND BUILT-IN THERMOMAGNETIC RELEASE		CAPACITIVE VOLTAGE DIVIDER		COIL OF A MECHANICALLY LATCHED RELAY		DELAYED ACTION (IN THE DIRECTION OF MOVEMENT FROM THE ARC TOWARDS ITS CENTRE)
			CURRENT TRANSFORMER		INDICATOR, ELECTROMECHANICAL ELEMENT		POSITION SWITCH (LIMIT SWITCH), MAKE CONTACT
	SWITCH DISCONNECTOR		RING CURRENT TRANSFORMER		LAMP (GENERAL SYMBOL)		POSITION SWITCH (LIMIT SWITCH), MAKE CONTACT
	CONTACTOR		INDICATING INSTRUMENT GENERAL SYMBOL		SEMICONDUCTOR DIODE		POSITION SWITCH (LIMIT SWITCH), BREAK CONTACT
	LOCK WITH FREE KEY WHEN THE DEVICE IS IN OPEN POSITION		INTEGRATING INSTRUMENT (GENERAL SYMBOL)		LED		OPERATED BY TURNING
	LOCK WITH FREE KEY WHEN THE DEVICE IS IN CLOSE POSITION		DISCONNECTING FUSE, NOT WITH LIVE CIRCUIT AND WITH MECHANICAL LINKAGE (STRIKER FUSE))		TRANSDUCER OF ALTERNATING CURRENT MEASURE INTO DIRECT CURRENT SIGNAL		THREE HELD POSITIONS TURNING SWITCH
	PLUG AND SOCKET (MALE AND FEMALE)		OPERATING DEVICE (GENERAL SYMBOL)		EARTH, GROUND (GENERAL SYMBOL)		THREE POSITIONS TURNING SWITCH, WITH SPRING THROWBACK TO THE CENTRAL POSITION
	VOLTAGE TRANSFORMER WITH TWO WINDINGS		COIL OF A TIME DELAYED OPERATING RELAY		MAKE CONTACT		MECHANICAL INTERLOCK BETWEEN TWO DEVICES
	VOLTAGE TRANSFORMER WITH THREE WINDINGS		COIL OF A TIME DELAYED RELEASING RELAY		BREAK CONTACT	AS COMMISSIONED GIROTTI MATTIA NO MARK UP 27/03/2025	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Graphical Symbols

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 003

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION	GRAPHICAL SYMBOLS	DESCRIPTION
	RESISTOR (GENERAL SYMBOL)		AMPEROMETRIC TEST SOCKET				
	THERMISTOR (GENERAL SYMBOL)		3 PHASES LINE				
	HEATING ELEMENT						
	INTERCONNECTION TERMINAL						
	WITHDRAWABLE TERMINAL SHORT-CIRCUITABLE ON C.T. SECONDARY CIRCUITS						
	WITHDRAWABLE TERMINAL FOR V.T. SECONDARY CIRCUITS						
	SWITCHBOARD TERMINAL						
	ON - OFF SWITCH						
	SURGE ARRESTER					AS COMMISSIONED GIROTTI MATTIA	
	VOLTMETRIC TEST SOCKET					NO MARK UP 27/03/2025	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/32

Item n° : PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Graphical Symbols

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

SCALE : NTS

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DRAWING NO. 1723002197-EL-DG-00032

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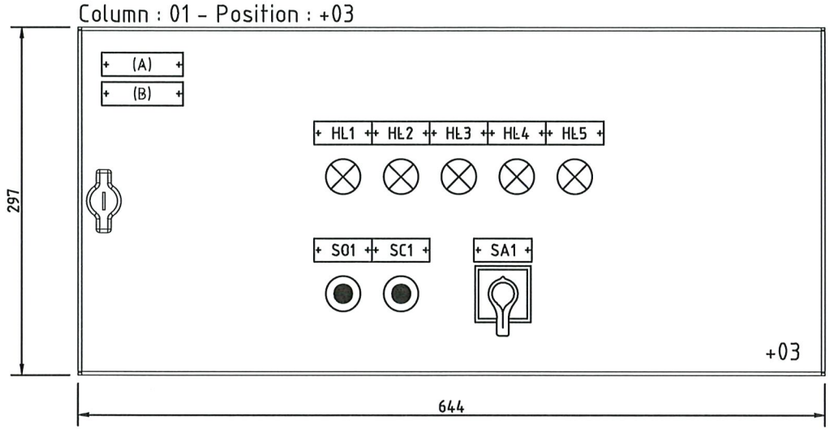
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

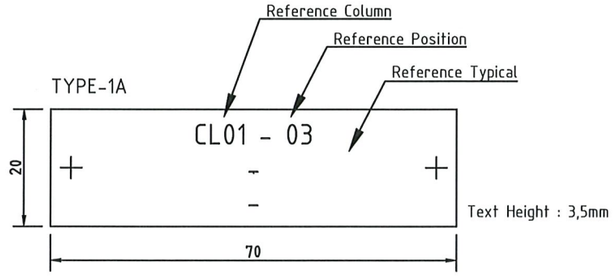
DOOR LAYOUT

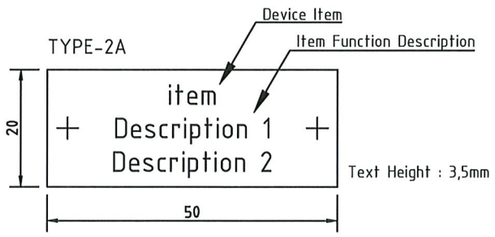
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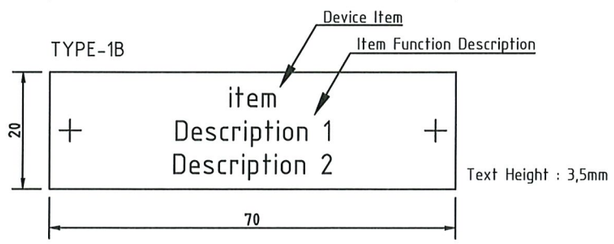


SCALE 1/5

DEVICES name plate				
ITEM	COMPONENT	DESCRIPTION 1	DESCRIPTION 2	NOTE
HL1	PILOT LIGHT	QB1 - CIRCUIT BREAKER	CLOSED	TYPE-2A
HL2	PILOT LIGHT	QB1 - CIRCUIT BREAKER	OPENED	TYPE-2A
HL3	PILOT LIGHT	QB1 - CIRCUIT BREAKER	TRIPPED	TYPE-2A
HL4	PILOT LIGHT	QB2 - CIRCUIT BREAKER	OPENED	TYPE-2A
HL5	PILOT LIGHT	QB2 - CIRCUIT BREAKER	CLOSED	TYPE-2A
SO1	PUSH BUTTON	QB1 - CIRCUIT BREAKER	OPENING COMMAND	TYPE-2A
SC1	PUSH BUTTON	QB1 - CIRCUIT BREAKER	CLOSING COMMAND	TYPE-2A
SA1	SELECTOR SWITCH	SELECTOR	LOCAL / REMOTE	TYPE-2A







NOTE :

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

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

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NO MARK UP
27/03/2025

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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/32

Item n° : PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Door Layout

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

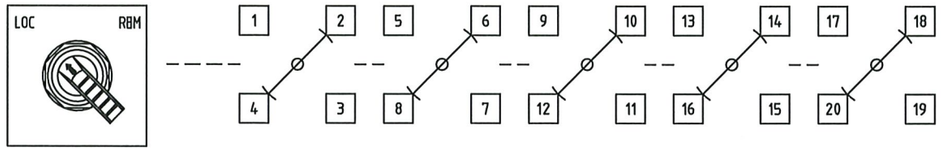
SHEET 005

REV. 03

File Name : 1723002197-EL-DG-00032 Rev. 03

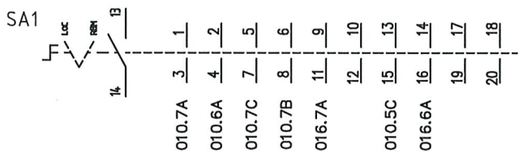
F.to UNI A3: 420mmx297mm

SELECTORS SWITCH DIAGRAM



Control Mode Switch

NOTE:
1. Square plate
2. Fixed position



NOTES

THE DIAGRAM INDICATES THE FOLLOWING CONDITIONS:

- INSERTED CIRCUIT BREAKER IN OPEN POSITION
- DE-ENERGIZED CIRCUITS
- DSCHARGED CLOSING SPRINGS

THE AUXILIARY CIRCUITS WILL HAVE THE FOLLOWING CHARACTERISTICS:

- 24+ 1,5mmq RED TYPE CABLE SH-W
- 24- 1,5mmq WHITE TYPE CABLE SH-W
- AUXILIARY CONTACTS TO TERMINAL STRIP 1,5mmq BLACK TYPE CABLE SH-W
- 230Vac 1,5mmq BLACK TYPE SH-W
- VOLTMETRICAL CIRCUITS 1,5mmq BLACK TYPE CABLE SH-W
- AMMETRICAL CIRCUIT 2,5mmq BLACK TYPE CABLE SH-W

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27/03/2025

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IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32
Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Selector Switch Diagram

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 006

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

POWER DISTRIBUTION

800V - 50Hz - 630A - 30kA x 1s

L1 008.1A
L2 008.1A
L3 008.1A

Emax E1

			INSERTED	TEST	ISOLATED
S75E	101-102 / 101-104	111-112 / 111-114	X	X	X
S75T	121-122 / 121-124	131-132 / 131-134	X	X	X
S75I	141-142 / 141-144	151-152 / 151-154	X	X	X

S75B/1 S75B/2 S75T/1 S75T/2 S75I/1 S75I/2

102 104 112 114 122 124 132 134 144 142 154 152

101 111 121 131 141 151

011.7A 016.2A 011.6A 010.6B 010.7D 011.6A

QB1
1250A
(1)
KS1 Ekip Hi-Touch

Q/1 Q/2 Q/3 Q/4 S51 S33M

12 14 22 24 32 34 42 44 96 98 U1 36 38 C11 C13 C1 C3

11 21 31 41 95 U2 35 C12 Y0 C2 YC

011.2A 020.2D 011.5A 020.3B 011.3A 008.4C 010.4C 010.6C

Electrical/Mechanical interlock

S75B/1 S75B/2 S75T/1 S75T/2 S75I/1 S75I/2

102 104 112 114 122 124 132 134 144 142 154 152

101 111 121 131 141 151

016.4A 010.9B 016.5A

QB2
1250A
(1)
KS1 Ekip Touch

Q/1 Q/2 Q/3 Q/4

12 14 22 24 32 34 42 44

11 21 31 41

010.8B 020.5D 011.8A 012.2A

NOTE:
All function protection will be sett in OFF

FU1 1 2 L1S BN 1x16
FU2 1 2 L2S BK 1x16
FU3 1 2 L3S GY 1x16
35A-gG

F1 F2 F3 F4
L
N/PE

12 14
11

017.4A 017.4A 017.5A

PE GNYE 1x16
017.6A

SFL1 SFL2 SFL3

INCOMING FROM SOLAR FARM

(1) KEY LOCK FOR OPEN POSITION (CIRCUIT-BREAKER)

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

L1 L2 L3

OUTGOING

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IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32
Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

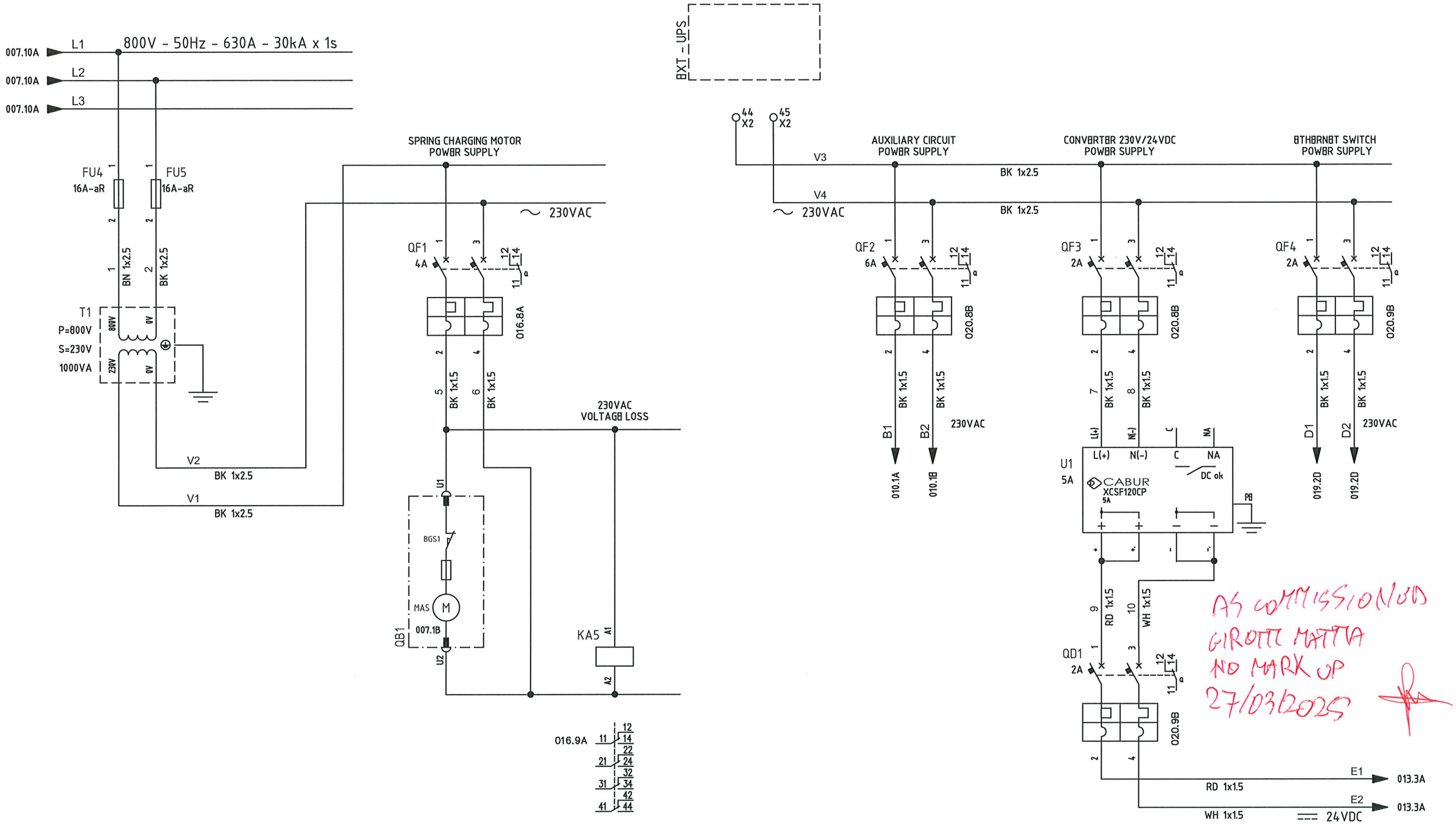
SHEET 007

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

SUPPLY AUXILIARY CIRCUITS



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NO MARK UP
27/03/2025

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CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

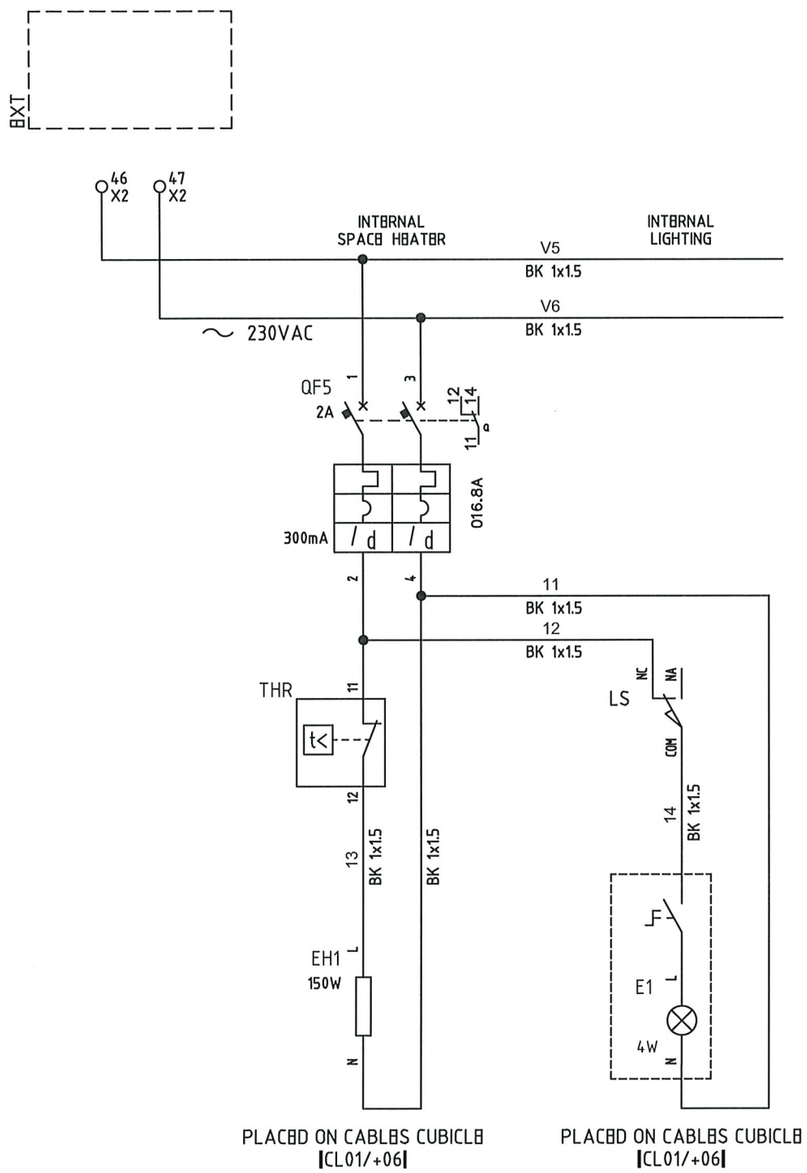
SHEET 008

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

SUPPLY AUXILIARY CIRCUITS



AS COMMISSIONED
GIROTTI MATTIA
NO MARKUP
27/03/2025

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CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

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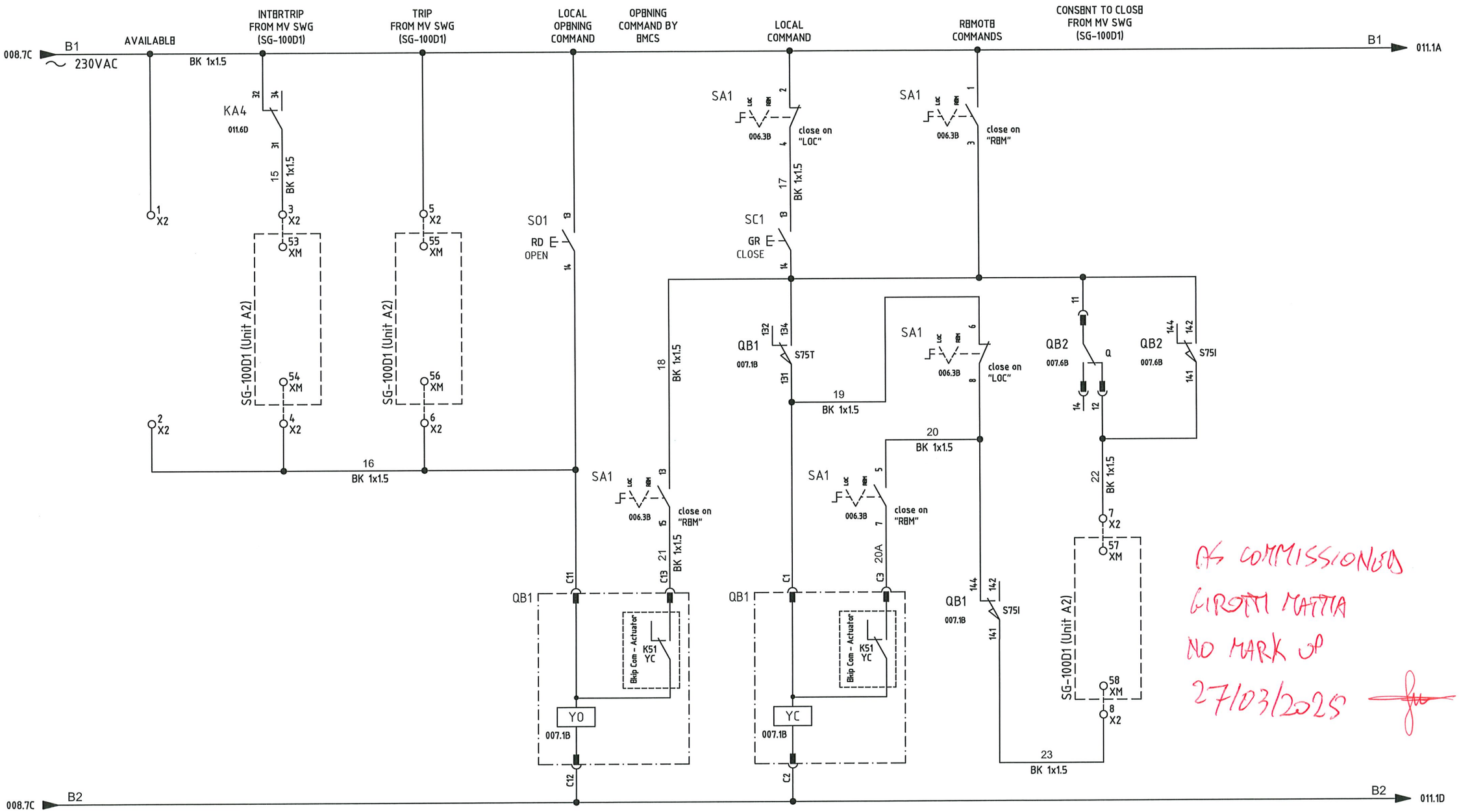
SHEET 009

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

"QB1" CIRCUIT BREAKER - COMMAND CIRCUITS



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NO MARK UP
27/03/2025

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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

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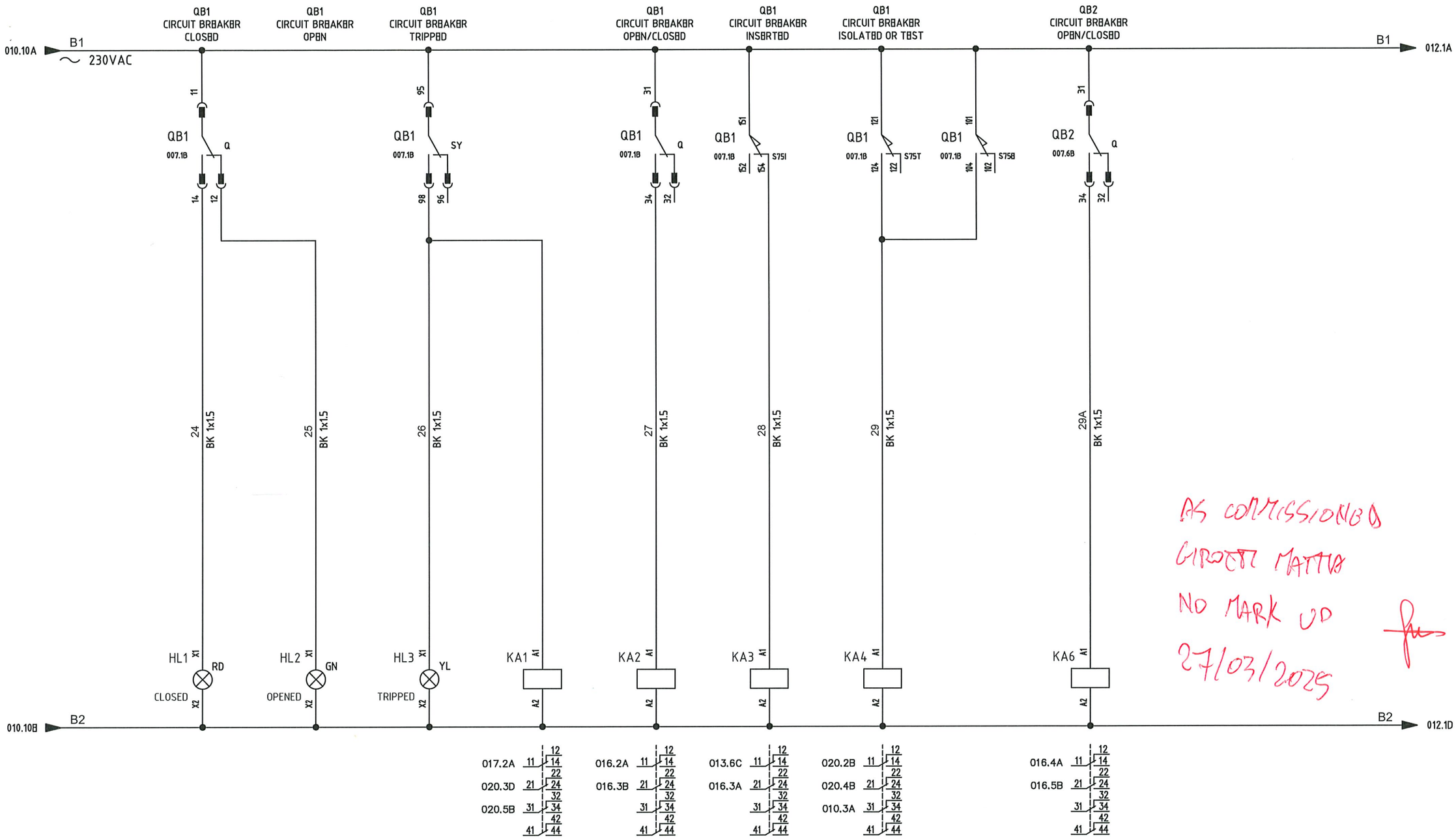
SHEET 010

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

"QB1" CIRCUIT BREAKER - SIGNALLING CIRCUITS



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/32

Item n° : PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

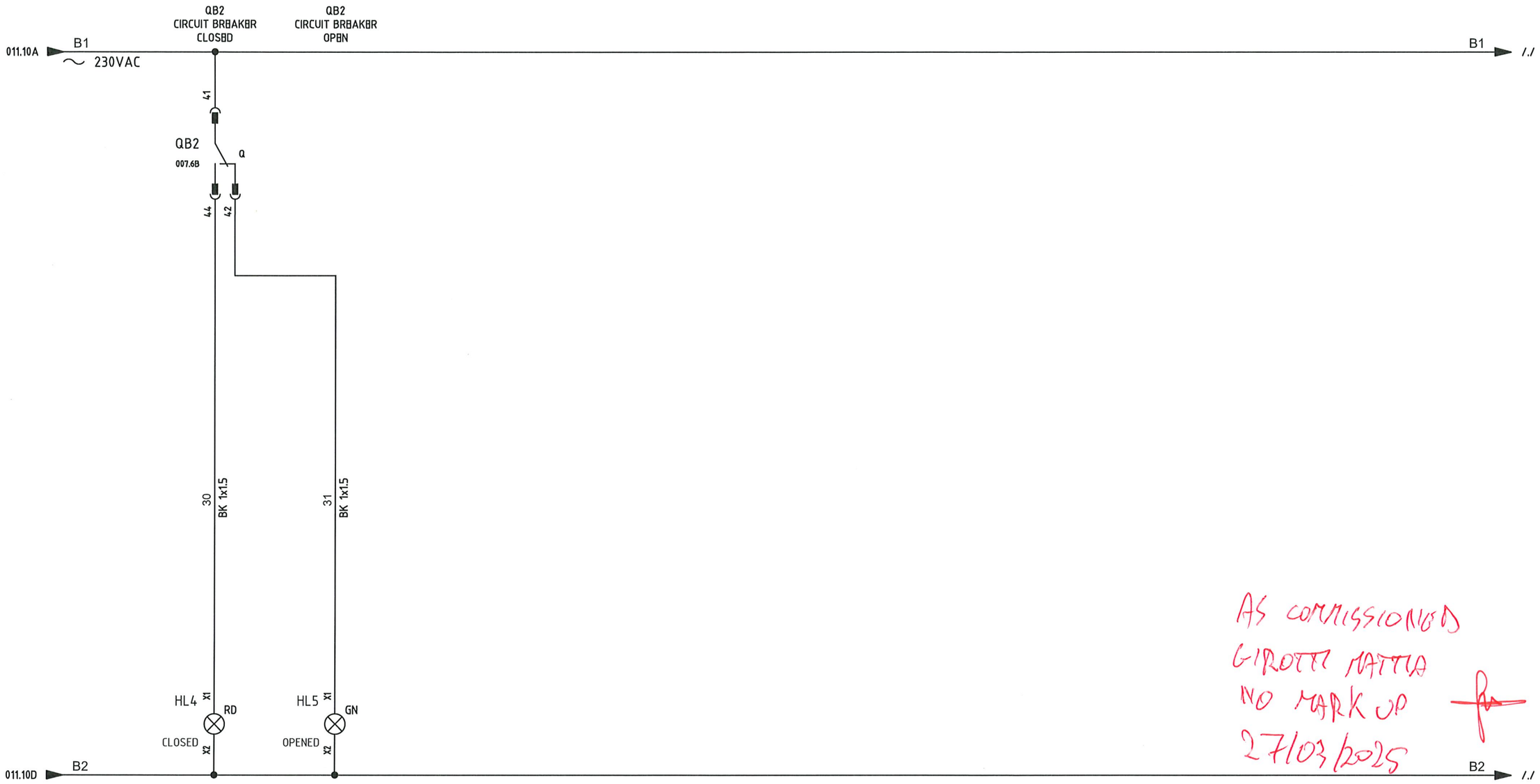
SHEET 011

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

"QB2" CIRCUIT BREAKER - SIGNALLING CIRCUITS



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

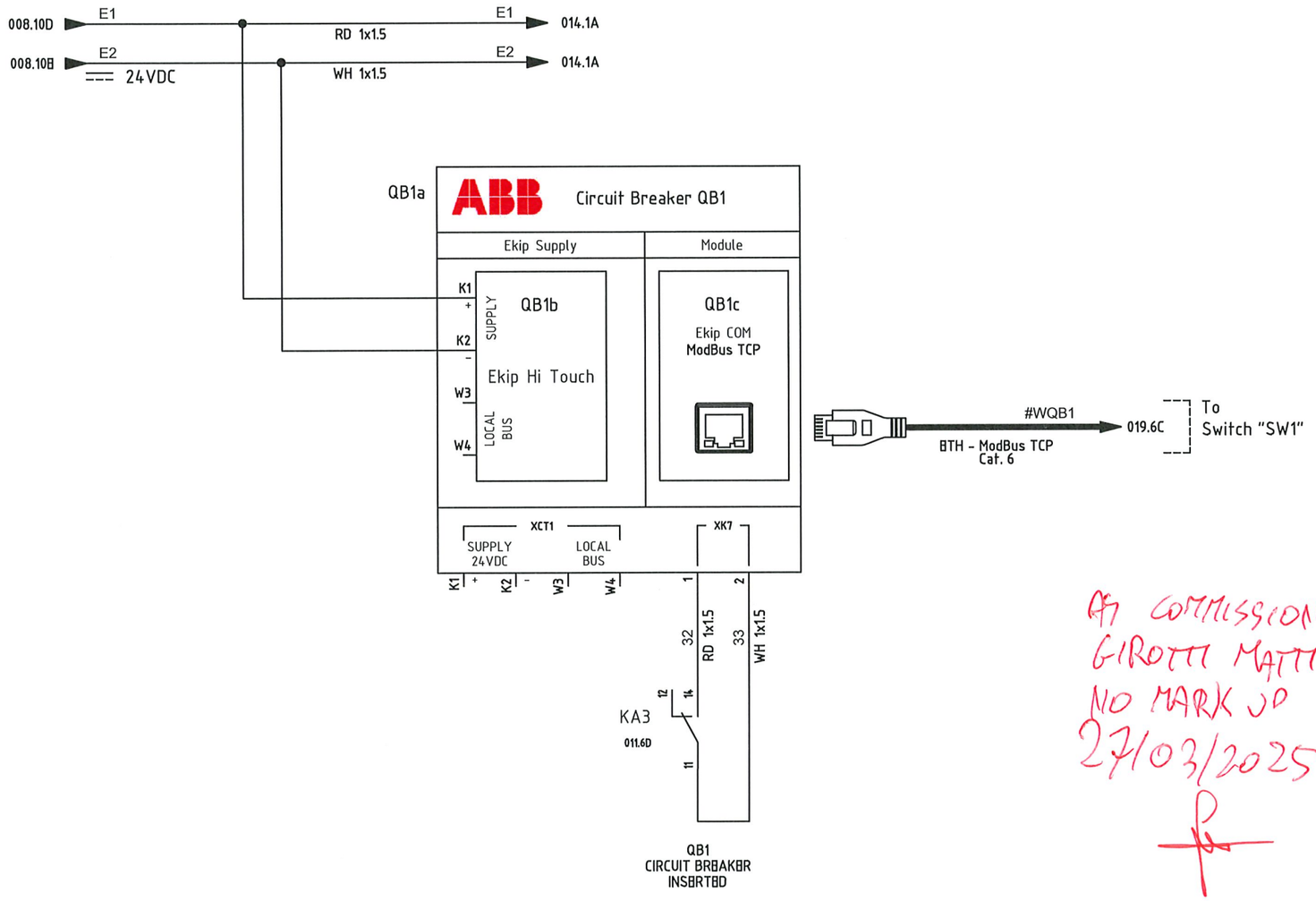
SHEET 012

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

"QB1" CIRCUIT BREAKER - COMUNICATION CIRCUITS



AT COMMISSIONING
GIROTTI MATTIA
NO MARK UP
27/03/2025

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+							
	3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
	2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
	1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
	0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
	REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

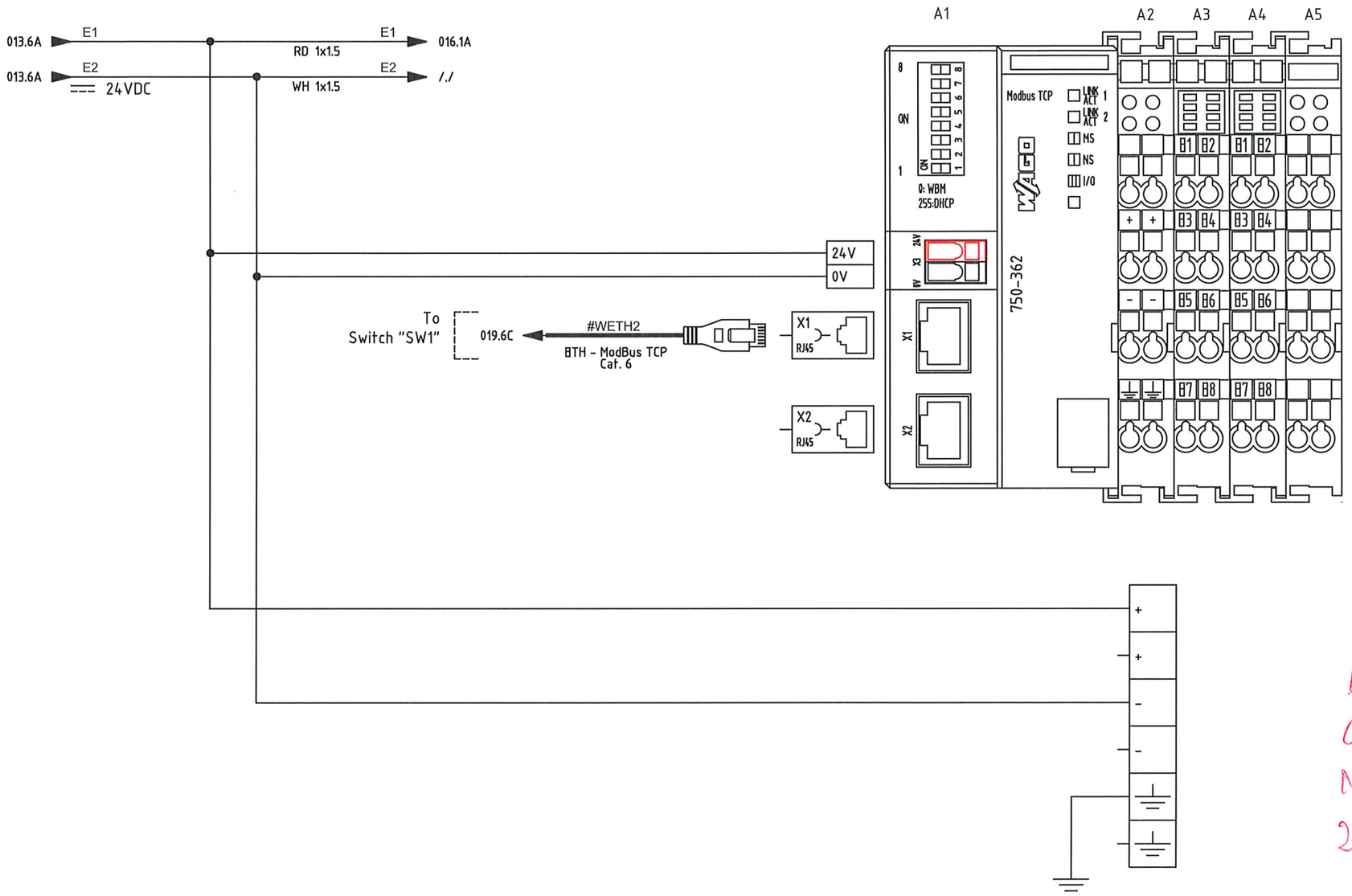
SHEET 013

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

MODULE I/O CONNECTION



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/32

Item n° : PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 014

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

MODULE I/O CONNECTION

Quadro: SG-200D2	Gruppo Funzione:	Sigla: A3					
CPU: SG-200D2	Rack: A1	Slot: 2					
Pin	Descrizione Pin	Indirizzo	Commento1	Commento2	Commento3	Commento4	Foglio
1 |B1|	DI 1	B0.0	SG-200D2	QB1	DISCONNECTED	OR OPEN	016
5 |B2|	DI 2	B0.1	SG-200D2	QB1	CONNECTED	AND CLOSED	016
2 |B3|	DI 3	B0.2	SG-200D2	QB2	DISCONNECTED	OR OPEN	016
6 |B4|	DI 4	B0.3	SG-200D2	QB2	CONNECTED	AND CLOSED	016
3 |B5|	DI 5	B0.4	SG-200D2	SA1	ON LOCAL	POSITION	016
7 |B6|	DI 6	B0.5	SG-200D2	SA1	ON REMOTE	POSITION	016
4 |B7|	DI 7	B0.6	SG-200D2	MCBs/VOLTAGE LOSS	ALARM		016
8 |B8|	DI 8	B0.7	SG-200D2	COMMUN	FAILURE		017

Quadro: SG-200D2	Gruppo Funzione:	Sigla: A4					
CPU: SG-200D2	Rack: A1	Slot: 3					
Pin	Descrizione Pin	Indirizzo	Commento1	Commento2	Commento3	Commento4	Foglio
1 |B1|	DI 1	B1.0	SG-200D2	SURGE ARRESTER	FAULT		017
5 |B2|	DI 2	B1.1	SG-200N1	MCBs	CLOSED		017
2 |B3|	DI 3	B1.2		AVAILABLE			017
6 |B4|	DI 4	B1.3		AVAILABLE			017
3 |B5|	DI 5	B1.4		AVAILABLE			017
7 |B6|	DI 6	B1.5		AVAILABLE			018
4 |B7|	DI 7	B1.6		AVAILABLE			018
8 |B8|	DI 8	B1.7		AVAILABLE			018

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING
DWG n°: 231298/SD/32
Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

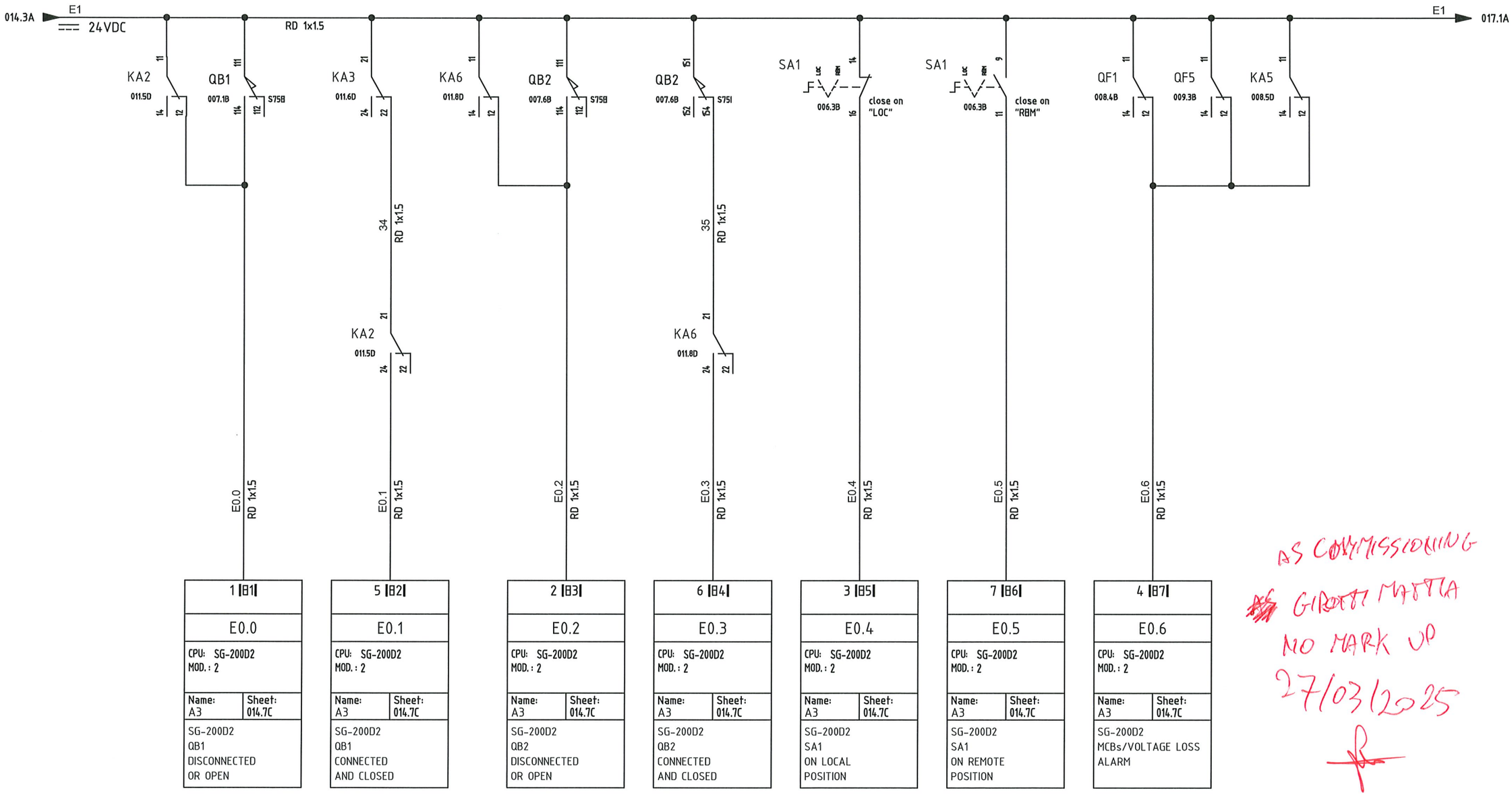
SHEET 015

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

MODULE I/O CONNECTION



1 [B1]	5 [B2]	2 [B3]	6 [B4]	3 [B5]	7 [B6]	4 [B7]
E0.0	E0.1	E0.2	E0.3	E0.4	E0.5	E0.6
CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2	CPU: SG-200D2 MOD.: 2
Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C	Name: A3 / Sheet: 014.7C
SG-200D2 QB1 DISCONNECTED OR OPEN	SG-200D2 QB1 CONNECTED AND CLOSED	SG-200D2 QB2 DISCONNECTED OR OPEN	SG-200D2 QB2 CONNECTED AND CLOSED	SG-200D2 SA1 ON LOCAL POSITION	SG-200D2 SA1 ON REMOTE POSITION	SG-200D2 MCBs/VOLTAGE LOSS ALARM

AS COMMISSIONING
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
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0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32
Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

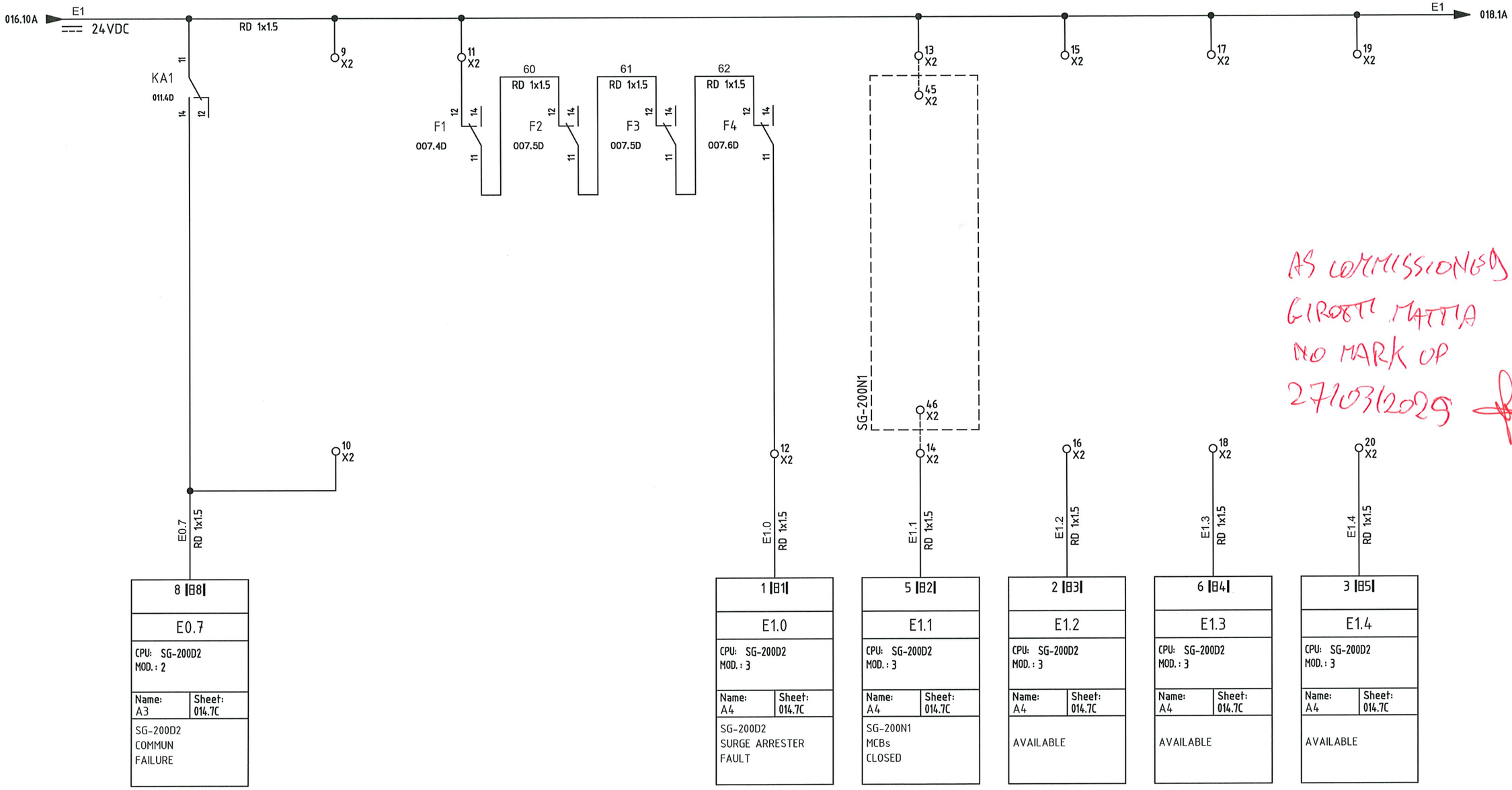
SHEET 016

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

MODULE I/O CONNECTION



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
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0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 017

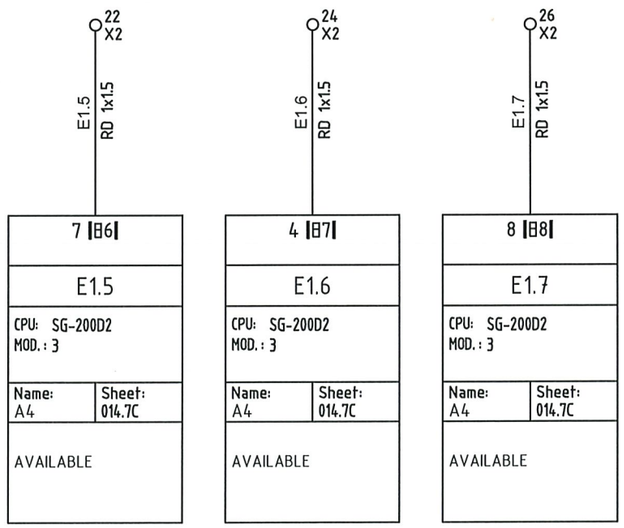
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

MODULE I/O CONNECTION





AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

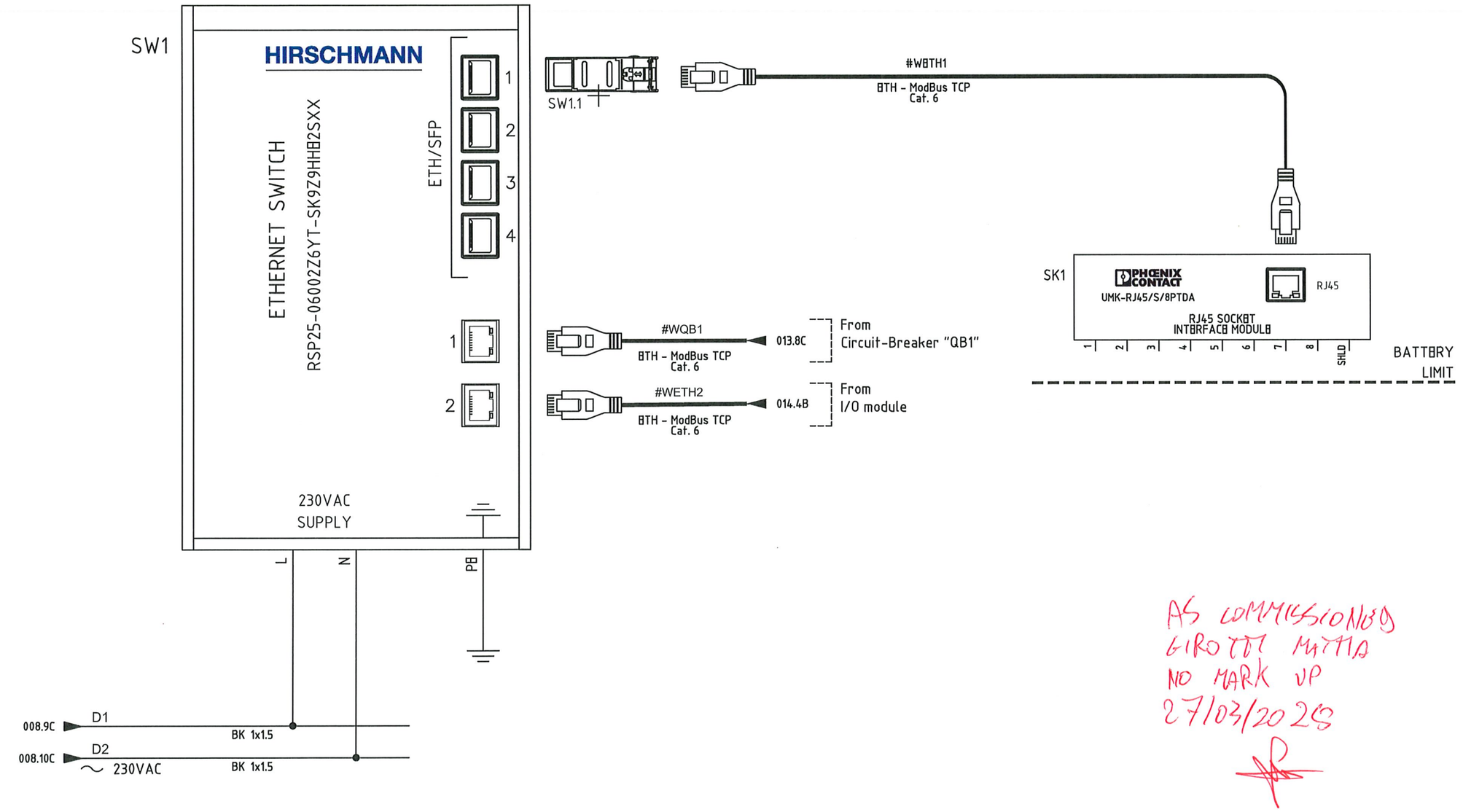
SHEET 018

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

SWITCH CONNECTION



AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

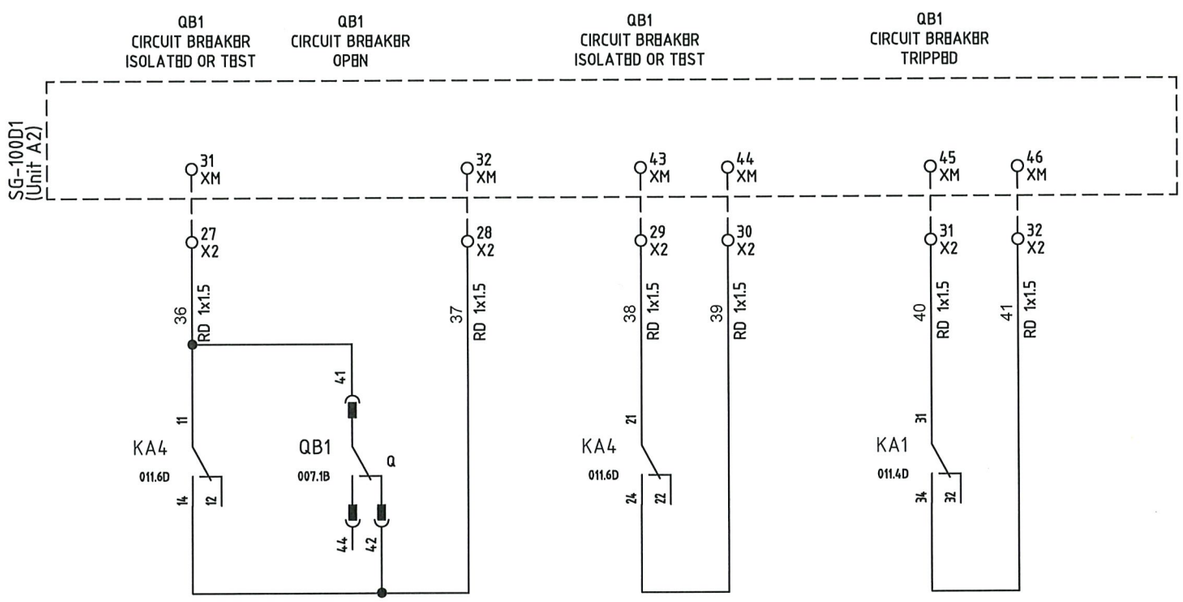
SHEET 019

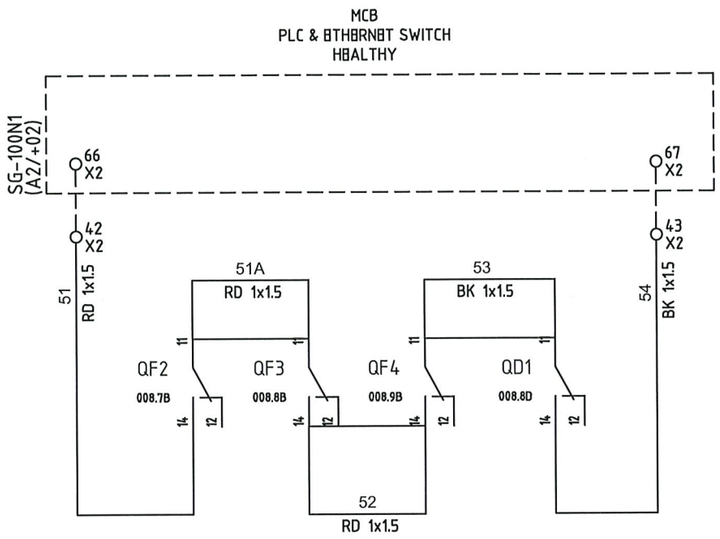
REV. 03

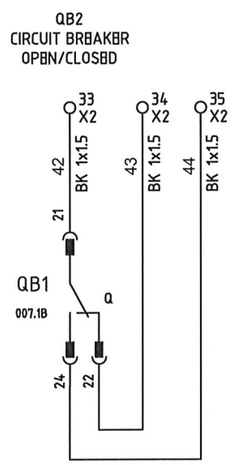
F.to UNI A3: 420mmx297mm

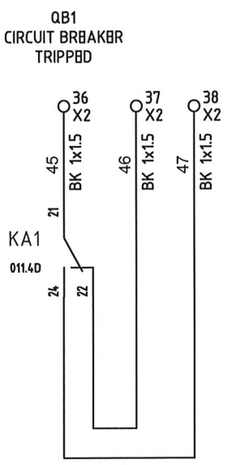
File Name : 1723002197-EL-DG-00032 Rev. 03

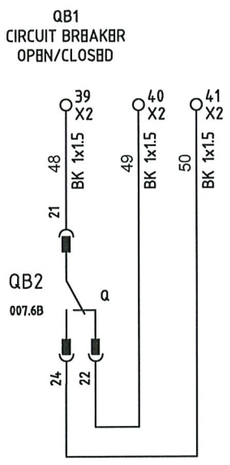
AVAILABLE SIGNALS











AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/32

Item n° : PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 020

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

FUN - SG-200D2 X2					
NumM	Sheet	Sec.	Type	Manufacturer	Terminal Description
			BT003	Cabur	BT/3 End bracket
1	010.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
2	010.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
3	010.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
4	010.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
5	010.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
6	010.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
7	010.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
8	010.8D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
9	017.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
10	017.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
11	017.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
12	017.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
13	017.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
14	017.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
15	017.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
16	017.7B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
17	017.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
18	017.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
19	017.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
20	017.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
21	018.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
22	018.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
23	018.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
24	018.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
25	018.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
26	018.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
27	020.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
28	020.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
29	020.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
30	020.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
31	020.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
32	020.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
33	020.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
34	020.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
35	020.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
36	020.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

FUN - SG-200D2 X2					
NumM	Sheet	Sec.	Type	Manufacturer	Terminal Description
37	020.4C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
38	020.4C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
39	020.5C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
40	020.5C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
41	020.5C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
42	020.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
43	020.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
44	008.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
45	008.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
46	009.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
47	009.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey
			BT003	Cabur	BT/3 End bracket

AS COMMISSIONED
GIROTTI MATTIA
NO MARKUP
27/03/2025

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3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)		
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)		
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Terminal Block

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 021

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
A1	014	750-362	1	Accoppiatore fieldbus ETHERNET, 4ª generazione 24VDC	Wago	FUN	SG-200D2
A2	014	750-602	1	Alimentazione del potenziale 24 V DC / passiva	Wago	FUN	SG-200D2
A3	014	750-430	1	Modulo 8 ingressi digitali 24 V DC 3.0ms	Wago	FUN	SG-200D2
A4	014	750-430	1	Modulo 8 ingressi digitali 24 V DC 3.0ms	Wago	FUN	SG-200D2
A5	014	750-600	1	Modulo terminatore	Wago	FUN	SG-200D2
B1	009	BEG74041	1	LAMP 4W 220-240V 50-60HZ COD.74041 - RGL P LED 4W 313MM 4000K	Beghelli	FUN	SG-200D2
EH1	009	R1R150230	1	SPACE HEATER SKR 150W ALIM. 220VCA	Torresan	FUN	SG-200D2
F1	007	961146	1	SURGE ARRESTER LOW VOLTAGE DBM 1 CI 440 FM Uc=440V Tipo 1 / Classe I	DEHN	FUN	SG-200D2
		900461	1	WIRING SYSTEM 3POLES TYPE EB1310	DEHN	FUN	SG-200D2
F2	007	961146	1	SURGE ARRESTER LOW VOLTAGE DBM 1 CI 440 FM Uc=440V Tipo 1 / Classe I	DEHN	FUN	SG-200D2
F3	007	961146	1	SURGE ARRESTER LOW VOLTAGE DBM 1 CI 440 FM Uc=440V Tipo 1 / Classe I	DEHN	FUN	SG-200D2
F4	007	961146	1	SURGE ARRESTER LOW VOLTAGE DBM 1 CI 440 FM Uc=440V Tipo 1 / Classe I	DEHN	FUN	SG-200D2
FU1	007	2640014P	1	PK-0/1000 Fuseholders for fuses In=160A up to 1000V DC/AC	Italweber	FUN	SG-200D2
		1505036	1	Fusible NH-0 35A gG 500V	Italweber	FUN	SG-200D2
FU2	007	2640014P	1	PK-0/1000 Fuseholders for fuses In=160A up to 1000V DC/AC	Italweber	FUN	SG-200D2
		1505036	1	Fusible NH-0 35A gG 500V	Italweber	FUN	SG-200D2
FU3	007	2640014P	1	PK-0/1000 Fuseholders for fuses In=160A up to 1000V DC/AC	Italweber	FUN	SG-200D2
		1505036	1	Fusible NH-0 35A gG 500V	Italweber	FUN	SG-200D2
FU4	008	2640014P	1	PK-0/1000 Fuseholders for fuses In=160A up to 1000V DC/AC	Italweber	FUN	SG-200D2
		1544016M	1	Fuse NH-0 16A aR 1000V	Italweber	FUN	SG-200D2
FU5	008	2640014P	1	PK-0/1000 Fuseholders for fuses In=160A up to 1000V DC/AC	Italweber	FUN	SG-200D2
		1544016M	1	Fuse NH-0 16A aR 1000V	Italweber	FUN	SG-200D2
HL1	011	EO 562 2	1	ML1-100R RED LAMP	ABB	FUN	SG-200D2
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		KV 035 7	1	MLBL-07R RED LED BLOCK INTEGRATED 230VAC	ABB	FUN	SG-200D2
HL2	011	EO 563 0	1	ML1-100G GREEN LAMP	ABB	FUN	SG-200D2
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		KV 036 5	1	MLBL-07G GREEN LED BLOCK INTEGRATED 230VAC	ABB	FUN	SG-200D2
HL3	011	EO 564 8	1	ML1-100Y YELLOW LAMP	ABB	FUN	SG-200D2
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		KV 037 3	1	MLBL-07Y YELLOW LED BLOCK INTEGRATED 230VAC	ABB	FUN	SG-200D2
HL4	012	EO 562 2	1	ML1-100R RED LAMP	ABB	FUN	SG-200D2
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		KV 035 7	1	MLBL-07R RED LED BLOCK INTEGRATED 230VAC	ABB	FUN	SG-200D2
HL5	012	EO 563 0	1	ML1-100G GREEN LAMP	ABB	FUN	SG-200D2
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		KV 036 5	1	MLBL-07G GREEN LED BLOCK INTEGRATED 230VAC	ABB	FUN	SG-200D2
KA1	011	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
KA2	011	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
KA3	011	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2

AS COMMISSIONED GIROTTI MATTIA NO MARK UP 27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"

FUNCTIONAL DIAGRAM

Bill of Materials

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 022

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
KA3	011	ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
KA4	011	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
KA5	008	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
KA6	011	ER 592 6	1	CR-M230AC4L SUPPLY 230VAC 4C/O 250V/6A LED	ABB	FUN	SG-200D2
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	FUN	SG-200D2
		ER 609 8	1	CR-MH HOLDER FOR CR-M RELAY	ABB	FUN	SG-200D2
LS	009	Z15GW2-1-1453270	1	MICROSWITCH 1sc	Omron	FUN	SG-200D2
		APB-PG	1	COVER TO MICRO-SWITCH	Omron	FUN	SG-200D2
QB1	007	1SDA073782R1	1	KLC-D BLOCK KEY ON OPEN POSITION TO E1.2	ABB	FUN	SG-200D2
		1SDA073822R1	1	KLP-D INSERTED/ISOLATED KEY BLOCK TO E1.2	ABB	FUN	SG-200D2
		1SDA073885R1	1	MECHANICAL INTERLOCKING CABLE TO TYPE A VERTICAL TO E1.2÷E6.2	ABB	FUN	SG-200D2
		1SDA073896R1	1	SUPPORT FOR MECHANICAL INTERLOCK OF FIXED PART FOR E1.2 TYPE A	ABB	FUN	SG-200D2
		1SDA073674R1	1	OPENING COIL YO 220÷240VAC/DC TO E12÷E6.2	ABB	FUN	SG-200D2
		1SDA073687R1	1	CLOSING COIL YC 220÷240VAC/DC TO E1.2÷E6.2	ABB	FUN	SG-200D2
		1SDA073711R1	1	MOTOR SPRING CHARGER 220÷250Vac/dc TO E1.2	ABB	FUN	SG-200D2
		1SDA073907R1	1	E1.2 W FP 1600 3P FIXED PART HR-HR	ABB	FUN	SG-200D2
		1SDA073762R1	1	AUP 6 CONTACT AUX INS/TEST/EST TO E1.2	ABB	FUN	SG-200D2
		1SDA074151R1	1	Module Ekip Com Modbus TCP Emax E1.2÷E6.2	ABB	FUN	SG-200D2
		1SDA074173R1	1	MODUL EKIP SUPPLY 24÷48VDC	ABB	FUN	SG-200D2
		1SDA073855R1	1	PBC Prot. Pushbutt.AP/CH D=4mm E1.2-XT7M	ABB	FUN	SG-200D2
		1SDA104297R1	1	E1.2N/E9 1250 3P Ekip Hi-Touch-LSIG In=1250A WITHDRAWABLE MOBIL PART	ABB	FUN	SG-200D2
		1SDA074166R1	2	Module Ekip Actuator Emax E1.2÷E6.2÷XT7÷XT7M	ABB	FUN	SG-200D2
		1SDA073906R1	1	AUXILIARY TERMINALS CONNECTION (10PC)	ABB	FUN	SG-200D2
		1SDA073838R1	1	ADDITIONAL BLOCK ISOALTED FOR E1	ABB	FUN	SG-200D2
QB2	007	1SDA073782R1	1	KLC-D BLOCK KEY ON OPEN POSITION TO E1.2	ABB	FUN	SG-200D2
		1SDA073822R1	1	KLP-D INSERTED/ISOLATED KEY BLOCK TO E1.2	ABB	FUN	SG-200D2
		1SDA073896R1	1	SUPPORT FOR MECHANICAL INTERLOCK OF FIXED PART FOR E1.2 TYPE A	ABB	FUN	SG-200D2
		1SDA074280R1	1	RATING PLUG 1250A FUNCTION L (OFF) TO EKIP RELEASE TO E1.2..E6.2 INSTALLED	ABB	FUN	SG-200D2
		1SDA073907R1	1	E1.2 W FP 1600 3P FIXED PART HR-HR	ABB	FUN	SG-200D2
		1SDA073762R1	1	AUP 6 CONTACT AUX INS/TEST/EST TO E1.2	ABB	FUN	SG-200D2
		1SDA073855R1	1	PBC Prot. Pushbutt.AP/CH D=4mm E1.2-XT7M	ABB	FUN	SG-200D2
		1SDA104296R1	1	E1.2N/E9 1250 3P Ekip Touch-LSIG In=1250A WITHDRAWABLE MOBIL PART	ABB	FUN	SG-200D2
		1SDA073906R1	1	AUXILIARY TERMINALS CONNECTION (10PC)	ABB	FUN	SG-200D2
		1SDA073885R1	1	MECHANICAL INTERLOCKING CABLE TO TYPE A VERTICAL TO E1.2÷E6.2	ABB	FUN	SG-200D2
		1SDA073838R1	1	ADDITIONAL BLOCK ISOALTED FOR E1	ABB	FUN	SG-200D2
QD1	008	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	FUN	SG-200D2
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	FUN	SG-200D2
QF1	008	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	FUN	SG-200D2
		S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	FUN	SG-200D2

AS COMMISSIONED CIRCUIT MATCH NO MARK UP 27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Bill of Materials

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00032

SHEET 023

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
QF2	008	S550260	1	S202M C 6 AUTOMATIC CIRCUIT-BR□AK□R 10KA 2P	ABB	FUN	SG-200D2
		A563819	1	S2-CS/H6R AUXILIARY STAT□ CONTACT 1CO	ABB	FUN	SG-200D2
QF3	008	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BR□AK□R 10KA 2P	ABB	FUN	SG-200D2
		A563819	1	S2-CS/H6R AUXILIARY STAT□ CONTACT 1CO	ABB	FUN	SG-200D2
QF4	008	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BR□AK□R 10KA 2P	ABB	FUN	SG-200D2
		A563819	1	S2-CS/H6R AUXILIARY STAT□ CONTACT 1CO	ABB	FUN	SG-200D2
QF5	009	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BR□AK□R 10KA 2P	ABB	FUN	SG-200D2
		B427960	1	DDA202 A 25A 300MA RCD BLOCK 2P	ABB	FUN	SG-200D2
		A563819	1	S2-CS/H6R AUXILIARY STAT□ CONTACT 1CO	ABB	FUN	SG-200D2
SA1	006	R601-205__02-W002	1	SWITCH R16 2/5 - 2 STAY POSITION	Cometric	FUN	SG-200D2
		Q4820030	1	Frontplate 48x48mm (LOC-R□M)	Cometric	FUN	SG-200D2
SC1	010	KW 076 0	1	MP1-10G PUSH BUTTON GR□□N WITH BLACK RING	ABB	FUN	SG-200D2
		□O 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		□O 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	FUN	SG-200D2
SK1	019	2900682	1	UMK-RJ45/S/8PTDA Modul VARIOFAC□	Phoenix Contact	FUN	SG-200D2
SO1	010	KW 075 2	1	MP1-10R PUSH BUTTON R□D WITH BLACK RING	ABB	FUN	SG-200D2
		□O 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	FUN	SG-200D2
		□O 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	FUN	SG-200D2
SW1	019	RSPS25-0600Z6YT-SK9Z9HH□2SXX.X	1	Managed Industrial Switch for DIN Rail, fanless design Fast □thernet Type - □nhanced (PRP, Fast MRP, HSR, NAT with L3 type) - 2 x RJ45; 4 x SFP - V=48V÷320VDC -88÷265VAC)	HIRSCHMANN	FUN	SG-200D2
SW1.1	019	M-FAST SFP-TX/RJ45	1	SFP TX Fast □thernet Transceiver with RJ45	HIRSCHMANN	FUN	SG-200D2
T1	008	F14XXX__01	1	Moofase Transformer 50Hz 800/230Vac 50Hz P=1000VA ? tropicalized	L.□.F.	FUN	SG-200D2
THR	009	TRT-10A230V-NC	1	Regolable Thermostat -10÷80°C 1NC IP20 DIN Mounting	Fandis	FUN	SG-200D2
U1	008	XCSF120CP	1	CSF120CP Switching power supply Cool Power 1-phase 90...264 Vac & 100...345 Vdc / 24 Vdc 5 A redundant version	Cabur	FUN	SG-200D2
X2		HM250GR	47	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	FUN	SG-200D2
		BT003	2	BT/3 □nd bracket	Cabur	FUN	SG-200D2
		HM251GR	1	HMT.4/PT/GR □nd section - Grey	Cabur	FUN	SG-200D2

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
27/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	18/09/2024	Santinelli	Flamminio	Sigismondi	As Built (ASB)
2	10/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	22/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n°: 231298/SD/32

Item n°: PF1002669/3

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200D2"
FUNCTIONAL DIAGRAM
Bill of Materials

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

SCALE : NTS

A3

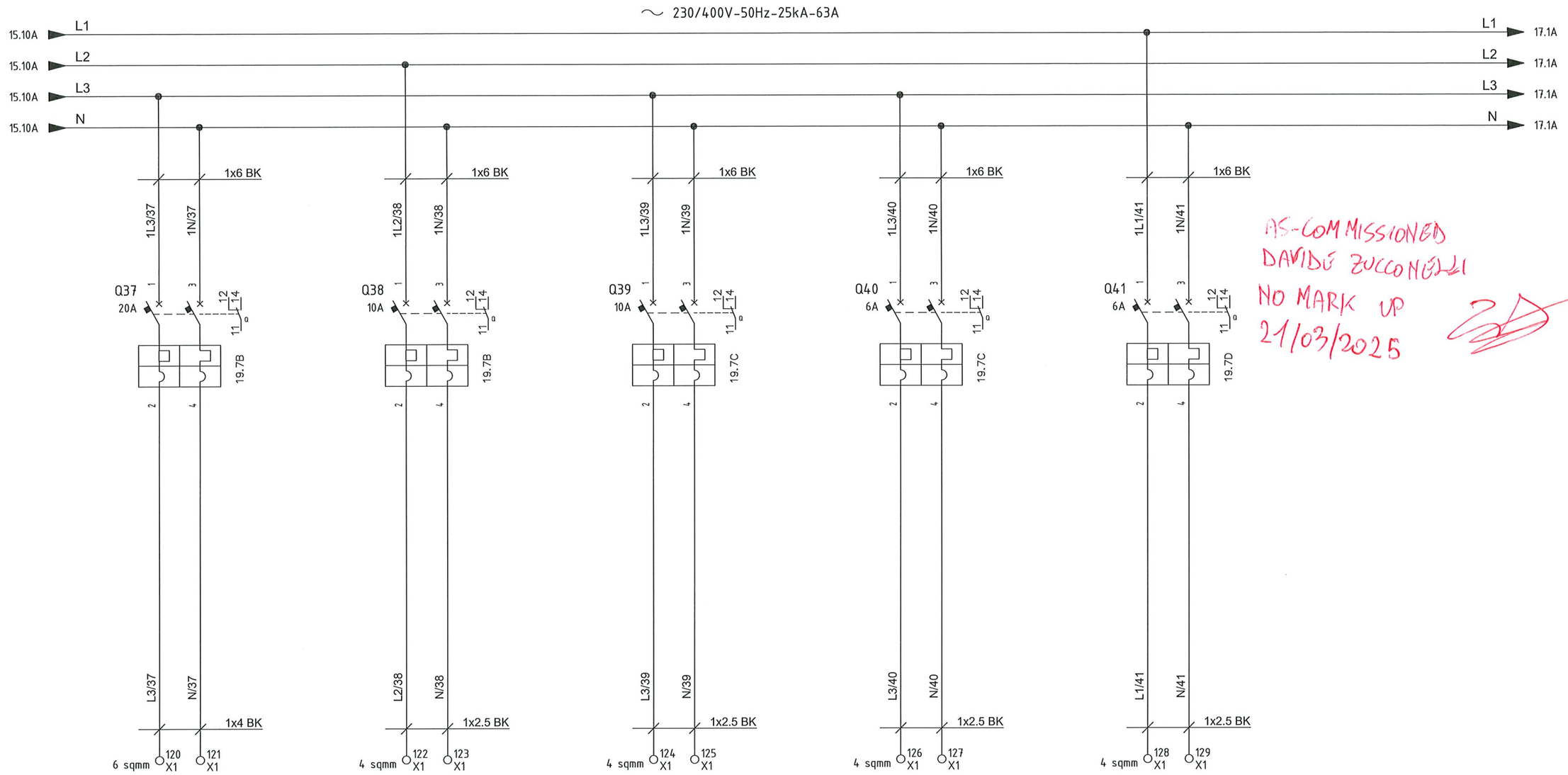
DRAWING NO. 1723002197-EL-DG-00032

SHEET 024

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00032 Rev. 03



CP-100E1
Auxiliary
GIS
(3G6 sqmm)

SG-100D1
Auxiliary 6.6kV
Switchboard
(3G2.5 sqmm)

SG-200N1
Auxiliary
LV Switchboard
(3G2.5 sqmm)

SG-200D2
Auxiliary
SOLAR SWGR
(3G2.5 sqmm)

UP-200F3
AC UPS PAS - 30 min -
UP-200F3 - Auxiliary
(3G2.5 sqmm)

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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00033
REV.: 3_A | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

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

A3 | DRAWING NO. 1723002197-EL-DG-00033 | SHEET 1.6 | REV. 03

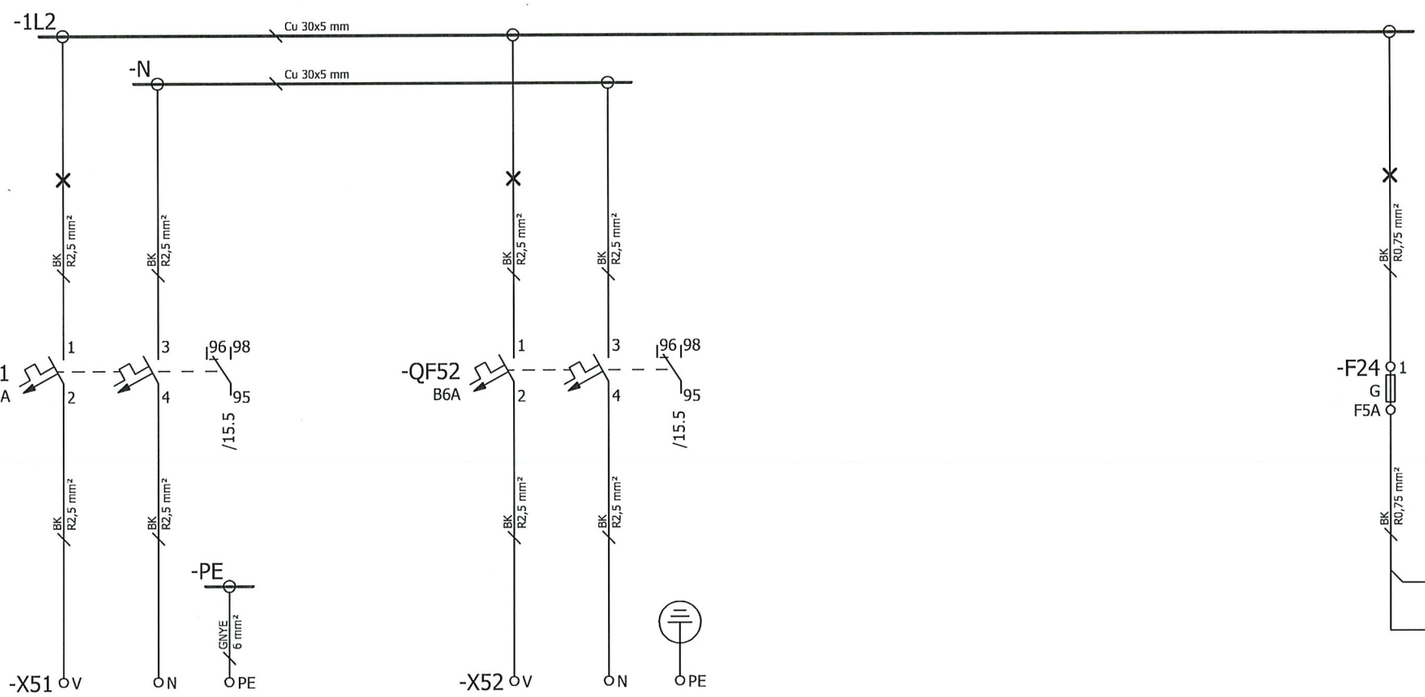
F.to UNI A3: 420mmx297mm

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

CAE EPLAN Electric P8

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NO MARK UP
AS COMMISSIONED: MARIO GIROTTI
26/3/25



Load
230V/N/PE~50Hz

SG-200-D2
LV SWITCHBOARD
800/460V AUXILIARY

Load
230V/N/PE~50Hz

SPARE
0.5KW

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

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

ROSETTI MARINO SpA

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

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 40 kVA
Circuit diagram

1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

A3

sheet 11
sheets 17

1000007888_010

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE