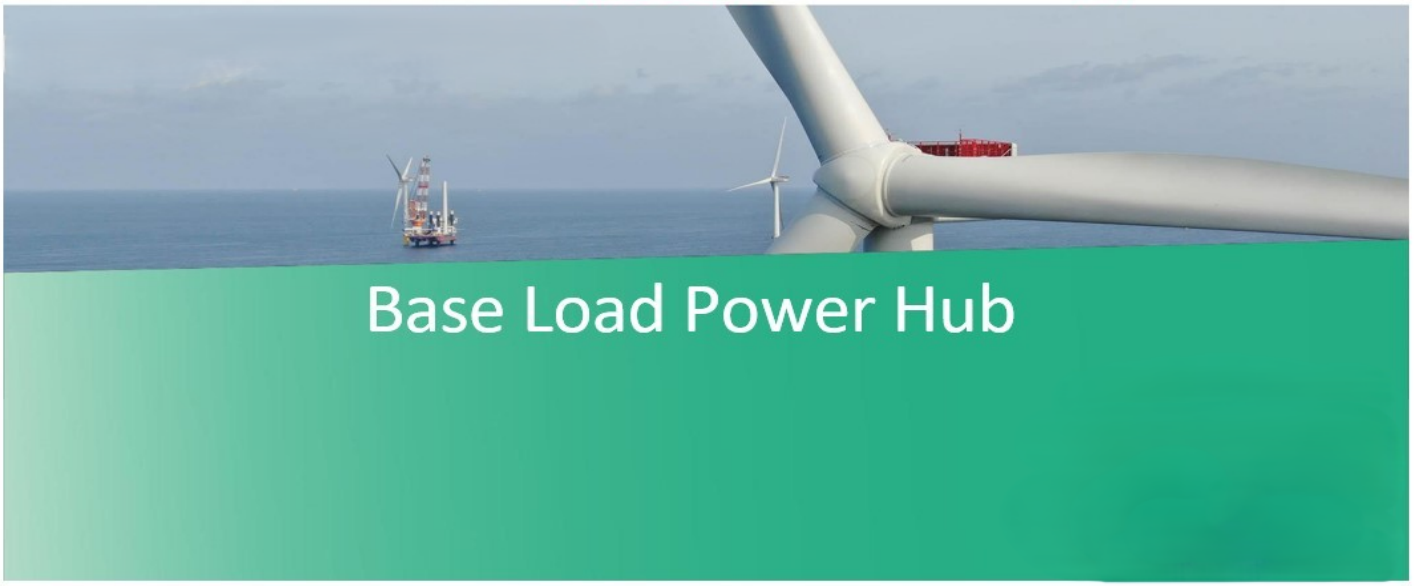
CROSSWIND

ROSETTI MARINO

PROVERLIS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	82 Main Power Distribution Medium Voltage 6.6 kV
SUBSYSTEM	82-20 Power Transformer 3.15 MVA (T4 ELECTROLYSER)

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

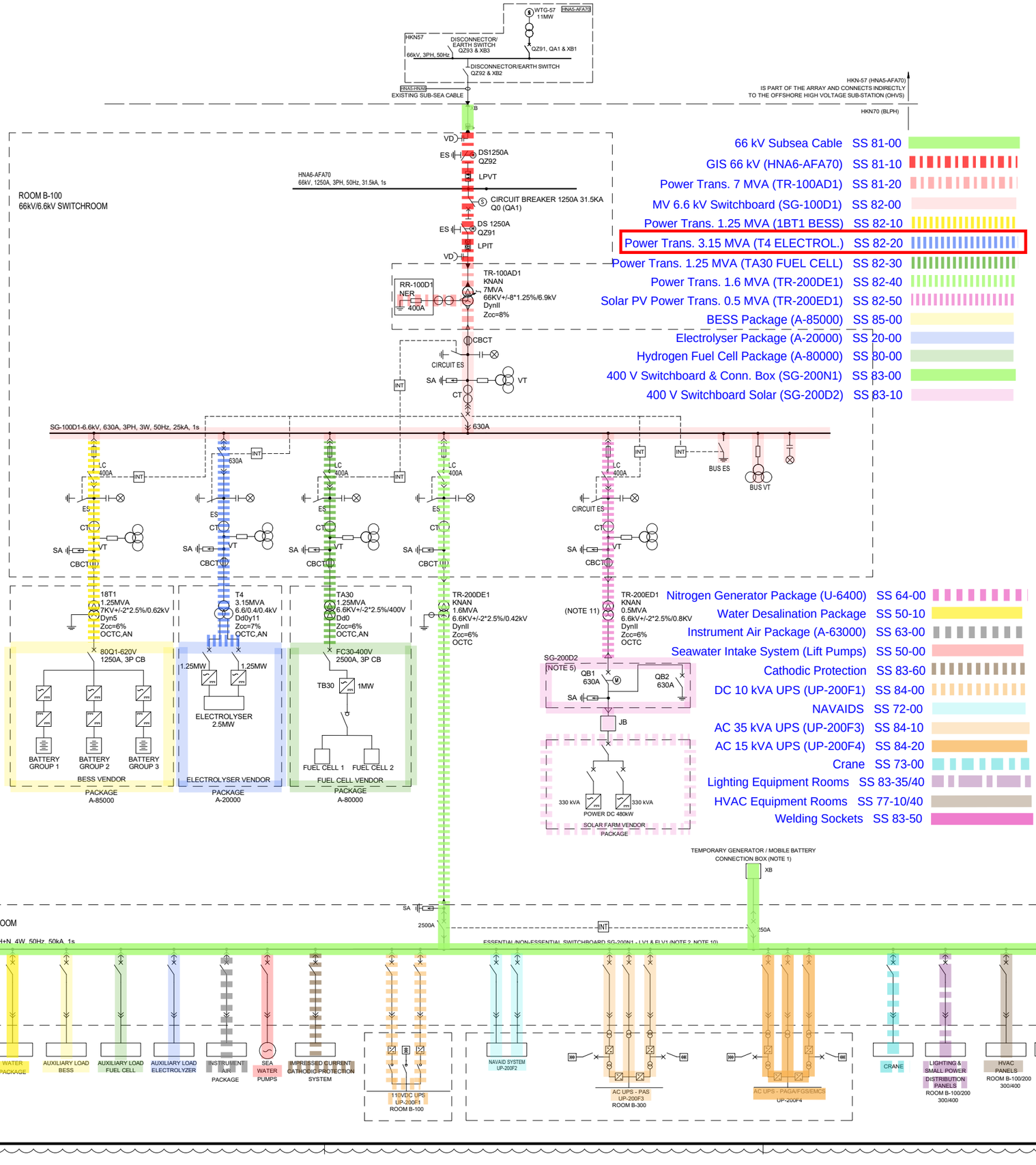
Sub System N°:	82-20	**Tick as appropriate**	ONSHORE	OK
Description:	Power Transformer 3.15 MVA (T4 ELECTROLYSER)		OFFSHORE	

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	2025-04-25	2025-04-25
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-25T10:55:06.580Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-25T13:42:19.283Z

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

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:	2025-03-28	

System:	82	/	Main Power Distribution Medium Voltage 6.6 kV
SubSystem:	82-20	/	Power Transformer 3.15 MVA (T4 ELECTROLYSER)

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

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

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

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Martin Taylor
Date	2025-03-28	2025-04-24
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-03-28T16:18:17.567Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-24T14:04:03.346Z

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-20 & process: COMM

Electrical	82-20 Power Transformer 3.15 MVA (T4 ELECTROLYSER)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
SG-100D1-A1-QM	ELECTROLISER PACKAGE - SG-100D1-A1-QM	ONSHORE	C10002985	FTR-2	100	2024-12-12	RFO 1
		ONSHORE	C10002986	FTR-6	100	2025-02-04	RFO 1

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	82	Main Power Distribution Medium Voltage 6.6 kV
SUBSYSTEM	82-20	Power Transformer 3.15 MVA (T4 ELECTROLYSER)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001936	B	82004-CEM-1-L1 C10000482	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82004-CEM-1-L2 and 82004-CEM-1-L3	.		Pschintu 2024-12-16	2025-01-03	Ecarotenuto 2025-01-03	2025-01-03
C30001937	B	82004-CEM-1-L1 C10000482	Missing cable tag on routing. Point valid also for 82004-CEM-1-L2, 82004-CEM-1-L3,	.		Pschintu 2024-12-16	2025-02-07	Pschintu 2025-02-07	2025-02-07

Section 2.2 Exception Punch Lists (per discipline)

Project CROSSWIND

PUNCH LIST REPORT

NO DATA AVAILABLE

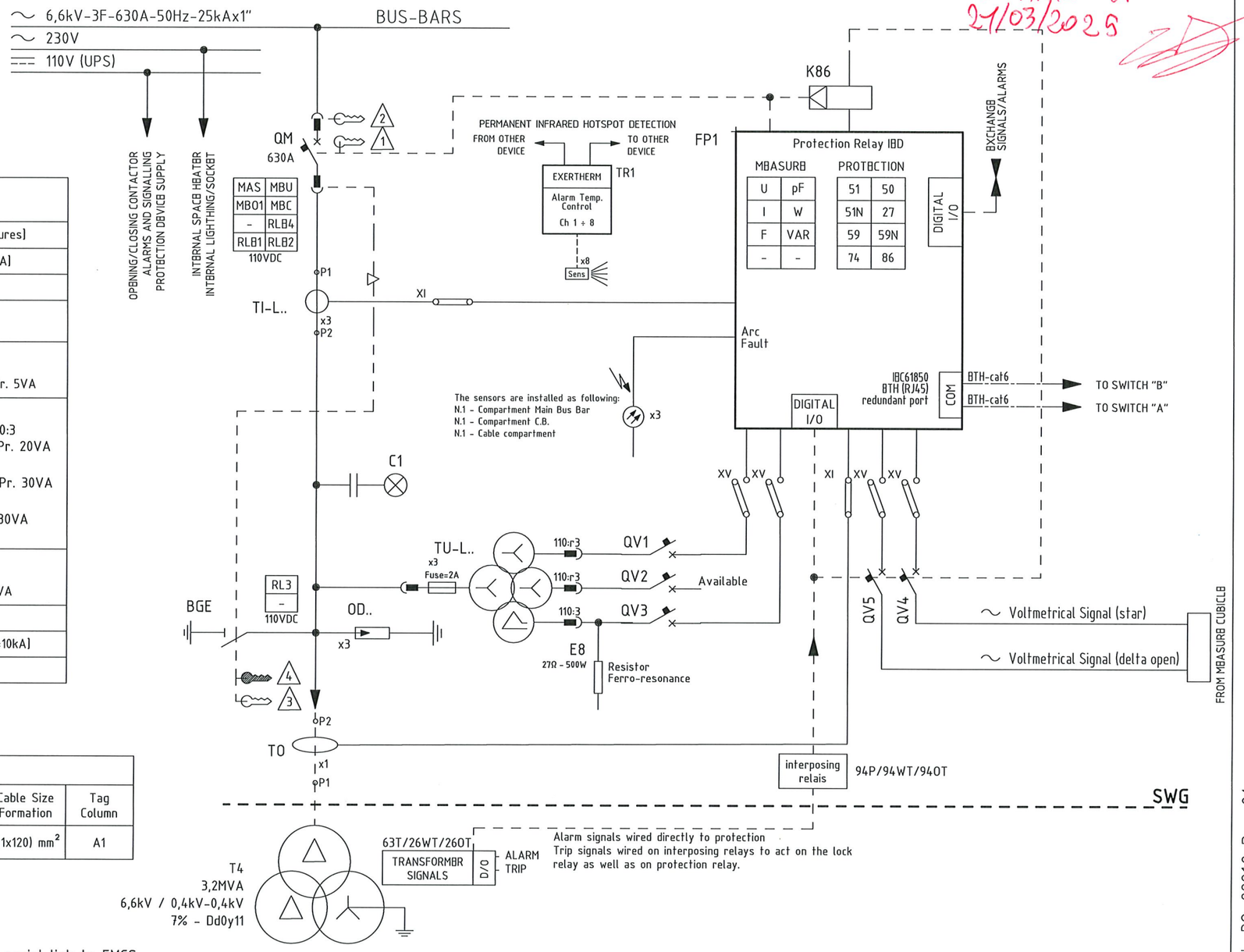
Section 2.3 “As-Commissioned” P&ID's / SLD's / D&ID's / C&E's

LEGEND:

- Free key with opened Circuit Breaker (Circuit Breaker locked in open position)
- Free key with insolated Circuit Breaker or Contactor (Circuit Breaker or Contactor locked in isolated position)
- Free key with opened Earthing Switch (Earthing Switch locked in open position)
- Free key with closed Earthing Switch (Earthing Switch locked in close position)
- Mechanical interlock

SINGLE LINE DIAGRAM
"CB FEEDER"

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



MAIN EQUIPMENT
[Additional Features and Auxiliary Components will be inserted on Functional Diagram]

Tag	Desciption Tag	Supplier	Type [Technical Features]
QM	Circuit Breaker	ABB	VD4/P [12KV - 630A - 25kA]
BGE	Earthing Switch	ABB	ST-E [12KV - 25kA]
FP1	Protection Relay	ABB	REX640
TI-L..	Current Transformers	ESITAS	ATB 10-BS 7,2kV - 400/1 - 25kA 1°winding : Cl. 0,5+5P20 - Pr. 5VA
TU-L..	Voltage Transformers + Fuses	ABB	TJP4.3 [7,2kV - 6,6kV:√3/110:√3-110:√3-110:3 1° winding : Cl. 0,5-3P - Pr. 20VA (110:√3) 2° winding : Cl. 0,5-3P - Pr. 30VA (110:√3) 3° winding : Cl. 3P - Pr. 30VA (110:3)
TO	Omopolar Ring Current Transformer (Internal Diameter 150mm)	ESITAS	KAP-150/250-55 1.2kV - 100/1A - 25kA 1° winding : Cl. 5P5 - Pr. 5VA
TR1	Permanent Infrared Hotspot Detection	EXERTHERM	
OD..	Voltage Discharger	DEHN	SBKW 9/DH I-0 [Ur=9kV-In=10kA]
C1	Voltage Presence Indicator	ABB	VPIS [3÷24kV]

USER DETAILS

Tag User	Desciption User	User Power	Current Transformer Ratio	Cable Size Formation	Tag Column
A-20000	ELECTROLYSER PACKAGE	3200 kVA	400 / 1A	3(1x120) mm²	A1

NOTE :

For ELECTROLYSER PAKAGE feeder interlocks and intertrips will be managed via serial link to EMCS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
4	08/08/2024	Santinelli	Giulietti	Sigismondi	As-Built (ASB)
3	26/06/2024	Santinelli	Giulietti	Sigismondi	Accepted for Construction (AFC)
2	14/05/2024	Santinelli	Giulietti	Sigismondi	Issued for review (IFR)
1	14/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	07/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231151/SD/10

Item n° : PF1113279/4

TITLE : "SG-100D1"

ELECTRICAL SINGLE LINE DIAGRAM
Column A1: Electrolyser Package A-20000

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00010

SHEET 004

REV. 04

File Name : 1723002197-EL-DG-00010 Rev. 04

F.to UNI A3: 420mmx297mm

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	82	Main Power Distribution Medium Voltage 6.6 kV
SUBSYSTEM	82-20	Power Transformer 3.15 MVA (T4 ELECTROLYSER)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001936	B	82004-CEM-1-L1 C10000482	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82004-CEM-1-L2 and 82004-CEM-1-L3	.		Pschintu 2024-12-16	2025-01-03	Ecarotenuto 2025-01-03	2025-01-03
C30001937	B	82004-CEM-1-L1 C10000482	Missing cable tag on routing. Point valid also for 82004-CEM-1-L2, 82004-CEM-1-L3,	.		Pschintu 2024-12-16	2025-02-07	Pschintu 2025-02-07	2025-02-07

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001936

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000482	1.4 Discipline	Electrical
1.2 Item	82004-CEM-1-L1		6.6KV HV Switchgear / 6.6/0.4/0.4 KV, 3.15MVA Transformer
1.3 Subsystem	82-20		Power Transformer 3.15 MVA (T4 ELECTROLYSER)

2 - OBSERVATION

Missing cable cleats stainless steel with TPE cable protection.
Point valid also for 82004-CEM-1-L2 and 82004-CEM-1-L3

Name: Paolo Schintu
Date: 2024-12-16
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	2024-12-16
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto
Date: 2025-01-03
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001937

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000482	1.4 Discipline	Electrical
1.2 Item	82004-CEM-1-L1		6.6KV HV Switchgear / 6.6/0.4/0.4 KV, 3.15MVA Transformer
1.3 Subsystem	82-20		Power Transformer 3.15 MVA (T4 ELECTROLYSER)

2 - OBSERVATION

Missing cable tag on routing. Point valid also for 82004-CEM-1-L2, 82004-CEM-1-L3,

Name: Paolo Schintu

Date: 2024-12-16

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	2024-12-16
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

INSTALLED

Name: Paolo Schintu

Date: 2025-02-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-20 & process: COMM & discipline : E

Electrical	82-20 Power Transformer 3.15 MVA (T4 ELECTROLYSER)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
SG-100D1-A1-QM	ELECTROLISER PACKAGE - SG-100D1-A1-QM	ONSHORE	C10002985	FTR-2	100	2024-12-12	RFO 1
		ONSHORE	C10002986	FTR-6	100	2025-02-04	RFO 1

ITEM	Tag	SG-100D1-A1-QM	:	ELECTROLISER PACKAGE - SG-100D1-A1-QM	Dwg	1723002197-EL-DG-00010	
	S/Sys	82-20	:	Power Transformer 3.15 MVA (T4 ELECTROLYSER)	Module		
TASK	code	C10002985	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°:	1VHR81041858	Relay type:	REX640
Auxiliary supply:	110Vdc	Location:	B100	Cubicle:	A1
Switchboard:	SG-100D1				

Current transformers

Tag	Number of	Ratio	Location
TI-L1		400/1A	SG-100D1-A1
TI-L2		400/1A	SG-100D1-A1
TI-L3		400/1A	SG-100D1-A1

Voltage transformers

Tag	Number of	Ratio	Location
TU-L1		6600/110V	SG-100D1-A1
TU-L2		6600/110V	SG-100D1-A1
TU-L3		6600/110V	SG-100D1-A1

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
51N - EFLPTOC1	10A	10.71A		100ms	121ms
50-1 - PHIPTOC1	2600A	2657A		50ms	62ms
51-1 - PHLPTOC1	300A	336A		12214ms	12269ms
59-1 - PHPTOV1	7920V	8100V		500ms	525ms
27-1 - PHPTUV1	5280V	5300V		2000ms	2019ms

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
OMICRON CMC 356	DJ297G		

Comments: See the attachemnts 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	2024-12-10	2024-12-11	2024-12-12
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-12-10T09:01:14.600Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-12-11T10:39:36.429Z	PROVERLIS Digitaly signed by Witness waived 2024-12-12T10:32:16.433Z

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

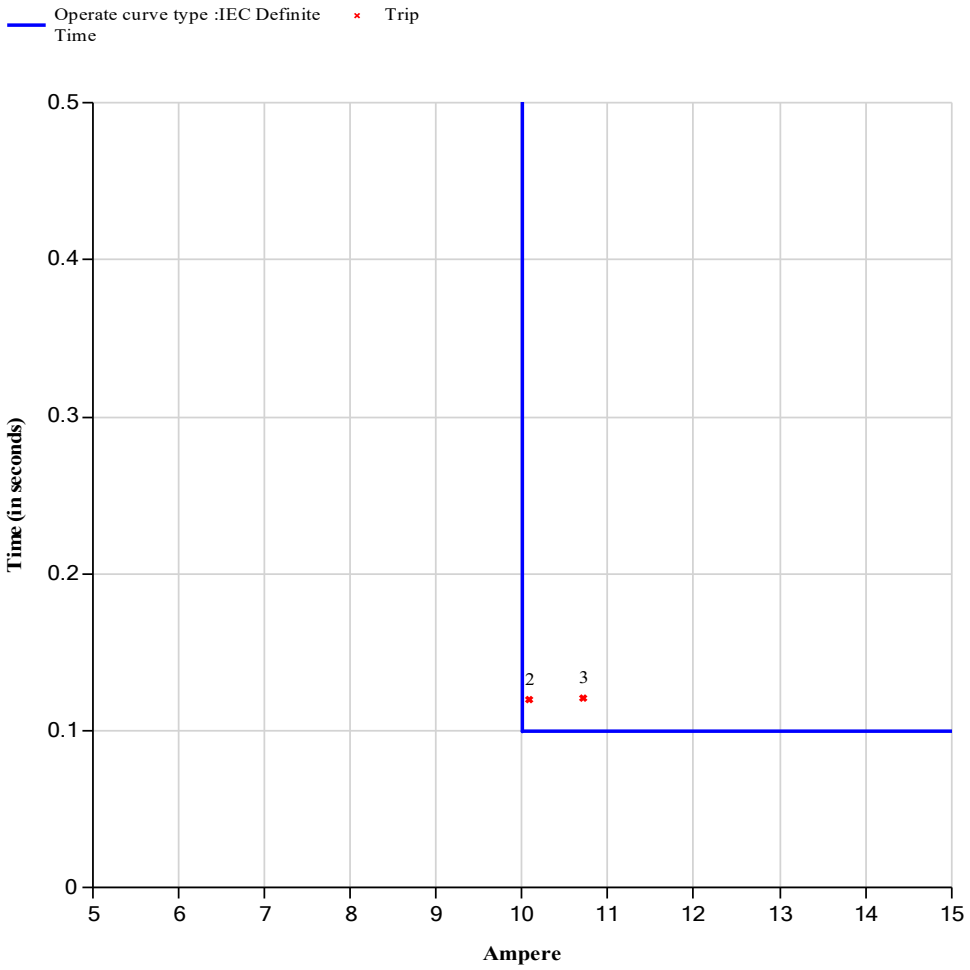
ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858

IEC61850 : EFLPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 100 / 1 A
Nominal current : 275.6 A
Minimum operate time : 100 ms
Measured mode : DFT
Io signal Sel : Measured Io
Start value : 0.100 xIn
Operate delay time : 100 ms
Operate curve type : IEC Definite Time
Type of reset : Immediate



N.	I0	I0"(A)	I0(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	9.75	0.098	0	0	0	0
2	10.08	0.101	0	100	120	20
3	10.71	0.107	0	100	121	21

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			
---		---	---	---

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

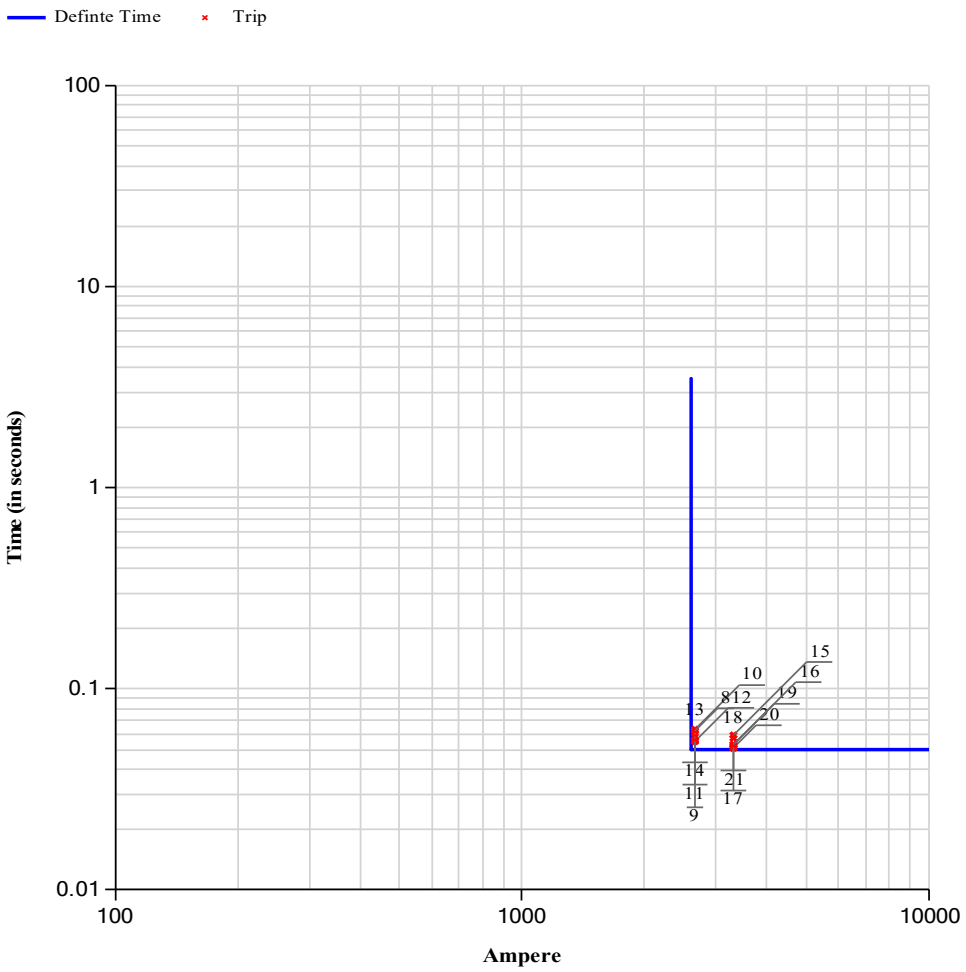
ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858

IEC61850 : PHIPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 400 / 1 A
Nominal current : 275.6 A
Num of start phases : 1 Out of 3
Reset delay time : 20 ms
Start value : 6.50 xIn
Start valure Mult : 1.0
Operate delay time : 50 ms



N.	I1(A)	I1"(A)	I1(°)	I2(A)	I2"(A)	I2(°)	I3(A)	I3"(A)	I3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	2529	6.323	0	0	0	0	0	0	0	0	0	0
2	0	0	0	2529	6.323	240	0	0	0	0	0	0
3	0	0	0	0	0	0	2529	6.323	120	0	0	0
4	2529	6.323	0	2529	6.323	180	0	0	0	0	0	0
5	0	0	0	2529	6.323	240	2529	6.323	60	0	0	0
6	2529	6.323	300	0	0	0	2529	6.323	120	0	0	0
7	2529	6.323	0	2529	6.323	240	2529	6.323	120	0	0	0
8	2657	6.643	0	0	0	0	0	0	0	50	62	24
9	0	0	0	2657	6.643	240	0	0	0	50	55	10

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			
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PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

RELAY TYPE : ABB REX640

ITEM : UNIT A1

Sn. : 1VHR81041858

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

IEC61850 : PHIPTOC1

N.	I1(A)	I1"(A)	I1(°)	I2(A)	I2"(A)	I2(°)	I3(A)	I3"(A)	I3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
10	0	0	0	0	0	0	2657	6.643	120	50	63	26
11	2657	6.643	0	2657	6.643	180	0	0	0	50	58	16
12	0	0	0	2657	6.643	240	2657	6.643	60	50	55	10
13	2657	6.643	300	0	0	0	2657	6.643	120	50	62	24
14	2657	6.643	0	2657	6.643	240	2657	6.643	120	50	56	12
15	3303	8.258	0	0	0	0	0	0	0	50	59	18
16	0	0	0	3303	8.258	240	0	0	0	50	53	6
17	0	0	0	0	0	0	3303	8.258	120	50	52	4
18	3303	8.258	0	3303	8.258	180	0	0	0	50	57	14
19	0	0	0	3303	8.258	240	3303	8.258	60	50	53	6
20	3303	8.258	300	0	0	0	3303	8.258	120	50	51	2
21	3303	8.258	0	3303	8.258	240	3303	8.258	120	50	51	2

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

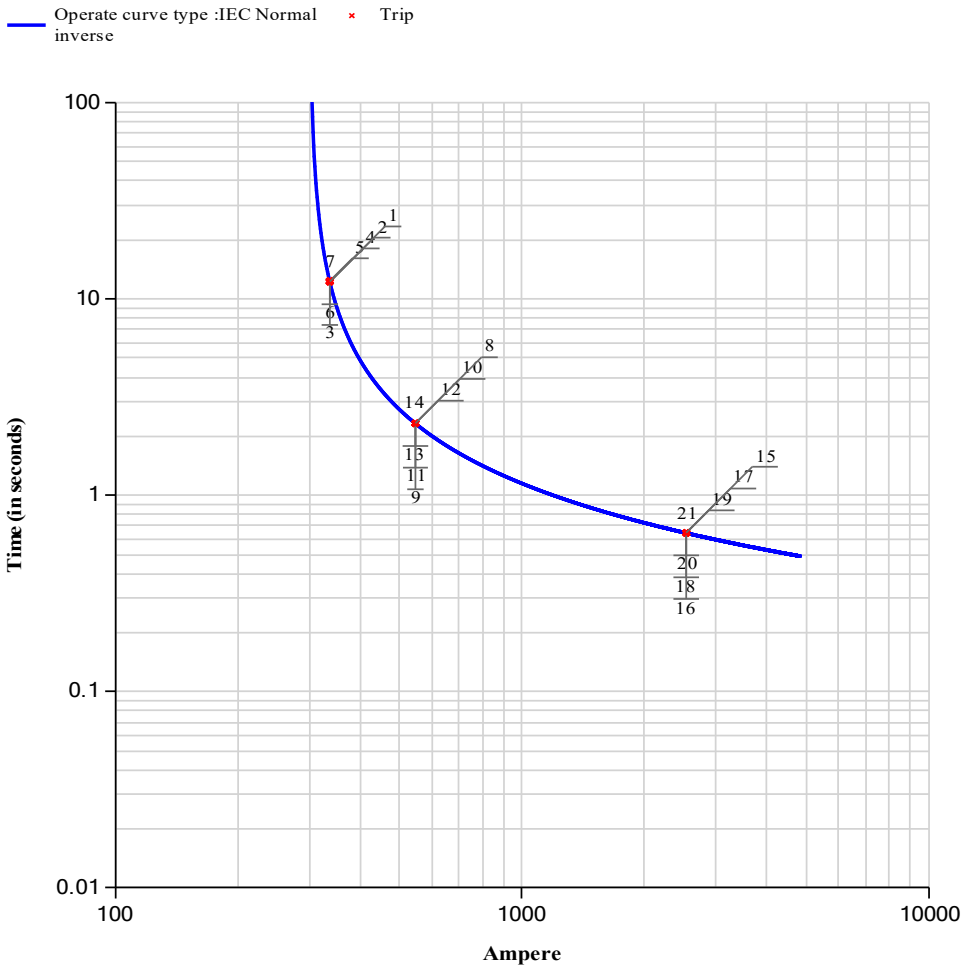
ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858

IEC61850 : PHLPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 400 / 1 A
Nominal current : 275.6 A
Num. start phases : 1 out of 3
Minimum operate time : 50 msec
Reset delay time : 20 msec
Measurement mode : DFT
Start value : 0.75 xIn
Start value mult. : 1.00
Time multiplier : 0.20
Operate curve type : IEC Normal inverse
Type of reset : Immediate



N.	I1(A)	I1"(A)	I1(°)	I2(A)	I2"(A)	I2(°)	I3(A)	I3"(A)	I3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	336	0.841	0	0	0	0	0	0	0	12214	12269	0.45
2	0	0	0	336	0.841	240	0	0	0	12214	12221	0.06
3	0	0	0	0	0	0	336	0.841	120	12214	12408	1.59
4	336	0.841	0	336	0.841	240	0	0	120	12214	12237	0.19
5	0	0	0	336	0.841	240	336	0.841	120	12214	12379	1.35
6	336	0.841	0	0	0	240	336	0.841	120	12214	12265	0.42
7	336	0.841	0	336	0.841	240	336	0.841	120	12214	12299	0.7
8	546	1.365	0	0	0	0	0	0	0	2323	2330	0.3
9	0	0	0	546	1.365	240	0	0	0	2323	2330	0.3

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

RELAY TYPE : ABB REX640

ITEM : UNIT A1

Sn. : 1VHR81041858

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

IEC61850 : PHLPTOC1

N.	I1(A)	I1"(A)	I1(°)	I2(A)	I2"(A)	I2(°)	I3(A)	I3"(A)	I3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
10	0	0	0	0	0	0	546	1.365	120	2323	2331	0.34
11	546	1.365	0	546	1.365	240	0	0	120	2323	2330	0.3
12	0	0	0	546	1.365	240	546	1.365	120	2323	2329	0.26
13	546	1.365	0	0	0	240	546	1.365	120	2323	2329	0.26
14	546	1.365	0	546	1.365	240	546	1.365	120	2323	2330	0.3
15	2529	6.323	0	0	0	0	0	0	0	643	646	0.47
16	0	0	0	2529	6.323	240	0	0	0	643	644	0.16
17	0	0	0	0	0	0	2529	6.323	120	643	645	0.31
18	2529	6.323	0	2529	6.323	240	0	0	120	643	644	0.16
19	0	0	0	2529	6.323	240	2529	6.323	120	643	644	0.16
20	2529	6.323	0	0	0	240	2529	6.323	120	643	646	0.47
21	2529	6.323	0	2529	6.323	240	2529	6.323	120	643	643	0

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

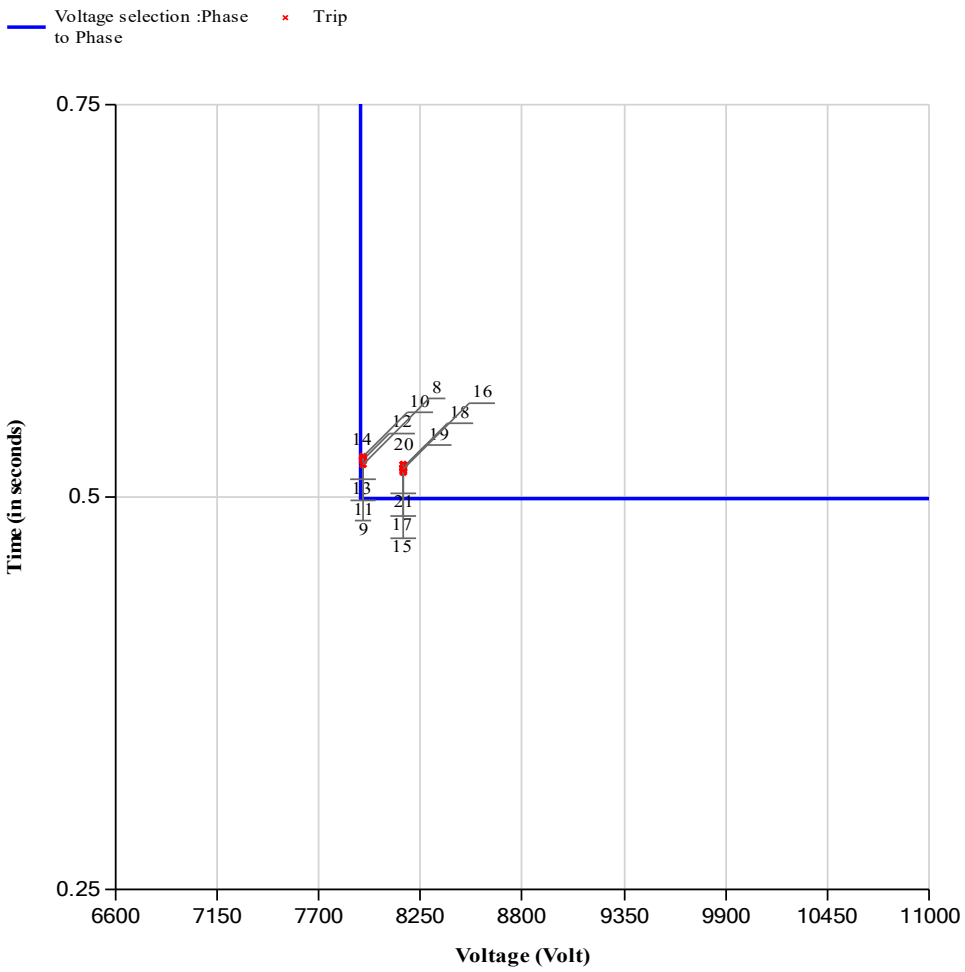
ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858

IEC61850 : PHPTOV1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
VT RATIO : 6600 / 110 V
Num of start phases : 1 out of 3
Reset delay time : 20 ms
Voltage selection : Phase to Phase
Relative hysteresis : 4.0 %
Start value : 1.20 xUn
Time multiplier : 1.00
Operate delay time : 500 ms
Operating curve type : IEC Def. Time
Type of reset curve : Immediate
Type of time reset : Freeze Op timer



N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	5262	87.704	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	5262	87.701	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	5262	87.703	120	0	0	0
4	4556	75.93	0	4556	75.93	240	3811	63.509	120	0	0	0
5	3811	63.509	0	4556	75.929	240	4556	75.929	120	0	0	0
6	4556	75.932	0	3811	63.509	240	4556	75.932	120	0	0	0
7	4556	75.934	0	4556	75.934	240	4556	75.934	120	0	0	0
8	5315	88.576	0	3811	63.509	240	3811	63.509	120	500	521	4.2
9	3811	63.509	0	5316	88.596	240	3811	63.509	120	500	525	5

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

RELAY TYPE : ABB REX640

ITEM : UNIT A1

Sn. : 1VHR81041858

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

IEC61850 : PHPTOV1

N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
10	3811	63.509	0	3811	63.509	240	5316	88.594	120	500	526	5.2
11	4584	76.395	0	4584	76.395	240	3811	63.509	120	500	524	4.8
12	3811	63.509	0	4583	76.39	240	4583	76.39	120	500	524	4.8
13	4583	76.387	0	3811	63.509	240	4583	76.387	120	500	526	5.2
14	4583	76.389	0	4583	76.389	240	4583	76.389	120	500	524	4.8
15	5554	92.565	0	3811	63.509	240	3811	63.509	120	500	516	3.2
16	3811	63.509	0	5553	92.553	240	3811	63.509	120	500	518	3.6
17	3811	63.509	0	3811	63.509	240	5553	92.557	120	500	521	4.2
18	4709	78.478	0	4709	78.478	240	3811	63.509	120	500	519	3.8
19	3811	63.509	0	4709	78.488	240	4709	78.488	120	500	519	3.8
20	4708	78.474	0	3811	63.509	240	4708	78.474	120	500	521	4.2
21	4709	78.48	0	4709	78.48	240	4709	78.48	120	500	517	3.4

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

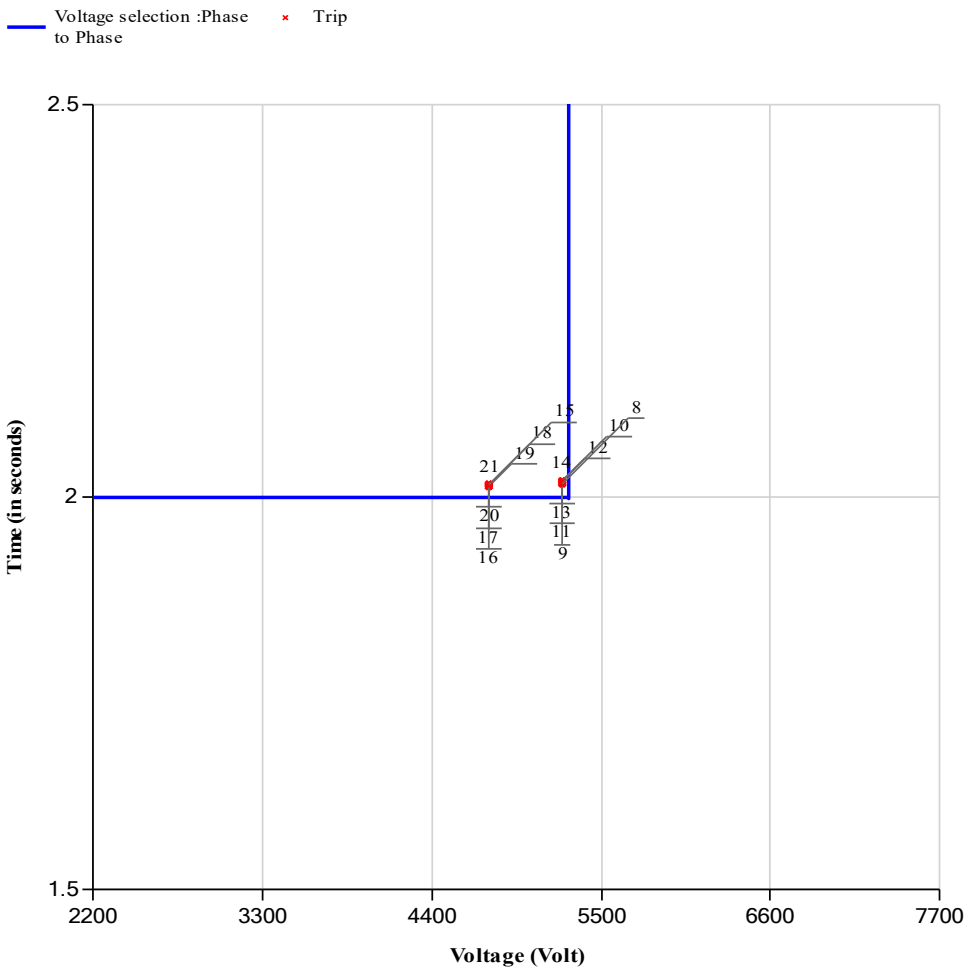
EQUIPMENT DESCRIPTION : -A-20000

ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858



IEC61850 : PHPTUV1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
VT RATIO : 6600 / 110 V
Num of start phases : 1 Out of 3
Minimum operate time : 60 msec
Reset delay time : 20 msec
Voltage block value : 0.10 xUn
Enable block value : False
Voltage selection : Phase to Phase
Relative hysteresis : 4.0 %
Start value : 0.80 xUn
Time multiplier : 1.00
Operating delay time : 2000 msec
Operate curve type : IEC Def. Time
Type of reset curve : Immediate
Type of time reset : Freeze Op timer

N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	2258	37.637	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	2259	37.65	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	2259	37.648	120	0	0	0
4	3067	51.12	0	3067	51.12	240	3811	63.509	120	0	0	0
5	3811	63.509	0	3067	51.122	240	3067	51.122	120	0	0	0
6	3067	51.124	0	3811	63.509	240	3067	51.124	120	0	0	0
7	3067	51.123	0	3067	51.123	240	3067	51.123	120	0	0	0
8	2171	36.188	0	3811	63.509	240	3811	63.509	120	2000	2017	0.85
9	3811	63.509	0	2172	36.194	240	3811	63.509	120	2000	2019	0.95

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

RELAY TYPE : ABB REX640

ITEM : UNIT A1

Sn. : 1VHR81041858

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

IEC61850 : PHPTUV1

N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
10	3811	63.509	0	3811	63.509	240	2172	36.194	120	2000	2021	1.05
11	3028	50.472	0	3028	50.472	240	3811	63.509	120	2000	2019	0.95
12	3811	63.509	0	3028	50.469	240	3028	50.469	120	2000	2021	1.05
13	3028	50.463	0	3811	63.509	240	3028	50.463	120	2000	2021	1.05
14	3028	50.467	0	3028	50.467	240	3028	50.467	120	2000	2018	0.9
15	1536	25.595	0	3811	63.509	240	3811	63.509	120	2000	2016	0.8
16	3811	63.509	0	1536	25.594	240	3811	63.509	120	2000	2014	0.7
17	3811	63.509	0	3811	63.509	240	1536	25.599	120	2000	2017	0.85
18	2753	45.88	0	2753	45.88	240	3811	63.509	120	2000	2016	0.8
19	3811	63.509	0	2753	45.881	240	2753	45.881	120	2000	2014	0.7
20	2753	45.882	0	3811	63.509	240	2753	45.882	120	2000	2017	0.85
21	2753	45.88	0	2753	45.88	240	2753	45.88	120	2000	2014	0.7

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -A-20000

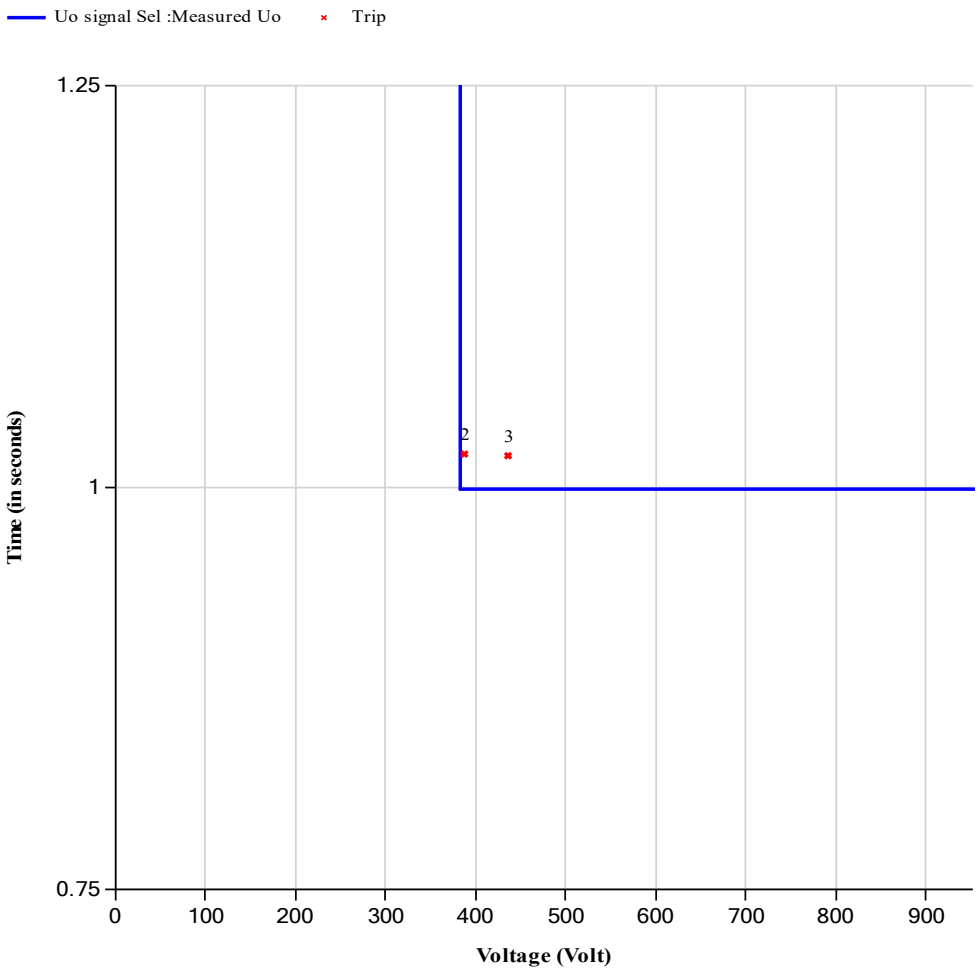
ITEM : UNIT A1

REFERENCE DOCUMENT : 123A90-DDL-EL-RE-20168 Rev.02

RELAY TYPE : ABB REX640

Sn. : 1VHR81041858

IEC61850 : ROVPTOV1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
VT RATIO : 6600 / 110 V
Reset delay time : 20 msec
Uo signal Sel : Measured Uo
Start value : 0.10 xUn
Operate delay time : 1000 msec



N.	V0(V)	V0(V)	Exp.(ms)	Trip(ms)	Dev.(%)
1	372	10.733	0	0	0
2	387	11.181	1000	1021	2.1
3	436	12.581	1000	1020	2

VENDOR :	TEST EQUIPMENT :	CONTRACTOR :	YARD :	CLIENT :
DARIO AZZOLARI	OMICRON CMC 356 **Sn. :** DJ297G			
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ITEM	Tag	SG-100D1-A1-QM	: ELECTROLISER PACKAGE - SG-100D1-A1-QM	Dwg	1723002197-EL-DG-00010	
	S/Sys	82-20	: Power Transformer 3.15 MVA (T4 ELECTROLYSER)	Module		
TASK	code	C10002986	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-100D1-A1-QM	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														
2														
3														
4														
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: NOTE1: See attachments for full signals and for others information see the OTP: 6,6kV Switchgear & Transformer System PHASE 6.

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	2025-02-04	2025-02-04	2025-02-04
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2025-02-04T10:32:53.876Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-04T13:22:19.494Z	PROVERLIS Digitaly signed by Witness waived 2025-02-04T13:40:38.473Z

5.4.6.4 SIS Safety Instrumented System - I/O signal from SIS to SG-100D1 UNIT A1

Not applicable

5.4.6.5 EMCS IEC61850 - Electrical Monitoring & Control System

The EMCS will be tested with the 6.6kV SWBD: In detail it will be tested the functionalities provided on I/O lists vendor document 1723002197-EL-LIS-00041 with the A7 Unit FUEL CELL PACKAGE.

5.4.6.6 EMCS IEC61850 – A1 Unit I/O List

The following data list is a part of redundant networking in ethernet technology from the electrical PROTECTIONS Relay REX640

DESCRIPTION	SIGNAL TYPE	TAG SIGNAL
ELECTROLYSER FEEDER A-20000 "A1"		
PROTECTION TRIPPED "50-1"	DIGITAL	LD0.PHIPTOC1.ST.Op.general
PROTECTION TRIPPED "51-1"	DIGITAL	LD0.PHLPTOC1.ST.Op.general
PROTECTION TRIPPED "51N"	DIGITAL	LD0.EFLPTOC1.ST.Op.general
PROTECTION TRIPPED "59N"	DIGITAL	LD0.ROVPTOV1.ST.Op.general
PROTECTION TRIPPED "27-1"	DIGITAL	LD0.PHPTUV1.ST.Op.general
PROTECTION TRIPPED "59-1"	DIGITAL	LD0.PHPTOV1.ST.Op.general
SELECTOR SWITCH IN LOCAL POSITION	DIGITAL	LD0.MVGAPC1.ST.SPCSO6.stVal
SELECTOR SWITCH IN REMOTE POSITION	DIGITAL	LD0.MVGAPC1.ST.SPCSO7.stVal
Line Current (L1)	ANALOG	LD0.CMMXU1.A.phsA.cVal.mag.f
Line Current (L2)	ANALOG	LD0.CMMXU1.A.phsB.cVal.mag.f
Line Current (L3)	ANALOG	LD0.CMMXU1.A.phsC.cVal.mag.f
Line Volts MAIN BUS BAR (L1-l2)	ANALOG	LD0.VMMXU1.PPV.phsAB.cVal.mag.f
Line Volts MAIN BUS BAR (L2-L3)	ANALOG	LD0.VMMXU1.PPV.phsBC.cVal.mag.f
Line Volts MAIN BUS BAR (L3-L1)	ANALOG	LD0.VMMXU1.PPV.phsCA.cVal.mag.f

DESCRIPTION	SIGNAL TYPE	TAG SIGNAL
Frequency	ANALOG	LD0.FMMXU1.Hz.mag.f
APPARENT POWER (kVA)	ANALOG	LD0.PEMMXU1.TotVA.mag.f
REAL POWER (kW)	ANALOG	LD0.PEMMXU1.TotW.mag.f
REACTIVE POWER (kVAR)	ANALOG	LD0.PEMMXU1.TotVAr.mag.f
POWER FACTOR	ANALOG	LD0.PEMMXU1.TotPF.mag.f
TRANSFORMER PROTECTION TRIPPED "OIL TEMPERATURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind9.stVal
TRANSFORMER PROTECTION ALARM "OIL TEMPERATURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind8.stVal
TRANSFORMER PROTECTION TRIPPED "OIL PRESSURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind12.stVal
TRANSFORMER PROTECTION ALARM "OIL PRESSURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind11.stVal
TRANSF. PROTECTION TRIPPED "WINDING TEMPERATURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind14.stVal
TRANSF. PROTECTION ALARM "WINDING TEMPERATURE	DIGITAL	LD0.SCBIGGIO1.ST.Ind13.stVal
WATCHDOG PROTECTION RELAY	DIGITAL	LD0.LPHD1.PhyHealth.stVal
V.T. HEALTLY CIRCUIT	DIGITAL	LD0.SCBIGGIO1.ST.Ind2.stVal
INTERTRIP SEND TO L.V. SWITCHBOARD	DIGITAL	LD0.MVGAPC1.ST.SPCSO4.stVal
K86 TRIPPED	DIGITAL	LD0.SBBIGGIO1.ST.Ind7.stVal
C.B. CLOSED AND INSERTED	DIGITAL	LD0.MVGAPC1.ST.SPCSO8.stVal
C.B. OPENED OR ISOLATED	DIGITAL	LD0.MVGAPC2.ST.SPCSO2.stVal
MCB'S CLOSED	DIGITAL	LD0.MVGAPC2.ST.SPCSO3.stVal
C.B. READY (TCS)	DIGITAL	LD0.TCSSCBR1.ST.CircAlm.stVal
C.B. READY TO CLOSE	DIGITAL	LD0.MVGAPC2.ST.SPCSO1.stVal

DESCRIPTION	SIGNAL TYPE	TAG SIGNAL
OPENING COMMAND	DIGITAL	LD0.SPCGAPC1.SPCSO2.stVal
CLOSING COMMAND	DIGITAL	LD0.SPCGAPC1.SPCSO1.stVal
PROTECTION RELAY UNIT 7 HEALTHY	DIGITAL	LD0.SDBIGGIO1.ST.Ind8.stVal

Step	Description	Result	Verified by	Date
161	Confirm correct and positive result of precommissioning Check Sheet for above signals I/O list	Correct and positive results ..... ☐		

5.4.6.7 EMCS MODBUS TCP-IP

The following signals data type represent the thermal temperature of copper BUS BAR and CABLE Unit of the 6.6kV SWBD.

DESCRIPTION	SLAVE ADDRESS	MODBUS REGISTER	UNIT
ELECTROLYSER FEEDER A-20000 "A1"			
Phase L1 - Temperature Detection - cable Compart.	10	40109	ΔT
Phase L2 - Temperature Detection - Câble Compart.	10	40110	ΔT
Phase L3 - Temperature Detection - cable Compart.	10	40111	ΔT
Phase L1 - Temperature Detection - C.B. Compart.	10	40112	ΔT
Phase L2 - Temperature Detection - C.B. Compart.	10	40113	ΔT
Phase L3 - Temperature Detection - C.B. Compart.	10	40114	ΔT

DESCRIPTION	SLAVE ADDRESS	MODBUS REGISTER	UNIT
Phase L1 - Temperature Detection - Main Bus Bar	10	40115	ΔT
Phase L3 - Temperature Detection - Main Bus Bar	10	40116	ΔT

Step	Description	Result	Verified by	Date
162	Confirm correct and positive result of precommissioning Check Sheet for above signals I/O list	Correct and positive results ..... ☐		

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

FROM	TO

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

TAG COLUMN: A4

L1	Arm.	BK	82002-CEM-1-L1 1C X 70 mm²	BK
L2		BK	82002-CEM-1-L2 1C X 70 mm²	BK
L3		BK	82002-CEM-1-L3 1C X 70 mm²	BK

DESCRIPTION: 6.6/0.42 KV, 1.6MVA TRANSFORMER NO MARK UP
TAG NUMBER: TR-200DE1 MARCO MORETTO 7/3/25

Arm. 1U 1V 1W — HV TERMINAL BOX OF TR-200DE1

TAG COLUMN: A7

L1	Arm.	BK	82003-CEM-1-L1 1C X 70 mm²	BK
L2		BK	82003-CEM-1-L2 1C X 70 mm²	BK
L3		BK	82003-CEM-1-L3 1C X 70 mm²	BK

DESCRIPTION: 6.6/0.4 KV, 1.25MVA TRANSFORMER NO MARK UP
TAG NUMBER: TA30 MARCO MORETTO 20/3/25

Arm. 1U 1V 1W — HV TERMINAL BOX OF TA30

TAG COLUMN: A1

L1	Arm.	BK	82004-CEM-1-L1 1C X 150 mm²	BK
L2		BK	82004-CEM-1-L2 1C X 150 mm²	BK
L3		BK	82004-CEM-1-L3 1C X 150 mm²	BK

DESCRIPTION: 6.6/0.4/0.4 KV, 3.15MVA TRANSFORMER MARCO MORETTO
TAG NUMBER: ~~T4~~ TR-01A100 19/3/25

Arm. 1U 1V 1W — HV TERMINAL BOX OF T4

TAG COLUMN: A3

L1	Arm.	BK	82005-CEM-1-L1 1C X 70 mm²	BK
L2		BK	82005-CEM-1-L2 1C X 70 mm²	BK
L3		BK	82005-CEM-1-L3 1C X 70 mm²	BK

DESCRIPTION: 6.6/0.62 KV, 1.25MVA TRANSFORMER NO MARK UP
TAG NUMBER: 18T1 MARCO MORETTO 20/3/25

Arm. 1U 1V 1W — HV TERMINAL BOX OF 18T1

TAG COLUMN: A2

L1	Arm.	BK	82006-CEM-1-L1 1C X 70 mm²	BK
L2		BK	82006-CEM-1-L2 1C X 70 mm²	BK
L3		BK	82006-CEM-1-L3 1C X 70 mm²	BK

DESCRIPTION: 6.6/0.8 KV, 0.5MVA TRANSFORMER NO MARK UP
TAG NUMBER: TR-200ED1 MARCO MORETTO 7/3/25

Arm. 1U 1V 1W — HV TERMINAL BOX OF TR-200ED1

AS COMMISSIONED: MARCO GIBTZ 21/3/25

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

REV.:	DATE:	SIGNATURE:
2_L	13/03/25	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 HV SWITCHGEAR

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 016 | REV. 02

F.to UNI A3: 420mmx297mm

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

"SG-100D1" MV SWBD 6,6kV

INTERCONNECTING

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
26/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	28/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for construction (AFC)
1	23/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/22

Item n°: PF1113279

CROSSWIND

ROSETTI MARINO

TITLE : SG-100D1 – INTERCONNECTING

Cover

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 1

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00022 Rev.03

AS COMMISSIONED NO MARK UP
GIROTTI MATTIA 26/03/2025

INDEX

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8
1	Cover	X	X	X	X					
2	Index	X	X	X	X					
3	Table of reference documents	X	X	X	X					
4	Intercolumn Wiring	X	X	X	X					
5	Intercolumn Wiring	X	X	X	X					
6	Intercolumn Wiring	X	X	X	X					
7	Network architecture IEC 61850	X	X	X	X					
8	Network architecture Modbus TCP/IP	X	X	X	X					

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

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+						
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)	
2	28/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for construction (AFC)	
1	23/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/22

Item n°: PF1113279

TITLE : SG-100D1 – INTERCONNECTING

Index

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 2

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00022 Rev.03

TABLE OF REFERENCES		
Document nr. Client	Document nr. Supplier	Document title
1723002197-EL-DA-00006	231151/SD/6	SG-100D1 GENERAL ARRANGEMENTS
1723002197-EL-DG-00010	231151/SD/10	SG-100D1 ELECTRICAL SINGLE LINE DIAGRAM
1723002197-EL-DG-00015	231151/SD/15	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - INCOMING FEEDER
1723002197-EL-DG-00016	231151/SD/16	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - BUS BAR METERING
1723002197-EL-DG-00017	231151/SD/17	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - BESS FEEDER
1723002197-EL-DG-00018	231151/SD/18	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - ELECTROLYSER FEEDER
1723002197-EL-DG-00019	231151/SD/19	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - FUEL CELL FEEDER
1723002197-EL-DG-00020	231151/SD/20	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - TRANSFORMER FEEDER TR200ED1
1723002197-EL-DG-00021	231151/SD/21	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - TRANSFORMER FEEDER TR200DE1

NOTE: To better understand this document you have to use in conjuction with the documents listed on the table above

AS COMMISSIONED
CIROTTI MATTIA
NO MARK UP
26/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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1	23/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/22
Item n°: PF1113279

TITLE : SG-100D1 - INTERCONNECTING
Table of reference documents

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 3

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00022 Rev.03

	ELECTROLYSER "A1"	SOLAR "A2"	BESS PACKAGE "A3"	TRANSF. 1,6MVA TR-200DE1 "A4"	VT BUS BARS "A5"	INCOMING "A6"	FUEL CELL "A7"
V.aux 110Vdc	1 XC XC-2/A1 — 2 XC	XC-1/A2 RD 1x6 1 XC — 2 XC XC-2/A2	XC-1/A3 1 XC — 2 XC XC-2/A3	XC-1/A4 RD 1x6 1 XC — 2 XC XC-2/A4	XC-1/A5 RD 1x6 1 XC — 2 XC XC-2/A5	XC-1/A6 1 XC — 2 XC XC-2/A6	XC-1/A7 RD 1x6 1 XC — 2 XC
	3 XC XC-4/A1 — 4 XC	XC-3/A2 WH 1x6 3 XC — 4 XC XC-4/A2	XC-3/A3 3 XC — 4 XC XC-4/A3	XC-3/A4 WH 1x6 3 XC — 4 XC XC-4/A4	XC-3/A5 WH 1x6 3 XC — 4 XC XC-4/A5	XC-3/A6 3 XC — 4 XC XC-4/A6	XC-3/A7 WH 1x6 3 XC — 4 XC
V.aux 24Vdc	5 XC XC-6/A1 — 6 XC	XC-5/A2 RD 1x1,5 5 XC — 6 XC XC-6/A2	XC-5/A3 5 XC — 6 XC XC-6/A3	XC-5/A4 RD 1x1,5 5 XC — 6 XC XC-6/A4	XC-5/A5 RD 1x1,5 5 XC — 6 XC XC-6/A5	XC-5/A6 5 XC — 6 XC XC-6/A6	XC-5/A7 RD 1x1,5 5 XC — 6 XC
	7 XC XC-8/A1 — 8 XC	XC-7/A2 WH 1x1,5 7 XC — 8 XC XC-8/A2	XC-7/A3 7 XC — 8 XC XC-8/A3	XC-7/A4 WH 1x1,5 7 XC — 8 XC XC-8/A4	XC-7/A5 WH 1x1,5 7 XC — 8 XC XC-8/A5	XC-7/A6 7 XC — 8 XC XC-8/A6	XC-7/A7 WH 1x1,5 7 XC — 8 XC
V.aux 230Vac	9 XC XC-10/A1 — 10 XC	XC-9/A2 BK 1x6 9 XC — 10 XC XC-10/A2	XC-9/A3 9 XC — 10 XC XC-10/A3	XC-9/A4 BK 1x6 9 XC — 10 XC XC-10/A4	XC-9/A5 BK 1x6 9 XC — 10 XC XC-10/A5	XC-9/A6 9 XC — 10 XC XC-10/A6	XC-9/A7 BK 1x6 9 XC — 10 XC
	11 XC XC-12/A1 — 12 XC	XC-11/A2 BK 1x6 11 XC — 12 XC XC-12/A2	XC-11/A3 11 XC — 12 XC XC-12/A3	XC-11/A4 BK 1x6 11 XC — 12 XC XC-12/A4	XC-11/A5 BK 1x6 11 XC — 12 XC XC-12/A5	XC-11/A6 11 XC — 12 XC XC-12/A6	XC-11/A7 BK 1x6 11 XC — 12 XC
VOLTMETRICAL LINE FROM MAIN BUS BAR 110:1,73Vac	13 XC XC-14/A1 — 14 XC	XC-13/A2 BK 1x1.5 13 XC — 14 XC XC-14/A2	XC-13/A3 13 XC — 14 XC XC-14/A3	XC-13/A4 BK 1x1.5 13 XC — 14 XC XC-14/A4	XC-13/A5 BK 1x1.5 13 XC — 14 XC XC-14/A5	XC-13/A6 13 XC — 14 XC XC-14/A6	XC-13/A7 BK 1x1.5 13 XC — 14 XC
	15 XC XC-16/A1 — 16 XC	XC-15/A2 BK 1x1.5 15 XC — 16 XC XC-16/A2	XC-15/A3 15 XC — 16 XC XC-16/A3	XC-15/A4 BK 1x1.5 15 XC — 16 XC XC-16/A4	XC-15/A5 BK 1x1.5 15 XC — 16 XC XC-16/A5	XC-15/A6 15 XC — 16 XC XC-16/A6	XC-15/A7 BK 1x1.5 15 XC — 16 XC
	17 XC XC-18/A1 — 18 XC	XC-17/A2 BK 1x1.5 17 XC — 18 XC XC-18/A2	XC-17/A3 17 XC — 18 XC XC-18/A3	XC-17/A4 BK 1x1.5 17 XC — 18 XC XC-18/A4	XC-17/A5 BK 1x1.5 17 XC — 18 XC XC-18/A5	XC-17/A6 17 XC — 18 XC XC-18/A6	XC-17/A7 BK 1x1.5 17 XC — 18 XC
	19 XC XC-20/A1 — 20 XC	XC-19/A2 BK 1x1.5 19 XC — 20 XC XC-20/A2	XC-19/A3 19 XC — 20 XC XC-20/A3	XC-19/A4 BK 1x1.5 19 XC — 20 XC XC-20/A4	XC-19/A5 BK 1x1.5 19 XC — 20 XC XC-20/A5	XC-19/A6 19 XC — 20 XC XC-20/A6	XC-19/A7 BK 1x1.5 19 XC — 20 XC
VOLTMETRICAL LINE FROM MAIN BUS BAR 110:3Vac	21 XC XC-22/A1 — 22 XC	XC-21/A2 BK 1x1.5 21 XC — 22 XC XC-22/A2	XC-21/A3 21 XC — 22 XC XC-22/A3	XC-21/A4 BK 1x1.5 21 XC — 22 XC XC-22/A4	XC-21/A5 BK 1x1.5 21 XC — 22 XC XC-22/A5	XC-21/A6 21 XC — 22 XC XC-22/A6	XC-21/A7 BK 1x1.5 21 XC — 22 XC
	23 XC XC-24/A1 — 24 XC	XC-23/A2 BK 1x1.5 23 XC — 24 XC XC-24/A2	XC-23/A3 23 XC — 24 XC XC-24/A3	XC-23/A4 BK 1x1.5 23 XC — 24 XC XC-24/A4	XC-23/A5 BK 1x1.5 23 XC — 24 XC XC-24/A5	XC-23/A6 23 XC — 24 XC XC-24/A6	XC-23/A7 BK 1x1.5 23 XC — 24 XC
EARTH.SWITCH OPEN (VT BUS BARS UNIT)	25 XC XC-25/A1 — BK 1x1.5 — XC-27/A5 BK 1x1.5 27 XC						
	26 XC XC-26/A1 — BK 1x1.5 — XC-28/A5 BK 1x1.5 28 XC						
		25 XC XC-25/A2 — BK 1x1.5 — XC-29/A5 BK 1x1.5 29 XC					
		26 XC XC-26/A2 — BK 1x1.5 — XC-30/A5 BK 1x1.5 30 XC					
			25 XC XC-25/A3 — BK 1x1.5 — XC-31/A5 BK 1x1.5 31 XC				
			26 XC XC-26/A3 — BK 1x1.5 — XC-32/A5 BK 1x1.5 32 XC				

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
26/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	28/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for construction (AFC)
1	23/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/22

Item n°: PF1113279

CROSSWIND

ROSETTI MARINO

TITLE : SG-100D1 – INTERCONNECTING

Intercolumn Wiring

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 4

REV. 03

File Name : 1723002197-EL-DG-00022 Rev.03

F.to UNI A3: 420mmx297mm

1	2	3	4	5	6	7	8	9	10
	ELECTROLYSER "A1"	SOLAR "A2"	BESS PACKAGE "A3"		TRANSF. 1,6MVA TR-200DE1 "A4"	VT BUS BARS "A5"	INCOMING "A6"	FUEL CELL "A7"	

A

B

C

D

E

EARTH.SWITCH OPEN (FROM VT BUS BARS UNIT)

ENABLING COMMAND EARTHING SWITCH VT BUS BARS UNIT

SIGNALS FROM VT BUS BARS UNIT TO CELL PAKAGE UNIT

25 XC — XC-25/A4 — XC-33/A5 BK 1x1.5 — 33 XC

26 XC — XC-26/A4 — XC-34/A5 BK 1x1.5 — 34 XC

35 XC — XC-35/A5 BK 1x1.5 — XC-25/A6 — 25 XC

36 XC — XC-36/A5 BK 1x1.5 — XC-26/A6 — 26 XC

37 XC — XC-37/A5 BK 1x1.5 — XC-25/A7 — 25 XC

38 XC — XC-38/A5 BK 1x1.5 — XC-26/A7 — 26 XC

28 XC — XC-28/A1 — XC-27/A2 BK 1x1.5 — 27 XC

28 XC — XC-28/A2 — XC-27/A3 BK 1x1.5 — 27 XC

28 XC — XC-28/A3 — XC-27/A4 BK 1x1.5 — 27 XC

28 XC — XC-28/A4 — XC-25/A5 BK 1x1.5 — 25 XC

26 XC — XC-26/A5 — XC-27/A6 BK 1x1.5 — 27 XC

28 XC — XC-28/A6 — XC-27/A7 BK 1x1.5 — 27 XC

27 XC — XC-27/A1 BK 1x1.5 — XC-28/A7 BK 1x1.5 — 28 XC

45 XC — XC-45/A5 BK 1x1.5 — XC-29/A7 — 29 XC

46 XC — XC-46/A5 BK 1x1.5 — XC-30/A7 — 30 XC

49 XC — XC-49/A5 BK 1x1.5 — XC-31/A7 — 31 XC

50 XC — XC-50/A5 BK 1x1.5 — XC-32/A7 — 32 XC

41 XC — XC-41/A5 BK 1x1.5 — XC-33/A7 — 33 XC

42 XC — XC-42/A5 BK 1x1.5 — XC-34/A7 — 34 XC

43 XC — XC-43/A5 BK 1x1.5 — XC-35/A7 — 35 XC

44 XC — XC-44/A5 BK 1x1.5 — XC-36/A7 — 36 XC

47 XC — XC-47/A5 BK 1x1.5 — XC-37/A7 — 37 XC

48 XC — XC-48/A5 BK 1x1.5 — XC-38/A7 — 38 XC

39 XC — XC-39/A5 BK 1x1.5 — XC-39/A7 — 39 XC

40 XC — XC-40/A5 BK 1x1.5 — XC-40/A7 — 40 XC

51 XC — XC-51/A5 BK 1x1.5 — XC-41/A7 — 41 XC

52 XC — XC-52/A5 BK 1x1.5 — XC-42/A7 — 42 XC

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
26/03/2025

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+							
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)		
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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/22

Item n°: PF1113279

TITLE : SG-100D1 – INTERCONNECTING

Intercolumn Wiring

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 5

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00022 Rev.03

1	2	3	4	5	6	7	8	9	10

	ELECTROLYSER "A1"	SOLAR "A2"	BESS PACKAGE "A3"	TRANSF. 1,6MVA TR-200DE1 "A4"	VT BUS BARS "A5"	INCOMING "A6"	FUEL CELL "A7"
A	29 XC-29/A1 XC BK 1x1.5						XC-47/A7 BK 1x1.5 47 XC
	30 XC-30/A1 XC BK 1x1.5						XC-48/A7 BK 1x1.5 48 XC
	31 XC-31/A1 XC BK 1x1.5	XC-29/A2 29 XC					
	32 XC-32/A1 XC BK 1x1.5	XC-30/A2 30 XC					
B	PROTECTION RELAY HEALTHY	31 XC-31/A2 XC BK 1x1.5	XC-29/A3 29 XC				
		32 XC-32/A2 XC BK 1x1.5	XC-30/A3 30 XC				
			31 XC-31/A3 XC BK 1x1.5	XC-29/A4 29 XC			
			32 XC-32/A3 XC BK 1x1.5	XC-30/A4 30 XC			
			37 XC-37/A3 XC BK 1x1.5	XC-31/A4 31 XC			
			38 XC-38/A3 XC BK 1x1.5	XC-32/A4 32 XC			
C						31 XC-31/A6 XC BK 1x1.5	XC-45/A7 45 XC
						32 XC-32/A6 XC BK 1x1.5	XC-46/A7 46 XC
	230Vac AUXILIARY SUPPLY HEALTHY	33 XC-33/A1 XC BK 1x1.5	XC-33/A2 BK 1x1.5 34 XC	34 XC-34/A2 XC BK 1x1.5	XC-34/A3 34 XC	33 XC-33/A3 XC BK 1x1.5	XC-33/A4 33 XC
		34 XC-34/A1 XC BK 1x1.5				34 XC-34/A4 XC BK 1x1.5	XC-54/A5 54 XC
						53 XC-53/A5 XC BK 1x1.5	XC-33/A6 33 XC
						34 XC-34/A6 XC BK 1x1.5	XC-43/A7 43 XC
							XC-44/A7 44 XC
D	OPENING COMMAND FROM INCOMING	35 XC-35/A1 XC BK 1x1.5				XC-35/A6 35 XC	
		36 XC-36/A1 XC BK 1x1.5				XC-36/A6 36 XC	

AS COMMISSIONED
GIROTTI MATTIA
NO MARK UP
26/03/2025

=							
+							
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)		
2	28/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for construction (AFC)		
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/22

Item n°: PF1113279

TITLE : SG-100D1 – INTERCONNECTING

Intercolumn Wiring

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

SCALE : NTS

A3

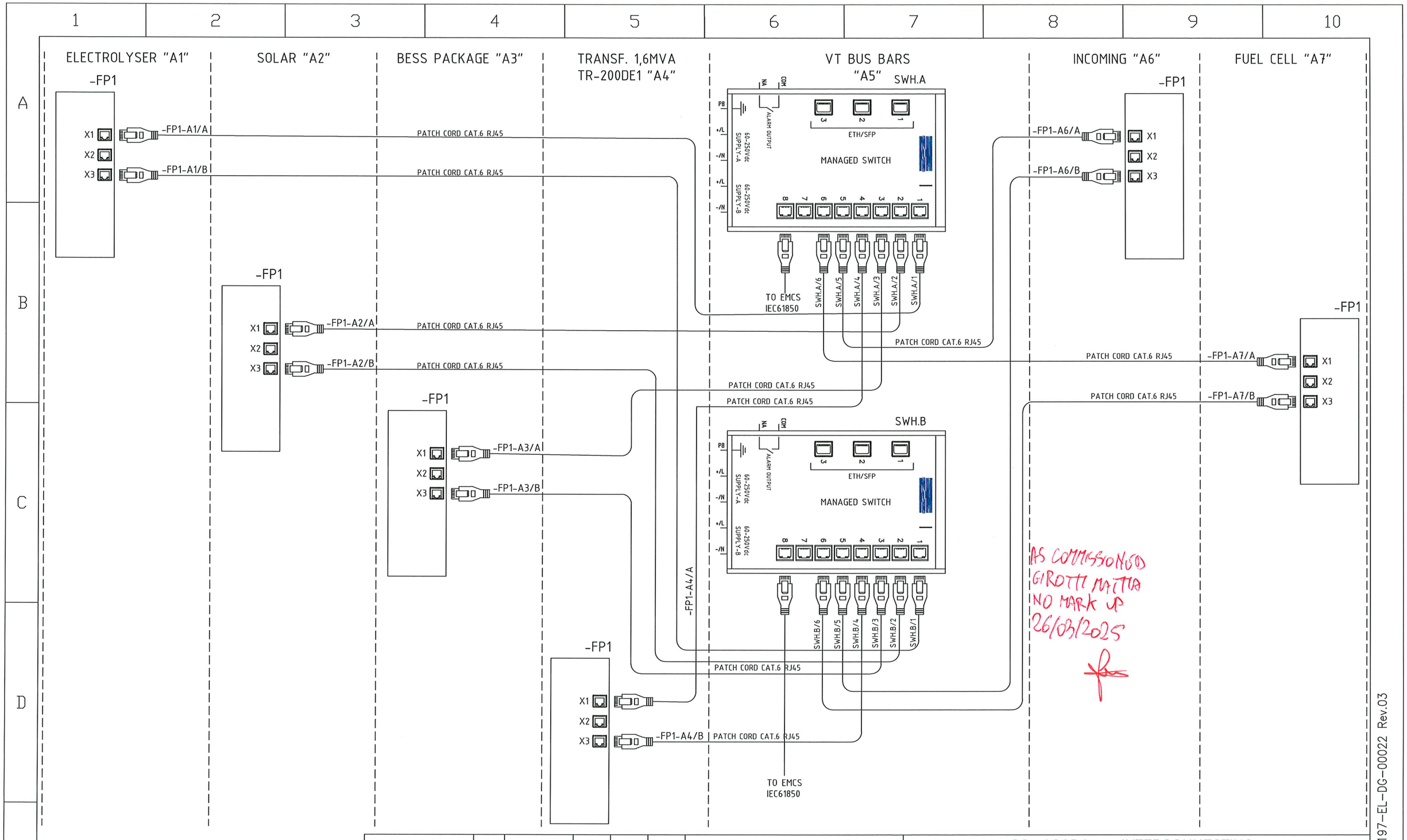
DRAWING NO. 1723002197-EL-DG-00022

SHEET 6

REV. 03

File Name : 1723002197-EL-DG-00022 Rev.03

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	28/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for construction (AFC)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/22

Item n°: PF1113279

TITLE : SG-100D1 - INTERCONNECTING

Network architecture IEC 61850

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 7

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00022 Rev.03

ELECTROLYSER "A1"

SOLAR "A2"

BESS PACKAGE "A3"

TRANSF. 1,6MVA
TR-200DE1 "A4"

VT BUS BARS
"A5"

INCOMING "A6"

FUEL CELL "A7"

-TR1

CARD 11

X0

X1

-TR1-A1/2

PATCH CORD CAT.6 RJ45

-TR1

CARD 12

X0

X1

-TR1-A2/1

-TR1-A2/2

PATCH CORD CAT.6 RJ45

-TR1

CARD 13

X0

X1

-TR1-A3/1

-TR1-A3/2

PATCH CORD CAT.6 RJ45

-TR1

CARD 14

X0

X1

-TR1-A4/1

-TR1-A4/2

PATCH CORD CAT.6 RJ45

DP1

ALARM RELAY MODULE XL
ARM XL

+V

-0V

PB

COM

Y2

Y3

Y4

Y5

MODBUS RS485

MODBUS TCP/IP

-DP1-A5/DB9

RJ45 TO DB9 ARM-XL COMM. CABLE

SW1

ABB
SWICON

PD1

PDCOM

-ETH-SW

-PD1-A5

PATCH CORD CAT.6 RJ45

SWH.C

HIRSCHMANN

ETHERNET SWITCH

ETH/SFP

SPW

to EMCS

MODBUS TCP/IP

-ETH-TR1

-ETH-SW

230VAC
SUPPLY

PATCH CORD CAT.6 RJ45

-TR1

CARD 10

X0

X1

-TR1-A5/1

-TR1-A5/2

-TR1-A6/1

-TR1-A6/2

-TR1

CARD 15

X0

X1

-TR1-A7/1

-TR1-A7/2

PATCH CORD CAT.6 RJ45

-TR1

CARD 16

X0

X1

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GIROTTI MATTIA
NO MARK UP
26/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/22

Item n°: PF1113279

TITLE : SG-100D1 - INTERCONNECTING

Network architecture Modbus TCP/IP

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00022

SHEET 8

REV. 03

File Name : 1723002197-EL-DG-00022 Rev.03

F.to UNI A3: 420mmx297mm

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

NOT APPLICABLE

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

RLMU LIST

REV. 03A: Sheets 22, 23
REV. 03B: Sheets 22, 23, 25

"SG-100D1" HV SWBD 6,6kV (UNIT A1)

FUNCTIONAL DIAGRAM

ELECTROLYSER FEEDER A-20000

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

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IMESA ELECTRICAL ENGINEERING

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+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Cover

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

SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	1723002197-EL-DG-00018	1	03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

INDEX

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8
1	Cover	X	X	X	X					
2	Sheets Index	X	X	X	X					
3	Legend	X	X	X	X					
4	Door Layout	X	X	X	X					
5	Protection Display REX640	X	X	X	X					
6	Selector Switch Diagram	X	X	X	X					
7	Power Diagram	X	X	X	X					
8	Power Diagram	X	X	X	X					
9	Power Diagram	X	X	X	X					
10	Power Diagram	X	X	X	X					
11	110Vdc / 24Vdc Distribution Voltage	X	X	X	X					
12	Composition Relay REX640	X	X	X	X					
13	230Vac Distribution Voltage	X	X	X	X					
14	110V Protection/Measure Distribution Voltage	X	X	X	X					
15	110V Protection/Measure Distribution Voltage	X	X	X	X					
16	"REX640"' Protection Wiring	X	X	X	X					
17	"REX640"' Protection Wiring	X	X	X	X					
18	"REX640"' Protection Wiring	X	X	X	X					
19	Extherm Device	X	X	X	X					
20	Command Circuit	X	X	X	X					
21	Command Circuit	X	X	X	X					
22	Command Circuit	X	X	X	X					
23	Command Circuit	X	X	X	X					
24	"REX640" Protection Wiring - Digital Input	X	X	X	X					
25	"REX640" Protection Wiring - Digital Input	X	X	X	X					
26	"REX640" Protection Wiring - Digital Input	X	X	X	X					

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8
27	Availables Signals	X	X	X	X					
28	Terminal strips	X	X	X	X					
29	Terminal strips	X	X	X	X					
30	Terminal strips	X	X	X	X					
31	Terminal strips	X	X	X	X					
32	Bill of Materials	X	X	X	X					
33	Bill of Materials	X	X	X	X					
34	Bill of Materials	X	X	X	X					

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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IMESA ELECTRICAL ENGINEERING

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DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Sheets Index

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 2 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

ACRONIMUS LEGEND

ITEM	DESCRIPTION
BB	ARC SENSOR PROTECTION ON MAIN BUS BARS
BGE	EARTHING SWITCH
C1	VOLTAGE PRESENCE
CB	ARC SENSOR PROTECTION ON C.B. / CONTACTOR COMPARTMENT
CC	ARC SENSOR PROTECTION ON CABLE COMPARTMENT
DCO	DOUBLE COMMAND OPERATED CONTACTOR
DI3	UNDERVOLTAGE CONTACTOR
DP1	ALARM RELAY MODULE TEMPERATURE
E1	INTERNAL LIGHT
E8	RESISTOR FERRO-RESONANCE
EH1	INTERNAL SPACE HEATER
Fn	MV FUSE
FP1	PROTECTION RELAY
GS1	DC/DC CONVERTER
HGR	THERMOSTAT
Kn	AUXILIARY RELAY
K1	MV CONTACTOR
K86	BLOCK RELAY
KT1	DE-ENERGIZATION TIMER
LS	MICRO SWITCH ON AUXILIARY DOOR
MAS	MOTOR SPRING CHARGER
MBC	CLOSING COIL
MBO1	OPENING COIL
MBU	UNDERVOLTAGE
ODn	VOLTAGE DISCHARGER
PU1	MEASURING VOLTAGE INSTRUMENT

ITEM	DESCRIPTION
PTT	V.T. TRUCK
QM	MV CIRCUIT-BREAKER
QDn	M.C.B. CIRCUITS PROTECTION
QVn	M.C.B FOR V.T. PROTECTION
RLE1	COIL FOR CONSET CLOSING CIRCUIT-BREAKER
RLE2	COIL FOR UNLOCKING RACK-IN/OUT OPERATION
RLE3	COIL FOR UNLOCKING OPERATION EARTHING
RLE4	COIL FOR UNLOCKING ENCLOSURE DOOR OPERATION
SU1	VOLTAGE SELECTOR
SWH...	ETHERNET SWITCH
TI-Ln	CURRENT TRANSFORMER
TO	OMOPOLAR RING CURRENT TRANSFORMER
TR1	TEMPERATURE CONTROL DEVICE

FUNCTIONAL OF THE PROTECTION RELAY OUTPUT CONTACTS:

SLOT "G":
RF = WATCHDOG RELAY
S01 = EARTHING SWITCH UNLOCKING
S02 = C.B. or CONTACTOR READY TO CLOSE
SS01 = BREAKER FAILURE
POSP1 = CLOSING COMMAND
S03 = C.B. or CONTACTOR TRUCK UNLOCKED
PODP1 = OPENING COMMAND
SLOT "B"
S01 = TRIP PROTECTION TO LOCKOUT RELAY
S02 = EARTHING SWITCH CLOSED
S03 = AVAILABLE OUTPUT (ON TERMINAL STRIP)
S04 = RESET LOKOUT RELAY
SLOT "D":
SP01 = TRIP ARC DETECTOR ON OPENING COMMAND
SP03 = TRIP ARC DETECTOR ON LOCKOUT RELAY

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
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IMESA ELECTRICAL ENGINEERING

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DWG n° : 231151/SD/18
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
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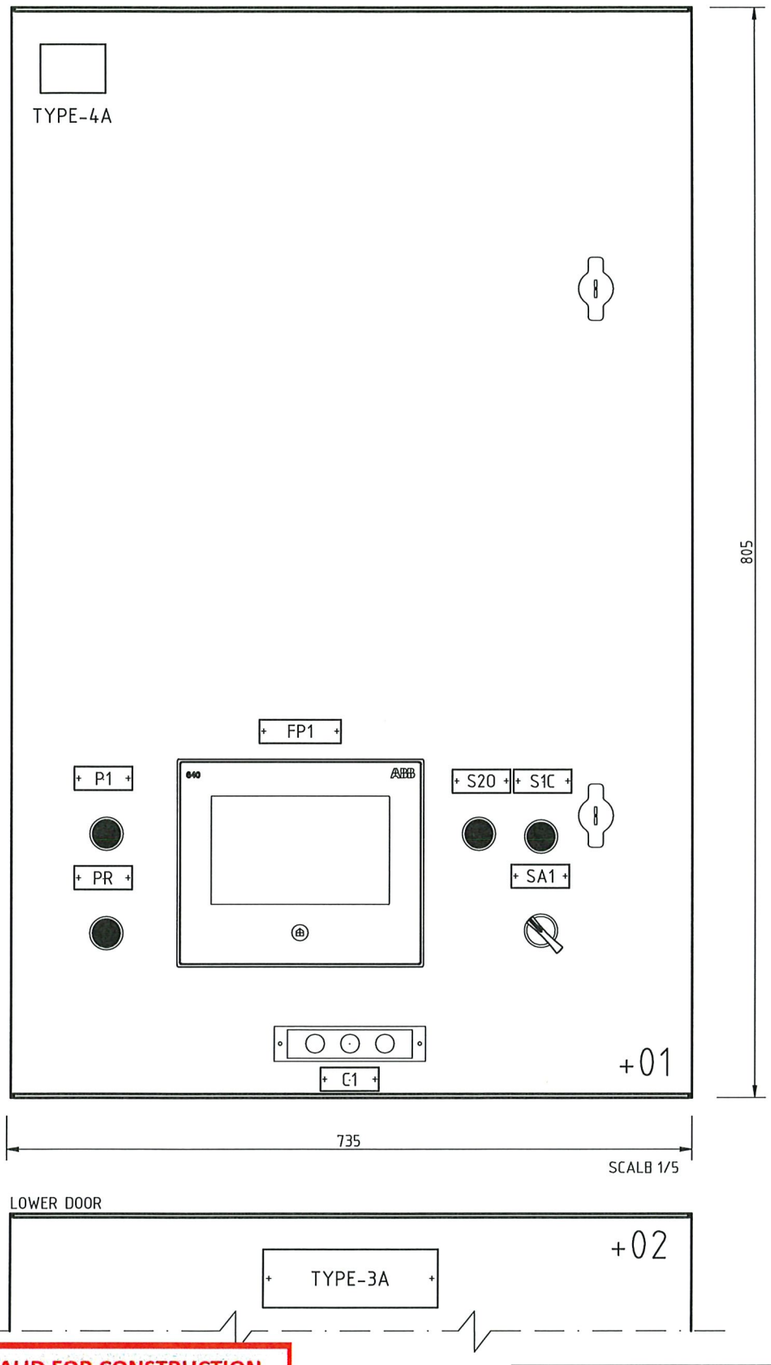
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 3 | REV. 03

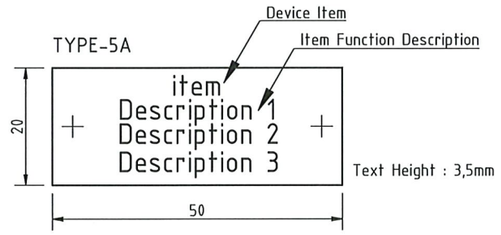
F.to UNI A3: 420mmx297mm

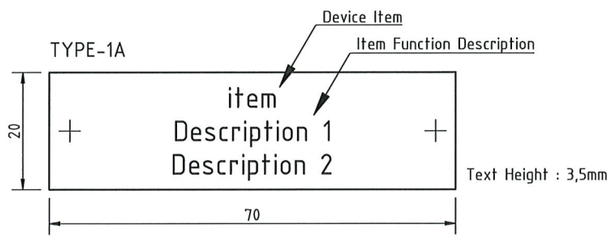
File Name : 1723002197-EL-DG-00018 Rev.03

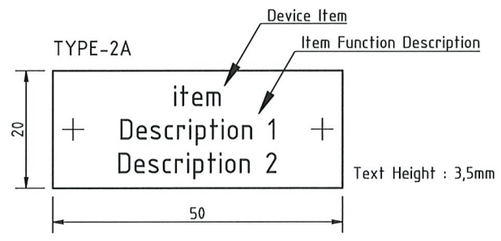
DOOR LAY-OUT

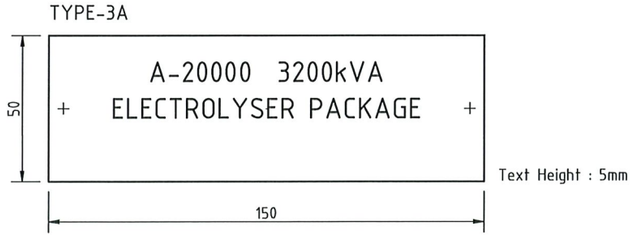


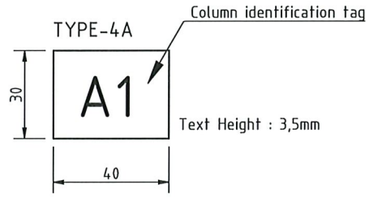
DEVICES name plate					
ITEM	COMPONENT	DESCRIPTION 1	DESCRIPTION 2	DESCRIPTION 3	NOTE
FP1	PROTECTION RELAY	PROTECTION RELAY			TYPE-1A
S2.O	PUSH BUTTON	OPEN	COMMAND	C.B.	TYPE-5A
S1.C	PUSH BUTTON	CLOSE	COMMAND	C.B.	TYPE-5A
SA1	SELECTOR SWITCH	LOCAL / REMOTE			TYPE-2A
PR	LIGHT PUSH BUTTON	RESET	LOCK-OUT	TRIP LOCK-OUT	TYPE-5A
C1	PILOT LIGHT	VOLTAGE	PRESENCE		TYPE-2A
P1	PUSH BUTTON	TRUCK-DOOR	ENABLING	ENABLING	TYPE-5A











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VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

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IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Door Layout

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

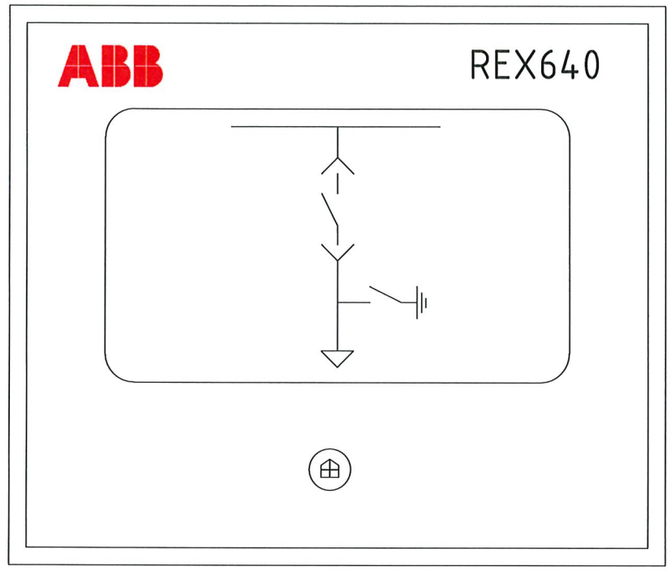
SHEET 4

REV. 03

File Name : 1723002197-EL-DG-00018 Rev.03

F.to UNI A3: 420mmx297mm

PROTECTION DISPLAY



LHMI - TOUCH DISPLAY

- COMMANDS "CLOSE C.B." AND "OPEN C.B." NOT ENABLED
- PUSH BUTTON "REMOTE / LOCAL" NOT ENABLED

LEDs PAGE 1				
Item	NAME PLATE	COLOUR		Note
		ALARM	OK	
LED-1	27-1/27-2/59-1/59-2 - VOLTAGE PROTECTION	RED	-	ALARM = OVER/UNDER VOLTAGE PROTECTION
LED-2	CONTACTOR READY (TCS)	-	GREEN	OK = TCS OK (CONTACTOR READY)
LED-3	SYNCHRO CHECK		GREEN	OK = SYNCHRONISM
LED-4	CONTACTOR READY TO CLOSE	-	GREEN	OK = CONTACTOR READY TO CLOSE
LED-5	50-1/51-1/67-1/67-2 - TRIPPED	RED	-	ALARM = OVERCURRENT PROTECTION TRIPPED
LED-6	51N/59N-1/59N-2 - TRIPPED	RED	-	ALARM = EARTH PROTECTION TRIPPED
LED-7	EARTHING SWITCH UNLOCKED	-	GREEN	OK = EARTHING SWITCH UNLOCKED
LED-8	RACK-IN/OUT ENABLED	-	GREEN	OK = CONTACTOR TRUCK UNLOCKED
LED-9	ARC PROTECTION TRIPPED	RED	-	ALARM = TRIP ARC PROTECTION
LED-10	GOOSE ALARM	RED	-	ALARM = GOOSE FAULT
LED-11	EMERGENCY OPENING BY SIS (ESD)	RED	-	ALARM = ESD TRIPPED

LEDs PAGE 2				
Item	NAME PLATE	COLOUR		Note
		ALARM	OK	
LED-12	SPACE HEATER "ON"	RED		ALARM = SPACE HEATER "ON"
LED-13	TRANSF. PROTECTIONS	RED		ALARM = PROTECTIONS TRIP
LED-14				
LED-15	TRIP FROM L.V.	RED		ALARM = L.V. TRIP
LED-16				
LED-17				
LED-18				
LED-19				
LED-20				
LED-21				
LED-22				

VALID FOR CONSTRUCTION
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123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Protection Display REX640

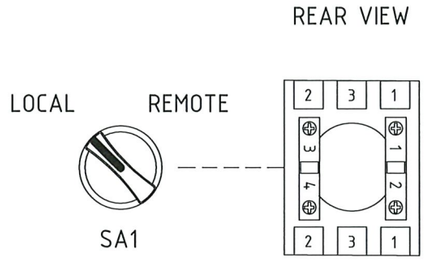
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A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 5 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

SELECTORS SWITCH DIAGRAM



NOTES

THE DIAGRAM INDICATES THE FOLLOWING CONDITIONS:
-INSERTED CIRCUIT BREAKER IN OPEN POSITION
-DE-ENERGIZED CIRCUITS
-DSCHARGED CLOSING SPRINGS
-EARTHING SWITCH OPEN

THE AUXILIARY CIRCUITS WILL HAVE THE FOLLOWING CHARACTERISTICS:
-110+ / 24+ 1,5mmq RED TYPE CABLE SH-W
-110- / 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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=							
+A1							
DWG n° : 231151/SD/18	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)	
Item n° : PF1113279	2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)	
	1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
	0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
	REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Selector Switch Diagram

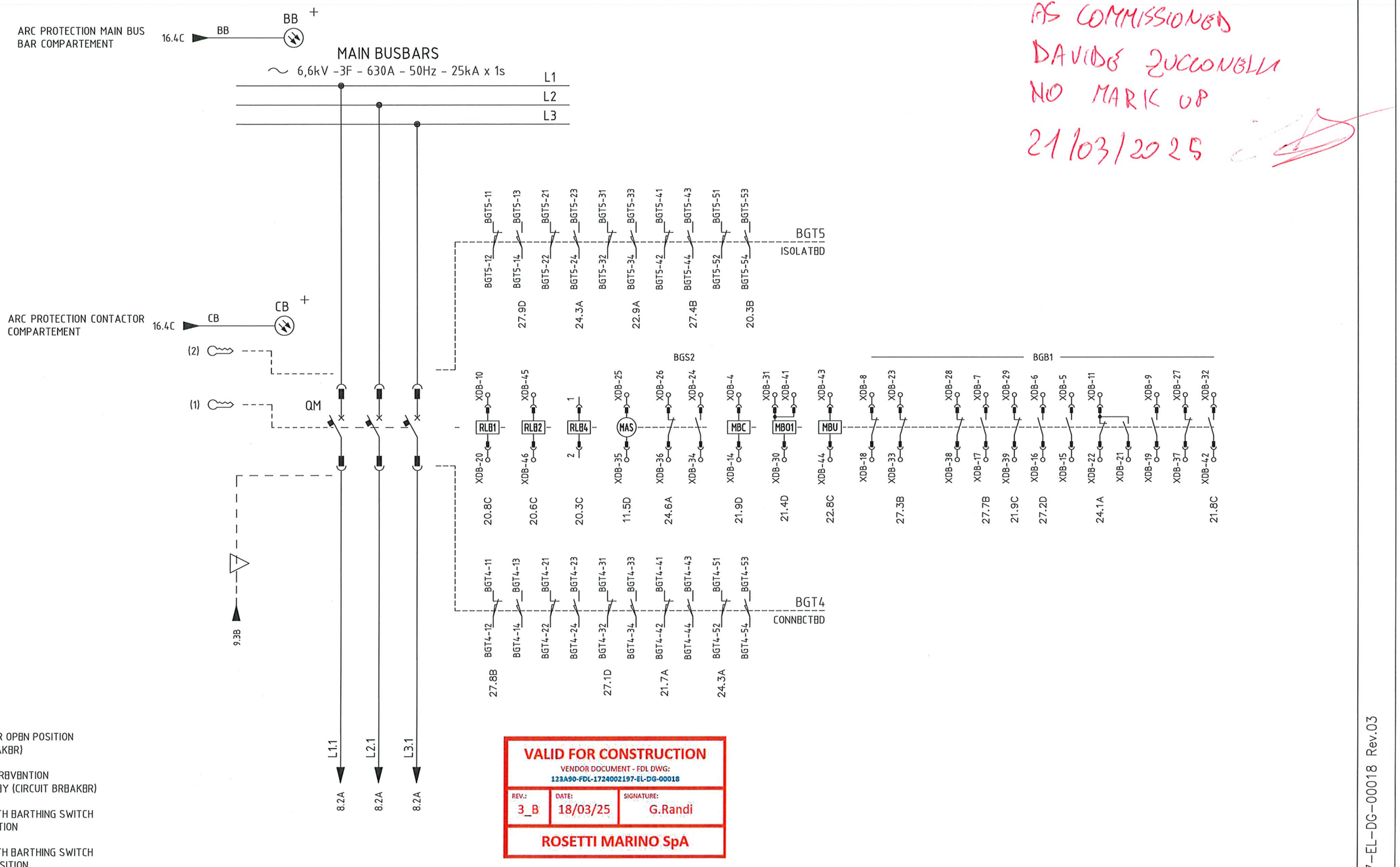
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 6 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

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



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

(2) RACKING IN PREVENTION LOCK WITH KEY (CIRCUIT BREAKER)

(3) FREE KEY WITH EARTHING SWITCH IN OPEN POSITION

(4) FREE KEY WITH EARTHING SWITCH IN CLOSED POSITION

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

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+A1
DWG n°: 231151/SD/18
Item n°: PF1113279
EH-QMG-x

CROSSWIND
IMESA ELECTRICAL ENGINEERING
ROSETTI MARINO

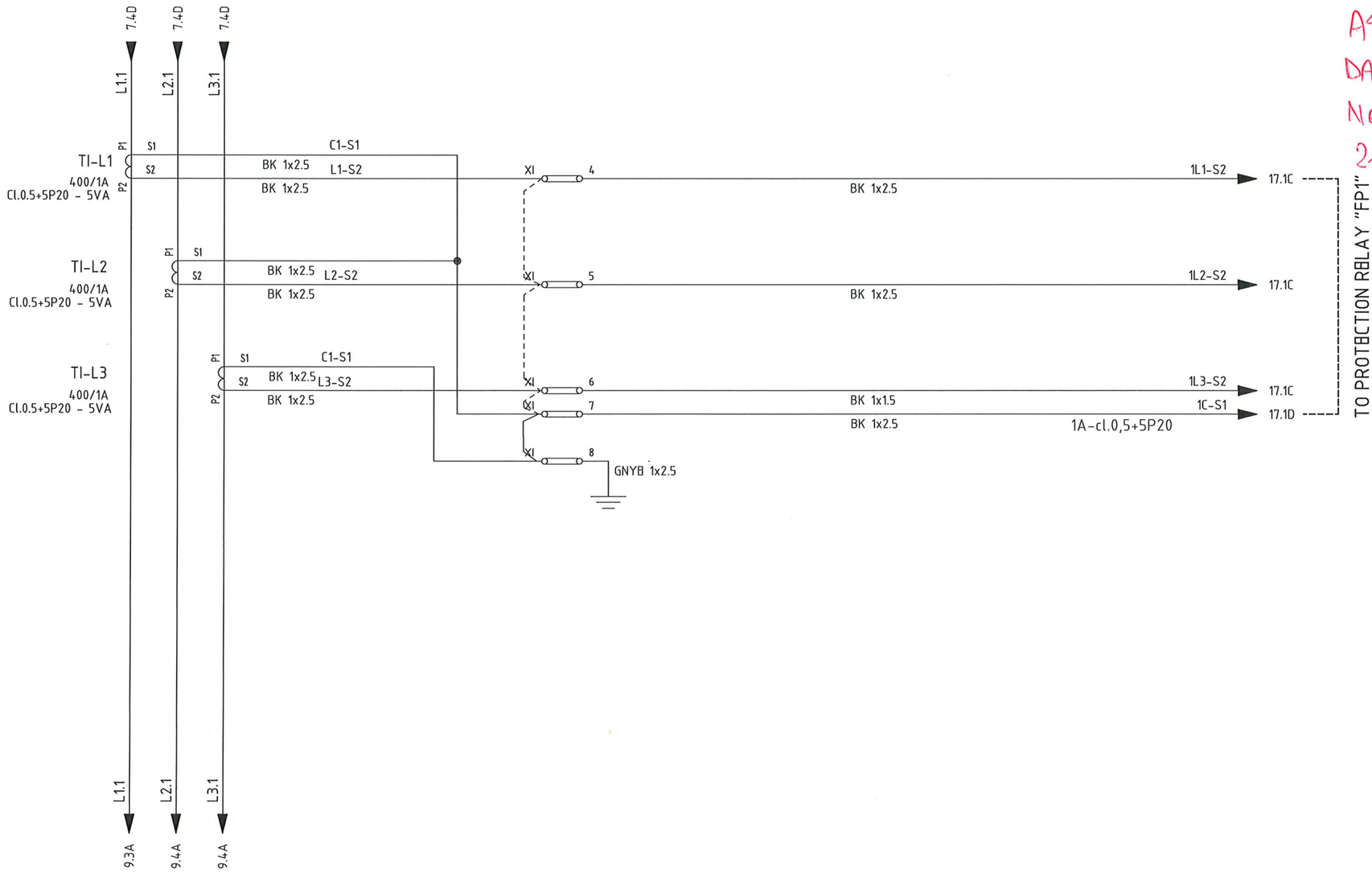
TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Power Diagram

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 7 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03



AS COMMISSIONED
DAVIDE ZUCCOMOLLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Power Diagram

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

SCALE : NTS

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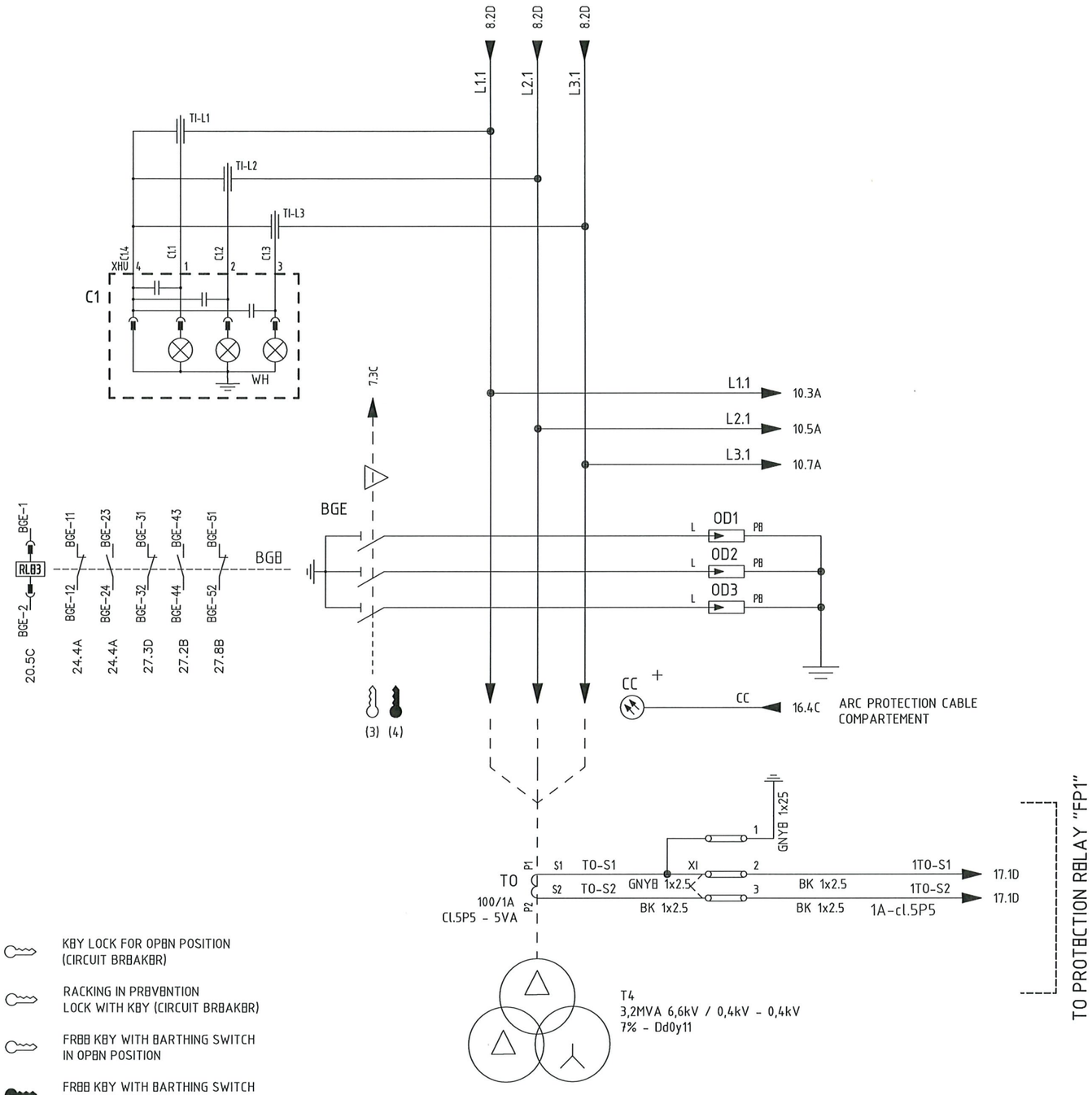
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SHEET 8

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03



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

(2) RACKING IN PREVENTION LOCK WITH KEY (CIRCUIT BREAKER)

(3) FREE KEY WITH EARTHING SWITCH IN OPEN POSITION

(4) FREE KEY WITH EARTHING SWITCH IN CLOSED POSITION

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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

CROSSWIND
IMESA ELECTRICAL ENGINEERING
ROSETTI MARINO

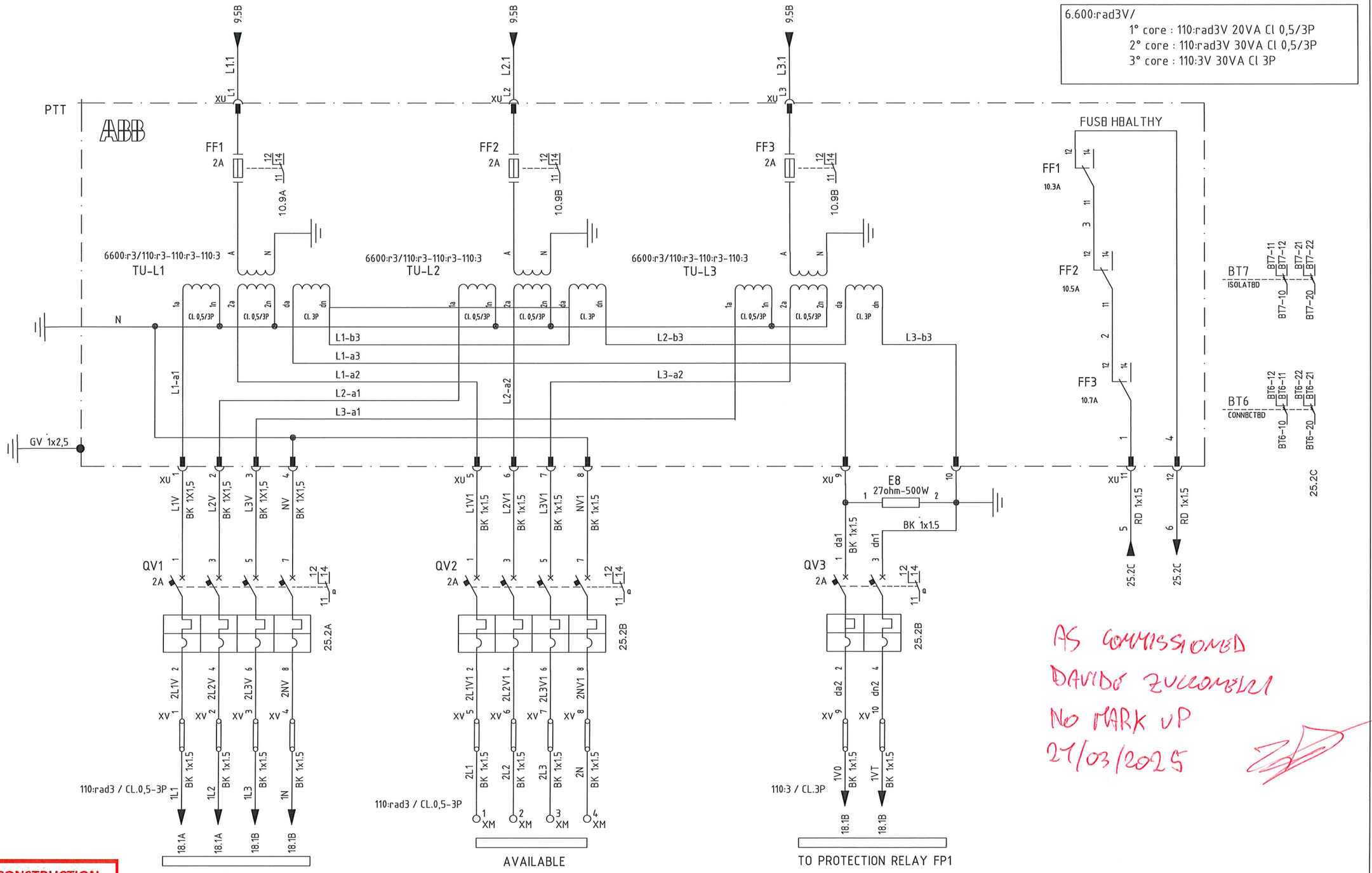
TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Power Diagram

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 9 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03



TO PROTECTION RELAY "FP1"

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

= +A1

DWG n°: 231151/SD/18
Item n°: PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Power Diagram

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

SHEET 1.0

REV. 03

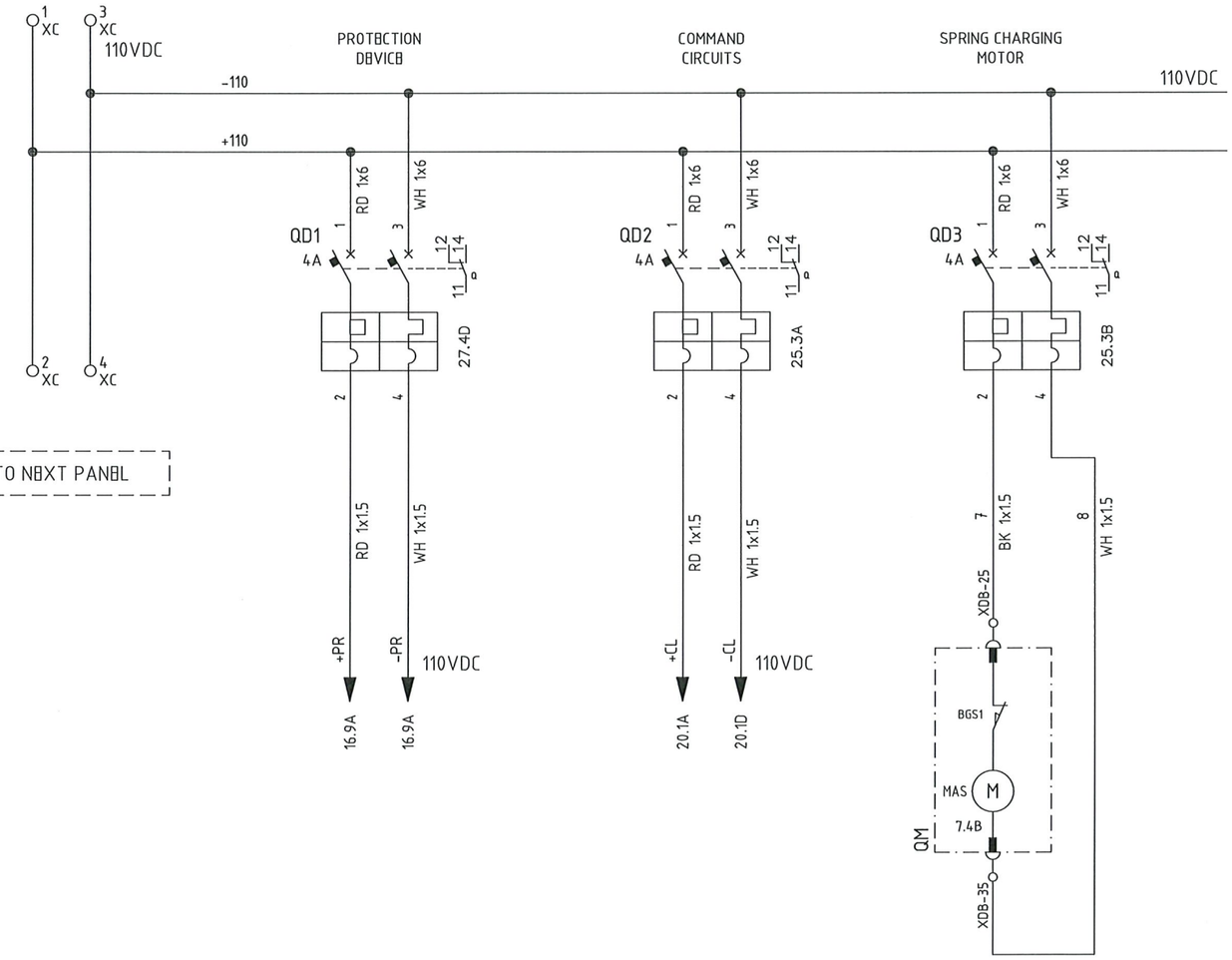
File Name : 1723002197-EL-DG-00018 Rev.03

F.to UNI A3: 420mmx297mm

110VDC DISTRIBUTION VOLTAGE

110Vdc Auxiliary Voltage
from Measuring Bus Bar Unit

FROM PREVIOUS PANEL

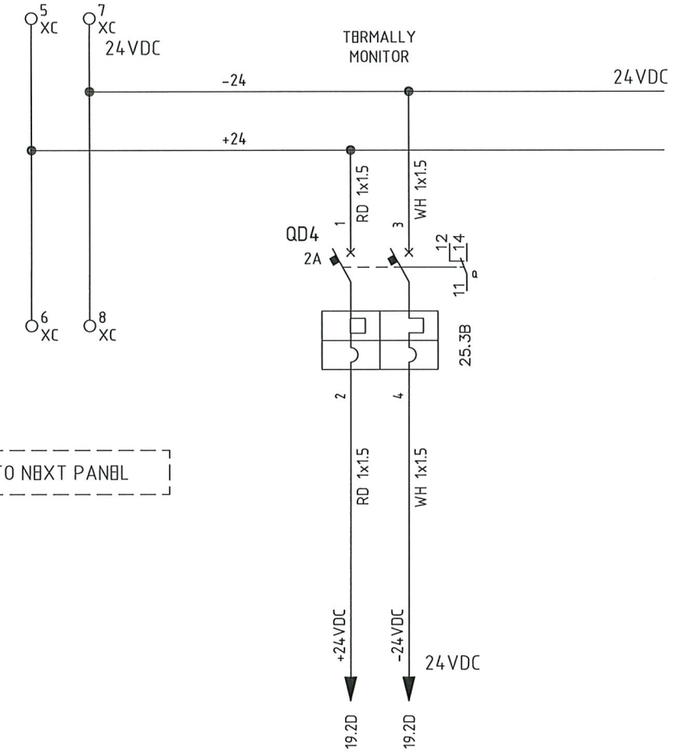


TO NEXT PANEL

24VDC DISTRIBUTION VOLTAGE

24Vdc Auxiliary Voltage
from Measuring Bus Bar Unit

FROM PREVIOUS PANEL



TO NEXT PANEL

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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :

SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
110Vdc / 24Vdc Distribution Voltage

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

SCALE : NTS

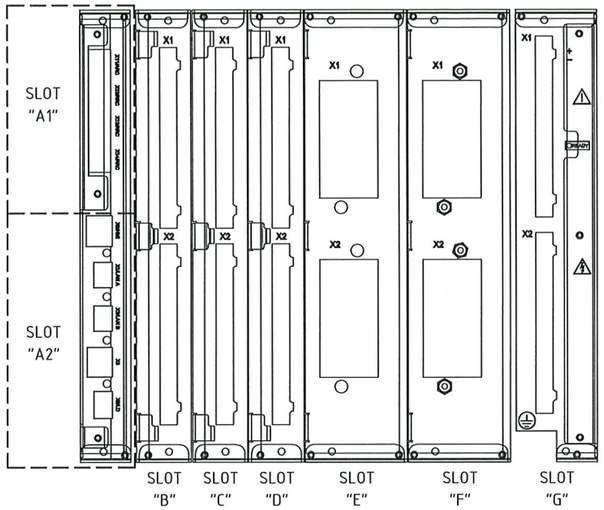
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	1723002197-EL-DG-00018	1.1	03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

COMPOSITION RELAY REX640

RACK VIEW



AS COMMISSIONED
DAVIDE GUGLIELLI
NO MARK UP
21/03/2025

REX640B10NN+COM1+ARC1+BIO1+BIO1+BIO2+AIM1+AIM1+PSM3+MCT1+SCT1+CMP2+LNG1+PCL4

LEGEND

SLOT	Module Type	Description Module
A1	ARC1001	n° 4 x ARC sensor inputs
A2	COM1001	n° 1 x RJ-45 (LHMI port) + n° 3 x RJ-45 + n° 1 x SFP100M LC
B	BIO1001	n° 14 Binary Input + n° 8 x SO
C	BIO1001	n° 14 Binary Input + n° 8 x SO
D	BIO1002	n° 9 Binary Input + n° 6 x SPO + n° 2 x SPO(TCS)
E	AIM1001	n° 4 x CT + n° 1 x CT (sensitive, for residual current only) + n° 5 x VT
F	AIM1001	n° 4 x CT + n° 1 x CT (sensitive, for residual current only) + n° 5 x VT
G	PSM1003	77...150 VDC, n° 3 x PO (TCS) + n° 2 x PO + n° 3 x SO + n° 2 x SSO
	PO = Power Output SO = Signal Output SPO = Static Power Output SSO = Static Signal Output	

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Composition Relay REX640

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

SHEET 12

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

230VAC DISTRIBUTION VOLTAGE

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

230Vac Auxiliary Voltage from Measuring Bus Bar

FROM PREVIOUS PANEL

9 XC
11 XC
230V-60Hz

MCB INTERNAL LIGHTING HEATERS AND SOCKET

INTERNAL SPACE HEATER

230VAC SOCKET (AUXILIARY COMPARTMENT)

230/1
230/2
230V-60Hz

BK 1x6
BK 1x6

QA2
10A
1
3
12
14
11

27.5D

300mA
Id
Id

2
4
10
11

BK 1x2.5
BK 1x2.5

LS
NC
NA
COM
12
BK 1x1.5

BK 1x1.5
BK 1x1.5

HGR
RANGE -10-80°C
1
2
13
BK 1x1.5

XS1
230V+PE 10/16A

E1
L
N
4W

EH1
L
N
150W

KGR
A1
A2

26.4B
11
12
14
21
22
24

TO NEXT PANEL

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
230Vac Distribution Voltage

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

SHEET 1,3

REV. 03

F.to UNI A3: 420mmx297mm

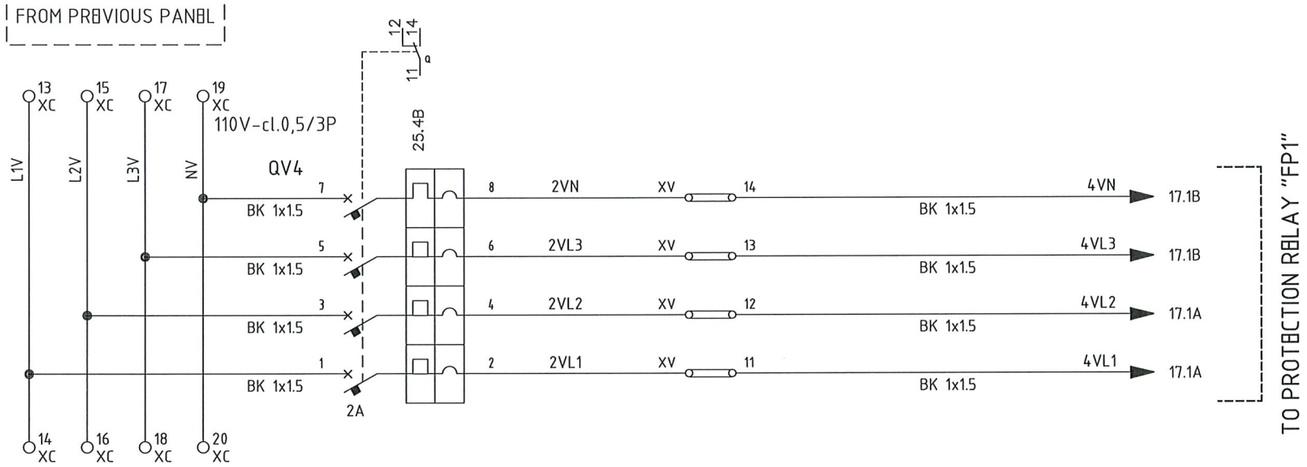
File Name : 1723002197-EL-DG-00018 Rev.03

110V: 1,73 DISTRIBUTION VOLTAGE VT'S FROM MAIN BUS BAR

AS COMMISSIONED
DAVIDE ZUCCOMELLI
NO MARK UP
21/03/2025

MAIN BUS BAR
110:√3V VOLTMETRIC LINE - STAR
(FOR PROTECTION/MEASURE)

FROM PREVIOUS PANEL



TO NEXT PANEL

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
110V Protection/Measure Distribution Voltage

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 1.4 | REV. 03

F.to UNI A3: 420mmx297mm

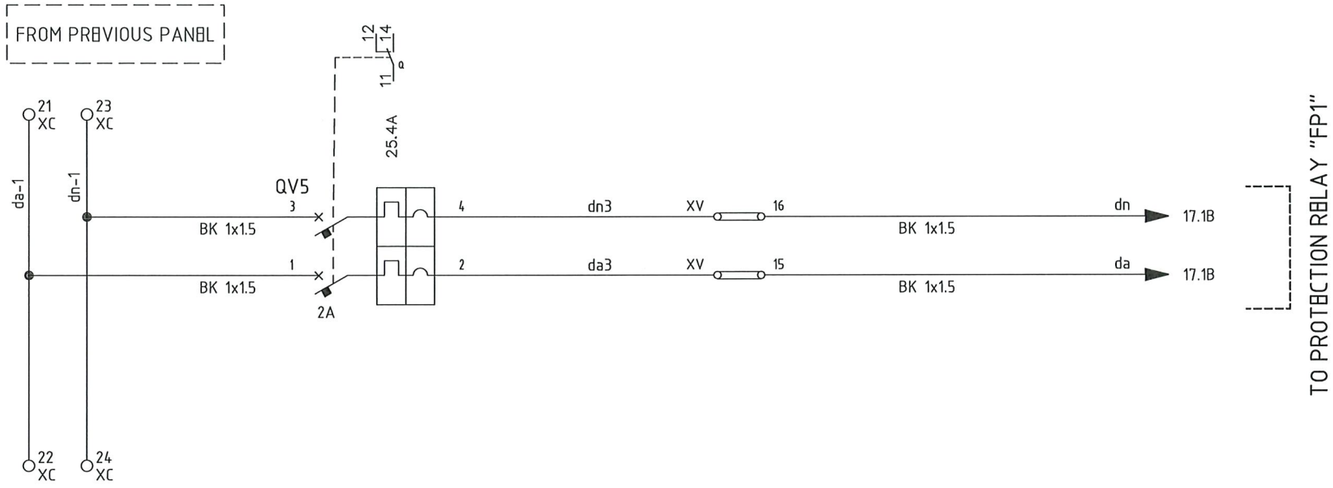
File Name : 1723002197-EL-DG-00018 Rev.03

110V:3 DISTRIBUTION VOLTAGE VT'S FROM MAIN BUS BAR

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

MAIN BUS BAR
110:3V VOLTMETRIC LINE - DELTA OPEN
(FOR PROTECTION/MEASURE)

FROM PREVIOUS PANEL



TO PROTECTION RELAY "FP1"

TO NEXT PANEL

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
110V Protection/Measure Distribution Voltage

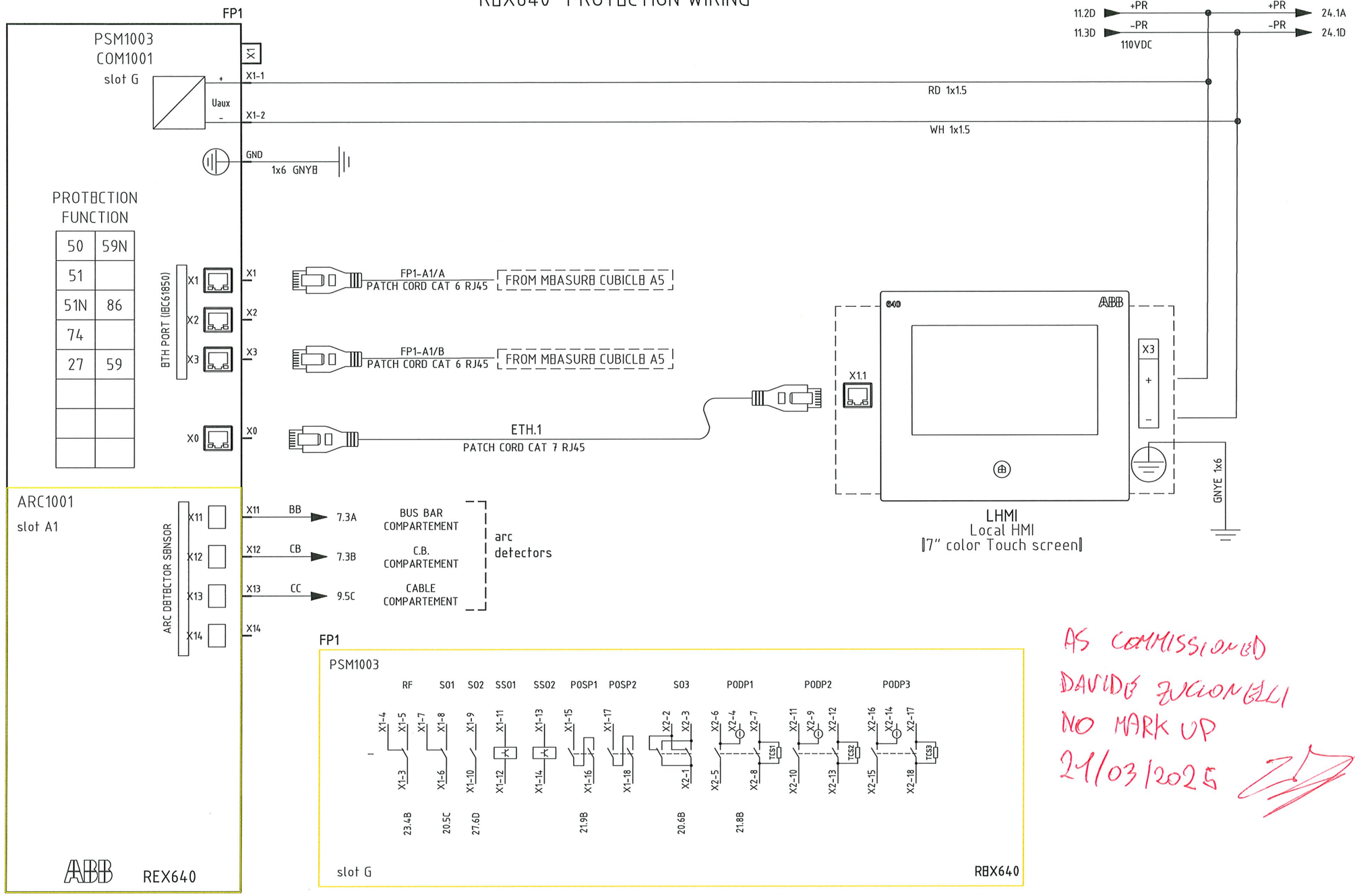
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 15 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING



AS COMMISSIONED
DAVIDE GIULIONELLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
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ROSETTI MARINO SpA

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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640"' Protection Wiring

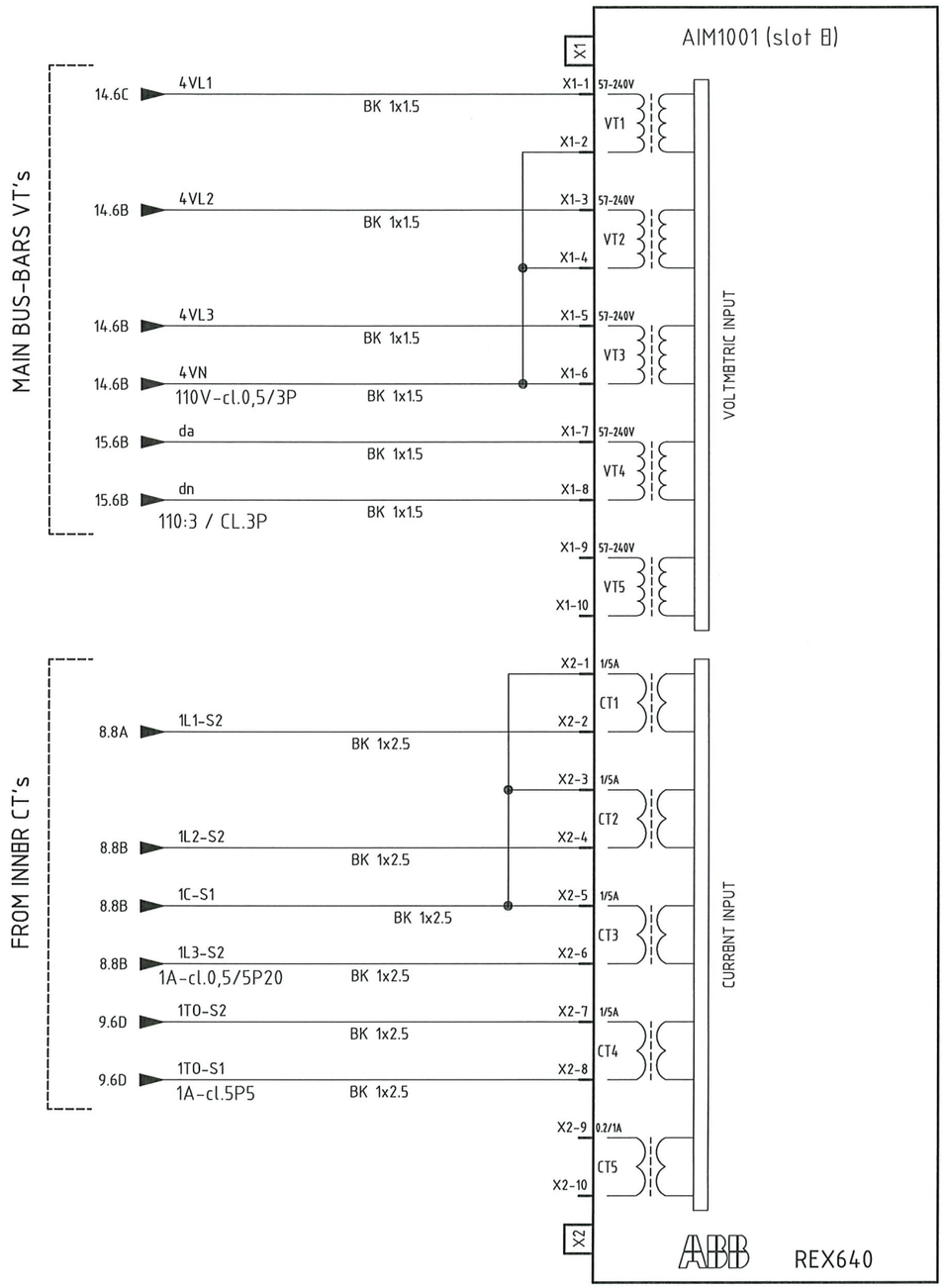
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 1.6 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING



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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640"' Protection Wiring

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

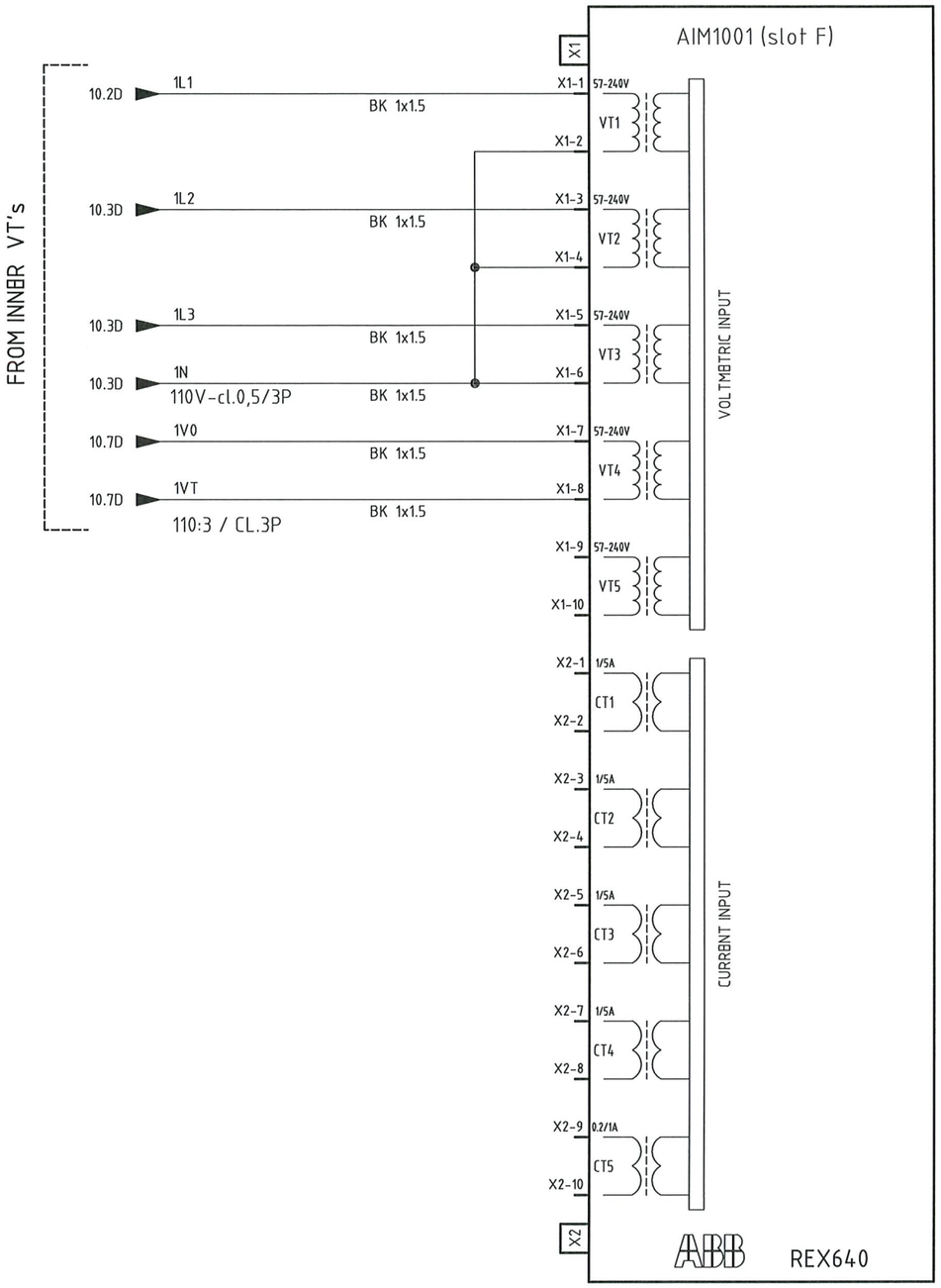
A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 1.7 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING

FP1b



AS COMMISSIONED
DAVIDE ZUCCOLLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=						
+A1						
DWG n° : 231151/SD/18	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
Item n° : PF1113279	2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
	1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
	0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
	REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

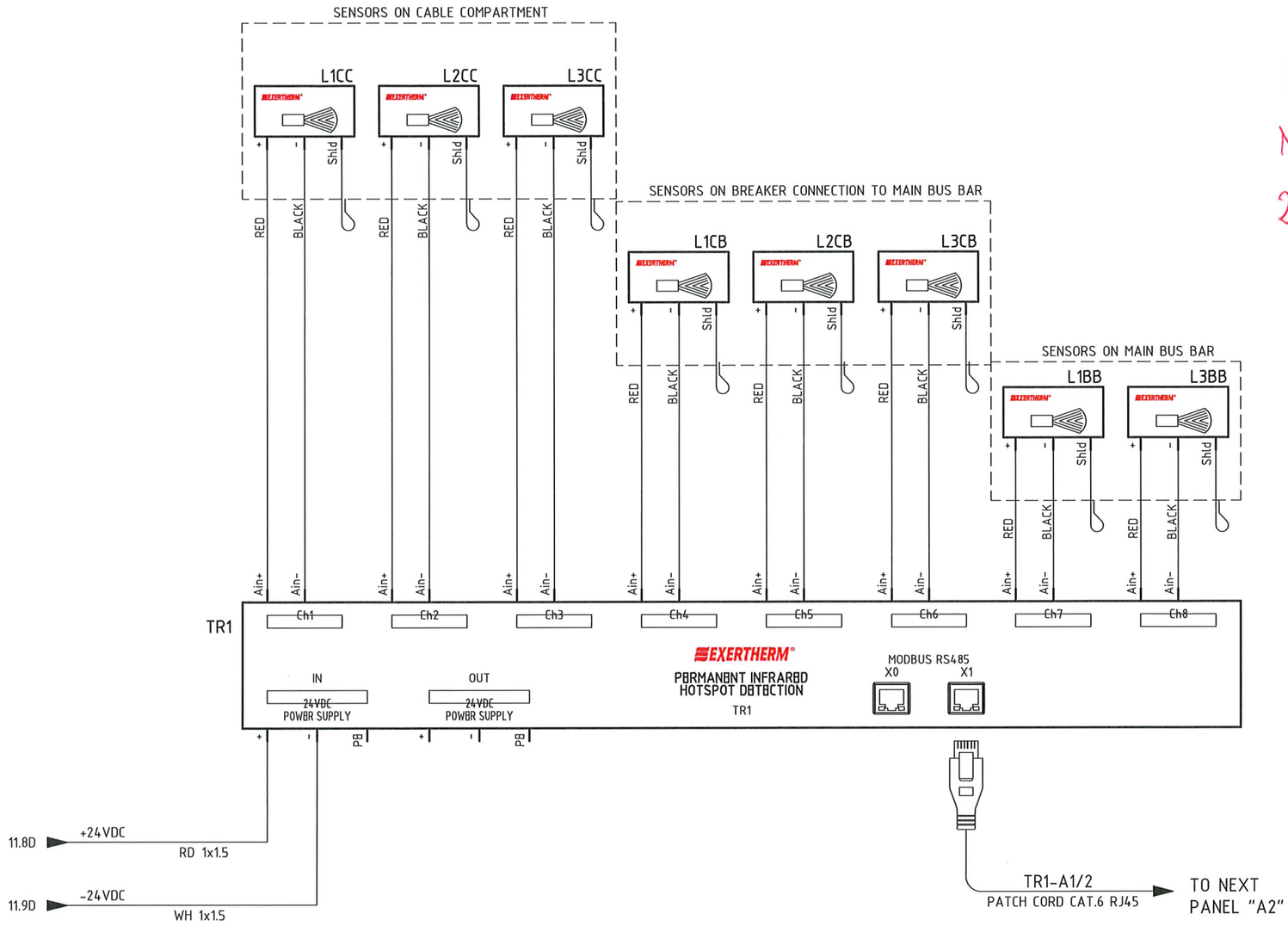
TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640"' Protection Wiring

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 18 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03



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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=
+A1
DWG n°: 231151/SD/18
Item n°: PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Extherm Device

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

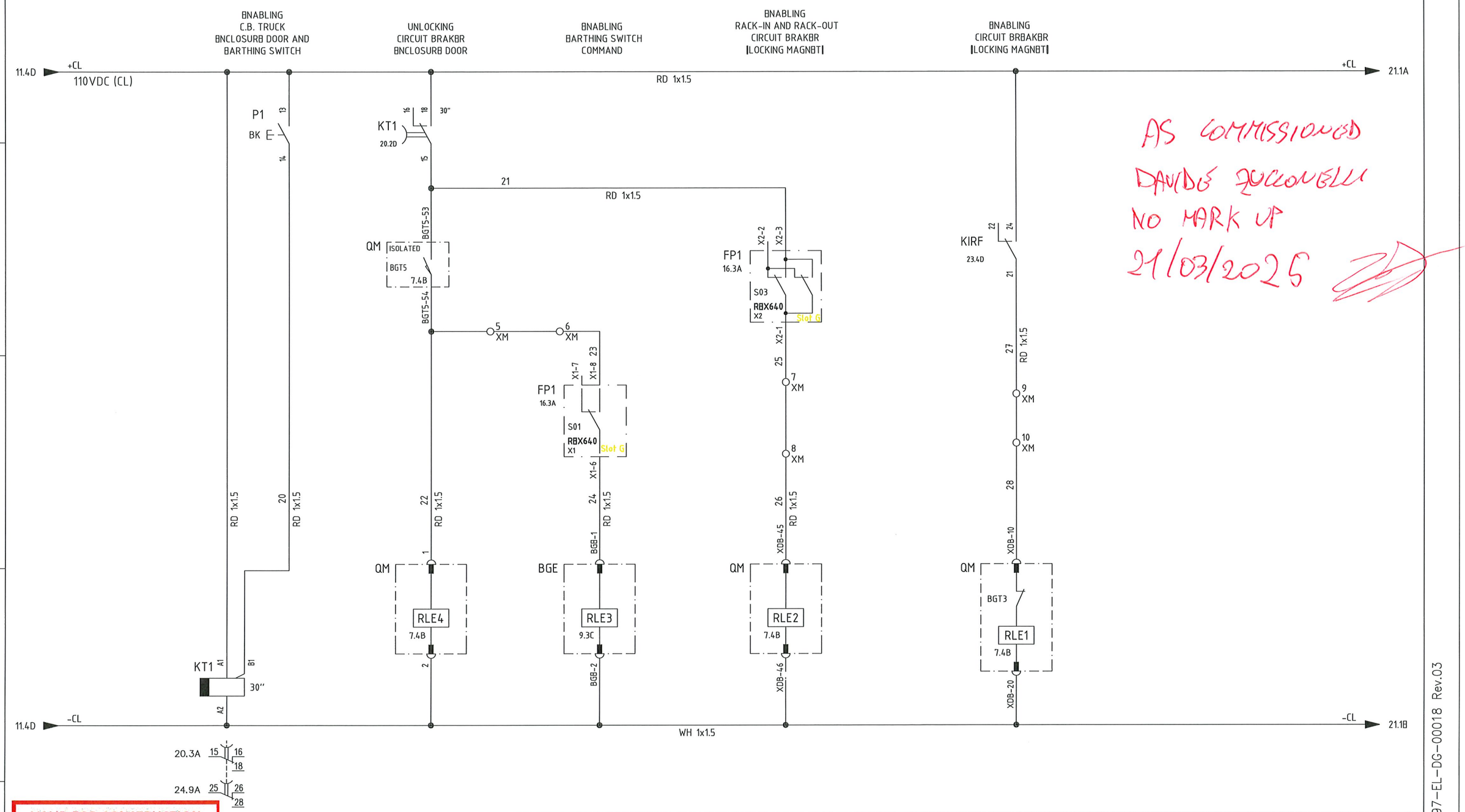
SHEET 19

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

COMMAND CIRCUITS



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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=
+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Command Circuit

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

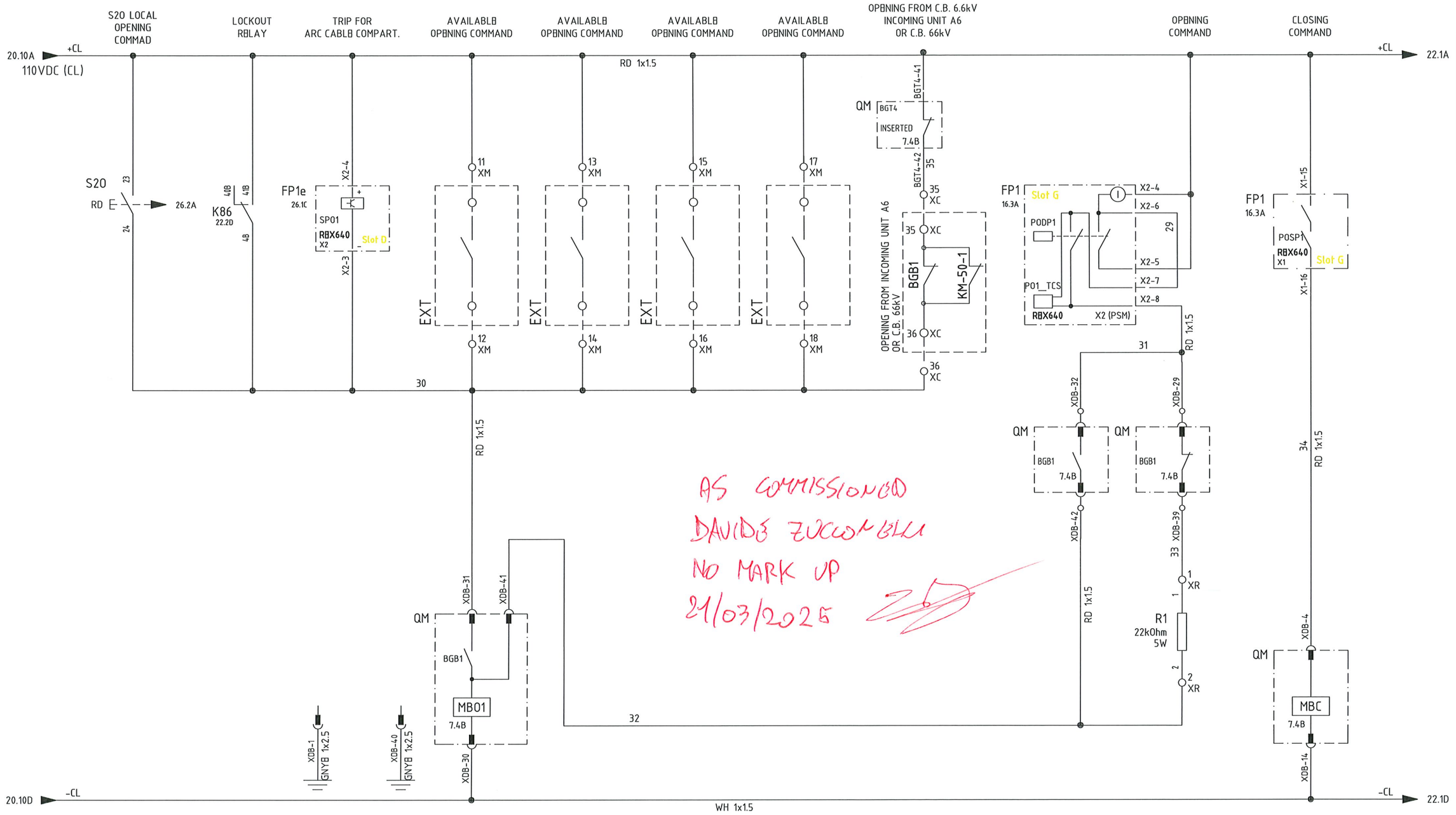
SHEET 20

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

CLOSING/OPENING COMMAND CIRCUITS



AS COMMISSIONED
DAVIDE ZUCCARELLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=
+A1
DWG n°: 231151/SD/18
Item n°: PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Command Circuit

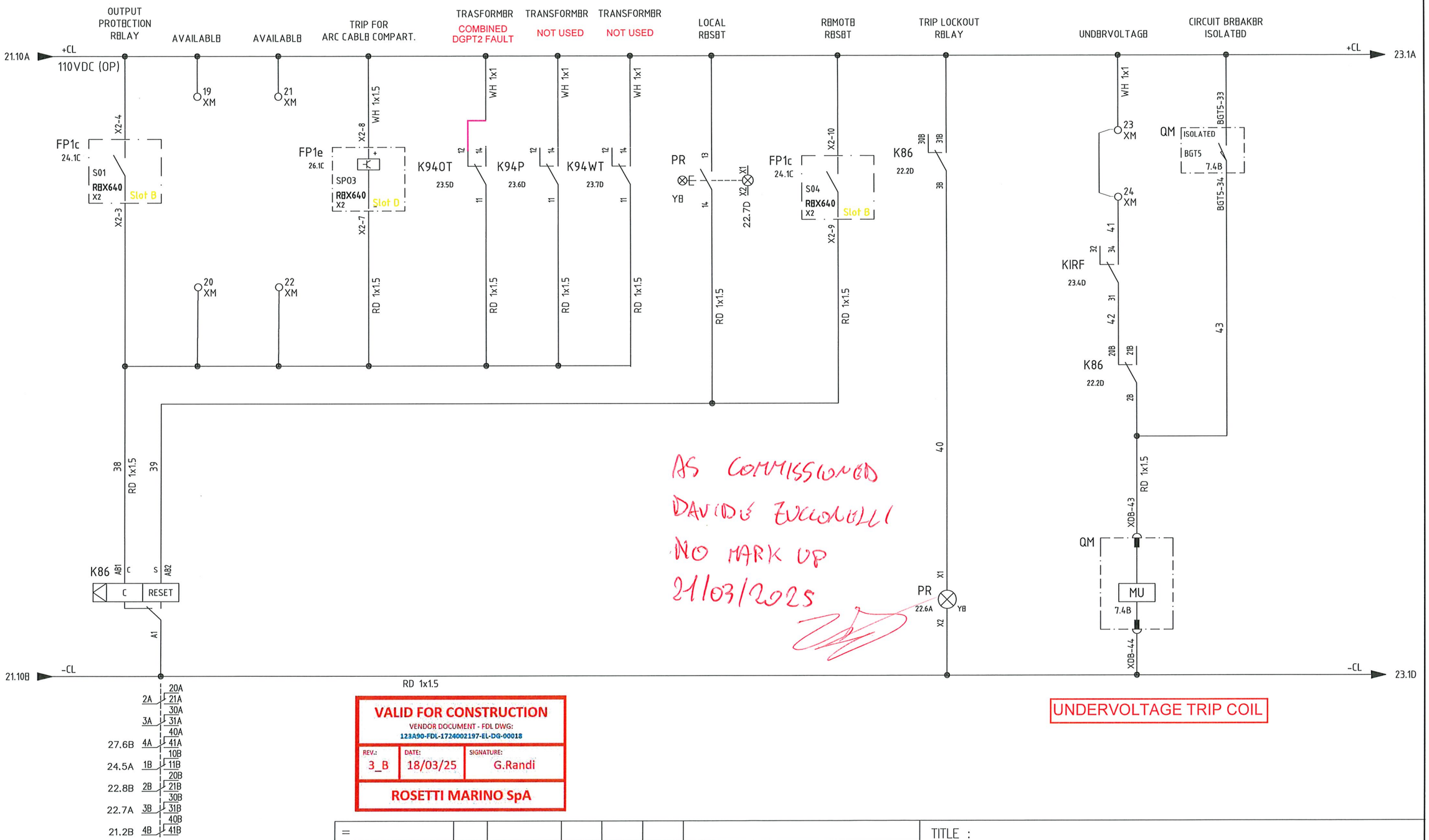
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 21 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

COMMAND CIRCUITS



AS COMMISSIONED
DAVIDE ZUCCARELLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

CROSSWIND
IMESA ELECTRICAL ENGINEERING
ROSETTI MARINO

TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Command Circuit

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK
SCALE : NTS
A3
DRAWING NO. 1723002197-EL-DG-00018
SHEET 22
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

ELECTROLYSER - DGPT2
TRANSFORMER PROTECTION

22.10A +CL

WH 1x1.5

WATCHDOG PROTECTION DUPLICATION

TRANSFORMER TRIP
COMBINED DGPT2 FAULT

TRANSFORMER NOT USED

TRANSFORMER NOT USED

+CL /./

25 XM
29
-X12.1
30
26 XM

27 XM
28 XM

29 XM
30 XM

FP1
16.3A
X1-4
X1-5
RF
RBX640
X1
Stat G
X1-3

48
49
50
51

RD 1x1.5

KIRF A1 A2
K940T A1 A2
K94P A1 A2
K94WT A1 A2

22.10D -CL -CL /./

27.4D 11 12 14 22 20.8B 21 24 32 22.8B 31 34 42 41 44

22.4A 11 12 14 22 25.6B 21 24 32 31 34 42 41 44

22.4A 11 12 14 22 25.8B 21 24 32 31 34 42 41 44

22.5A 11 12 14 22 25.10B 21 24 32 31 34 42 41 44

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

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n°: 231151/SD/18
Item n°: PF1113279

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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Command Circuit

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

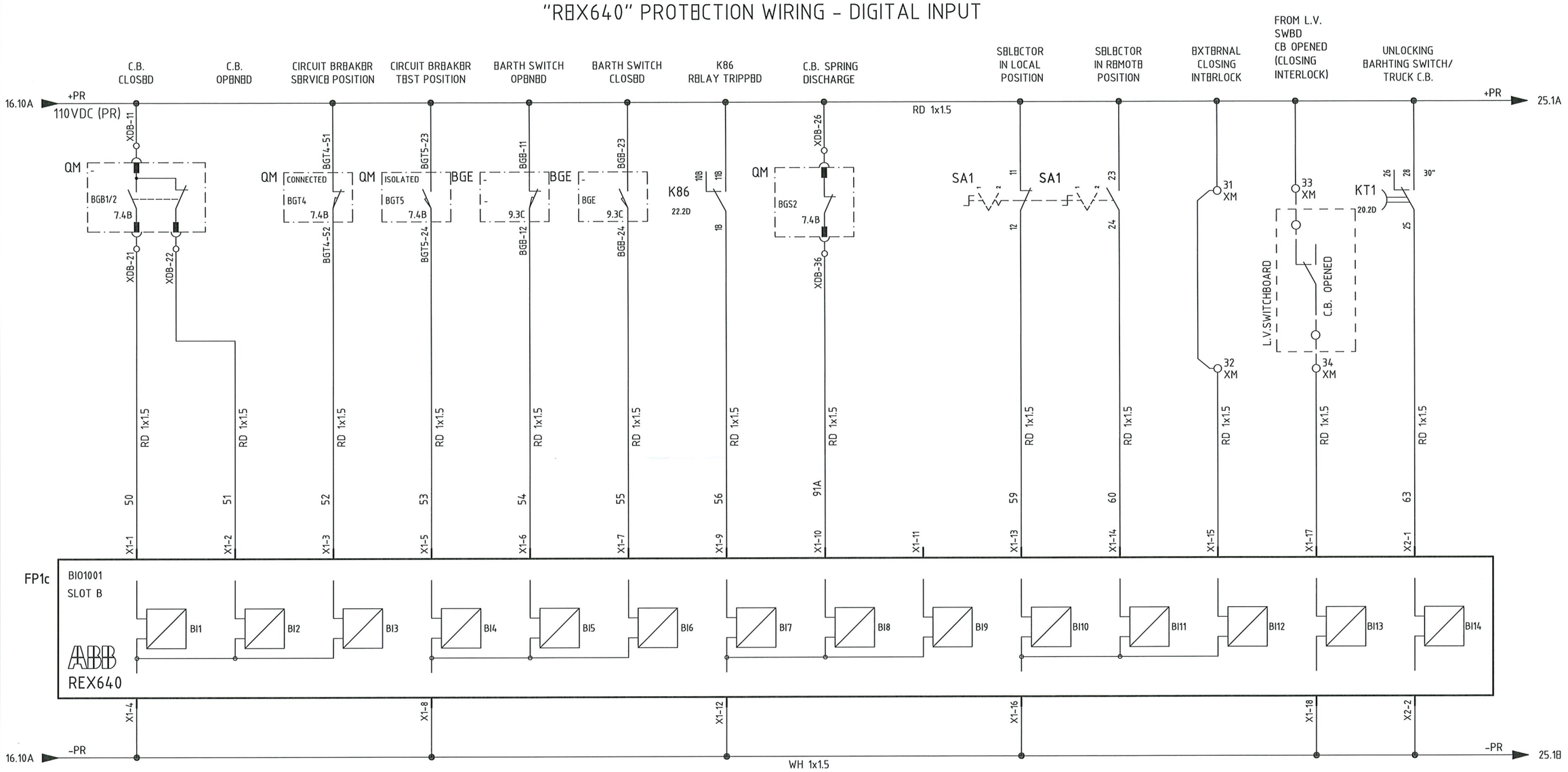
SHEET 23

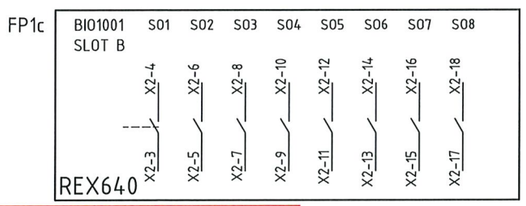
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING - DIGITAL INPUT





AS COMMISSIONED
DAVIDE ZUCCHELLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=
+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640" Protection Wiring - Digital Input

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

SHEET 24

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING - DIGITAL INPUT

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

VT HEALTY CIRCUIT | BARTING SWITCH OPEN (FROM MEASURING UNIT) | CLOSED AUXILIARY CIRCUIT MCB's | CLOSED AUXILIARY V.T. SECONDARY MCB's | AVAILABLE | TRASFORMER ALARM OIL TEMPERATURE | TRANSFORMER TRIP OIL TEMPERATURE | AVAILABLE | TRANSFORMER ALARM OIL PRESSURE | TRANSFORMER TRIP OIL PRESSURE | TRANSFORMER ALARM WINDING TEMPERATURE | TRANSFORMER TRIP WINDING TEMPERATURE

24.10A +PR 110VDC (PR) — RD 1x1.5 — +PR 26.1A

QV1 10.2C | QV2 10.4C | QV3 10.7C | PTT 10.2A | QV4 14.2C | QV5 15.2B | QD2 11.4B | QD3 11.5B | QD4 11.8B

25 XC — 27 XC — BGE — 28 XC — 26 XC

35 XM — 36 XM — 37 XM — 260T — 38 XM — 39 XM — 40 XM — 41 XM — 63T — 42 XM — 43 XM — 26WT — 44 XM

K94OT 23.5D — K94P 23.6D — K94WT 23.7D

97802 — 97803 — 97804

BT6-20 — BT6-21 — BT6-22 — 10.9C 5 — 10.9C 6

FP1d
BIO1001
SLOT C
ABB REX640
BI1 BI2 BI3 BI4 BI5 BI6 BI7 BI8 BI9 BI10 BI11 BI12 BI13 BI14

X1-1 X1-2 X1-3 X1-5 X1-6 X1-7 X1-9 X1-10 X1-11 X1-13 X1-14 X1-15 X1-17 X2-1
X1-4 X1-8 X1-12 X1-16 X1-18 X2-2

24.10D -PR — WH 1x1.5 — -PR 26.1D

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640" Protection Wiring - Digital Input

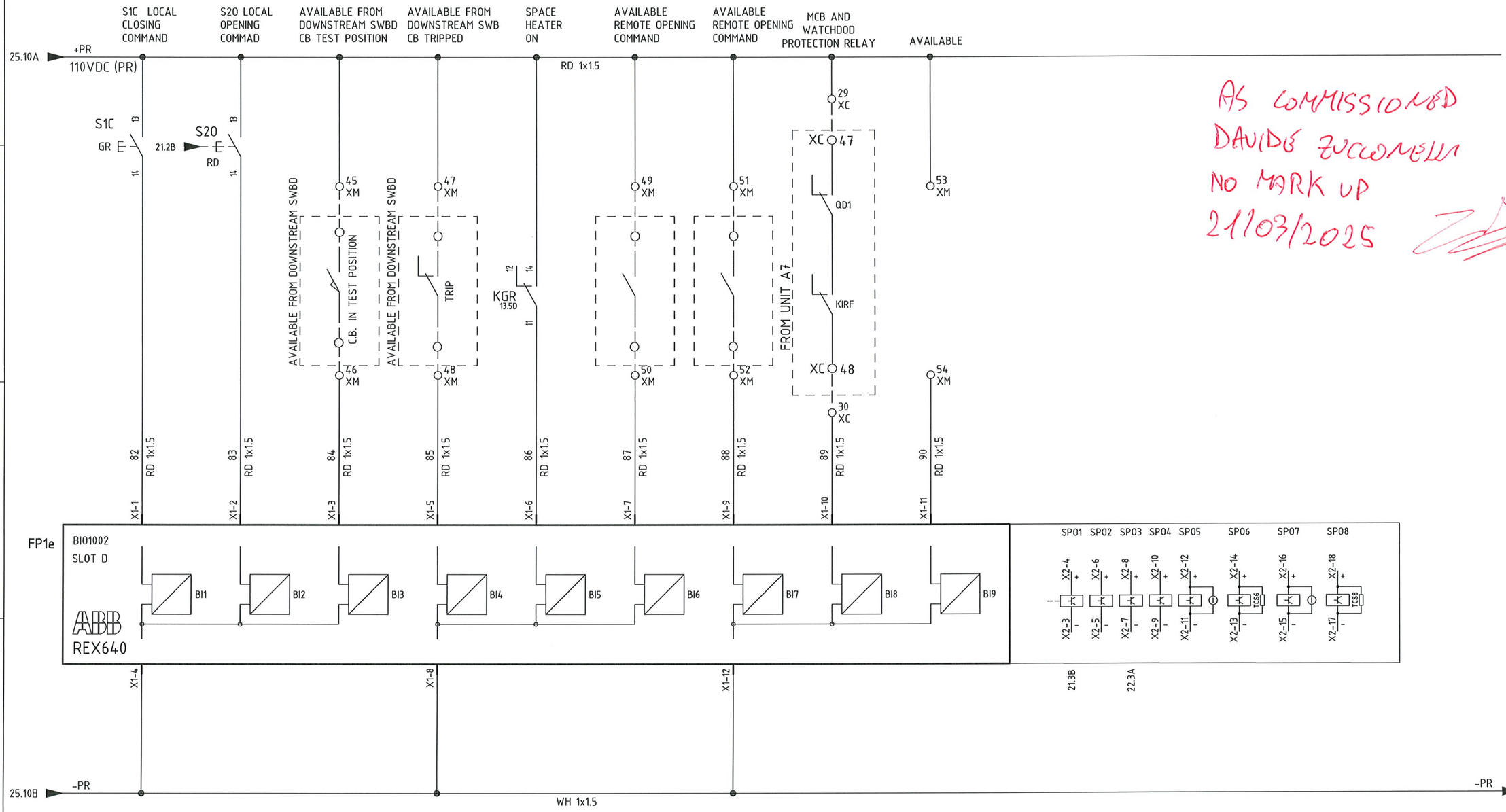
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 25 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

"REX640" PROTECTION WIRING - DIGITAL INPUT



AS COMMISSIONED
DAVIDE ZUCCOMELLI
NO MARK UP
21/03/2025

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

=	
+A1	
DWG n° :	231151/SD/18
Item n° :	PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
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TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
"REX640" Protection Wiring - Digital Input

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 26 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

AVAILABLE SIGNALS

EARTHING SWITCH CLOSED

C.B. STATUS OPENED

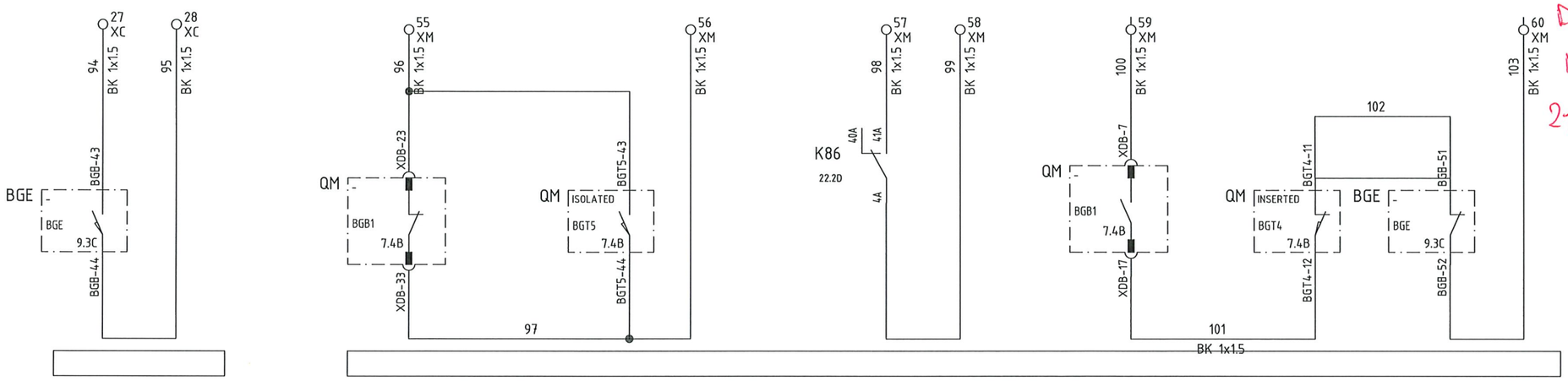
C.B. ISOLATED (TEST POSITION)

K86 RELAY TRIPPED

C.B. STATUS CLOSED

C.B. CONNECTED (SERVICE POS.)

EARTHING SWITCH OPENED



TO MEASURE CUBICLE A5

AVAILABLE SIGNALS

AS COMMISSIONED
DAVIDE ZUCCOLOTTO
NO MARK UP
21/03/2025

C.B. CONNECTED (SERVICE POSITION)

C.B. CLOSED

EARTH SWITCH STATUS (OPENED)

MCB PROTECION DEVICE CLOSED

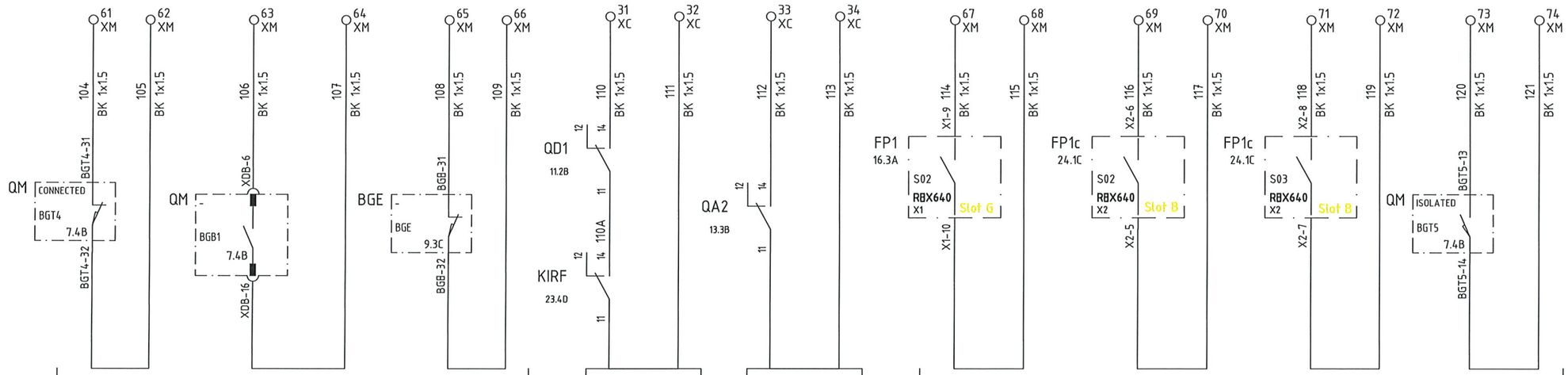
MCB INTERNAL LIGHT HEATER AND SOCKET

C.B. READY TO CLOSE

EARTH SWITCH STATUS (CLOSED)

AVAILABLE OUTPUT

C.B. ISOLATED



AVAILABLE SIGNALS

TO UNIT "A2"

TO UNIT "A7"

AVAILABLE SIGNALS

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Availables Signals

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00018

SHEET 27

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

TYP - ELECTROLYSER
XI
Ammeter Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	9.5D	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
2	9.5D	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
3	9.5D	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey
4	8.4A	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
5	8.4B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
6	8.4B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
7	8.4B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
8	8.4B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey

TYP - ELECTROLYSER
XR

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	21.9D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
2	21.9D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey

TYP - ELECTROLYSER
XV
Voltmetric Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	10.2D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
2	10.3D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
3	10.3D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
4	10.3D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey
5	10.4D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
6	10.5D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
7	10.5D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
8	10.5D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey
9	10.7D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
10	10.7D	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey
11	14.4C	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
12	14.4B	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
13	14.4B	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
14	14.4B	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey
15	15.4B	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
16	15.4B	6	HB210GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type
			HB201GR	Cabur	HSCB.6/PT/GR End section - Grey

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 28 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

TYP - ELECTROLYSER
XC
Interconnection Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	11.1B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
2	11.1C	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
3	11.1B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
4	11.1C	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
			HM321GR	Cabur	HMT.6/PT/GR End section - Grey
5	11.7B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
6	11.7C	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
7	11.7B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
8	11.7C	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
			HM321GR	Cabur	HMT.6/PT/GR End section - Grey
9	13.1A	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
10	13.1B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
11	13.2A	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
12	13.2B	6	HM320GR	Cabur	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)
			HM321GR	Cabur	HMT.6/PT/GR End section - Grey
13	14.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
14	14.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
15	14.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
16	14.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
17	14.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
18	14.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
19	14.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
20	14.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey
21	15.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
22	15.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
23	15.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
24	15.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey
25	25.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
26	25.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
27	27.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
28	27.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
29	26.6A	4	CBI04	Cabur	CBC.4(BX)I Feed-through terminal
30	26.6C	4	CBI04	Cabur	CBC.4(BX)I Feed-through terminal
31	27.4C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
32	27.4C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
33	27.5C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
34	27.5C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
35	21.7B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
[illegible]	[illegible]	[illegible]	[illegible]250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 29 | REV. 03

File Name : 1723002197-EL-DG-00018 Rev.03

F.to UNI A3: 420mmx297mm

TYP - ELECTROLYSER
XM
Interface Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	10.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
2	10.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
3	10.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
4	10.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey
5	20.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
6	20.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
7	20.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
8	20.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
9	20.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
10	20.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
11	21.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
12	21.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
13	21.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
14	21.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
15	21.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
16	21.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
17	21.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
18	21.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
19	22.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
20	22.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
21	22.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
22	22.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
23	22.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
24	22.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
25	23.5A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
26	23.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
27	23.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
28	23.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
29	23.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
30	23.7B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
31	24.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
32	24.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
33	24.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
34	24.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
35	25.5A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
36	25.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
37	25.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
38	25.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
39	25.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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DWG n°: 231151/SD/18
Item n°: PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 30 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

TYP - ELECTROLYSER
XM
Interface Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
41	25.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
42	25.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
43	25.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
44	25.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
45	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
46	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
47	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
48	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
49	26.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
50	26.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
51	26.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
52	26.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
53	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
54	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
55	27.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
56	27.5A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
57	27.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
58	27.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
59	27.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
60	27.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
61	27.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
62	27.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
63	27.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
64	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
65	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
66	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
67	27.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
68	27.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
69	27.7C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
70	27.7C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
71	27.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
72	27.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
73	27.9C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
74	27.9C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
75		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
76		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
77		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
78		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
79		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
80		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
81		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

VALID FOR CONSTRUCTION
VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018
REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 31 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
BB	7	1VCF698000R0012	1	OPTICAL FIBER CABLE PRE-MANUFACT. LENS L=5M	ABB	A1	ELECTROLYSER PACKAGE
BGE	9	1VCF599700R0131	1	EARTHING SWITCH ST-E 17.31 150	ABB	A1	ELECTROLYSER PACKAGE
		1VCF599505R0001	1	5 AUX CONTACTS FOR EARTHING SWITCH	ABB	A1	ELECTROLYSER PACKAGE
		1VCF599504R0063	1	KEY LOCKS ON EARTHING SWITCH	ABB	A1	ELECTROLYSER PACKAGE
		1VCF599700R0290	1	EARTHING SWITCH OPERATING LEVER	ABB	A1	ELECTROLYSER PACKAGE
C1	9	43931118	1	VPIS 3,3÷36KV - DEVICE SIGNALLING VOLTAGE PRESENT KIT	ELECTRONSYSTEM	A1	ELECTROLYSER PACKAGE
CB	7	1VCF698000R0012	1	OPTICAL FIBER CABLE PRE-MANUFACT. LENS L=5M	ABB	A1	ELECTROLYSER PACKAGE
CC	9	1VCF698000R0012	1	OPTICAL FIBER CABLE PRE-MANUFACT. LENS L=5M	ABB	A1	ELECTROLYSER PACKAGE
E1	13	74041	1	LED LAMP 4W 4000K 313x30x22	Beghelli	A1	ELECTROLYSER PACKAGE
E8	10	1VCF501000R0001	1	RESISTOR TR318 27R/J 27ohm 500W L=2,5M	ABB	A1	ELECTROLYSER PACKAGE
EH1	13	R1R150230	1	SPACE HEATER SKR 150W ALIM. 220VCA	Torresan	A1	ELECTROLYSER PACKAGE
FF1	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A1	ELECTROLYSER PACKAGE
FF2	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A1	ELECTROLYSER PACKAGE
FF3	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A1	ELECTROLYSER PACKAGE
FP1	16	1VCF698331R0001	1	REX640B10NN+AIM1+AIM1+ARC1+BIO1+BIO1+BI+O2+CMP2+COM1+LNG1+MCT1+PCL4+PSM3+SCT	ABB	A1	ELECTROLYSER PACKAGE
HGR	13	TRT-10A230V-NC	1	Regolable Thermostat -10÷80°C 1NC IP20 DIN Mounting	Fandis	A1	ELECTROLYSER PACKAGE
K940T	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A1	ELECTROLYSER PACKAGE
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A1	ELECTROLYSER PACKAGE
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A1	ELECTROLYSER PACKAGE
K94P	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A1	ELECTROLYSER PACKAGE
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A1	ELECTROLYSER PACKAGE
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A1	ELECTROLYSER PACKAGE
K94WT	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A1	ELECTROLYSER PACKAGE
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A1	ELECTROLYSER PACKAGE
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A1	ELECTROLYSER PACKAGE
KGR	13	ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A1	ELECTROLYSER PACKAGE
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A1	ELECTROLYSER PACKAGE
		Copia di ER 552 0	1	CR-M230AC2L SUPPLY 230VAC 2C/O 250V/6A LED	ABB	A1	ELECTROLYSER PACKAGE
KIRF	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A1	ELECTROLYSER PACKAGE
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A1	ELECTROLYSER PACKAGE
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A1	ELECTROLYSER PACKAGE
KT1	20	H3DKM2ACDC24240	1	MULTIFUNCTION TIMER RELAY Vaux=24÷240Vac/dc - 2SC	Omron	A1	ELECTROLYSER PACKAGE
L1C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L1I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L1MS	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L2C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L2I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L3C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L3I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
L3MS	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A1	ELECTROLYSER PACKAGE
LS	13	Z15GW2-1-1453270	1	MICROSWITCH 1sc	Omron	A1	ELECTROLYSER PACKAGE
		APB-PG	1	COVER TO MICRO-SWITCH	Omron	A1	ELECTROLYSER PACKAGE
OD1	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A1	ELECTROLYSER PACKAGE
OD2	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A1	ELECTROLYSER PACKAGE

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VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724002197-EL-DG-00018

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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+A1
DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As-Built (ASB)
2	21/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

TITLE :
SG-100D1 - FUNCTIONAL ELECTROLYSER FEEDER A-2000
Bill of Materials

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 3,2 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
OD3	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A1	ELECTROLYSER PACKAGE
P1	20	KW 080 2	1	MP1-10B BLACK PUSH BUTTON UNSTABLE	ABB	A1	ELECTROLYSER PACKAGE
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A1	ELECTROLYSER PACKAGE
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A1	ELECTROLYSER PACKAGE
PTT	10	1VCF498412R0100	1	TV/F COMPARTMENT 12/17kV IP4X L=590mm OUTLET ON THE BACK WITH N°3 VT + N°14 MAIN CONTACTS + N°2+2 SERVICE/ISOLATED POSITION CONTACTS	ABB	A1	ELECTROLYSER PACKAGE
		1VCF499800R0302	1	NAMEPLATE IN ENGLISH LANGUAGE FOR TV/F	ABB	A1	ELECTROLYSER PACKAGE
QA2	13	B427917	1	DDA202 AC 25A 300MA RCD BLOCK 2P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
		S550284	1	S202M C10 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
QD1	11	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
		S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
QD2	11	S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
		a563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
QD3	11	S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
QD4	11	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
		S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
QM	7	1VCF337121R1141	1	VACUUM CIRCUIT BREAKER VD4/P 3P 12KV 630A 25KA WITHDRAWABLE 12.06.25 P150	ABB	A1	ELECTROLYSER PACKAGE
		1VCF339700R0882	1	NAMEPLATE IN ENGLISH LANGUAGE FOR CIRCUIT-BREAKER	ABB	A1	ELECTROLYSER PACKAGE
		1VCF339700R1885	1	VD4 FOR POWERCUBE	ABB	A1	ELECTROLYSER PACKAGE
		1VCF349700R4881	1	WIRING WITH AFUMEX N07G9-K CABLE	ABB	A1	ELECTROLYSER PACKAGE
		1VCF339701R2909	1	FIRST OPENING COIL IST. 110Vdc (MB01)	ABB	A1	ELECTROLYSER PACKAGE
		1VCF339800R6913	1	CLOSING COIL 110..127 Vac/dc (MBC)	ABB	A1	ELECTROLYSER PACKAGE
QV1	10	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
QV2	10	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
QV3	10	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
		S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
QV4	14	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
QV5	15	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A1	ELECTROLYSER PACKAGE
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A1	ELECTROLYSER PACKAGE
R1	21	01062220	1	RESISTANCE 22kOhm 5W		A1	ELECTROLYSER PACKAGE
S1C	26	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A1	ELECTROLYSER PACKAGE
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A1	ELECTROLYSER PACKAGE
		KW 076 0	1	MP1-10G PUSH BUTTON GREEN WITH BLACK RING	ABB	A1	ELECTROLYSER PACKAGE
S20	26	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A1	ELECTROLYSER PACKAGE
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A1	ELECTROLYSER PACKAGE
		KW 075 2	1	MP1-10R PUSH BUTTON RED WITH BLACK RING	ABB	A1	ELECTROLYSER PACKAGE
SA1	24	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A1	ELECTROLYSER PACKAGE
		EO 571 3	1	MCB-01 CONTACT NC FOR PUSHBUTTOM	ABB	A1	ELECTROLYSER PACKAGE
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A1	ELECTROLYSER PACKAGE

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ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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DWG n° : 231151/SD/18
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 – FUNCTIONAL ELECTROLYSER FEEDER A-2000
Bill of Materials

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 33 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
SA1	24	KW 329 3	1	M2SS2-10B HANDLE SELECTOR 2P 90° BLACK RING BLACK	ABB	A1	ELECTROLYSER PACKAGE
TI-L1	8	ATB-10-BS__012	1	CURRENT TRANSFORMER 7,2kV 50Hz 400/1A cl.0,5-5P20 (5VA)- 25kA	ESITAS	A1	ELECTROLYSER PACKAGE
TI-L2	8	ATB-10-BS__012	1	CURRENT TRANSFORMER 7,2kV 50Hz 400/1A cl.0,5-5P20 (5VA)- 25kA	ESITAS	A1	ELECTROLYSER PACKAGE
TI-L3	8	ATB-10-BS__012	1	CURRENT TRANSFORMER 7,2kV 50Hz 400/1A cl.0,5-5P20 (5VA)- 25kA	ESITAS	A1	ELECTROLYSER PACKAGE
TO	9	KAP-150/250-95	1	CURRENT TRANSFORMER 0,72/3/-kV 100/1 50Hz	ESITAS	A1	ELECTROLYSER PACKAGE
TR1	19	800208	1	MODBUS DATACARD 8 CHANNELS	Exertherm	A1	ELECTROLYSER PACKAGE
TU-L1	10	TJP4.3__002	1	VT ON RESIN 7,2KV 50-60Hz 6600:r3/110:r3-110:r3-110:3 Cl.0,5-3P Pr.20VA, Cl.0,5-3P Pr.30VA, Cl.3P Pr.30VA	ABB	A1	ELECTROLYSER PACKAGE
TU-L2	10	TJP4.3__002	1	VT ON RESIN 7,2KV 50-60Hz 6600:r3/110:r3-110:r3-110:3 Cl.0,5-3P Pr.20VA, Cl.0,5-3P Pr.30VA, Cl.3P Pr.30VA	ABB	A1	ELECTROLYSER PACKAGE
TU-L3	10	TJP4.3__002	1	VT ON RESIN 7,2KV 50-60Hz 6600:r3/110:r3-110:r3-110:3 Cl.0,5-3P Pr.20VA, Cl.0,5-3P Pr.30VA, Cl.3P Pr.30VA	ABB	A1	ELECTROLYSER PACKAGE
XC		HM320GR	12	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)	Cabur	A1	ELECTROLYSER PACKAGE
		HM250GR	22	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	A1	ELECTROLYSER PACKAGE
		CBI04	2	CBC.4(BX)I Feed-through terminal	Cabur	A1	ELECTROLYSER PACKAGE
		HM251GR	3	HMT.4/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE
		HM321GR	3	HMT.6/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE
XI		HB220GR	8	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type	Cabur	A1	ELECTROLYSER PACKAGE
		HB201GR	2	HSCB.6/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE
XM		HM250GR	81	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	A1	ELECTROLYSER PACKAGE
		HM251GR	1	HMT.4/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE
XR		HM250GR	2	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	A1	ELECTROLYSER PACKAGE
		HM251GR	1	HMT.4/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE
XS1	13	B 9447 7	1	SOCKET	ABB	A1	ELECTROLYSER PACKAGE
XV		HB210GR	16	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type	Cabur	A1	ELECTROLYSER PACKAGE
		HB201GR	5	HSCB.6/PT/GR End section - Grey	Cabur	A1	ELECTROLYSER PACKAGE

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REV.: 3_B | DATE: 18/03/25 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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DWG n° : 231151/SD/18
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TITLE :
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Bill of Materials

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

A3 | DRAWING NO. 1723002197-EL-DG-00018 | SHEET 3.4 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00018 Rev.03

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE