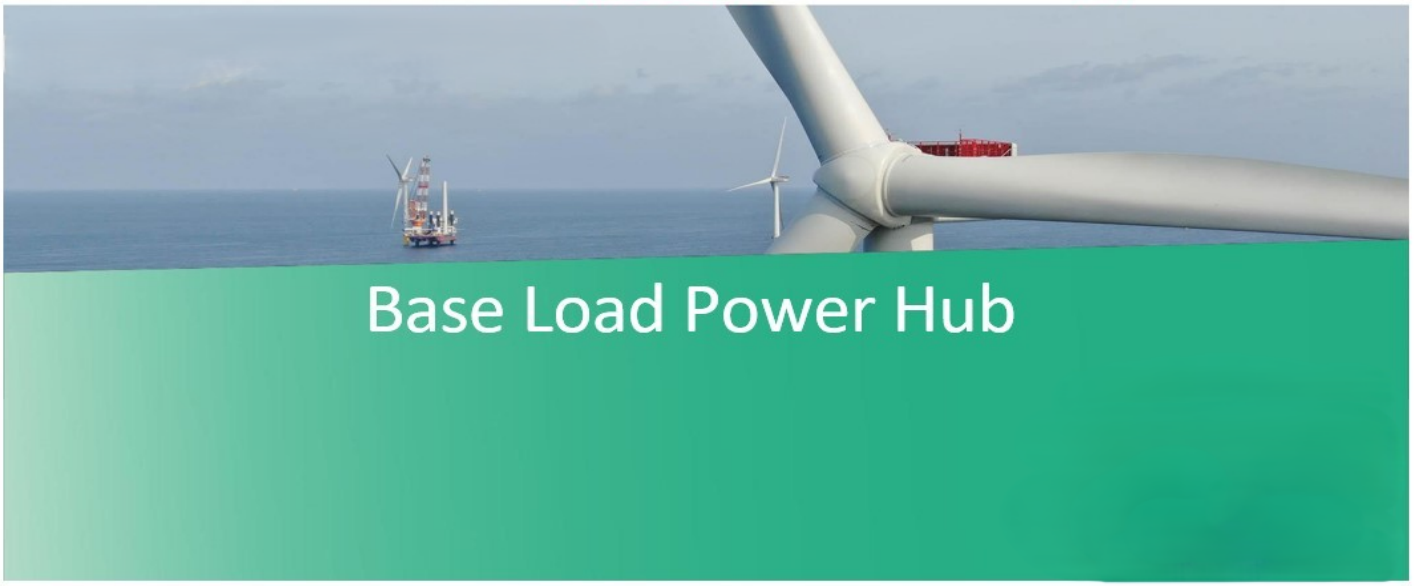
CROSSWIND

ROSETTI MARINO

PROVERUS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM	81-20 Power Transformer 7 MVA (TR-100AD1)

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

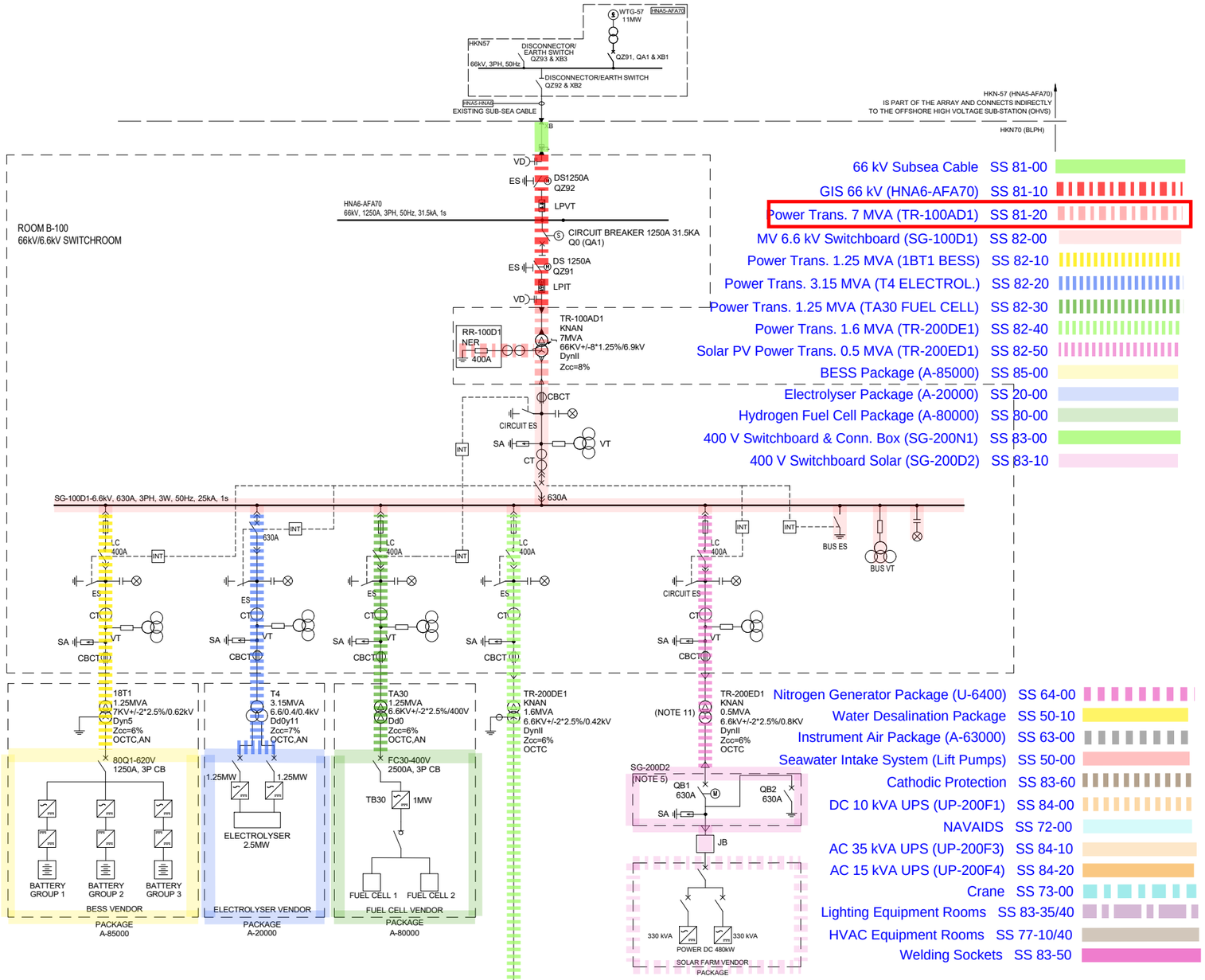
Sub System N°:	81-20	**Tick as appropriate**	ONSHORE	OK
Description:	Power Transformer 7 MVA (TR-100AD1)		OFFSHORE	

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	2025-09-26	2025-09-26
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-09-26T10:10:23.583Z	PROVERLIS Digitaly signed by Martin Taylor 2025-09-26T10:16:43.402Z

Section 1 SUB-SYSTEM DEFINITION

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



SYMBOL LEGEND:

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

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

NOTES:

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

REFERENCES:

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

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

CROSSWIND

ROSETTI MARINO

TITLE :

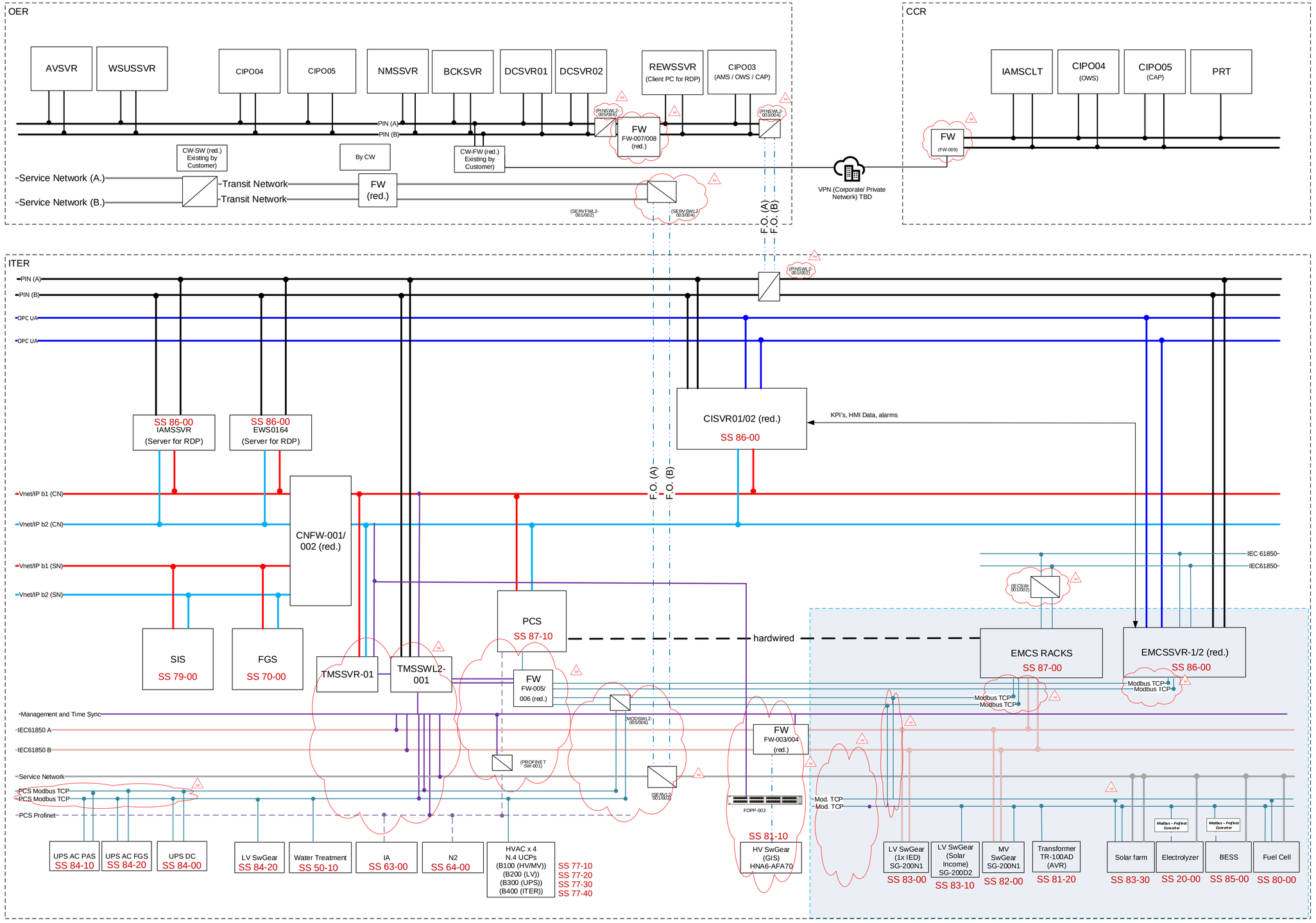
OVERALL/KEY SINGLE LINE DIAGRAM

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

01

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

CROSSWIND BLPH PROJECT - SYSTEM BLOCK DIAGRAM



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

LEGEND:

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

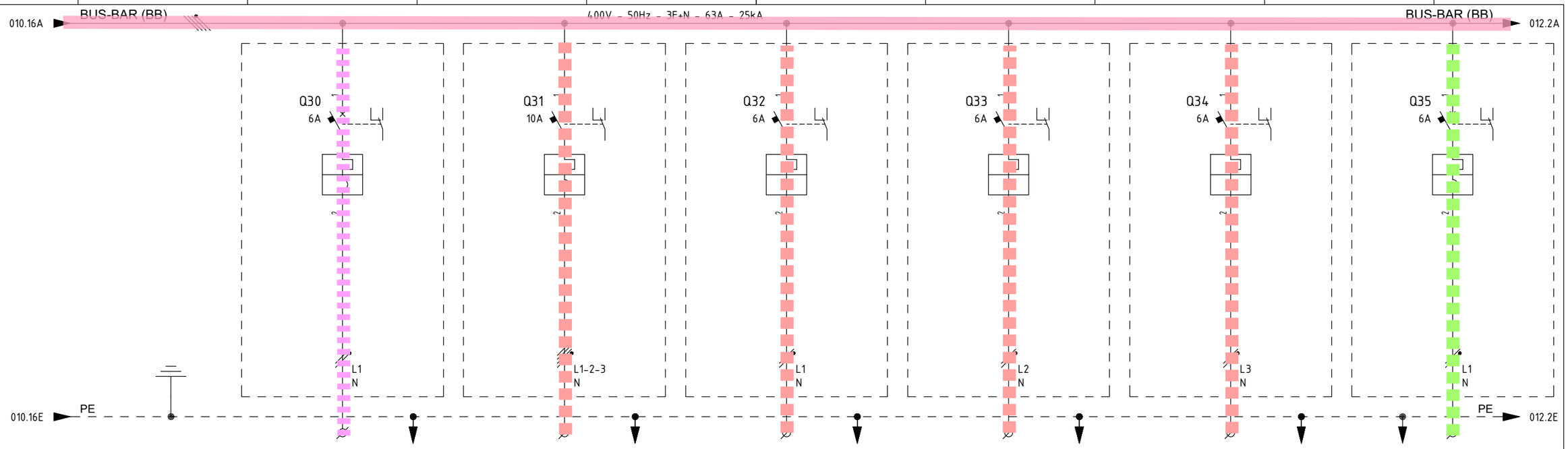
Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer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

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

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

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

ROSETTI MARINO
HOLLANDSE KUST NOORD WIND PART Project
CROSSWIND
YOKOGAWA



ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	1 KW | 1.81 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

SUBSYSTEM 64-00 | SUBSYSTEM 81-20 | SUBSYSTEM 81-20 | SUBSYSTEM 81-20 | SUBSYSTEM 81-20 | SUBSYSTEM 82-40

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

DWG n° : 231298/SD/13
Item n° : PF1002888/101

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00013

SHEET 011

REV. 03

F.to UNI A3: 420mmx297mm

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

Section 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Operation (RFO) Certificate

COMPLETE		PARTIAL	●

Revision:	1		Issued on:	2025-07-31	

System:	81	/	Main Power Distribution High Voltage 66 kV
SubSystem:	81-20	/	Power Transformer 7 MVA (TR-100AD1)

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	
Date	2025-07-31	
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-07-31T14:34:31.676Z	

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 81-20 & process: COMM

Electrical	81-20 Power Transformer 7 MVA (TR-100AD1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q31	AUX TRAFO OLTC - DP-200N1-Q31	ONSHORE	C10002915	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q32	AUX TRAFO AVR - DP-200N1-Q32	ONSHORE	C10002916	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q33	AUX TRAFO 7 MVA - DP-200N1-Q33	ONSHORE	C10002917	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q34	AUX TRAFO NER - DP-200N1-Q34	ONSHORE	C10002918	FTR-2	100	2024-10-28	RFO 1
SG-100D1-QM	INCOMER - SG-100D1-QM	ONSHORE	C10002919	FTR-2	100	2024-12-12	RFO 1
		ONSHORE	C10002920	FTR-6	100	2025-02-04	RFO 1
TR-100AD1	66 / 6.9 kV 7 MVA Transformer	ONSHORE	C10004551	FP02	100	2025-02-14	RFO 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 81-20 & process: COMM

Instrumental	81-20 Power Transformer 7 MVA (TR-100AD1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
TR-100AD1	66 / 6.9 kV 7 MVA Transformer	OFFSHORE	C10004883	FJ05	0	-	-

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	81	Main Power Distribution High Voltage 66 kV
SUBSYSTEM	81-20	Power Transformer 7 MVA (TR-100AD1)

Telecom

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000968	A	TR-100AD1AVR /B400-NET-001 C10004374	The cable gland suit not for cable type. (should be type M20S)	.		APolo 2024-11-27	2025-01-27	Ecarotenuto 2025-01-27	2025-01-27
C30000964	B	TR-100AD1AVR /B400-NET-001 C10004374	The copper conductor of the cable armor must be individually connected to the earthing bar. See 123A90-DDL-EL-DD-20090. (B400-NET-001)	.		APolo 2024-11-27	2025-02-04	APolo 2025-02-04	2025-02-04
C30000965	B	TR-100AD1AVR /B400-NET-001 C10004374	The cable is not supported and fixed to the rack (outside TR-100AD1AVR)	.		APolo 2024-11-27	2025-01-22	APolo 2025-01-22	2025-01-22
C30000966	B	TR-100AD1AVR /B400-NET-001 C10004374	Missing cable tag SS project, side TR-100AD1AVR.	.		APolo 2024-11-27	2025-01-02	Ecarotenuto 2025-01-02	2025-01-02
C30000967	B	TR-100AD1AVR /B400-NET-001 C10004374	Missing cable tag , inside pannel TR-100AD1AVR .	.		APolo 2024-11-27	2025-02-25	APolo 2025-02-25	2025-02-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001552	A	82014-CEC C10002320	the cable is not protected before entering the panel . (SG-100D1) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001570	A	81007-CEC C10002126	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001574	A	81006-CEC C10002125	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001578	A	81005-CEC C10002124	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001582	A	81004-CEC C10002123	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001586	A	81003-CEC C10002122	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30004146	A	81002-CEH-L1 C10000465	Cable gland on trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23
C30004148	A	81002-CEH-L2 C10000466	Cable glands on the trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23
C30004150	A	81002-CEH-L3 C10000467	Cable gland on the trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001170	B	83115-CEL C10000634	Missing core identification tag RR-100D1 side	.		Pschintu 2024-12-03	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30001171	B	83115-CEL C10000634	Missing SS cable tag	.		Pschintu 2024-12-03	2025-01-30	APolo 2025-01-30	2025-01-30
C30001172	B	83112-CEL C10000631	Missing core identification tag both side	.		Pschintu 2024-12-03	2025-06-19	Ecarotenuto 2025-06-19	2025-06-19
C30001173	B	83112-CEL C10000631	Missing SS cable tag.	.		Pschintu 2024-12-03	2025-01-30	APolo 2025-01-30	2025-01-30
C30001174	B	83113-CEL C10000632	Missing core identification tags both side	.		Pschintu 2024-12-03	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001175	B	83113-CEL C10000632	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001176	B	83114-CEL C10000633	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001177	B	83114-CEL C10000633	Missing core identification tags both side	.		Pschintu 2024-12-03	2025-06-10	Ecarotenuto 2025-06-10	2025-06-10
C30001549	B	82014-CEC C10002320	Missing cable tags both side . (82014-CEC)	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV

SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001550	B	82014-CEC C10002320	Missing cable tags on routing, inside and outside the panels	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001551	B	82014-CEC C10002320	Spare cores to be properly isolated both side the cable. (RR-100D1/SG-100D1)	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001569	B	81007-CEC C10002126	Identification tag wire missing both side the cable (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001571	B	81007-CEC C10002126	Spare cores to be properly isolated both side the cable. (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001572	B	81007-CEC C10002126	Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001573	B	81006-CEC C10002125	Identification tag wires missing both side the cable (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001575	B	81006-CEC C10002125	Spare cores to be properly isolated both side the cable. (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001576	B	81006-CEC C10002125	Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001577	B	81005-CEC C10002124	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-19	AAndreani 2025-02-19	2025-02-19

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001579	B	81005-CEC C10002124	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001580	B	81005-CEC C10002124	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001581	B	81004-CEC C10002123	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001583	B	81004-CEC C10002123	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001584	B	81004-CEC C10002123	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001585	B	81003-CEC C10002122	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001587	B	81003-CEC C10002122	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001588	B	81003-CEC C10002122	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001889	B	82001-CEM-1-L1 C10000468	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82001-CEM-1-L2 and 82001-CEM-1-L3	.		Pschintu 2024-12-16	2025-01-03	Ecarotenuto 2025-01-03	2025-01-03

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	81	Main Power Distribution High Voltage 66 kV
SUBSYSTEM	81-20	Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001890	B	82001-CEM-1-L1 C10000468	Missing cable tag on routing. Point valid also for 82001-CEM-1-L2, 82001-CEM-1-L3, 82001-CEM-2-L1, 82001-CEM-2-L2,	.		Pschintu 2024-12-16	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001938	B	82002-CEC C10002130	Missing cable tag CP-100E3 Transformer side	.		Pschintu 2024-12-17	2025-02-07	Pschintu 2025-02-07	2025-02-07
C30001939	B	82002-CEC C10002130	Missing core identification tag CP-100E3 Transformer side	.		Pschintu 2024-12-17	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30002020	B	82001-CEM-2-L1 C10000469	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82001-CEM-2-L2 and 82001-CEM-2-L3	.		Pschintu 2024-12-19	2025-02-07	Pschintu 2025-02-07	2025-02-07
C30004144	B	81002-CEH-L1 C10000465	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004145	B	81002-CEH-L1 C10000465	Inside cabine B100 cable is touching panel GIS need be better dresed "see attached foto"	.		JKrizanic 2025-02-26	2025-05-05	Gtangianu 2025-05-05	2025-05-05
C30004147	B	81002-CEH-L2 C10000466	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004149	B	81002-CEH-L3 C10000467	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004151	B	81002-CEH-L3 C10000467	Cable touching structural support on the side trasformer "see foto"	.		JKrizanic 2025-02-26	2025-05-05	Gtangianu 2025-05-05	2025-05-05

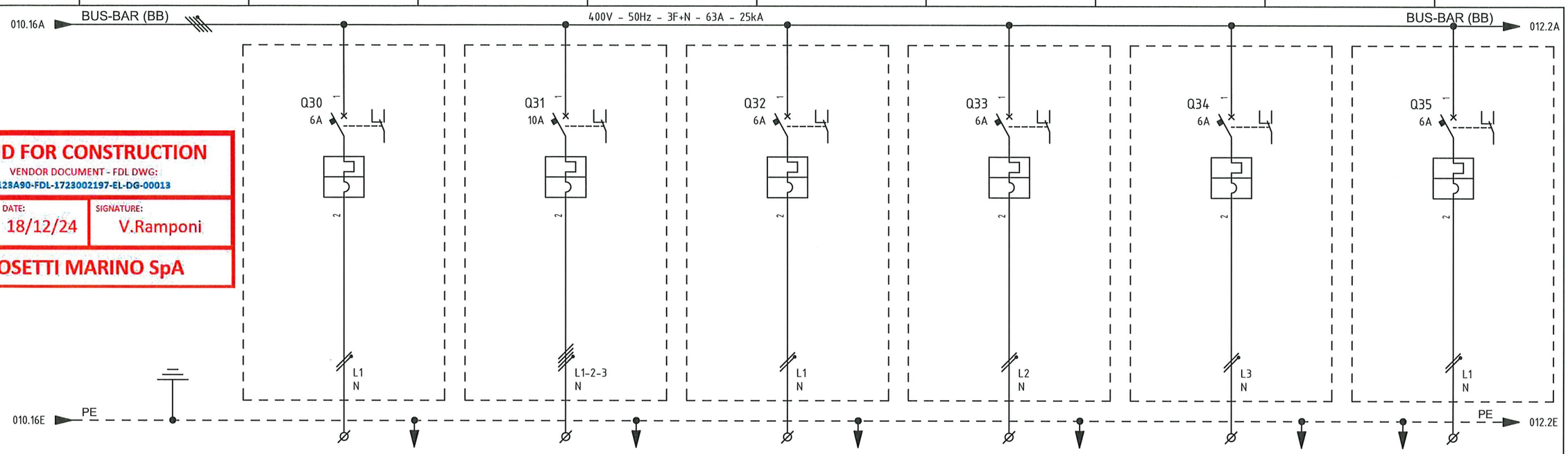
Section 2.2 Exception Punch Lists (per discipline)

Project CROSSWIND

PUNCH LIST REPORT

NO DATA AVAILABLE

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



VALID FOR CONSTRUCTION

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

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

ROSETTI MARINO SpA

ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	1 KW | 1.81 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

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DWG n° : 231298/SD/13
Item n° : PF1002888/101

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

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

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

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

A3 | DRAWING NO. 1723002197-EL-DG-00013 | SHEET 011 | REV. 04

F.to UNI A3: 420mmx297mm

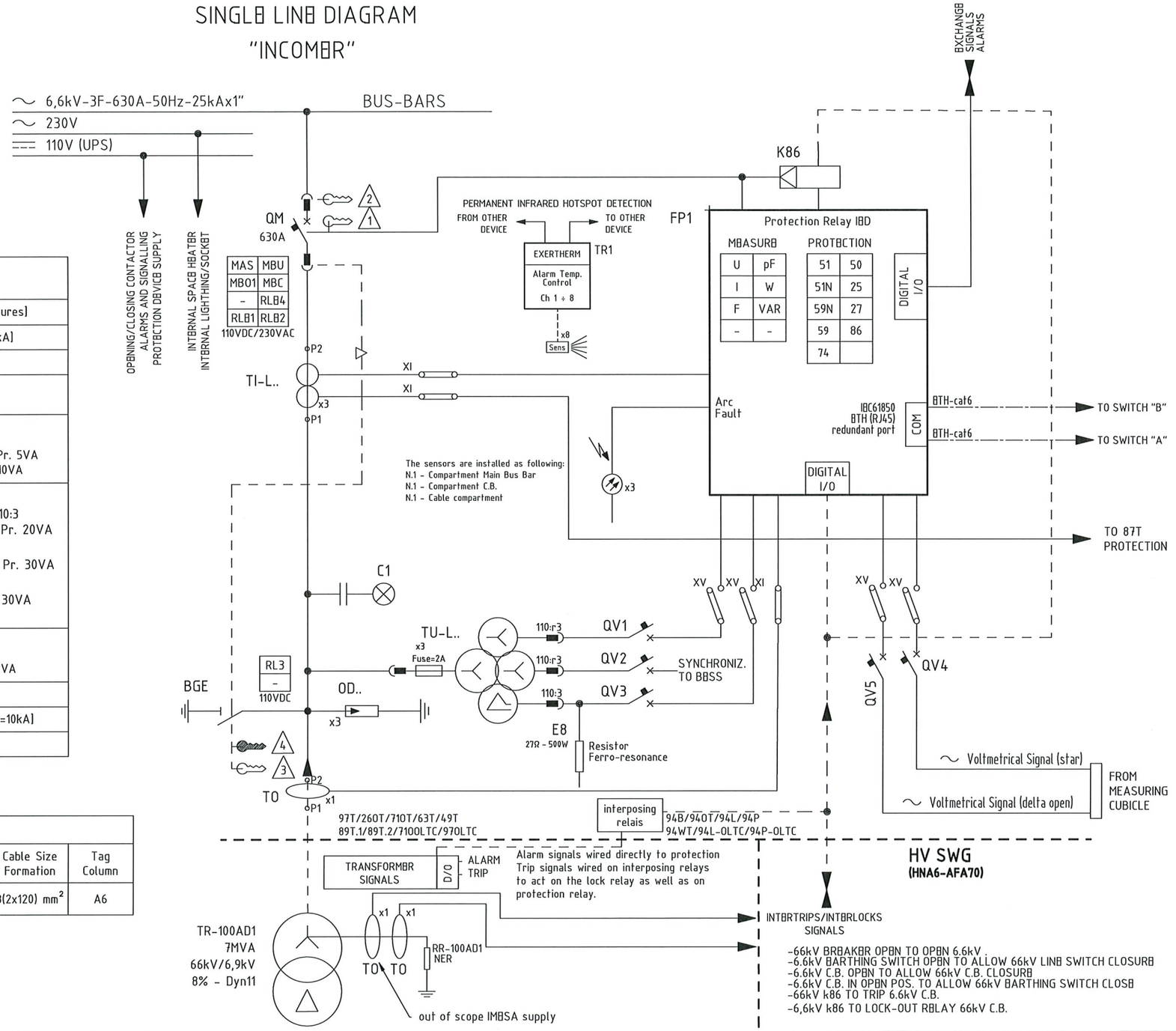
File Name : 1723002197-EL-DG-00013 Rev. 04

AS COMMISSIONED DAVIDE ZUCCARELLI NO MARKUP 21/03/2025

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 "INCOMER"



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 - 600/1-1 - 25kA 1°winding : Cl. 0,5+5P20 - Pr. 5VA 2°winding : Cl. 5P25 - Pr. 10VA
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
TR-100AD1	INCOMING	7 MVA	600 / 1A	3(2x120) mm²	A6

AS COMMISSIONED: MATCA GIUSTI
NO MARK UP
28/3/25

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)

DWG n°: 231151/SD/10
Item n°: PF1113279/4

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-100D1"

ELECTRICAL SINGLE LINE DIAGRAM
Column A6 : Incoming TR-100AD1

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00010

SHEET 009

REV. 04

F.to UNI A3: 420mmx297mm

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

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	81	Main Power Distribution High Voltage 66 kV
SUBSYSTEM	81-20	Power Transformer 7 MVA (TR-100AD1)

Telecom

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000968	A	TR-100AD1AVR /B400-NET-001 C10004374	The cable gland suit not for cable type. (should be type M20S)	.		APolo 2024-11-27	2025-01-27	Ecarotenuto 2025-01-27	2025-01-27
C30000964	B	TR-100AD1AVR /B400-NET-001 C10004374	The copper conductor of the cable armor must be individually connected to the earthing bar. See 123A90-DDL-EL-DD-20090. (B400-NET-001)	.		APolo 2024-11-27	2025-02-04	APolo 2025-02-04	2025-02-04
C30000965	B	TR-100AD1AVR /B400-NET-001 C10004374	The cable is not supported and fixed to the rack (outside TR-100AD1AVR)	.		APolo 2024-11-27	2025-01-22	APolo 2025-01-22	2025-01-22
C30000966	B	TR-100AD1AVR /B400-NET-001 C10004374	Missing cable tag SS project, side TR-100AD1AVR.	.		APolo 2024-11-27	2025-01-02	Ecarotenuto 2025-01-02	2025-01-02
C30000967	B	TR-100AD1AVR /B400-NET-001 C10004374	Missing cable tag , inside pannel TR-100AD1AVR .	.		APolo 2024-11-27	2025-02-25	APolo 2025-02-25	2025-02-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001552	A	82014-CEC C10002320	the cable is not protected before entering the panel . (SG-100D1) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001570	A	81007-CEC C10002126	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001574	A	81006-CEC C10002125	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001578	A	81005-CEC C10002124	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001582	A	81004-CEC C10002123	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30001586	A	81003-CEC C10002122	The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-	.		Gtangianu 2024-12-09	2024-12-30	Gtangianu 2024-12-30	2024-12-30
C30004146	A	81002-CEH-L1 C10000465	Cable gland on trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23
C30004148	A	81002-CEH-L2 C10000466	Cable glands on the trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23
C30004150	A	81002-CEH-L3 C10000467	Cable gland on the trasformer side needs be tightened	.		JKrizanic 2025-02-26	2025-05-23	Gtangianu 2025-05-23	2025-05-23

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001170	B	83115-CEL C10000634	Missing core identification tag RR-100D1 side	.		Pschintu 2024-12-03	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30001171	B	83115-CEL C10000634	Missing SS cable tag	.		Pschintu 2024-12-03	2025-01-30	APolo 2025-01-30	2025-01-30
C30001172	B	83112-CEL C10000631	Missing core identification tag both side	.		Pschintu 2024-12-03	2025-06-19	Ecarotenuto 2025-06-19	2025-06-19
C30001173	B	83112-CEL C10000631	Missing SS cable tag.	.		Pschintu 2024-12-03	2025-01-30	APolo 2025-01-30	2025-01-30
C30001174	B	83113-CEL C10000632	Missing core identification tags both side	.		Pschintu 2024-12-03	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30001175	B	83113-CEL C10000632	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001176	B	83114-CEL C10000633	Missing SS cable tag	.		Pschintu 2024-12-03	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001177	B	83114-CEL C10000633	Missing core identification tags both side	.		Pschintu 2024-12-03	2025-06-10	Ecarotenuto 2025-06-10	2025-06-10
C30001549	B	82014-CEC C10002320	Missing cable tags both side . (82014-CEC)	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001550	B	82014-CEC C10002320	Missing cable tags on routing, inside and outside the panels	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001551	B	82014-CEC C10002320	Spare cores to be properly isolated both side the cable. (RR-100D1/SG-100D1)	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001569	B	81007-CEC C10002126	Identification tag wire missing both side the cable (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001571	B	81007-CEC C10002126	Spare cores to be properly isolated both side the cable. (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001572	B	81007-CEC C10002126	Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001573	B	81006-CEC C10002125	Identification tag wires missing both side the cable (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001575	B	81006-CEC C10002125	Spare cores to be properly isolated both side the cable. (TR-100AD1/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001576	B	81006-CEC C10002125	Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001577	B	81005-CEC C10002124	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-19	AAndreani 2025-02-19	2025-02-19

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV

SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001579	B	81005-CEC C10002124	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001580	B	81005-CEC C10002124	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001581	B	81004-CEC C10002123	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001583	B	81004-CEC C10002123	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30001584	B	81004-CEC C10002123	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30001585	B	81003-CEC C10002122	Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30001587	B	81003-CEC C10002122	Spare cores to be properly isolated both side the cable. (CP-100E4/SG-100D1 Panel A6).	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001588	B	81003-CEC C10002122	Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)	.		Gtangianu 2024-12-09	2025-01-30	APolo 2025-01-30	2025-01-30
C30001889	B	82001-CEM-1-L1 C10000468	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82001-CEM-1-L2 and 82001-CEM-1-L3	.		Pschintu 2024-12-16	2025-01-03	Ecarotenuto 2025-01-03	2025-01-03

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 81 Main Power Distribution High Voltage 66 kV
SUBSYSTEM 81-20 Power Transformer 7 MVA (TR-100AD1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001890	B	82001-CEM-1-L1 C10000468	Missing cable tag on routing. Point valid also for 82001-CEM-1-L2, 82001-CEM-1-L3, 82001-CEM-2-L1, 82001-CEM-2-L2,	.		Pschintu 2024-12-16	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001938	B	82002-CEC C10002130	Missing cable tag CP-100E3 Transformer side	.		Pschintu 2024-12-17	2025-02-07	Pschintu 2025-02-07	2025-02-07
C30001939	B	82002-CEC C10002130	Missing core identification tag CP-100E3 Transformer side	.		Pschintu 2024-12-17	2025-02-15	AAndreani 2025-02-15	2025-02-15
C30002020	B	82001-CEM-2-L1 C10000469	Missing cable cleats stainless steel with TPE cable protection. Point valid also for 82001-CEM-2-L2 and 82001-CEM-2-L3	.		Pschintu 2024-12-19	2025-02-07	Pschintu 2025-02-07	2025-02-07
C30004144	B	81002-CEH-L1 C10000465	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004145	B	81002-CEH-L1 C10000465	Inside cabine B100 cable is touching panel GIS need be better dresed "see attached foto"	.		JKrizanic 2025-02-26	2025-05-05	Gtangianu 2025-05-05	2025-05-05
C30004147	B	81002-CEH-L2 C10000466	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004149	B	81002-CEH-L3 C10000467	Missing cable Tag along the cable routing	.		JKrizanic 2025-02-26	2025-03-13	JKrizanic 2025-03-13	2025-03-13
C30004151	B	81002-CEH-L3 C10000467	Cable touching structural support on the side trasformer "see foto"	.		JKrizanic 2025-02-26	2025-05-05	Gtangianu 2025-05-05	2025-05-05

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004146

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000465	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L1		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Cable gland on trasformer side needs be tightened

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

“Accepted by RM as per attached Technical Assessment Report”

Name: Giovanni Tangianu

Date: 2025-05-23

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Technical Assessment Report – HV Cable Gland Installation

Subject: Evaluation and Conditional Acceptance of HV Cable Entry – Transformer Side (Item Code: 81002-CEH-L1/L2/L3)

Prepared by: Raffaele Degli Esposti – PQM

Reviewed by: Sofia Marchetti – E/I CM

Reviewed by: Claudia Giunchi - PEM

1. Background

During installation activities, the MC raised punch list items regarding the adequacy of the cable glands installed on the transformer HV side (PL Numbers C30004146, C30004148, and C30004150). The main concern was that the M63 cable glands did not provide sufficient tightening, allowing a cable tie to be inserted through the gap.

An alternative solution has been implemented on-site to address the issue without necessitating the removal and replacement of the HV cables, which would be technically complex due to space limitations and cable shortages.

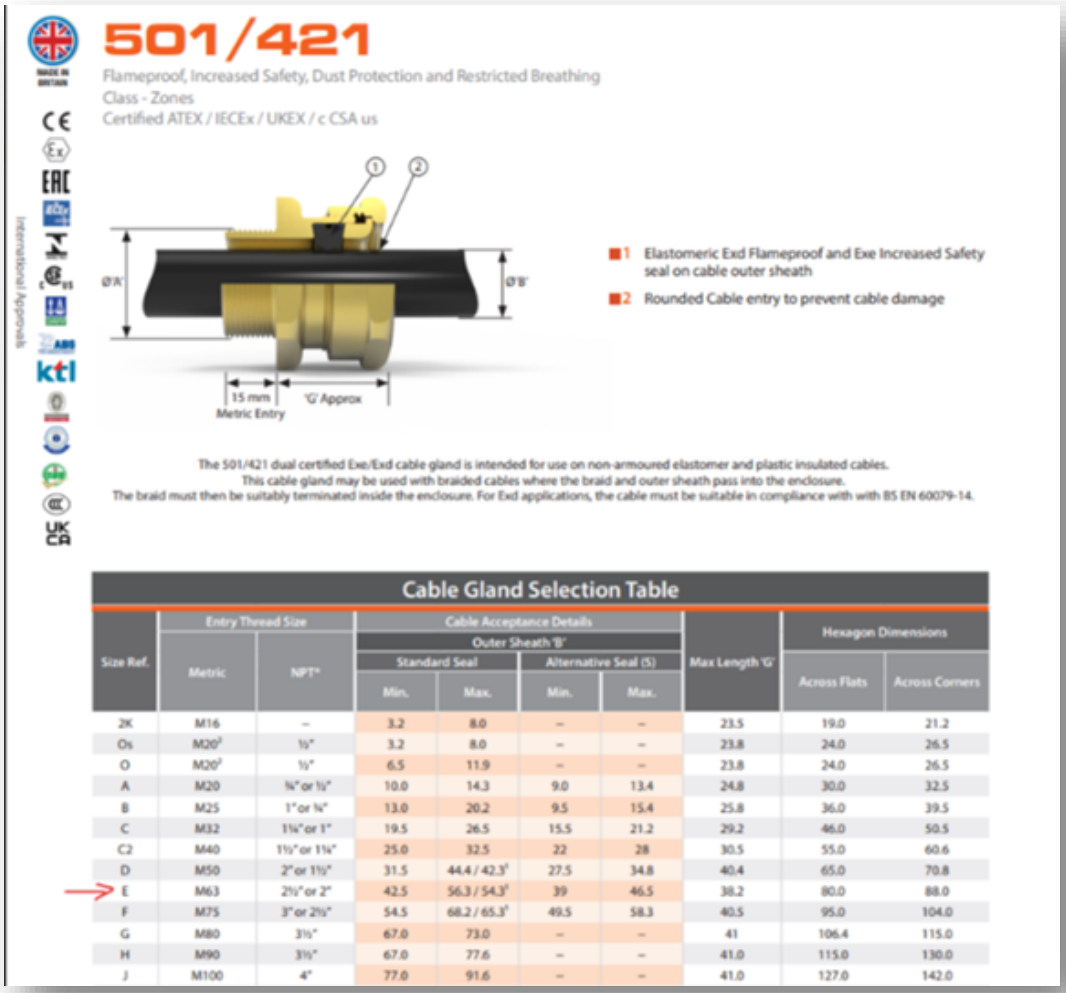
2. Site Conditions and Constraints

The following constraints supported the decision to avoid cable withdrawal:
- The installation area is extremely confined, making mechanical reworking impractical.
- Additional cable length is unavailable, and no spare cable is foreseen in the routing.
- The HV cable supplier was responsible for cable laying and terminations and did not raise any objection during or after completion.
- Disconnection and re-termination would pose a significant risk to cable integrity and require additional QA/QC verifications.

3. Installation Configuration

Based on the technical datasheet of the 501/421 cable gland (M63 size), the standard sealing range begins at 42.5 mm. The installed cable has an outer sheath diameter of approximately 42.3 ± 1 mm, as specified in the HV cable data sheet. This places it at the lower end of the sealing range, likely explaining the slight gap observed during inspection (e.g., the ability to insert a cable tie). The gland remains within its valid operating range, and the installation is technically acceptable.

Figure 1 – Technical datasheet extract for 501/421 cable gland (M63).



501/421

Flameproof, Increased Safety, Dust Protection and Restricted Breathing
Class - Zones
Certified ATEX / IECEx / UKEX / c CSA us

1 Elastomeric Exd Flameproof and Exe Increased Safety seal on cable outer sheath
2 Rounded Cable entry to prevent cable damage

The 501/421 dual certified Exe/Exd cable gland is intended for use on non-armoured elastomer and plastic insulated cables.
This cable gland may be used with braided cables where the braid and outer sheath pass into the enclosure.
The braid must then be suitably terminated inside the enclosure. For Exd applications, the cable must be suitable in compliance with with BS EN 60079-14.

Cable Gland Selection Table

Size Ref.	Entry Thread Size		Cable Acceptance Details – Outer Sheath 'B'				Max Length 'G'	Hexagon Dimensions	
	Metric	NPT*	Standard Seal		Alternative Seal (5)			Across Flats	Across Corners
			Min.	Max.	Min.	Max.			
2K	M16	–	3.2	8.0	–	–	23.5	19.0	21.2
Os	M20[3]	½"	3.2	8.0	–	–	23.8	24.0	26.5
O	M20[3]	½"	6.5	11.9	–	–	23.8	24.0	26.5
A	M20	¾" or ½"	10.0	14.3	9.0	13.4	24.8	30.0	32.5
B	M25	1" or ¾"	13.0	20.2	9.5	15.4	25.8	36.0	39.5
C	M32	1¼" or 1"	19.5	26.5	15.5	21.2	29.2	46.0	50.5
C2	M40	1½" or 1¼"	25.0	32.5	22	28	30.5	55.0	60.6
D	M50	2" or 1½"	31.5	44.4 / 42.3[1]	27.5	34.8	40.4	65.0	70.8
E	M63	2½" or 2"	42.5	56.3 / 54.3[1]	39	46.5	38.2	80.0	88.0
F	M75	3" or 2½"	54.5	68.2 / 65.3[1]	49.5	58.3	40.5	95.0	104.0
G	M80	3½"	67.0	73.0	–	–	41	106.4	115.0
H	M90	3½"	67.0	77.6	–	–	41.0	115.0	130.0
J	M100	4"	77.0	91.6	–	–	41.0	127.0	142.0

The as-built installation is configured as follows:

- The M63 cable glands are used not as clamping glands, but as simple mechanical entries, effectively functioning as pass-through devices.
- The required IP56 protection degree is ensured by the proper installation of the cable gland components, complemented externally by a silicone split-type heat-shrinkable sleeve, designed to restore sealing continuity around the cable.
- The sleeve installation was completed after gland assembly, encompassing both the cable and gland body, eliminating potential ingress paths.

4. Mechanical Stress and Cable Support Evaluation

To assess the mechanical reliability of the solution, the following aspects were inspected and verified:

- Visual inspection confirmed that the HV cables exit the gland in a straight and relaxed configuration, with a minimum of 10 cm of linear run.
- No signs of cable distortion or overbending were observed.
- The cables are properly supported with fixed clamps within 20–30 cm of the gland entries.
- During manual checks, no cable movement or play was detected, suggesting the routing is adequately stabilised.

5. Functional Evaluation

The current setup achieves the core functional requirements for this type of installation:

- IP56 rating is considered met through the use of cable gland components and an external sleeve.
- External supports and proper routing provide mechanical strain relief.
- No deviations from electrical design or termination integrity are introduced.
- The cable manufacturer has implicitly accepted the installation by completing terminations without objections.

6. Acceptance Criteria and Recommendation

Based on the findings, the following conclusions are drawn:

- The installation is technically acceptable under specific site conditions.
- The solution is a controlled deviation and must be documented and approved.
- Recommended actions:
  - Retain photographic records.
  - Archive the sleeve installation manual.
  - Include this configuration in the as-built documentation and plan a follow-up inspection.

Note on Protection Functions: The T-connector provides protection against gas and moisture ingress along the high-voltage connection (e.g., Euromold 430TB), which ensures electrical insulation and environmental sealing between the cable and the equipment.
Conversely, the ingress protection of the transformer protection box (e.g., IP56 or IP65 as specified) is guaranteed by the cable gland (e.g., M63), which prevents external dust and water from entering the enclosure.
Therefore, compliance with the specified IP rating for the box directly depends on the cable gland's proper installation and sealing performance.

7. Final Conclusion

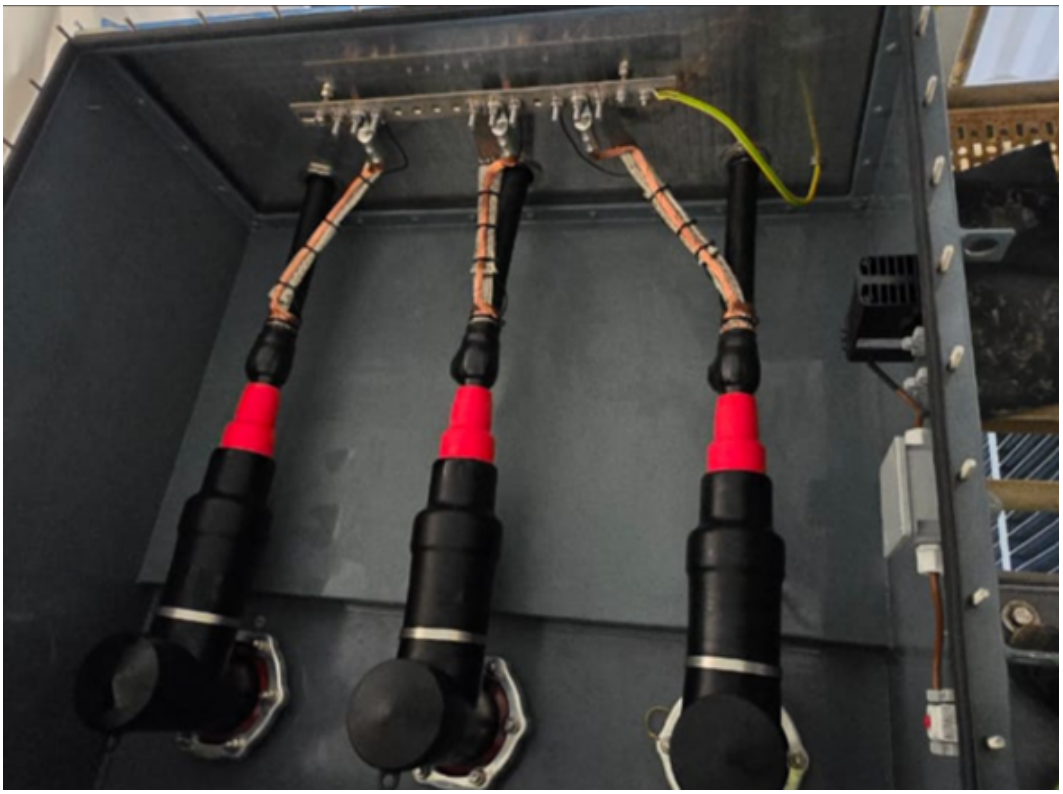
The HV cable gland installation, as modified with the use of a silicone heat-shrink sleeve and supported by evidence of good mechanical routing and absence of strain, is considered acceptable for service. Installation constraints justify the solution and can be formally closed as resolved punch items.

Annexe A – Installation Photo Documentation

Figure 2 – Restricted space area during HV cable installation.



Figure 3 – Final HV cable termination inside transformer box.



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004147

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000466	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L2		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable Tag along the cable routing

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-13

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-13

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004148

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000466	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L2		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Cable glands on the trasformer side needs be tightened

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

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3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

“Accepted by RM as per attached Technical Assessment Report”

Name: Giovanni Tangianu

Date: 2025-05-23

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Technical Assessment Report – HV Cable Gland Installation

Subject: Evaluation and Conditional Acceptance of HV Cable Entry – Transformer Side (Item Code: 81002-CEH-L1/L2/L3)

Prepared by: Raffaele Degli Esposti – PQM

Reviewed by: Sofia Marchetti – E/I CM

Reviewed by: Claudia Giunchi - PEM

1. Background

During installation activities, the MC raised punch list items regarding the adequacy of the cable glands installed on the transformer HV side (PL Numbers C30004146, C30004148, and C30004150). The main concern was that the M63 cable glands did not provide sufficient tightening, allowing a cable tie to be inserted through the gap.

An alternative solution has been implemented on-site to address the issue without necessitating the removal and replacement of the HV cables, which would be technically complex due to space limitations and cable shortages.

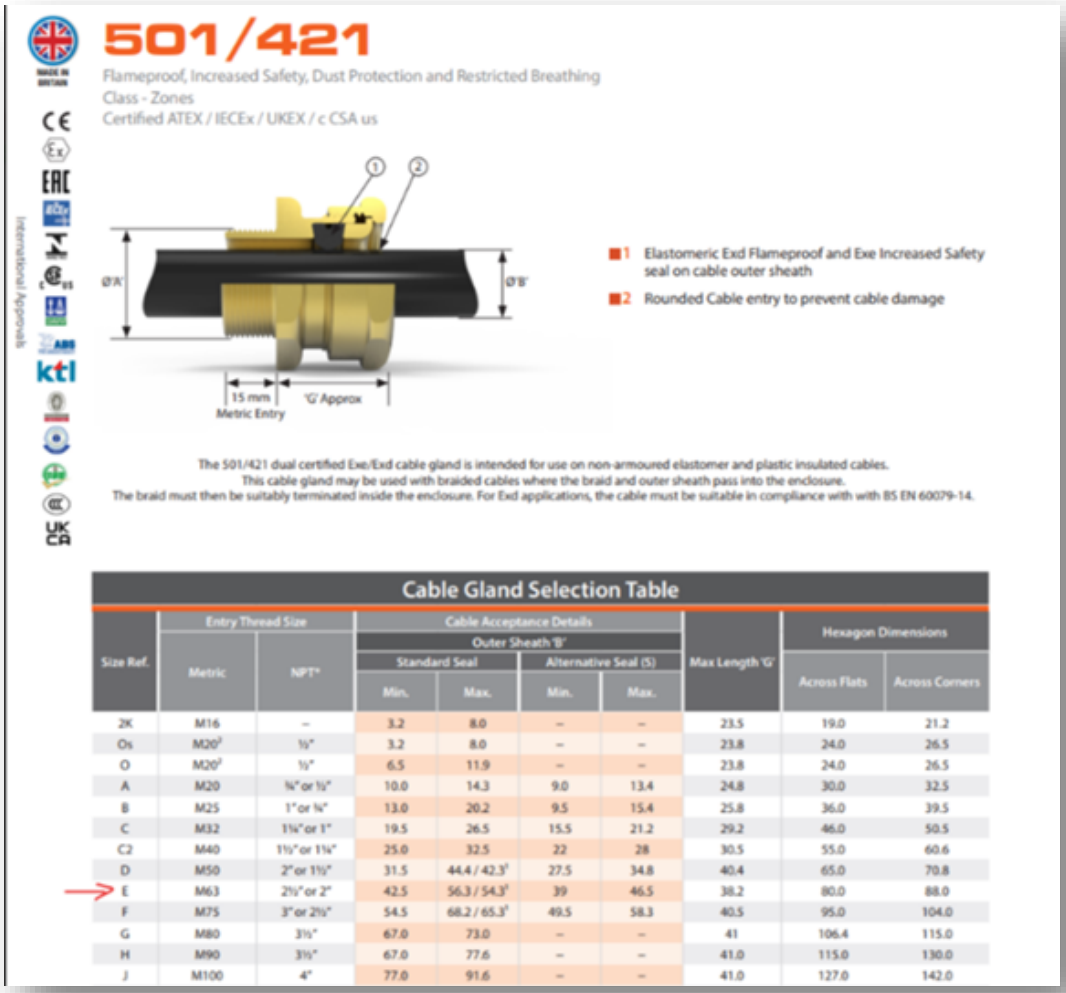
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- Disconnection and re-termination would pose a significant risk to cable integrity and require additional QA/QC verifications.

3. Installation Configuration

Based on the technical datasheet of the 501/421 cable gland (M63 size), the standard sealing range begins at 42.5 mm. The installed cable has an outer sheath diameter of approximately 42.3 ± 1 mm, as specified in the HV cable data sheet. This places it at the lower end of the sealing range, likely explaining the slight gap observed during inspection (e.g., the ability to insert a cable tie). The gland remains within its valid operating range, and the installation is technically acceptable.

Figure 1 – Technical datasheet extract for 501/421 cable gland (M63).



501/421

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Class - Zones
Certified ATEX / IECEx / UKEX / c CSA us

1 Elastomeric Exd Flameproof and Exe Increased Safety seal on cable outer sheath
2 Rounded Cable entry to prevent cable damage

The 501/421 dual certified Exe/Exd cable gland is intended for use on non-armoured elastomer and plastic insulated cables.
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The braid must then be suitably terminated inside the enclosure. For Exd applications, the cable must be suitable in compliance with with BS EN 60079-14.

Cable Gland Selection Table

Size Ref.	Entry Thread Size		Cable Acceptance Details – Outer Sheath 'B'				Max Length 'G'	Hexagon Dimensions	
	Metric	NPT*	Standard Seal		Alternative Seal (5)			Across Flats	Across Corners
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B	M25	1" or ¾"	13.0	20.2	9.5	15.4	25.8	36.0	39.5
C	M32	1¼" or 1"	19.5	26.5	15.5	21.2	29.2	46.0	50.5
C2	M40	1½" or 1¼"	25.0	32.5	22	28	30.5	55.0	60.6
D	M50	2" or 1½"	31.5	44.4 / 42.3[1]	27.5	34.8	40.4	65.0	70.8
E	M63	2½" or 2"	42.5	56.3 / 54.3[1]	39	46.5	38.2	80.0	88.0
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H	M90	3½"	67.0	77.6	–	–	41.0	115.0	130.0
J	M100	4"	77.0	91.6	–	–	41.0	127.0	142.0

The as-built installation is configured as follows:

- The M63 cable glands are used not as clamping glands, but as simple mechanical entries, effectively functioning as pass-through devices.
- The required IP56 protection degree is ensured by the proper installation of the cable gland components, complemented externally by a silicone split-type heat-shrinkable sleeve, designed to restore sealing continuity around the cable.
- The sleeve installation was completed after gland assembly, encompassing both the cable and gland body, eliminating potential ingress paths.

4. Mechanical Stress and Cable Support Evaluation

To assess the mechanical reliability of the solution, the following aspects were inspected and verified:

- Visual inspection confirmed that the HV cables exit the gland in a straight and relaxed configuration, with a minimum of 10 cm of linear run.
- No signs of cable distortion or overbending were observed.
- The cables are properly supported with fixed clamps within 20–30 cm of the gland entries.
- During manual checks, no cable movement or play was detected, suggesting the routing is adequately stabilised.

5. Functional Evaluation

The current setup achieves the core functional requirements for this type of installation:

- IP56 rating is considered met through the use of cable gland components and an external sleeve.
- External supports and proper routing provide mechanical strain relief.
- No deviations from electrical design or termination integrity are introduced.
- The cable manufacturer has implicitly accepted the installation by completing terminations without objections.

6. Acceptance Criteria and Recommendation

Based on the findings, the following conclusions are drawn:

- The installation is technically acceptable under specific site conditions.
- The solution is a controlled deviation and must be documented and approved.
- Recommended actions:
  - Retain photographic records.
  - Archive the sleeve installation manual.
  - Include this configuration in the as-built documentation and plan a follow-up inspection.

Note on Protection Functions: The T-connector provides protection against gas and moisture ingress along the high-voltage connection (e.g., Euromold 430TB), which ensures electrical insulation and environmental sealing between the cable and the equipment.
Conversely, the ingress protection of the transformer protection box (e.g., IP56 or IP65 as specified) is guaranteed by the cable gland (e.g., M63), which prevents external dust and water from entering the enclosure.
Therefore, compliance with the specified IP rating for the box directly depends on the cable gland's proper installation and sealing performance.

7. Final Conclusion

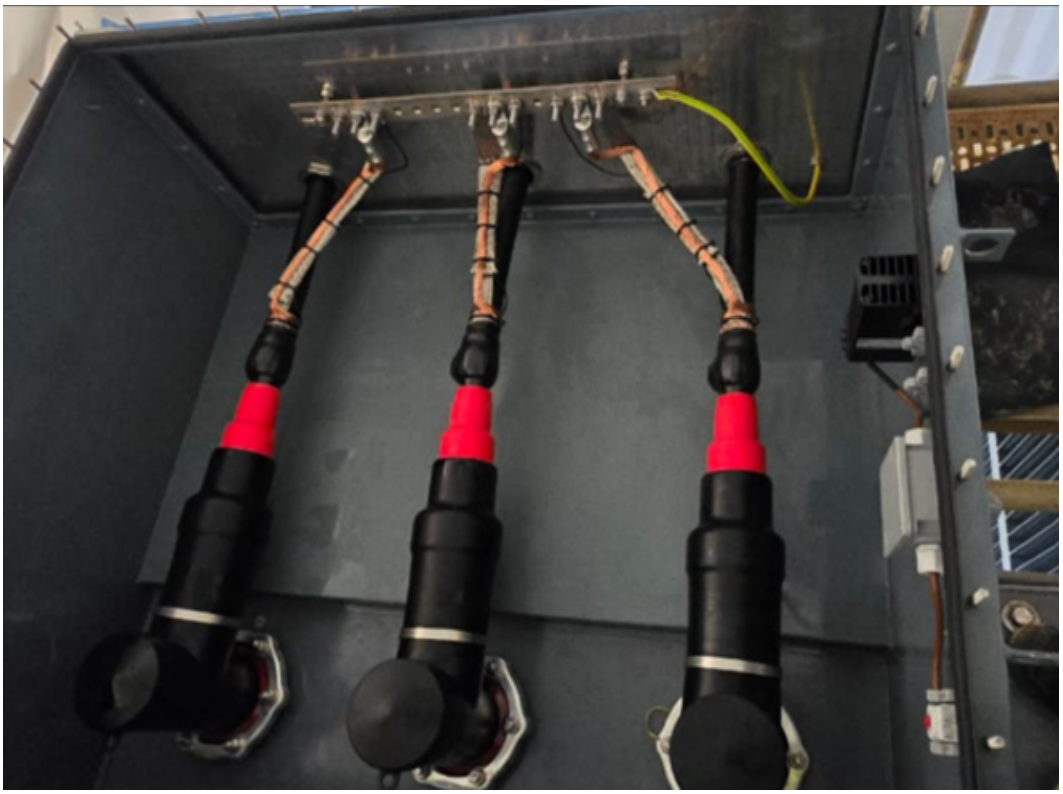
The HV cable gland installation, as modified with the use of a silicone heat-shrink sleeve and supported by evidence of good mechanical routing and absence of strain, is considered acceptable for service. Installation constraints justify the solution and can be formally closed as resolved punch items.

Annexe A – Installation Photo Documentation

Figure 2 – Restricted space area during HV cable installation.



Figure 3 – Final HV cable termination inside transformer box.



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004149

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000467	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L3		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable Tag along the cable routing

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-13

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-13

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004150

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000467	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L3		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Cable gland on the trasformer side needs be tightened

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

“Accepted by RM as per attached Technical Assessment Report”

Name: Giovanni Tangianu

Date: 2025-05-23

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Technical Assessment Report – HV Cable Gland Installation

Subject: Evaluation and Conditional Acceptance of HV Cable Entry – Transformer Side (Item Code: 81002-CEH-L1/L2/L3)

Prepared by: Raffaele Degli Esposti – PQM

Reviewed by: Sofia Marchetti – E/I CM

Reviewed by: Claudia Giunchi - PEM

1. Background

During installation activities, the MC raised punch list items regarding the adequacy of the cable glands installed on the transformer HV side (PL Numbers C30004146, C30004148, and C30004150). The main concern was that the M63 cable glands did not provide sufficient tightening, allowing a cable tie to be inserted through the gap.

An alternative solution has been implemented on-site to address the issue without necessitating the removal and replacement of the HV cables, which would be technically complex due to space limitations and cable shortages.

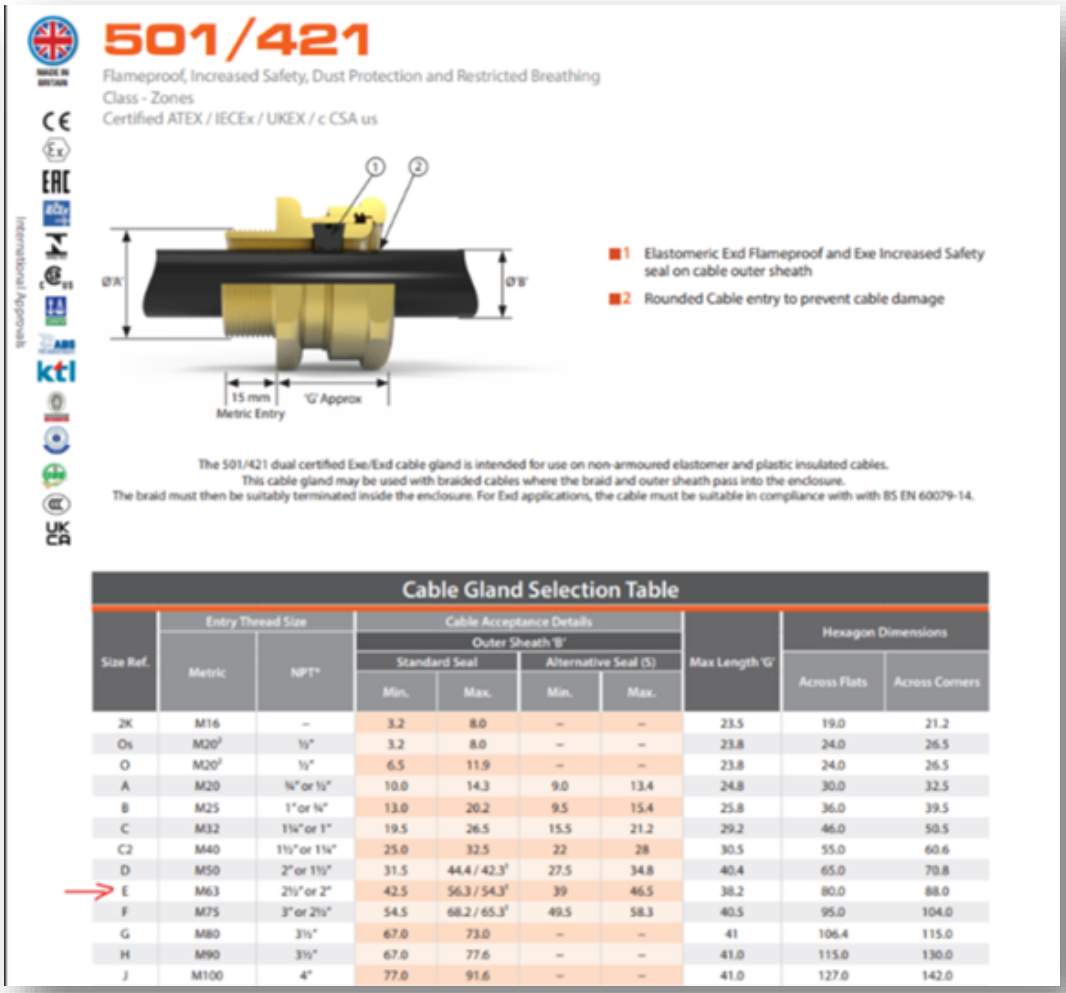
2. Site Conditions and Constraints

The following constraints supported the decision to avoid cable withdrawal:
- The installation area is extremely confined, making mechanical reworking impractical.
- Additional cable length is unavailable, and no spare cable is foreseen in the routing.
- The HV cable supplier was responsible for cable laying and terminations and did not raise any objection during or after completion.
- Disconnection and re-termination would pose a significant risk to cable integrity and require additional QA/QC verifications.

3. Installation Configuration

Based on the technical datasheet of the 501/421 cable gland (M63 size), the standard sealing range begins at 42.5 mm. The installed cable has an outer sheath diameter of approximately 42.3 ± 1 mm, as specified in the HV cable data sheet. This places it at the lower end of the sealing range, likely explaining the slight gap observed during inspection (e.g., the ability to insert a cable tie). The gland remains within its valid operating range, and the installation is technically acceptable.

Figure 1 – Technical datasheet extract for 501/421 cable gland (M63).



501/421

Flameproof, Increased Safety, Dust Protection and Restricted Breathing
Class - Zones
Certified ATEX / IECEx / UKEX / c CSA us

1 Elastomeric Exd Flameproof and Exe Increased Safety seal on cable outer sheath
2 Rounded Cable entry to prevent cable damage

The 501/421 dual certified Exe/Exd cable gland is intended for use on non-armoured elastomer and plastic insulated cables.
This cable gland may be used with braided cables where the braid and outer sheath pass into the enclosure.
The braid must then be suitably terminated inside the enclosure. For Exd applications, the cable must be suitable in compliance with with BS EN 60079-14.

Cable Gland Selection Table

Size Ref.	Entry Thread Size		Cable Acceptance Details – Outer Sheath 'B'				Max Length 'G'	Hexagon Dimensions	
	Metric	NPT*	Standard Seal		Alternative Seal (5)			Across Flats	Across Corners
			Min.	Max.	Min.	Max.			
2K	M16	–	3.2	8.0	–	–	23.5	19.0	21.2
Os	M20[3]	½"	3.2	8.0	–	–	23.8	24.0	26.5
O	M20[3]	½"	6.5	11.9	–	–	23.8	24.0	26.5
A	M20	¾" or ½"	10.0	14.3	9.0	13.4	24.8	30.0	32.5
B	M25	1" or ¾"	13.0	20.2	9.5	15.4	25.8	36.0	39.5
C	M32	1¼" or 1"	19.5	26.5	15.5	21.2	29.2	46.0	50.5
C2	M40	1½" or 1¼"	25.0	32.5	22	28	30.5	55.0	60.6
D	M50	2" or 1½"	31.5	44.4 / 42.3[1]	27.5	34.8	40.4	65.0	70.8
E	M63	2½" or 2"	42.5	56.3 / 54.3[1]	39	46.5	38.2	80.0	88.0
F	M75	3" or 2½"	54.5	68.2 / 65.3[1]	49.5	58.3	40.5	95.0	104.0
G	M80	3½"	67.0	73.0	–	–	41	106.4	115.0
H	M90	3½"	67.0	77.6	–	–	41.0	115.0	130.0
J	M100	4"	77.0	91.6	–	–	41.0	127.0	142.0

The as-built installation is configured as follows:

- The M63 cable glands are used not as clamping glands, but as simple mechanical entries, effectively functioning as pass-through devices.
- The required IP56 protection degree is ensured by the proper installation of the cable gland components, complemented externally by a silicone split-type heat-shrinkable sleeve, designed to restore sealing continuity around the cable.
- The sleeve installation was completed after gland assembly, encompassing both the cable and gland body, eliminating potential ingress paths.

4. Mechanical Stress and Cable Support Evaluation

To assess the mechanical reliability of the solution, the following aspects were inspected and verified:

- Visual inspection confirmed that the HV cables exit the gland in a straight and relaxed configuration, with a minimum of 10 cm of linear run.
- No signs of cable distortion or overbending were observed.
- The cables are properly supported with fixed clamps within 20–30 cm of the gland entries.
- During manual checks, no cable movement or play was detected, suggesting the routing is adequately stabilised.

5. Functional Evaluation

The current setup achieves the core functional requirements for this type of installation:

- IP56 rating is considered met through the use of cable gland components and an external sleeve.
- External supports and proper routing provide mechanical strain relief.
- No deviations from electrical design or termination integrity are introduced.
- The cable manufacturer has implicitly accepted the installation by completing terminations without objections.

6. Acceptance Criteria and Recommendation

Based on the findings, the following conclusions are drawn:

- The installation is technically acceptable under specific site conditions.
- The solution is a controlled deviation and must be documented and approved.
- Recommended actions:
  - Retain photographic records.
  - Archive the sleeve installation manual.
  - Include this configuration in the as-built documentation and plan a follow-up inspection.

Note on Protection Functions: The T-connector provides protection against gas and moisture ingress along the high-voltage connection (e.g., Euromold 430TB), which ensures electrical insulation and environmental sealing between the cable and the equipment.
Conversely, the ingress protection of the transformer protection box (e.g., IP56 or IP65 as specified) is guaranteed by the cable gland (e.g., M63), which prevents external dust and water from entering the enclosure.
Therefore, compliance with the specified IP rating for the box directly depends on the cable gland's proper installation and sealing performance.

7. Final Conclusion

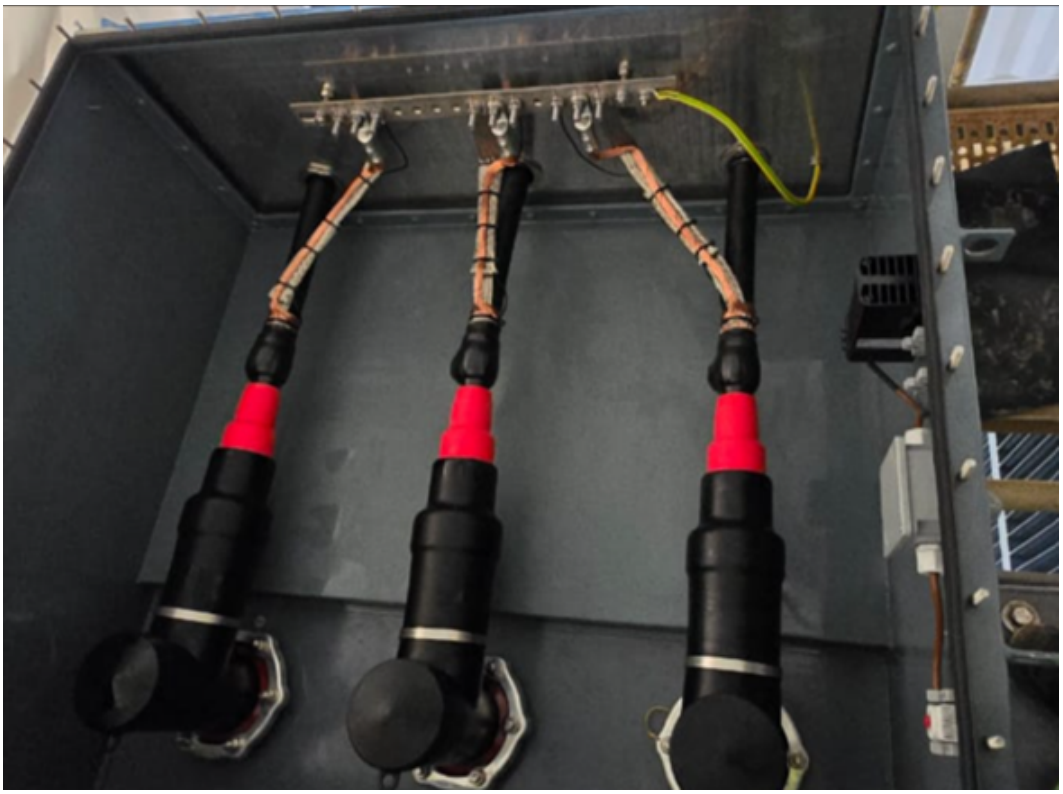
The HV cable gland installation, as modified with the use of a silicone heat-shrink sleeve and supported by evidence of good mechanical routing and absence of strain, is considered acceptable for service. Installation constraints justify the solution and can be formally closed as resolved punch items.

Annexe A – Installation Photo Documentation

Figure 2 – Restricted space area during HV cable installation.



Figure 3 – Final HV cable termination inside transformer box.



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004151

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000467	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L3		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Cable touching structural support on the side trasformer "see foto"

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-05-05

Signature:

5 - CLEARANCE CHECK

The cable was insulated from the structure. See attached photo.

Name: Giovanni Tangianu

Date: 2025-05-05

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-05-05

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001575

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002125	1.4 Discipline	Electrical
1.2 Item	81006-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(TR-100AD1/SG-100D1 Panel A6).

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo
Date: 2025-01-30
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001576

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002125	1.4 Discipline	Electrical
1.2 Item	81006-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001577

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002124	1.4 Discipline	Electrical
1.2 Item	81005-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001578

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002124	1.4 Discipline	Electrical
1.2 Item	81005-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE.

Name: Giovanni Tangianu

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001579

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002124	1.4 Discipline	Electrical
1.2 Item	81005-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

spare core is properly isolated.

Name: Giovanni Tangianu
Date: 2025-02-04
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001580

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002124	1.4 Discipline	Electrical
1.2 Item	81005-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001581

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002123	1.4 Discipline	Electrical
1.2 Item	81004-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001582

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002123	1.4 Discipline	Electrical
1.2 Item	81004-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE.

Name: Giovanni Tangianu

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001583

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002123	1.4 Discipline	Electrical
1.2 Item	81004-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Isolated.

Name: Giovanni Tangianu
Date: 2025-02-04
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001584

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002123	1.4 Discipline	Electrical
1.2 Item	81004-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001585

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002122	1.4 Discipline	Electrical
1.2 Item	81003-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Identification tag wires missing both side the cable (CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001586

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002122	1.4 Discipline	Electrical
1.2 Item	81003-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE.

Name: Giovanni Tangianu

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001587

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002122	1.4 Discipline	Electrical
1.2 Item	81003-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(CP-100E4/SG-100D1 Panel A6).

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo
Date: 2025-01-30
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001588

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002122	1.4 Discipline	Electrical
1.2 Item	81003-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels CP-100E4/SG-100D1 Panel A6)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001889

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000468	1.4 Discipline	Electrical
1.2 Item	82001-CEM-1-L1		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable cleats stainless steel with TPE cable protection.
Point valid also for 82001-CEM-1-L2 and 82001-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

C30001890

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000468	1.4 Discipline	Electrical
1.2 Item	82001-CEM-1-L1		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tag on routing. Point valid also for 82001-CEM-1-L2, 82001-CEM-1-L3, 82001-CEM-2-L1, 82001-CEM-2-L2, 82001-CEM-2-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: Paolo Schintu
Date: 2025-02-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001938

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002130	1.4 Discipline	Electrical
1.2 Item	82002-CEC		6.6KV HV Switchgear / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tag CP-100E3 Transformer side

Name: Paolo Schintu

Date: 2024-12-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-17
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:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001939

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002130	1.4 Discipline	Electrical
1.2 Item	82002-CEC		6.6KV HV Switchgear / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing core identification tag CP-100E3 Transformer side

Name: Paolo Schintu

Date: 2024-12-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-17
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002020

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000469	1.4 Discipline	Electrical
1.2 Item	82001-CEM-2-L1		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable cleats stainless steel with TPE cable protection.
Point valid also for 82001-CEM-2-L2 and 82001-CEM-2-L3

Name: Paolo Schintu
Date: 2024-12-19
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	2024-12-19
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:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004144

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000465	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L1		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable Tag along the cable routing

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-13

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-13

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-13

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004145

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000465	1.4 Discipline	Electrical
1.2 Item	81002-CEH-L1		66kV GIS / 66/6.6 kV, 7MVA Transformer
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Inside cabine B100 cable is touching panel GIS need be better dresed "see attached foto"

Name: Josip Krizanic

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Josip Krizanic
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-05-05

Signature:

5 - CLEARANCE CHECK

All the cables have been arranged.See attached photo.

Name: Giovanni Tangianu

Date: 2025-05-05

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-05-05

Signature:




81001-CEH-L1
81001-CEH-L3
81001-CEH-L2


81002-CEH-L1
81002-CEH-L3
81002-CEH-L2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000967

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004374	1.4 Discipline	Telecom
1.2 Item	TR-100AD1AVR/B400-NET-001	66 / 6.9 kV 7 MVA Transformer / Network Cabinet / EMCS System	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

Missing cable tag , inside pannel TR-100AD1AVR .

Name: Alessio Polo

Date: 2024-11-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-11-27
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-25

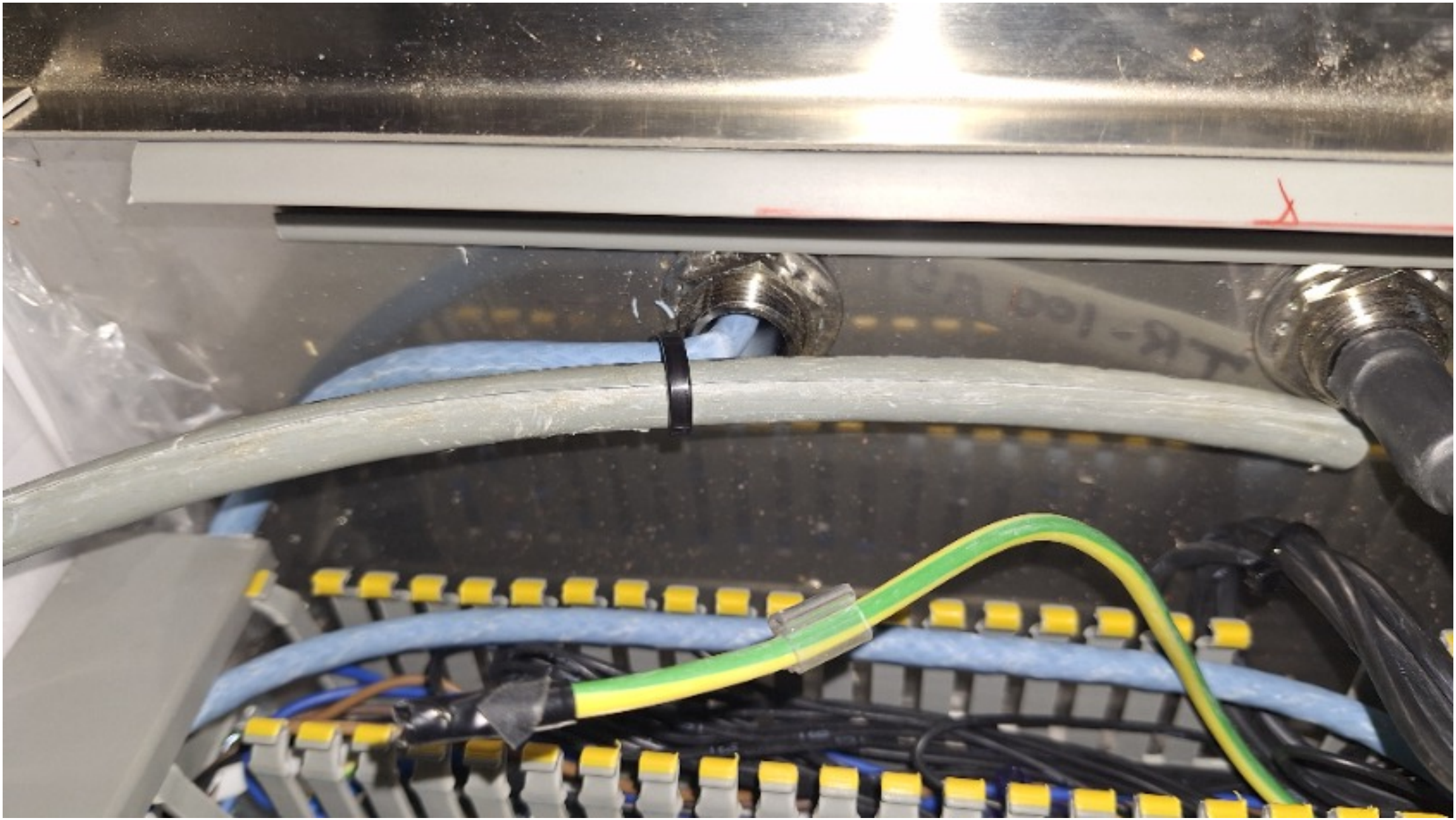
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6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000968

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004374	1.4 Discipline	Telecom
1.2 Item	TR-100AD1AVR/B400-NET-001		66 / 6.9 kV 7 MVA Transformer / Network Cabinet / EMCS System
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable gland suit not for cable type. (should be type M20S)

Name: Alessio Polo

Date: 2024-11-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-11-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Cable gland has been replaced and test has been re-done. (see attached file)

Name: Eleonora Carotenuto

Date: 2025-01-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



Cable ID: TR-100AD1AVR/B400-NET-001

Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 27-01-2025 14:24:20
Headroom 2.7 dB (NEXT 4,5-7,8)
Cable Type: Cat 6A U/UTP
NVP: 68.2%

Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340257

Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340270

Length (m), Limit 90.0	[Pair 4,5]	66.9
Prop. Delay (ns), Limit 496	[Pair 1,2]	334
Delay Skew (ns), Limit 43	[Pair 1,2]	7
Resistance (ohms), Limit 20.60	[Pair 1,2]	11.52
Insertion Loss Margin (dB)	[Pair 1,2]	5.1
Frequency (MHz)	[Pair 1,2]	500.0
Limit (dB)	[Pair 1,2]	41.6

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	3,6-4,5	4,5-7,8	3,6-4,5
NEXT (dB)	2.7	6.8	5.6	7.5
Freq. (MHz)	338.0	399.0	484.0	500.0
Limit (dB)	32.9	31.4	29.5	29.2
Worst Pair	4,5	4,5	4,5	4,5
PS NEXT (dB)	4.0	6.6	5.9	6.6
Freq. (MHz)	338.0	500.0	484.0	500.0
Limit (dB)	30.2	26.4	26.7	26.4

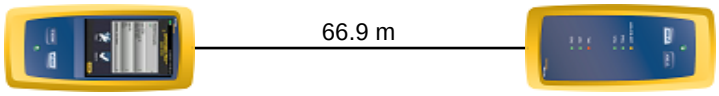
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	7,8-4,5	7,8-4,5	7,8-4,5
ACR-F (dB)	13.2	12.9	13.9	13.9
Freq. (MHz)	294.0	286.0	500.0	500.0
Limit (dB)	15.9	16.1	11.3	11.3
Worst Pair	4,5	4,5	4,5	4,5
PS ACR-F (dB)	14.5	14.7	15.7	15.7
Freq. (MHz)	290.0	265.0	500.0	500.0
Limit (dB)	13.0	13.8	8.3	8.3

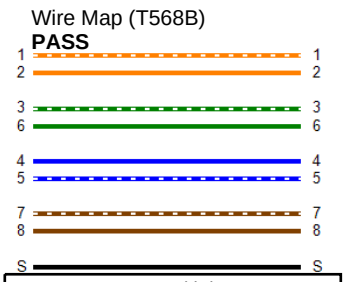
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	3,6-4,5	4,5-7,8	3,6-4,5
ACR-N (dB)	6.4	11.0	11.0	12.6
Freq. (MHz)	168.5	169.5	484.0	500.0
Limit (dB)	15.0	14.9	-11.3	-12.4
Worst Pair	4,5	3,6	4,5	4,5
PS ACR-N (dB)	7.5	11.0	11.6	11.8
Freq. (MHz)	168.5	171.0	499.0	500.0
Limit (dB)	12.4	12.1	-15.2	-15.3

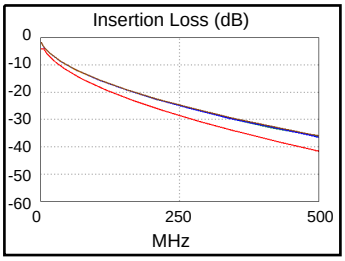
PASS	MAIN	SR	MAIN	SR
Worst Pair	1,2	4,5	1,2	4,5
RL (dB)	5.1	2.1	8.4	2.1
Freq. (MHz)	4.8	496.0	500.0	496.0
Limit (dB)	21.0	8.0	8.0	8.0

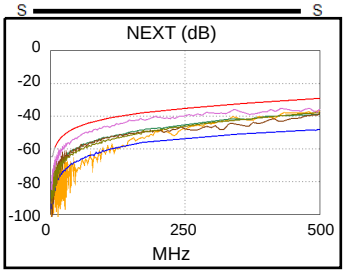
Compliant Network Standards:

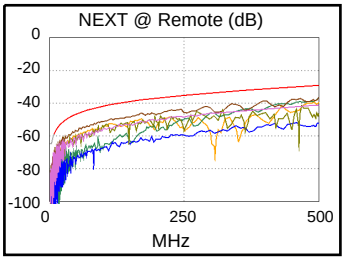
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	2.5GBASE-T	5GBASE-T
10GBASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

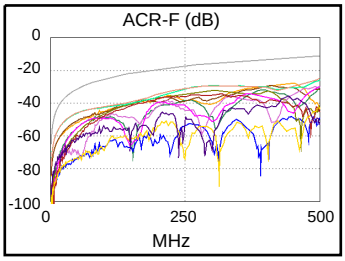


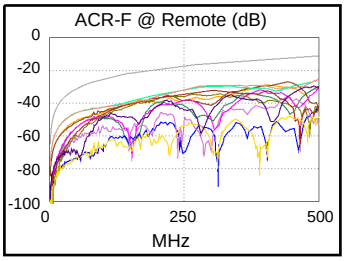


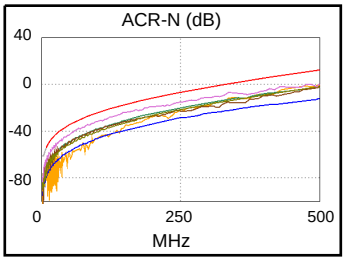


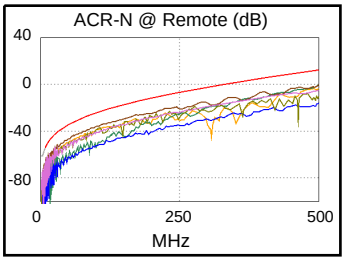


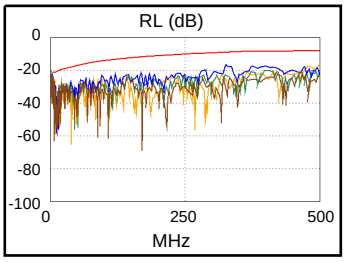


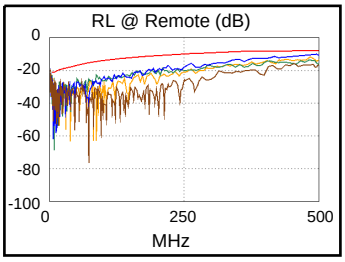












LinkWare™ PC Version 11.4

Project: CROSSWIND
Site: Not Set
Floor: Not Set
Rack: Not Set
CrossWind.flw

Building: Not Set
Room: Not Set
Patch: Not Set

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001170

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000634	1.4 Discipline	Electrical
1.2 Item	83115-CEL		Lighting & Small Power DB BoP / Auxiliary NER
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing core identification tag RR-100D1 side

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001171

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000634	1.4 Discipline	Electrical
1.2 Item	83115-CEL		Lighting & Small Power DB BoP / Auxiliary NER
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing SS cable tag

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001172

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000631	1.4 Discipline	Electrical
1.2 Item	83112-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo OLTC
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing core identification tag both side

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Eleonora Carotenuto

Date: 2025-06-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001173

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000631	1.4 Discipline	Electrical
1.2 Item	83112-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo OLTC
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing SS cable tag.

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001174

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000632	1.4 Discipline	Electrical
1.2 Item	83113-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo AVR
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing core identification tags both side

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001175

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000632	1.4 Discipline	Electrical
1.2 Item	83113-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo AVR
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing SS cable tag

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001176

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000633	1.4 Discipline	Electrical
1.2 Item	83114-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo 7MVA
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing SS cable tag

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001177

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000633	1.4 Discipline	Electrical
1.2 Item	83114-CEL		Lighting & Small Power DB BoP / Auxiliary Trafo 7MVA
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing core identification tags both side

Name: Paolo Schintu

Date: 2024-12-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed

Name: Eleonora Carotenuto

Date: 2025-06-10

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001549

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002320	1.4 Discipline	Electrical
1.2 Item	82014-CEC		NER / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags both side . (82014-CEC)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001550

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002320	1.4 Discipline	Electrical
1.2 Item	82014-CEC	NER / 6.6KV HV Switchgear	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001551

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002320	1.4 Discipline	Electrical
1.2 Item	82014-CEC	NER / 6.6KV HV Switchgear	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(RR-100D1/SG-100D1)

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

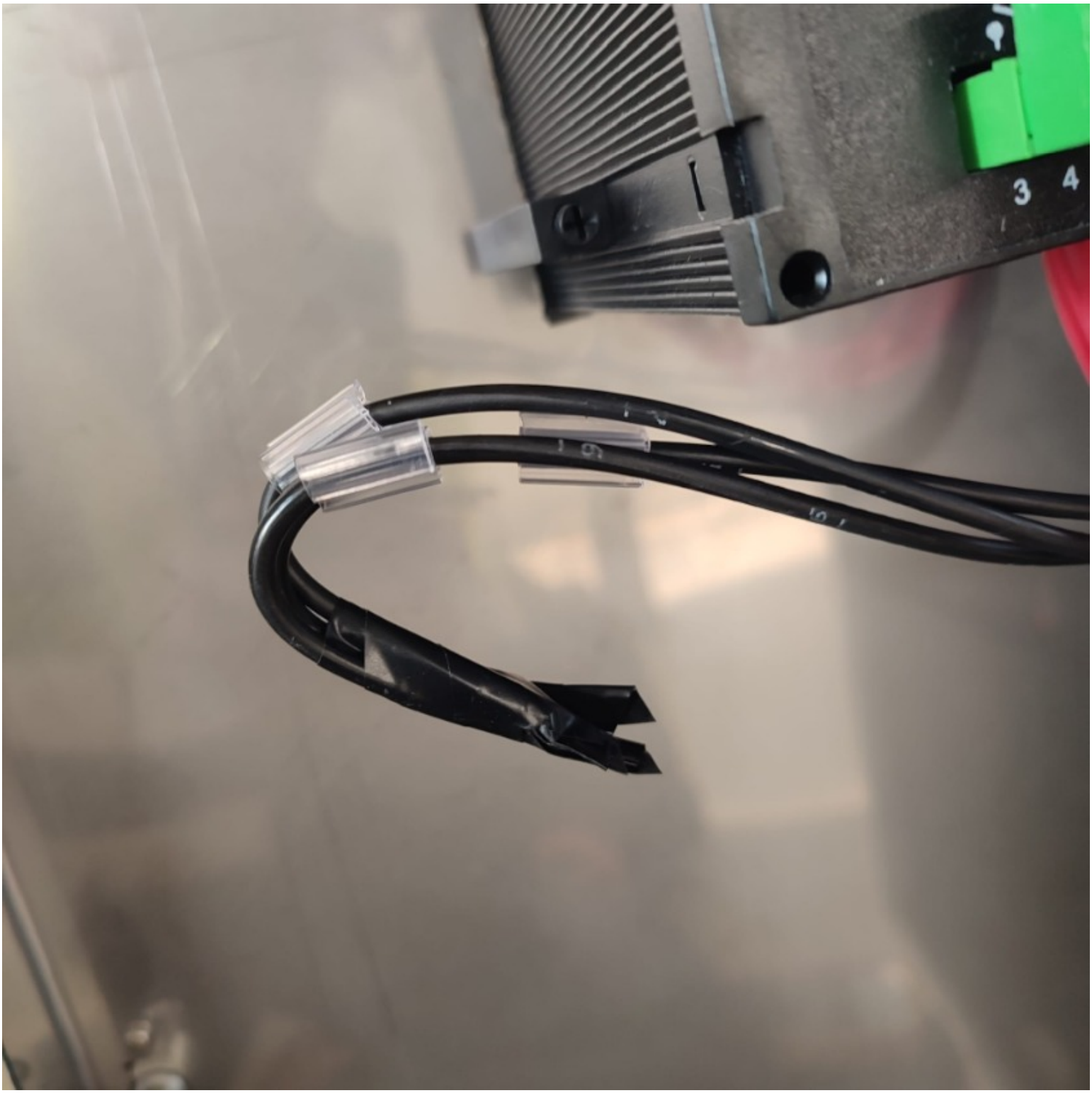
5 - CLEARANCE CHECK

DONE

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

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


3
4

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001552

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002320	1.4 Discipline	Electrical
1.2 Item	82014-CEC	NER / 6.6KV HV Switchgear	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

the cable is not protected before entering the panel . (SG-100D1)
See attached photo-

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2024-12-30
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001569

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002126	1.4 Discipline	Electrical
1.2 Item	81007-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Identification tag wire missing both side the cable (TR-100AD1/SG-100D1 Panel A6).

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001570

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002126	1.4 Discipline	Electrical
1.2 Item	81007-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE.

Name: Giovanni Tangianu

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001571

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002126	1.4 Discipline	Electrical
1.2 Item	81007-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Spare cores to be properly isolated both side the cable.
(TR-100AD1/SG-100D1 Panel A6).

Name: Giovanni Tangianu
Date: 2024-12-09
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

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

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001572

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002126	1.4 Discipline	Electrical
1.2 Item	81007-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels TR-100AD1/SG-100D1 Panel A6)

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001573

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002125	1.4 Discipline	Electrical
1.2 Item	81006-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

Identification tag wires missing both side the cable (TR-100AD1/SG-100D1 Panel A6).

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001574

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002125	1.4 Discipline	Electrical
1.2 Item	81006-CEC		66kV, 7MVA Transformer / 6.6KV HV Switchgear
1.3 Subsystem	81-20		Power Transformer 7 MVA (TR-100AD1)

2 - OBSERVATION

The cable is not protected before entering the panel . (SG-100D1 panel A6) See attached photo-

Name: Giovanni Tangianu

Date: 2024-12-09

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-12-09
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE.

Name: Giovanni Tangianu

Date: 2024-12-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


81012-CEC

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000964

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004374	1.4 Discipline	Telecom
1.2 Item	TR-100AD1AVR/B400-NET-001	66 / 6.9 kV 7 MVA Transformer / Network Cabinet / EMCS System	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

The copper conductor of the cable armor must be individually connected to the earthing bar. See 123A90-DDL-EL-DD-20090. (B400-NET-001)

Name: Alessio Polo
Date: 2024-11-27
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-11-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

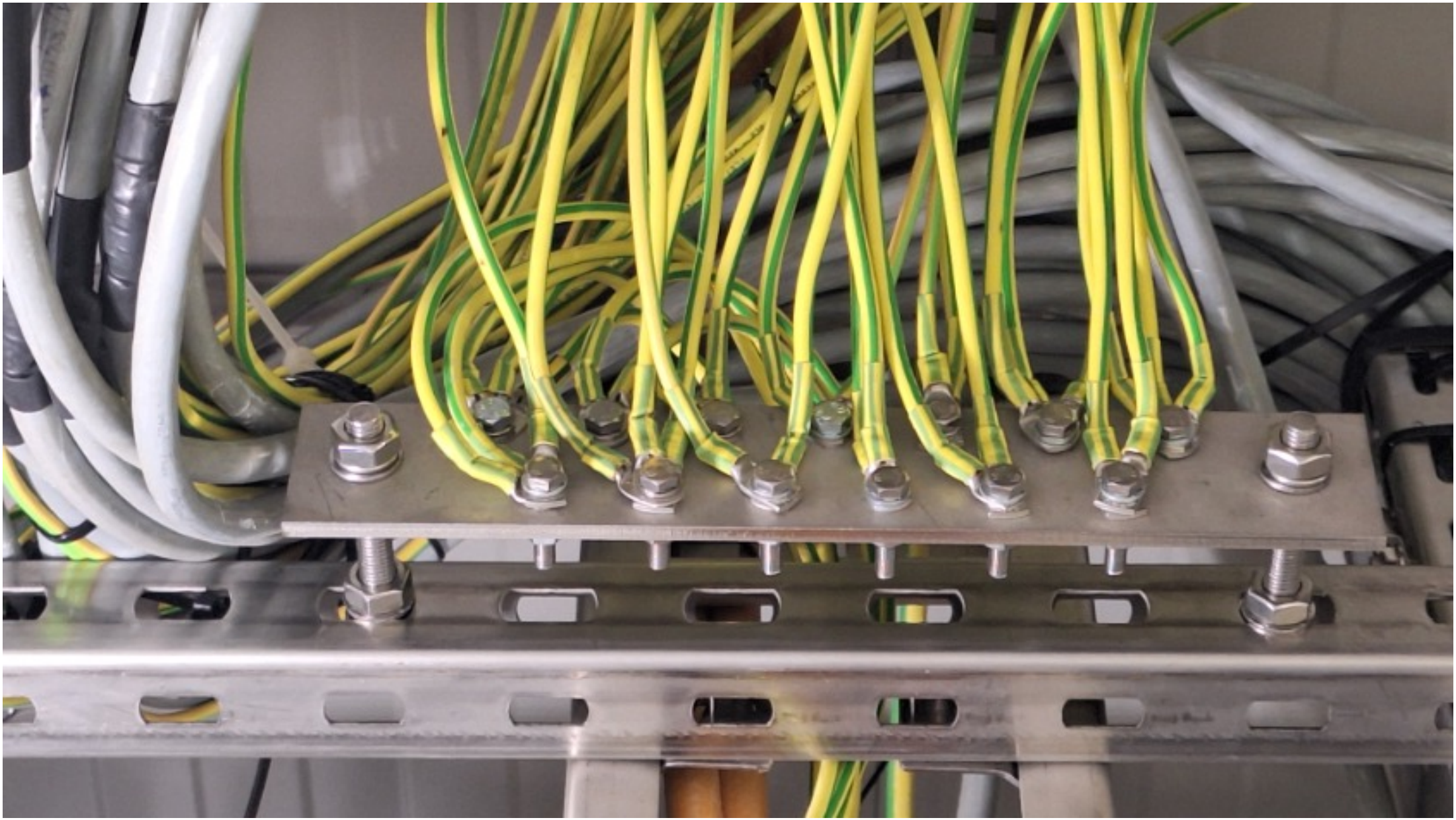
5 - CLEARANCE CHECK

DONE

Name: Alessio Polo
Date: 2025-02-04
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000965

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004374	1.4 Discipline	Telecom
1.2 Item	TR-100AD1AVR/B400-NET-001	66 / 6.9 kV 7 MVA Transformer / Network Cabinet / EMCS System	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

The cable is not supported and fixed to the rack (outside TR-100AD1AVR)

Name: Alessio Polo

Date: 2024-11-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-11-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Novace
Fiber


0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 - 2024 CE

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000966

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004374	1.4 Discipline	Telecom
1.2 Item	TR-100AD1AVR/B400-NET-001	66 / 6.9 kV 7 MVA Transformer / Network Cabinet / EMCS System	
1.3 Subsystem	81-20	Power Transformer 7 MVA (TR-100AD1)	

2 - OBSERVATION

Missing cable tag SS project, side TR-100AD1AVR.

Name: Alessio Polo

Date: 2024-11-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2024-11-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-01-02

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 81-20 & process: COMM & discipline : E

Electrical	81-20 Power Transformer 7 MVA (TR-100AD1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q31	AUX TRAFO OLTC - DP-200N1-Q31	ONSHORE	C10002915	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q32	AUX TRAFO AVR - DP-200N1-Q32	ONSHORE	C10002916	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q33	AUX TRAFO 7 MVA - DP-200N1-Q33	ONSHORE	C10002917	FTR-2	100	2024-10-28	RFO 1
DP-200N1-Q34	AUX TRAFO NER - DP-200N1-Q34	ONSHORE	C10002918	FTR-2	100	2024-10-28	RFO 1
SG-100D1-QM	INCOMER - SG-100D1-QM	ONSHORE	C10002919	FTR-2	100	2024-12-12	RFO 1
		ONSHORE	C10002920	FTR-6	100	2025-02-04	RFO 1
TR-100AD1	66 / 6.9 kV 7 MVA Transformer	ONSHORE	C10004551	FP02	100	2025-02-14	RFO 1

ITEM	Tag	DP-200N1-Q31	: AUX TRAFO OLTC - DP-200N1-Q31			Dwg	1723002197-EL-DG-00013
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)			Module	
TASK	code	C10002915		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FTR-2 Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

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

Testing & measurement instruments used

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

Comments:

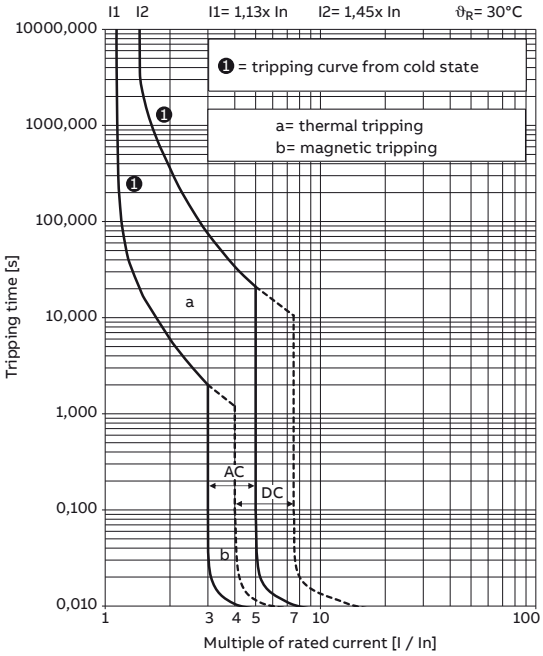
Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-25	2024-10-28	2024-10-28
Signature	Digitaly signed by Mattia Girotti 2024-10-25T10:58:58.583Z	Digitaly signed by Kristian Castellani 2024-10-28T13:06:36.977Z	Digitaly signed by Witness waived 2024-10-28T13:43:23.086Z

Miniature Circuit breakers S300P

Tripping characteristics

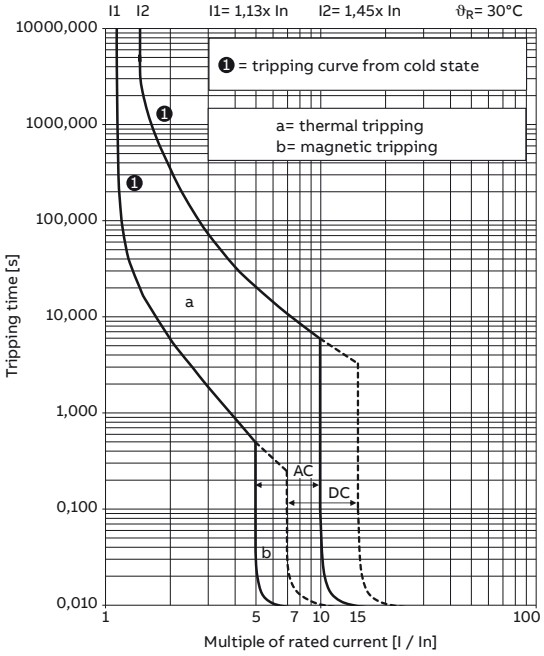
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



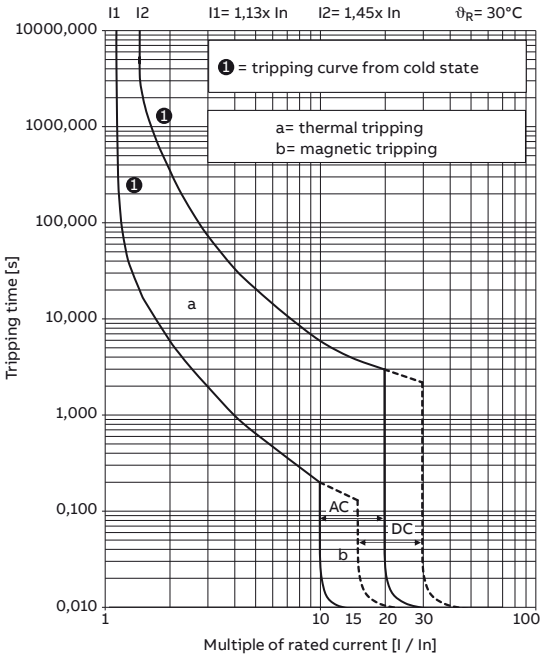
MCB Type S300P - C (5 ... 10 x I_n AC)

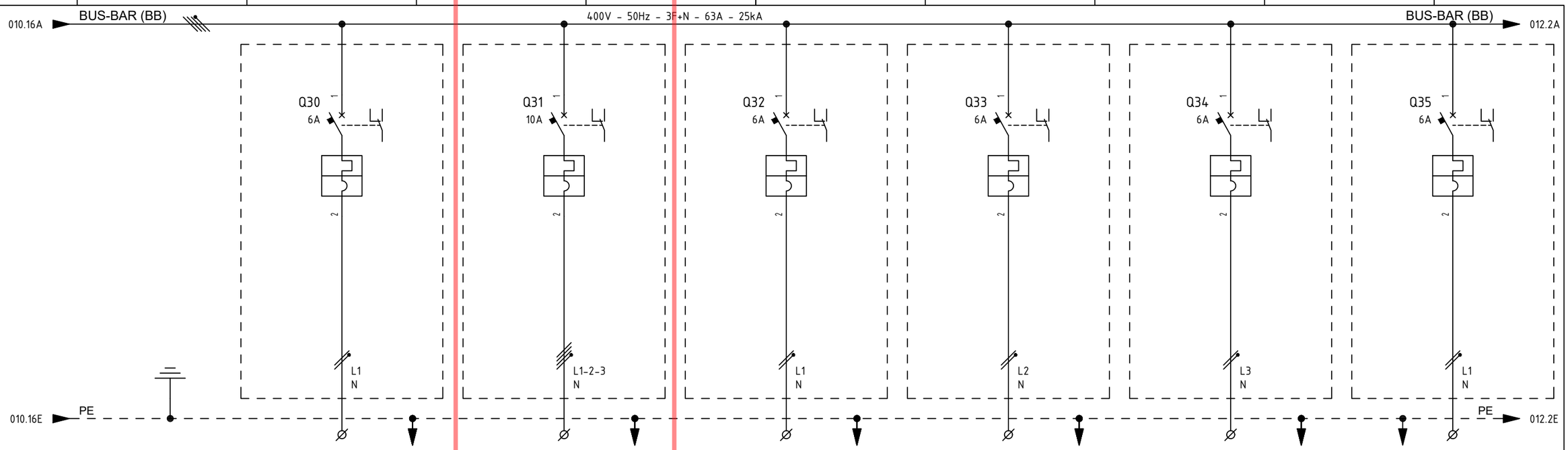
Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1





ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	1 KW | 1.81 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

=
+

DWG n° : 231298/SD/13

Item n° : PF1002888/101

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

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

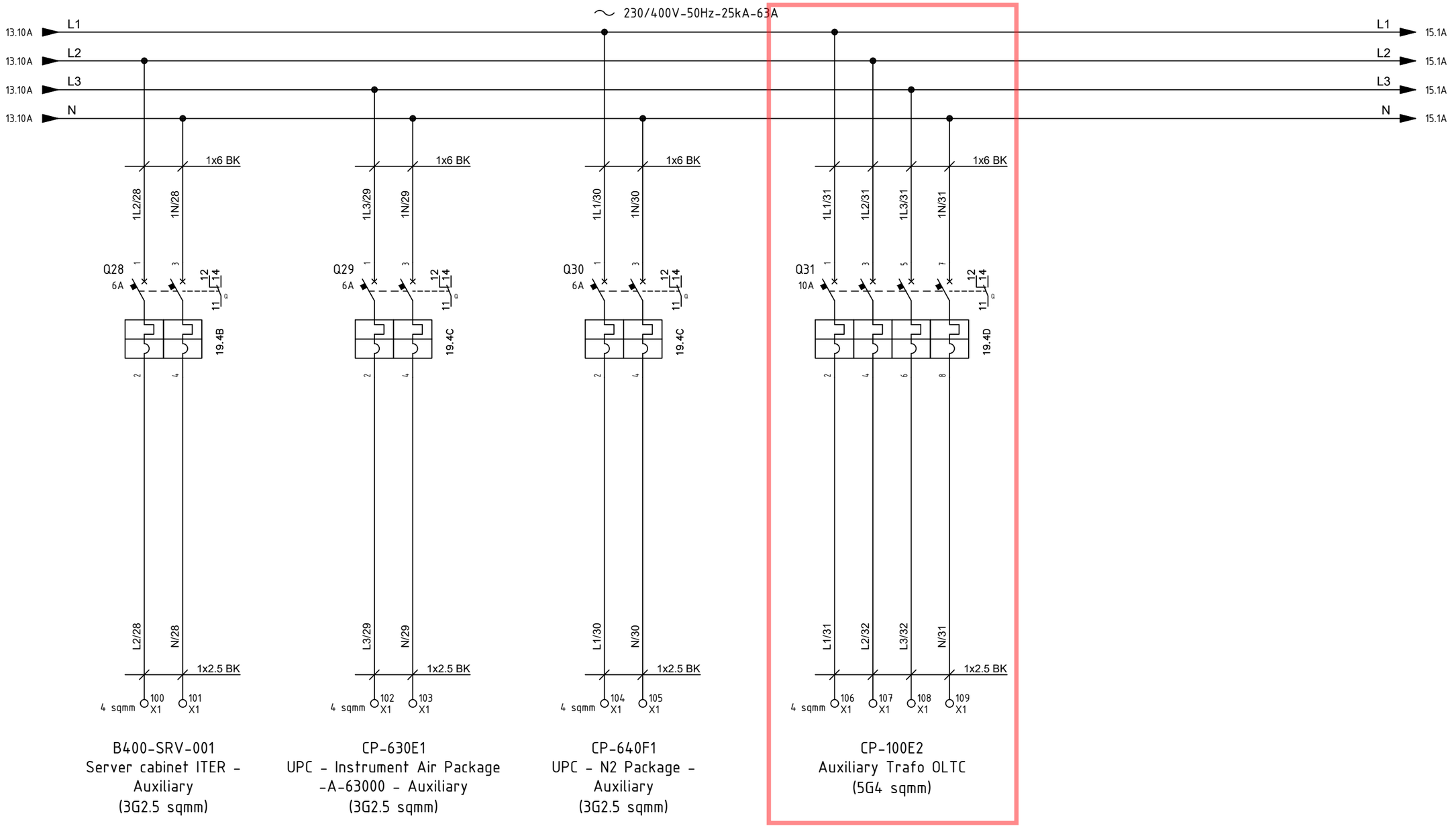
DRAWING NO. 1723002197-EL-DG-00013

SHEET 011

REV. 04

F.to UNI A3: 420mmx297mm

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



B400-SRV-001
Server cabinet ITER - Auxiliary
(3G2.5 sqmm)

CP-630E1
UPC - Instrument Air Package -A-63000 - Auxiliary
(3G2.5 sqmm)

CP-640F1
UPC - N2 Package - Auxiliary
(3G2.5 sqmm)

CP-100E2
Auxiliary Trafo OLTC
(5G4 sqmm)

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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.4

REV. 02

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

F.to UNI A3: 420mmx297mm

ITEM	Tag	DP-200N1-Q32	: AUX TRAFO AVR - DP-200N1-Q32		Dwg	1723002197-EL-DG-00013	
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)		Module		
TASK	code	C10002916	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

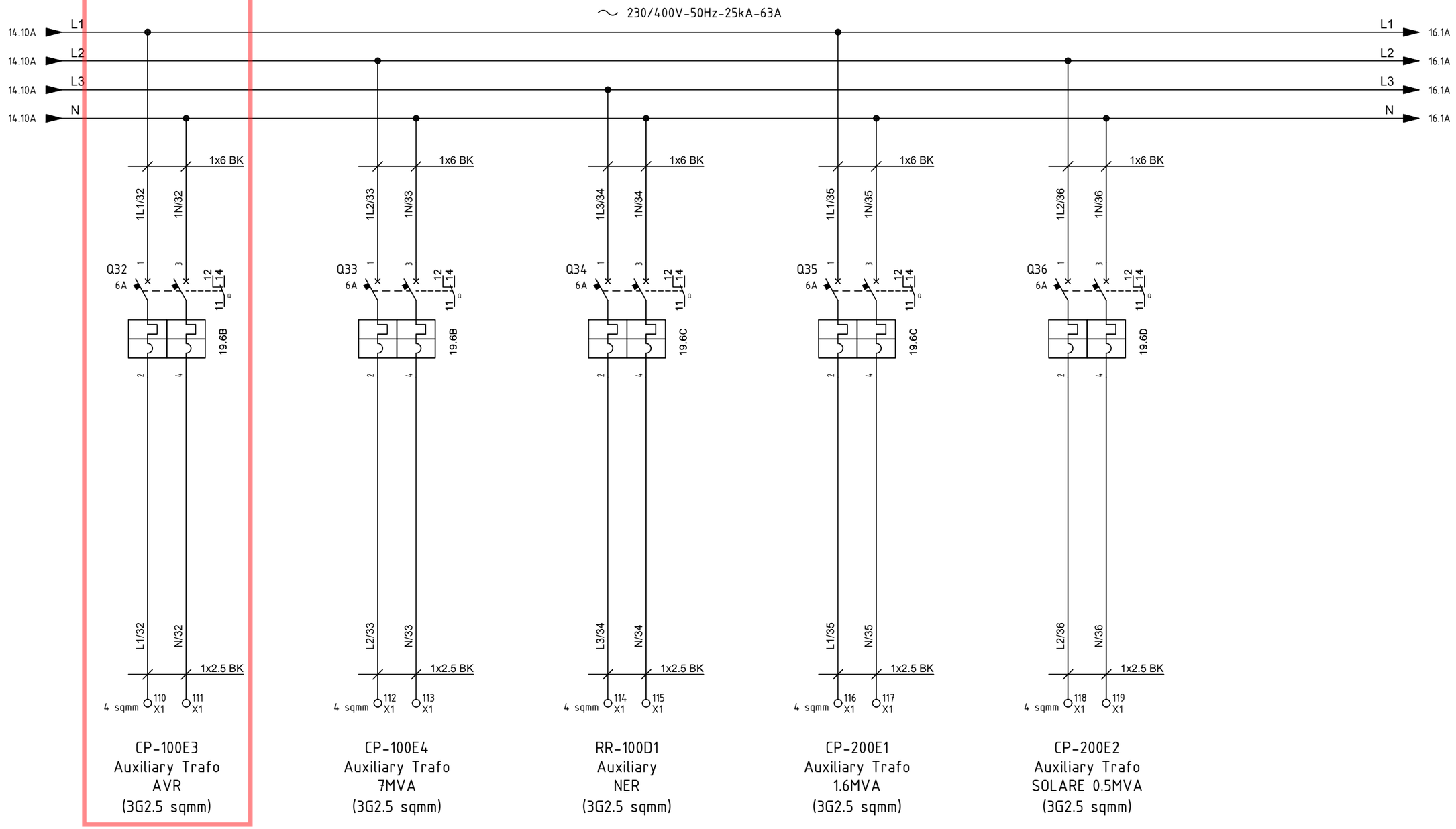
ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
I	6A	NA	NA	FIXED	NA

Testing & measurement instruments used

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

Comments:

Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-25	2024-10-28	2024-10-28
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-25T10:50:14.901Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-28T13:07:05.755Z	PROVERLIS Digitaly signed by Witness waived 2024-10-28T13:43:43.391Z



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

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/33

Item n° : PF1002888/101

TITLE : "DP-200N1"

LV SWBD FUNCTIONAL DIAGRAMS

Functional Drawing

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

SCALE : NTS

A3

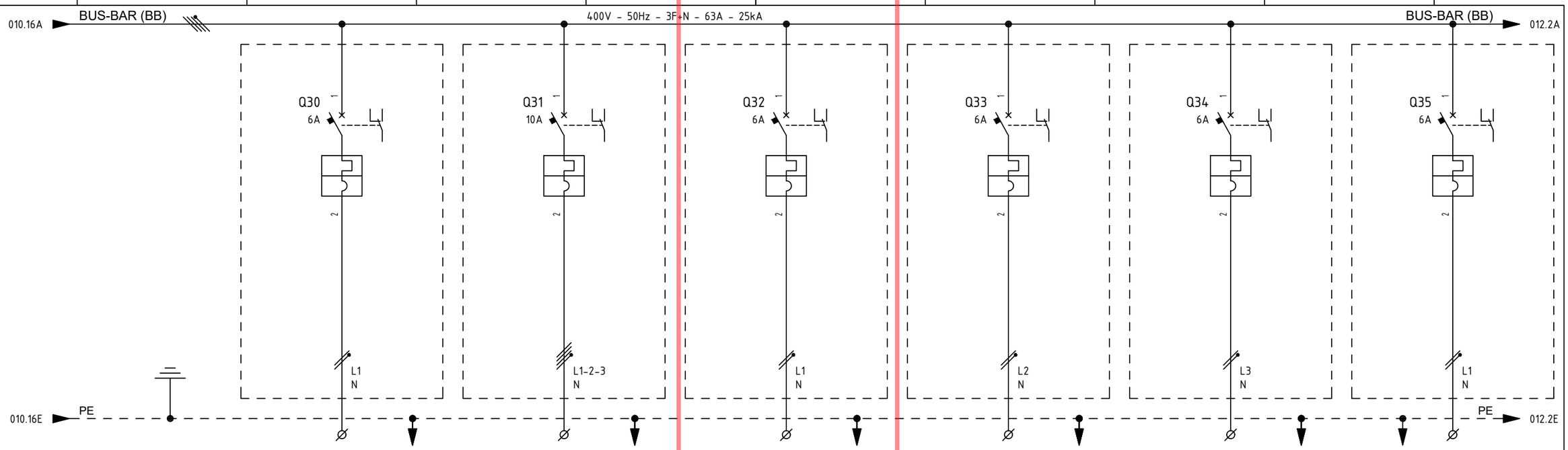
DRAWING NO. 1723002197-EL-DG-00033

SHEET 15

REV. 02

F.to UNI A3: 420mmx297mm

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



ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	1 KW | 1.81 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

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DWG n° : 231298/SD/13
Item n° : PF1002888/101

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

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00013

SHEET 011

REV. 04

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

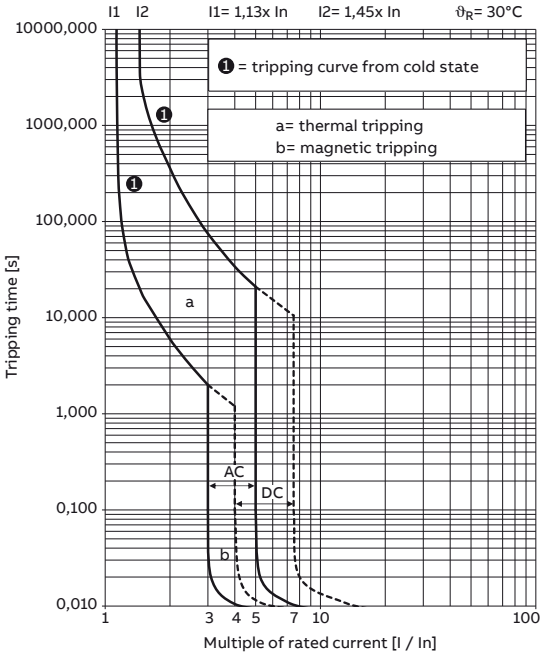
F.to UNI A3: 420mmx297mm

Miniature Circuit breakers S300P

Tripping characteristics

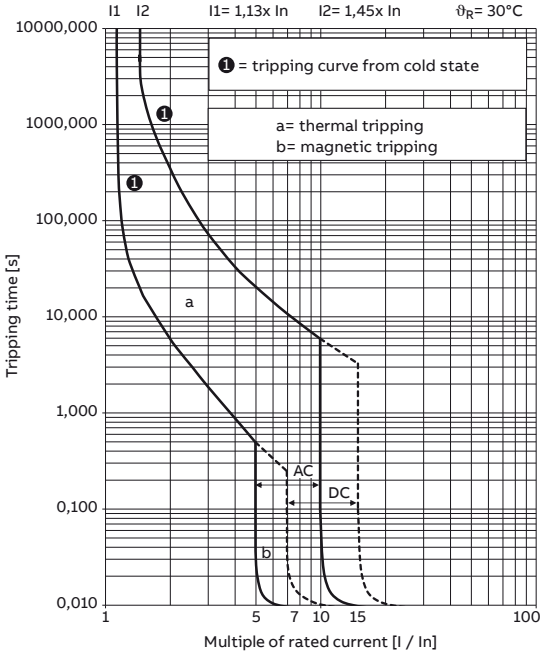
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



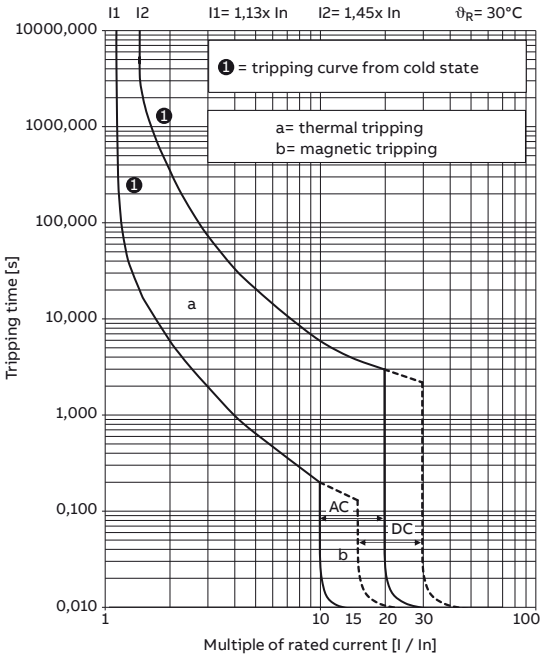
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1



ITEM	Tag	DP-200N1-Q33	: AUX TRAFO 7 MVA - DP-200N1-Q33			Dwg	1723002197-EL-DG-00013
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)			Module	
TASK	code	C10002917		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FTR-2 Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

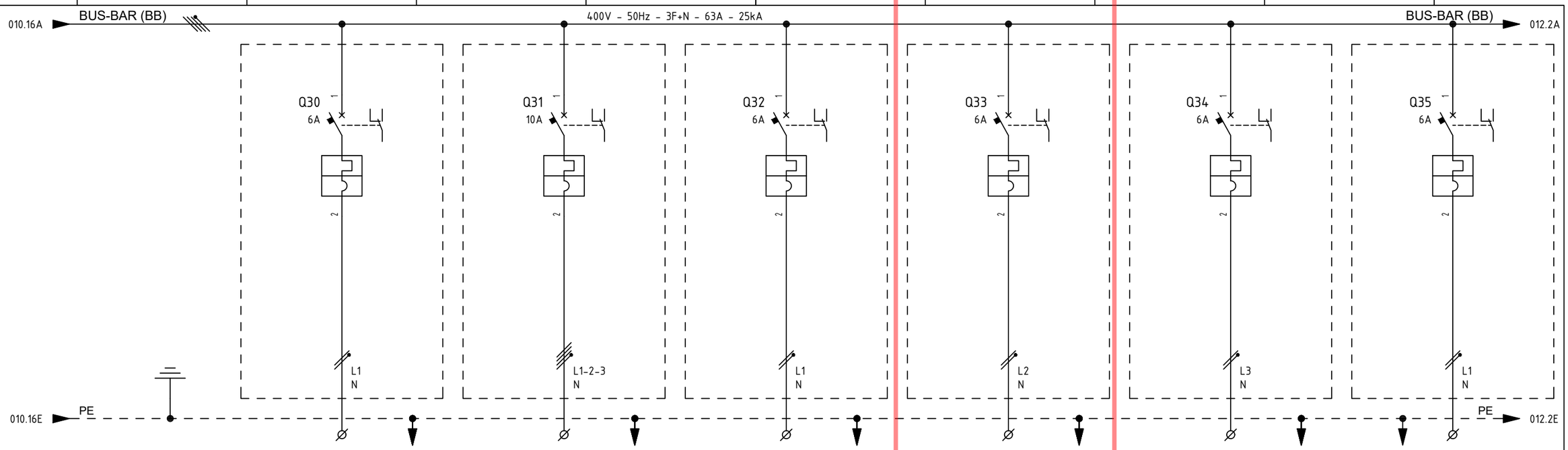
ANSI function	Setting	Injection	Trip value	Time delay Setting	Time delay Trip value
I	6A	NA	NA	FIXED	NA

Testing & measurement instruments used

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

Comments:

	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-25	2024-10-28	2024-10-28
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-25T09:33:40.261Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-28T13:07:30.711Z	PROVERLIS Digitaly signed by Witness waived 2024-10-28T13:44:11.518Z



ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	1 KW | 1.81 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A	0.3 KW | 1.63 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

=
+

DWG n° : 231298/SD/13
Item n° : PF1002888/101

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

TITLE : "DP-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

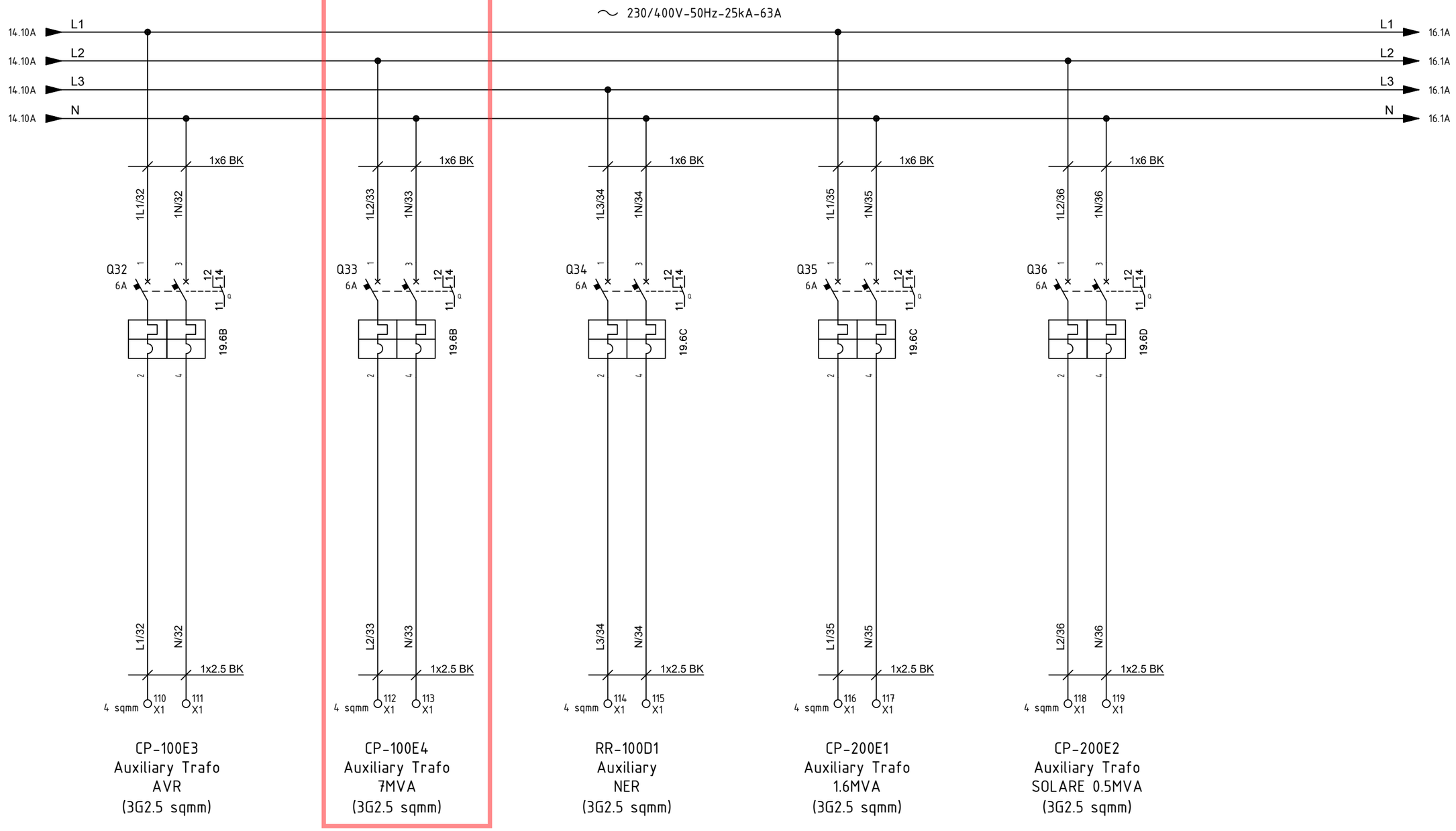
DRAWING NO. 1723002197-EL-DG-00013

SHEET 011

REV. 04

F.to UNI A3: 420mmx297mm

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



CP-100E3
Auxiliary Trafo
AVR
(3G2.5 sqmm)

CP-100E4
Auxiliary Trafo
7MVA
(3G2.5 sqmm)

RR-100D1
Auxiliary
NER
(3G2.5 sqmm)

CP-200E1
Auxiliary Trafo
1.6MVA
(3G2.5 sqmm)

CP-200E2
Auxiliary Trafo
SOLARE 0.5MVA
(3G2.5 sqmm)

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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/33

Item n° : PF1002888/101

TITLE : "DP-200N1"

LV SWBD FUNCTIONAL DIAGRAMS

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 15

REV. 02

F.to UNI A3: 420mmx297mm

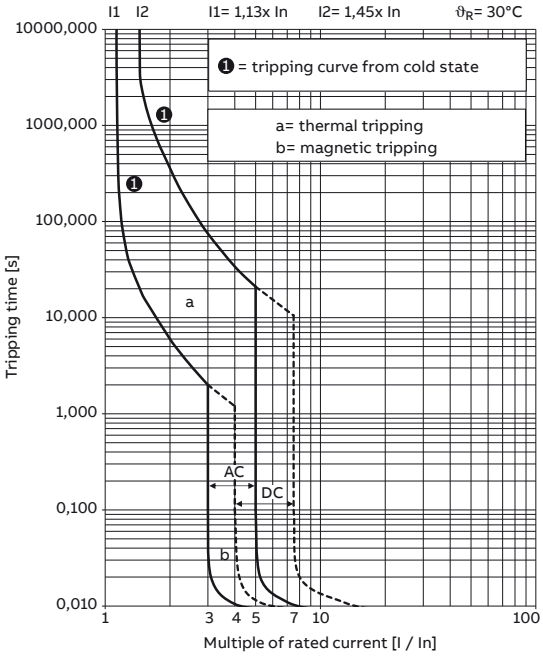
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Miniature Circuit breakers S300P

Tripping characteristics

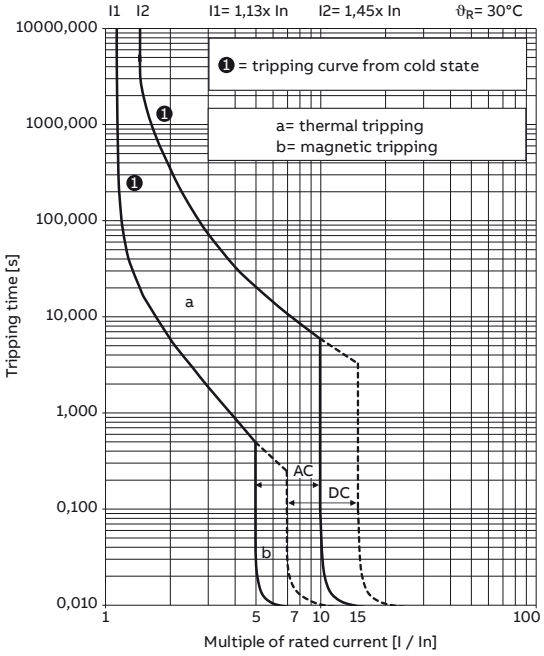
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



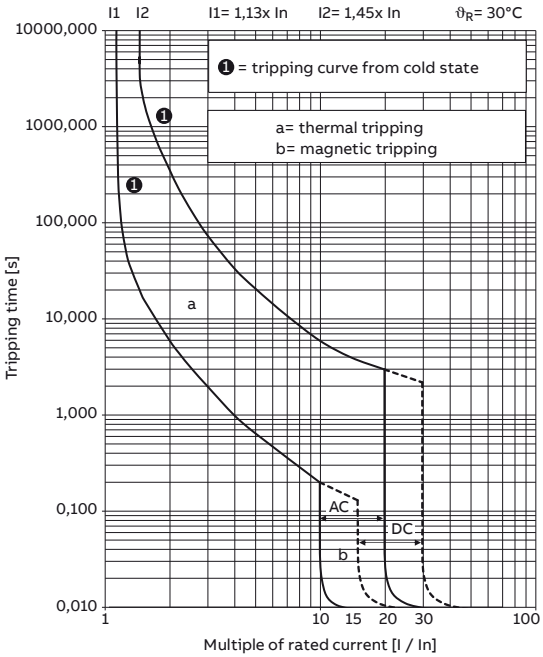
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1



ITEM	Tag	DP-200N1-Q34	: AUX TRAFO NER - DP-200N1-Q34	Dwg	1723002197-EL-DG-00013		
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)	Module			
TASK	code	C10002918	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

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

Testing & measurement instruments used

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

Comments:

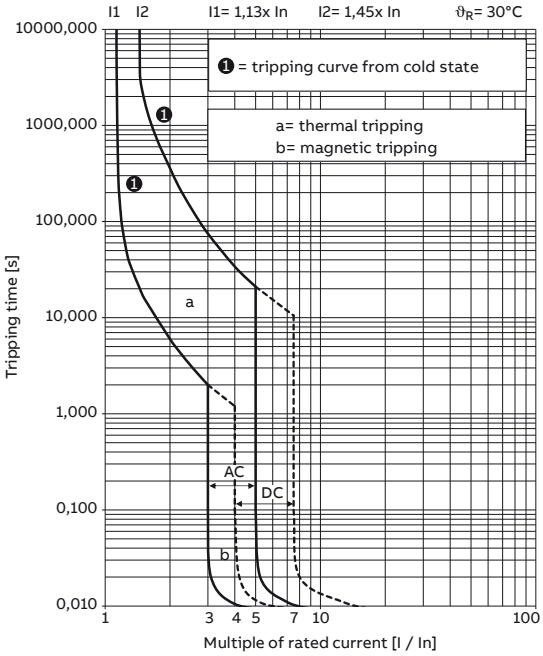
Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2024-10-25	2024-10-28	2024-10-28
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-10-25T09:28:05.018Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-28T13:08:01.094Z	PROVERLIS Digitaly signed by Witness waived 2024-10-28T13:44:56.395Z

Miniature Circuit breakers S300P

Tripping characteristics

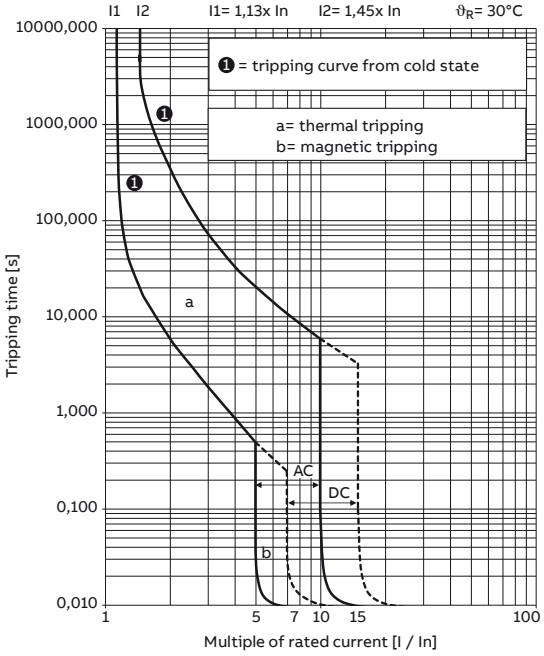
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



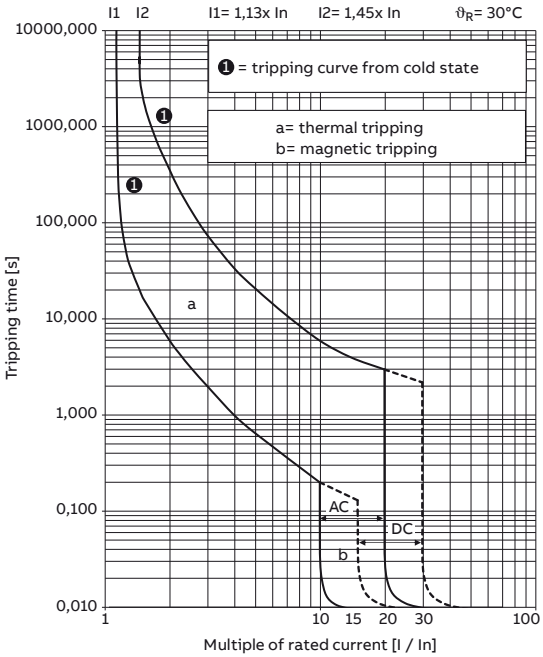
MCB Type S300P - C (5 ... 10 x I_n AC)

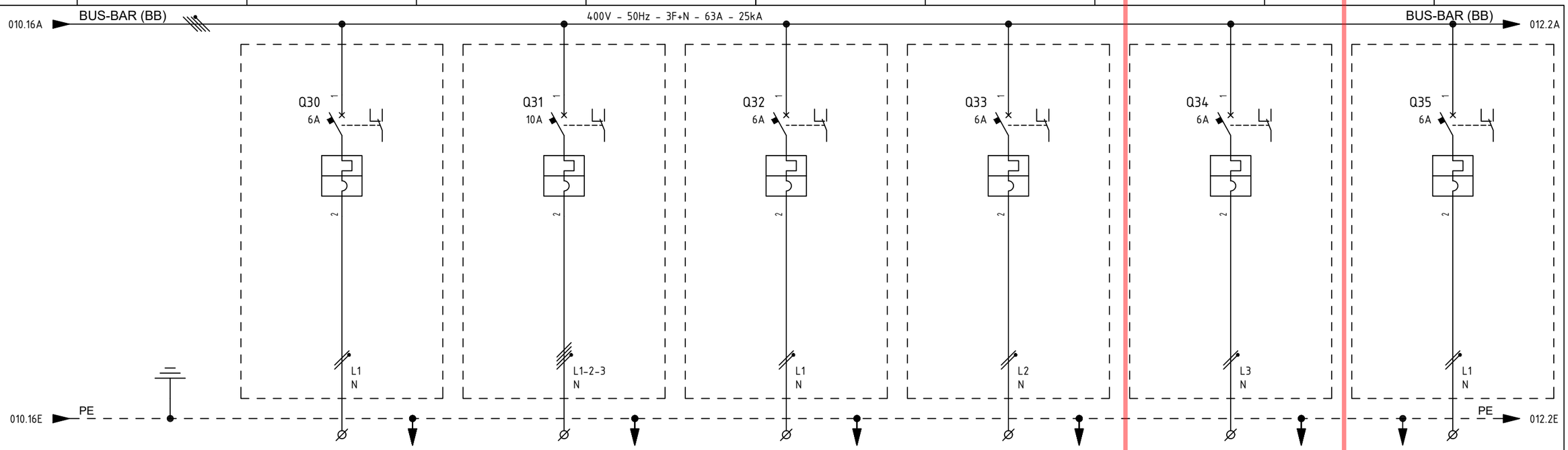
Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1





ITEM			1	CP-640F1	CP-100E2	CP-100E3	CP-100E4	RR-100D1	CP-200E1
UTILITY			2	UCP - N2 PACKAGE - AUXILIARY	AUXILIARY TRAFO OLTC	AUXILIARY TRAFO AVR	AUXILIARY TRAFO 7MVA	AUXILIARY NER	AUXILIARY TRAFO 1.6MVA
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW / 2.72 A	1 KW / 1.81 A	0.3 KW / 1.63 A	0.5 KW / 2.72 A	0.3 KW / 1.63 A	0.5 KW / 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S304P-C10	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	4P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	5G4	3G2.5	3G2.5	3G2.5	3G2.5

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+

DWG n° : 231298/SD/13
Item n° : PF1002888/101

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

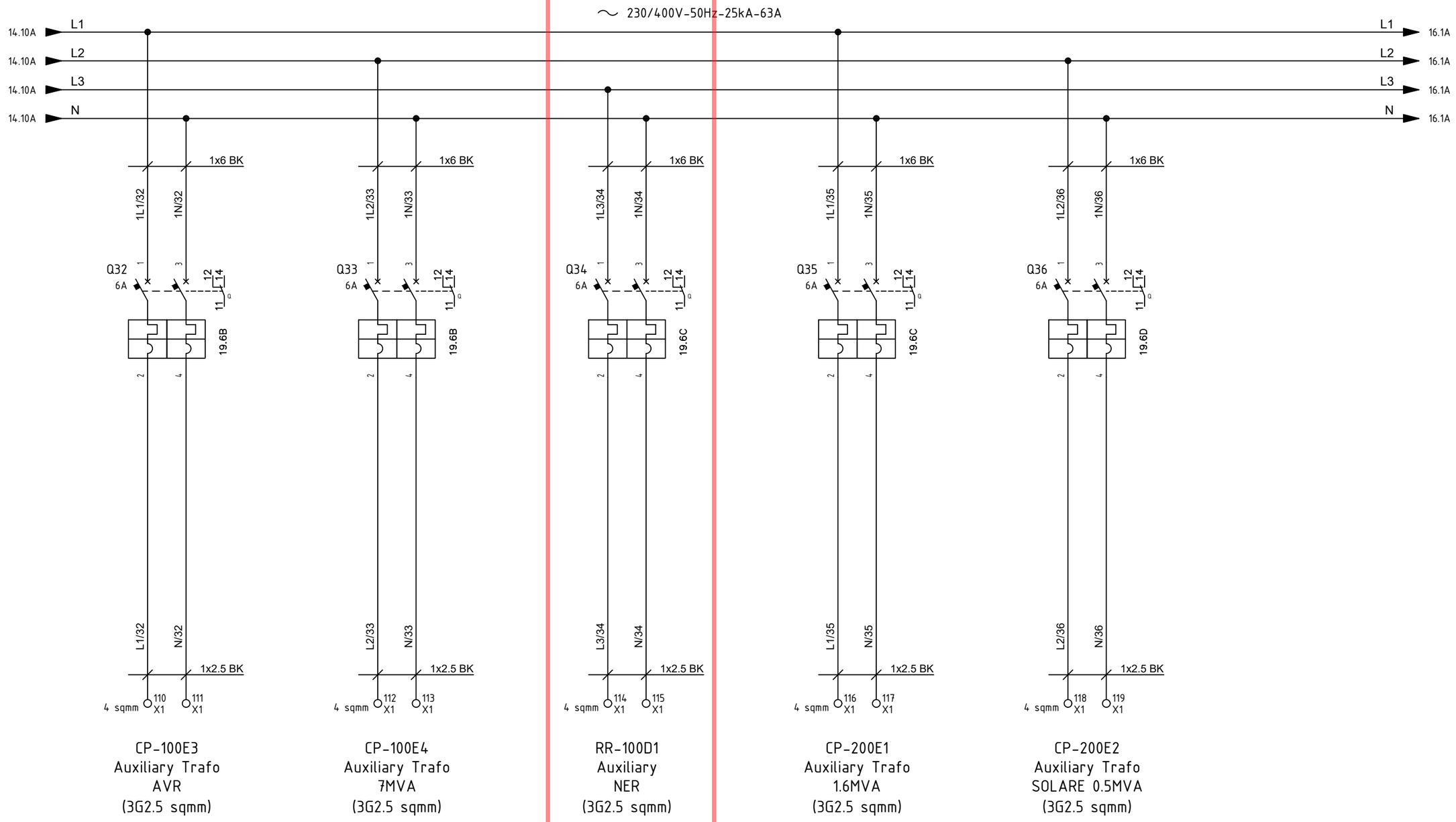
TITLE : "DP-200N1"
SINGLE LINE DIAGRAM
Single Line Drawing

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

A3 | DRAWING NO. 1723002197-EL-DG-00013 | SHEET 011 | REV. 04

F.to UNI A3: 420mmx297mm

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



CP-100E3
Auxiliary Trafo
AVR
(3G2.5 sqmm)

CP-100E4
Auxiliary Trafo
7MVA
(3G2.5 sqmm)

RR-100D1
Auxiliary
NER
(3G2.5 sqmm)

CP-200E1
Auxiliary Trafo
1.6MVA
(3G2.5 sqmm)

CP-200E2
Auxiliary Trafo
SOLARE 0.5MVA
(3G2.5 sqmm)

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

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231298/SD/33

Item n° : PF1002888/101

TITLE : "DP-200N1"

LV SWBD FUNCTIONAL DIAGRAMS

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 15

REV. 02

F.to UNI A3: 420mmx297mm

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

ITEM	Tag	SG-100D1-QM	: INCOMER - SG-100D1-QM		Dwg	1723002197-EL-DG-00010	
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)		Module		
TASK	code	C10002919	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°:	1VHR81041859	Relay type:	REX640
Auxiliary supply:	110Vdc	Location:	B100	Cubicle:	A6
Switchboard:	SG-100D1				

Current transformers

Tag	Number of	Ratio	Location
TI-L1		600/1A	SG-100D1-A6
TI-L2		600/1A	SG-100D1-A6
TI-L3		600/1A	SG-100D1-A6

Voltage transformers

Tag	Number of	Ratio	Location
TU-L1		6600/110V	SG-100D1-A6
TU-L2		6600/110V	SG-100D1-A6
TU-L3		6600/110V	SG-100D1-A6

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
51N - EFLPTOC1	0.15A	0.151A		300ms	319ms
50-1 - PHIPTOC1	3120A	3192A		550ms	558ms
59-1 - PHPTOV1	7920V	8500V		750ms	773ms
51-1 - PHLPTOC1	588A	690A		13114ms	13236ms
59-2 - PHPTOV2	8580V	8900V		250ms	270ms

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
OMICRON CMC 356	DJ297G		

Comments: See attachments for full tests.

	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 2024-12-10T07:08:04.902Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-12-11T10:38:52.540Z	PROVERLIS Digitaly signed by Witness waived 2024-12-12T10:32:02.353Z

PROTECTION TEST ON ABB RELAY

PROJECT : CROSSWIND

FUNCTIONAL GROUP : BLPH

SYSTEM : SG-100D1

CLIENT : ROSETTI MARINO Group of Companies

EQUIPMENT DESCRIPTION : -TR-200AD1

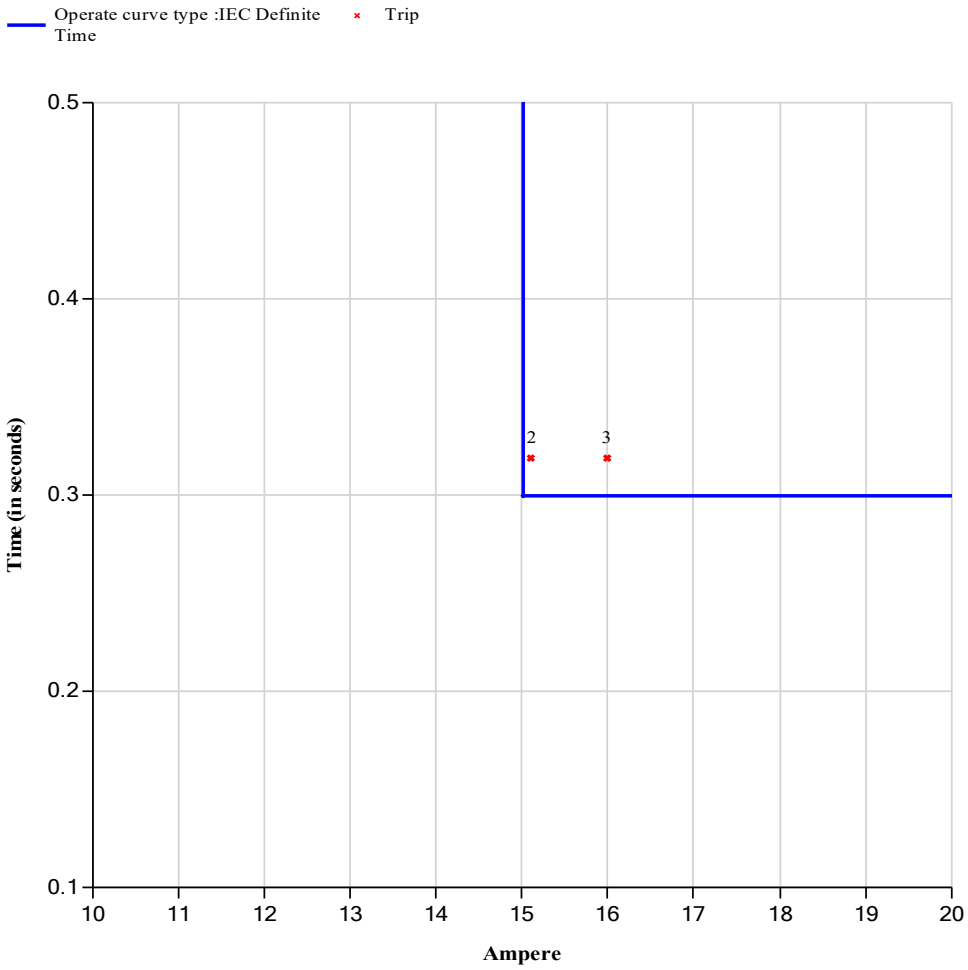
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : EFLPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 100 / 1 A
Nominal current : 585.7 A
Minimum operate time : 100 ms
Measured mode : DFT
Io signal Sel : Measured Io
Start value : 0.150 xIn
Operate delay time : 300 ms
Operate curve type : IEC Definite Time
Type of reset : Immediate



N.	I0	I0"(A)	I0(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	14.85	0.149	0	0	0	0
2	15.1	0.151	0	300	319	6.33
3	15.99	0.16	0	300	319	6.33

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 : -TR-200AD1

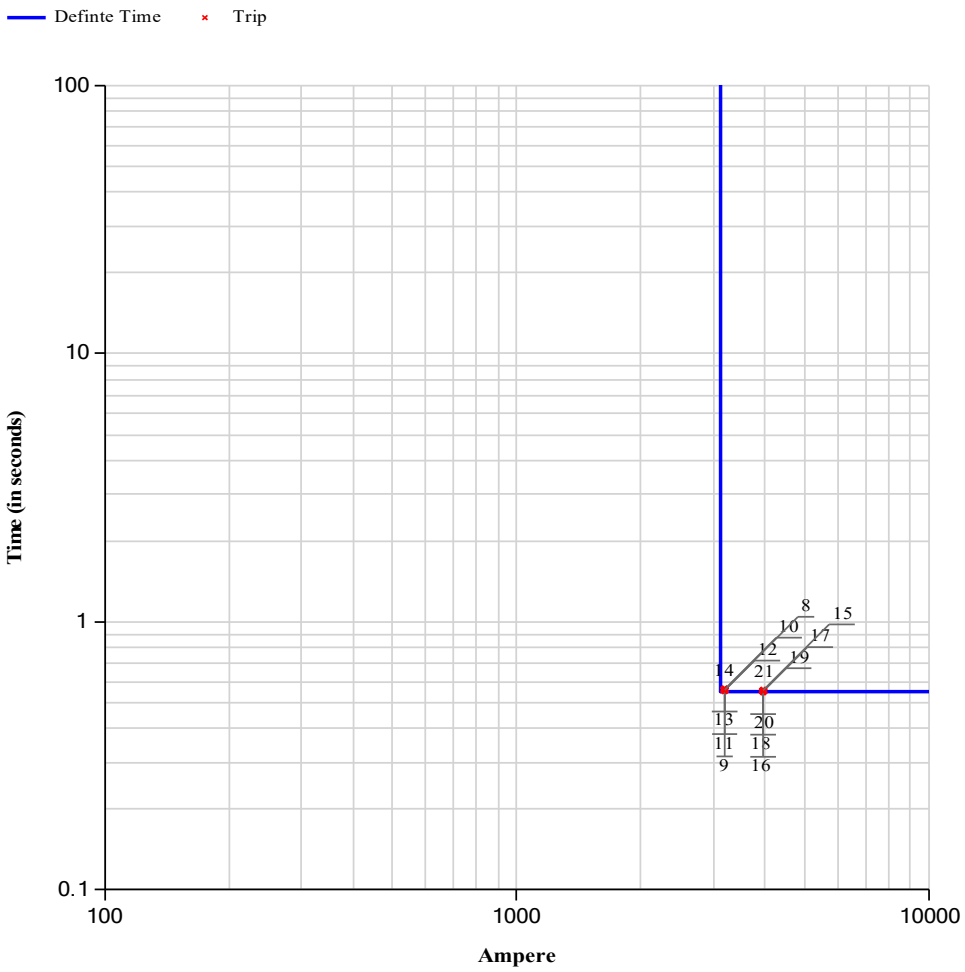
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : PHIPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 600 / 1 A
Nominal current : 585.7 A
Num of start phases : 1 Out of 3
Reset delay time : 20 ms
Start value : 5.20 xIn
Start valure Mult : 1.0
Operate delay time : 550 ms



N.	I1(A)	I1"(A)	I1(°)	I2(A)	I2"(A)	I2(°)	I3(A)	I3"(A)	I3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	3040	5.067	0	0	0	0	0	0	0	0	0	0
2	0	0	0	3040	5.067	240	0	0	0	0	0	0
3	0	0	0	0	0	0	3040	5.067	120	0	0	0
4	3040	5.067	0	3040	5.067	180	0	0	0	0	0	0
5	0	0	0	3040	5.067	240	3040	5.067	60	0	0	0
6	3040	5.067	300	0	0	0	3040	5.067	120	0	0	0
7	3040	5.067	0	3040	5.067	240	3040	5.067	120	0	0	0
8	3192	5.321	0	0	0	0	0	0	0	550	558	1.45
9	0	0	0	3192	5.321	240	0	0	0	550	556	1.09

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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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	3192	5.321	120	550	562	2.18
11	3192	5.321	0	3192	5.321	180	0	0	0	550	559	1.64
12	0	0	0	3192	5.321	240	3192	5.321	60	550	556	1.09
13	3192	5.321	300	0	0	0	3192	5.321	120	550	563	2.36
14	3192	5.321	0	3192	5.321	240	3192	5.321	120	550	556	1.09
15	3957	6.595	0	0	0	0	0	0	0	550	556	1.09
16	0	0	0	3957	6.595	240	0	0	0	550	554	0.73
17	0	0	0	0	0	0	3957	6.595	120	550	551	0.18
18	3957	6.595	0	3957	6.595	180	0	0	0	550	556	1.09
19	0	0	0	3957	6.595	240	3957	6.595	60	550	554	0.73
20	3957	6.595	300	0	0	0	3957	6.595	120	550	551	0.18
21	3957	6.595	0	3957	6.595	240	3957	6.595	120	550	550	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 : -TR-200AD1

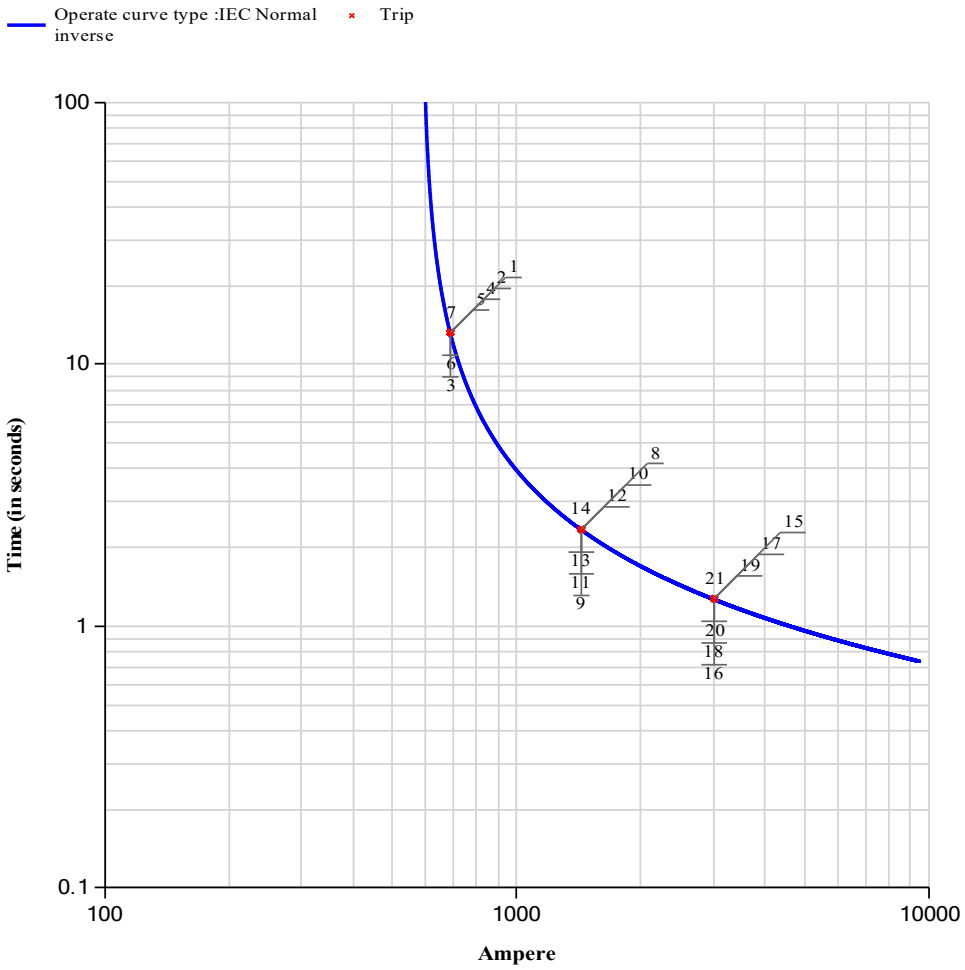
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : PHLPTOC1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
CT RATIO : 600 / 1 A
Nominal current : 585.7 A
Num. start phases : 1 out of 3
Minimum operate time : 550 msec
Reset delay time : 20 msec
Measurement mode : DFT
Start value : 0.98 xIn
Start value mult. : 1.00
Time multiplier : 0.30
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	690	1.15	0	0	0	0	0	0	0	13114	13236	0.93
2	0	0	0	690	1.15	240	0	0	0	13114	13218	0.79
3	0	0	0	0	0	0	690	1.15	120	13114	13240	0.96
4	690	1.15	0	690	1.15	240	0	0	120	13114	13236	0.93
5	0	0	0	690	1.15	240	690	1.15	120	13114	13240	0.96
6	690	1.15	0	0	0	240	690	1.15	120	13114	13237	0.94
7	690	1.15	0	690	1.15	240	690	1.15	120	13114	13234	0.92
8	1434	2.39	0	0	0	0	0	0	0	2334	2347	0.56
9	0	0	0	1434	2.39	240	0	0	0	2334	2343	0.39

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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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	1434	2.39	120	2334	2347	0.56
11	1434	2.39	0	1434	2.39	240	0	0	120	2334	2343	0.39
12	0	0	0	1434	2.39	240	1434	2.39	120	2334	2344	0.43
13	1434	2.39	0	0	0	240	1434	2.39	120	2334	2344	0.43
14	1434	2.39	0	1434	2.39	240	1434	2.39	120	2334	2344	0.43
15	3011	5.018	0	0	0	0	0	0	0	1265	1277	0.95
16	0	0	0	3011	5.018	240	0	0	0	1265	1275	0.79
17	0	0	0	0	0	0	3011	5.018	120	1265	1276	0.87
18	3011	5.018	0	3011	5.018	240	0	0	120	1265	1276	0.87
19	0	0	0	3011	5.018	240	3011	5.018	120	1265	1277	0.95
20	3011	5.018	0	0	0	240	3011	5.018	120	1265	1275	0.79
21	3011	5.018	0	3011	5.018	240	3011	5.018	120	1265	1273	0.63

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 : -TR-200AD1

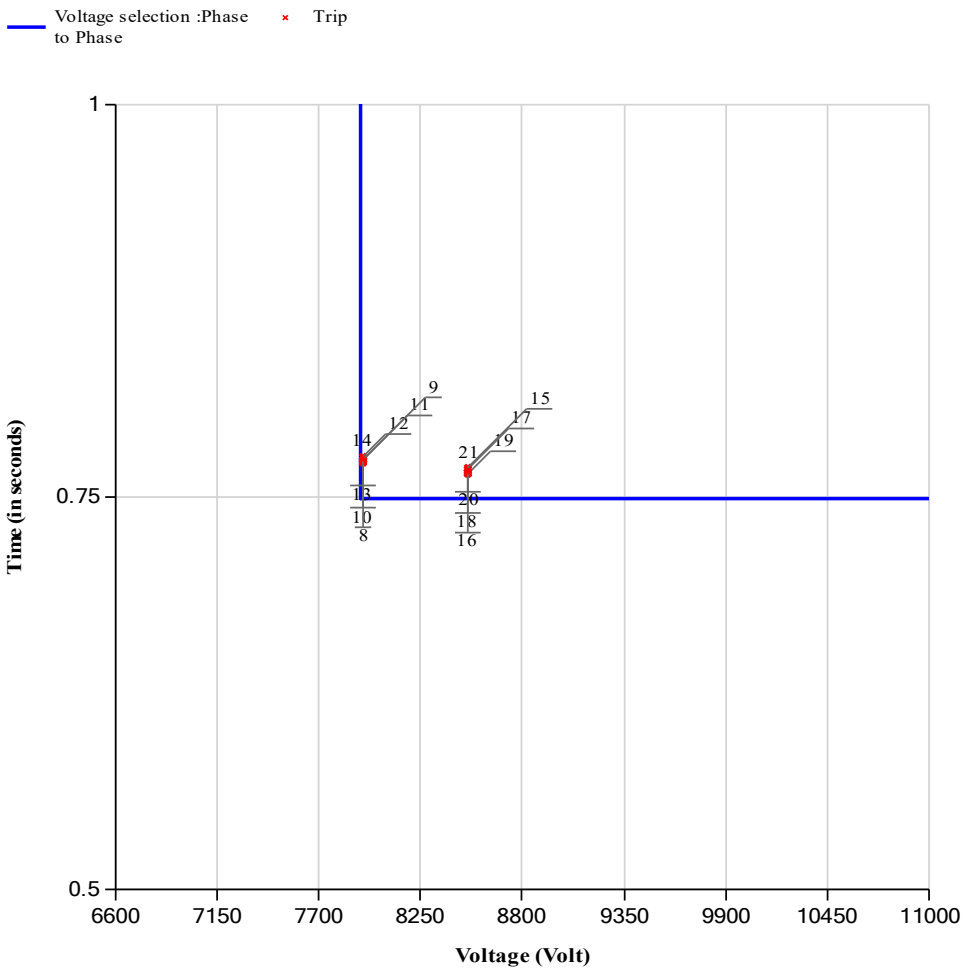
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

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 : 750 ms
Operating curve type : IEC Def. Time
Type of reset curve : Immediate
Type of time reset : Freeze Op timer



NB : ALARM ONLY

N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	Exp.(ms)	Trip(ms)	Dev.(%)
1	5263	87.716	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	5263	87.725	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	5262	87.707	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	75.93	240	4556	75.93	120	0	0	0
6	4556	75.934	0	3811	63.509	240	4556	75.934	120	0	0	0
7	4556	75.934	0	4556	75.934	240	4556	75.934	120	0	0	0
8	5315	88.581	0	3811	63.509	240	3811	63.509	120	750	773	3.07
9	3811	63.509	0	5314	88.573	240	3811	63.509	120	750	774	3.2

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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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	5315	88.583	120	750	774	3.2
11	4583	76.384	0	4583	76.384	240	3811	63.509	120	750	774	3.2
12	3811	63.509	0	4583	76.388	240	4583	76.388	120	750	776	3.47
13	4583	76.39	0	3811	63.509	240	4583	76.39	120	750	772	2.93
14	4583	76.389	0	4583	76.389	240	4583	76.389	120	750	773	3.07
15	5934	98.9	0	3811	63.509	240	3811	63.509	120	750	769	2.53
16	3811	63.509	0	5933	98.884	240	3811	63.509	120	750	765	2
17	3811	63.509	0	3811	63.509	240	5933	98.888	120	750	768	2.4
18	4911	81.85	0	4911	81.85	240	3811	63.509	120	750	766	2.13
19	3811	63.509	0	4910	81.841	240	4910	81.841	120	750	765	2
20	4911	81.846	0	3811	63.509	240	4911	81.846	120	750	768	2.4
21	4911	81.844	0	4911	81.844	240	4911	81.844	120	750	766	2.13

NB : ALARM ONLY

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 : -TR-200AD1

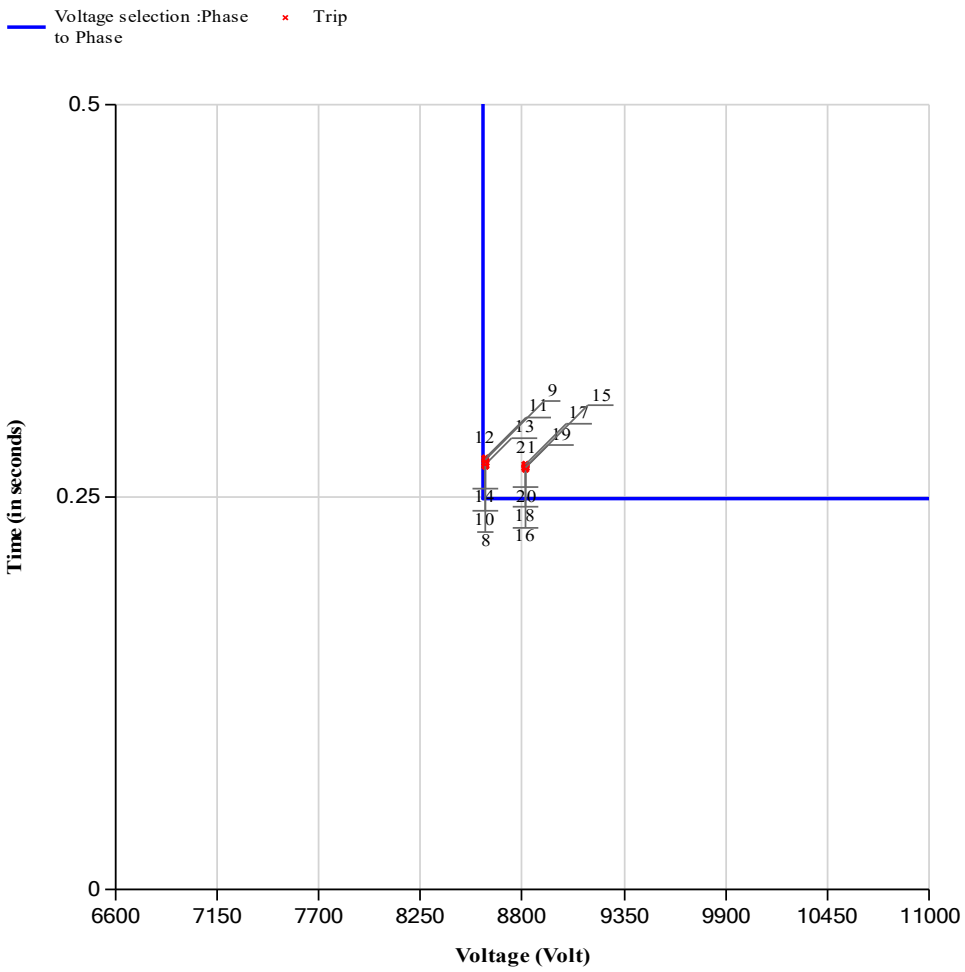
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : PHPTOV2
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 : 1.30 xUn
Time multiplier : 1.00
Operate delay time : 250 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	5985	99.746	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	5985	99.752	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	5985	99.744	120	0	0	0
4	4938	82.3	0	4938	82.3	240	3811	63.509	120	0	0	0
5	3811	63.509	0	4938	82.307	240	4938	82.307	120	0	0	0
6	4938	82.305	0	3811	63.509	240	4938	82.305	120	0	0	0
7	4938	82.299	0	4938	82.299	240	4938	82.299	120	0	0	0
8	6037	100.611	0	3811	63.509	240	3811	63.509	120	250	270	8
9	3811	63.509	0	6037	100.62	240	3811	63.509	120	250	274	9.6

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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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

IEC61850 : PHPTOV2

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	6036	100.601	120	250	272	8.8
11	4965	82.754	0	4965	82.754	240	3811	63.509	120	250	275	10
12	3811	63.509	0	4966	82.761	240	4966	82.761	120	250	275	10
13	4966	82.759	0	3811	63.509	240	4966	82.759	120	250	271	8.4
14	4965	82.753	0	4965	82.753	240	4965	82.753	120	250	270	8
15	6272	104.533	0	3811	63.509	240	3811	63.509	120	250	269	7.6
16	3811	63.509	0	6271	104.524	240	3811	63.509	120	250	268	7.2
17	3811	63.509	0	3811	63.509	240	6270	104.505	120	250	271	8.4
18	5091	84.847	0	5091	84.847	240	3811	63.509	120	250	270	8
19	3811	63.509	0	5091	84.842	240	5091	84.842	120	250	269	7.6
20	5090	84.839	0	3811	63.509	240	5090	84.839	120	250	271	8.4
21	5091	84.844	0	5091	84.844	240	5091	84.844	120	250	269	7.6

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

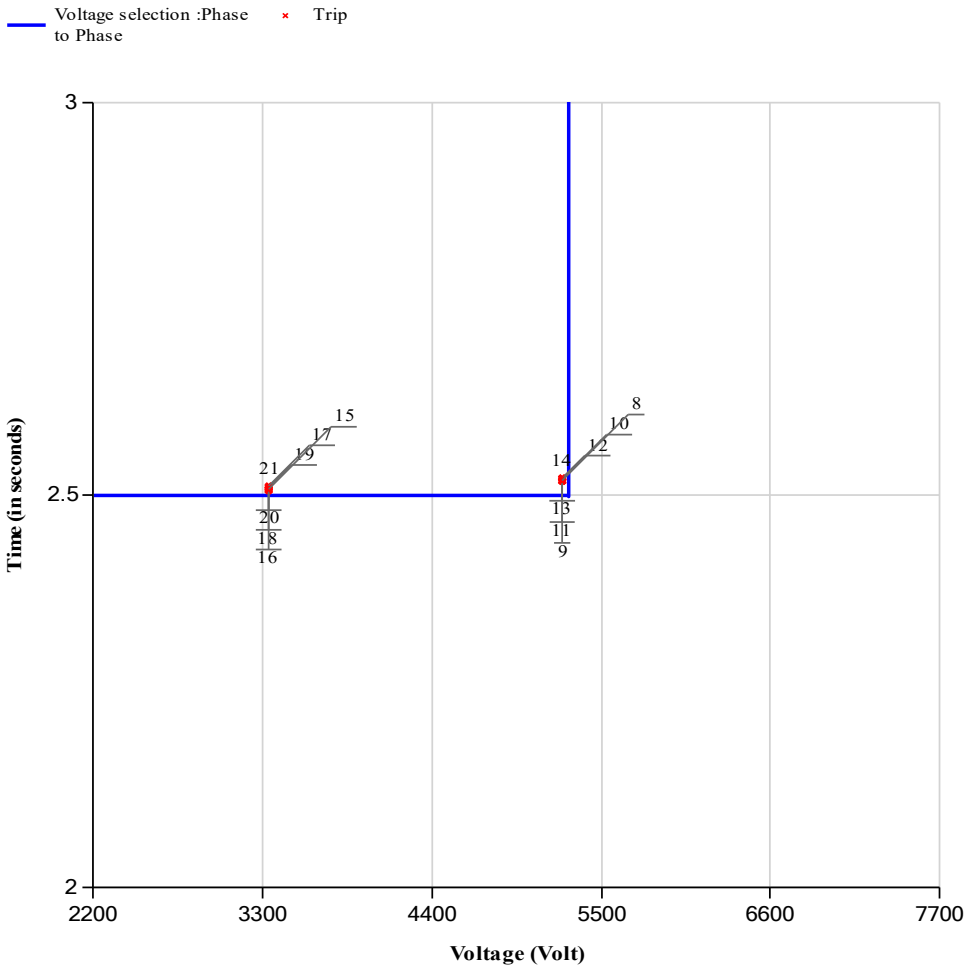
EQUIPMENT DESCRIPTION : -TR-200AD1

ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859



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 : 0.20 xUn
Enable block value : True
Voltage selection : Phase to Phase
Relative hysteresis : 4.0 %
Start value : 0.80 xUn
Time multiplier : 1.00
Operating delay time : 2500 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	2243	37.391	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	2244	37.407	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	2244	37.401	120	0	0	0
4	3061	51.01	0	3061	51.01	240	3811	63.509	120	0	0	0
5	3811	63.509	0	3061	51.016	240	3061	51.016	120	0	0	0
6	3061	51.016	0	3811	63.509	240	3061	51.016	120	0	0	0
7	3061	51.014	0	3061	51.014	240	3061	51.014	120	0	0	0
8	2171	36.19	0	3811	63.509	240	3811	63.509	120	2500	2519	0.76
9	3811	63.509	0	2171	36.185	240	3811	63.509	120	2500	2519	0.76

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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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	2171	36.181	120	2500	2521	0.84
11	3028	50.468	0	3028	50.468	240	3811	63.509	120	2500	2518	0.72
12	3811	63.509	0	3028	50.469	240	3028	50.469	120	2500	2522	0.88
13	3028	50.466	0	3811	63.509	240	3028	50.466	120	2500	2522	0.88
14	3028	50.467	0	3028	50.467	240	3028	50.467	120	2500	2518	0.72
15	0	0	0	3811	63.509	240	3811	63.509	120	2500	2508	0.32
16	3811	63.509	0	0	0	240	3811	63.509	120	2500	2506	0.24
17	3811	63.509	0	3811	63.509	240	0	0	120	2500	2512	0.48
18	1927	32.118	0	1927	32.118	240	3811	63.509	120	2500	2508	0.32
19	3811	63.509	0	1927	32.118	240	1927	32.118	120	2500	2510	0.4
20	1927	32.117	0	3811	63.509	240	1927	32.117	120	2500	2510	0.4
21	1927	32.116	0	1927	32.116	240	1927	32.116	120	2500	2507	0.28

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 : -TR-200AD1

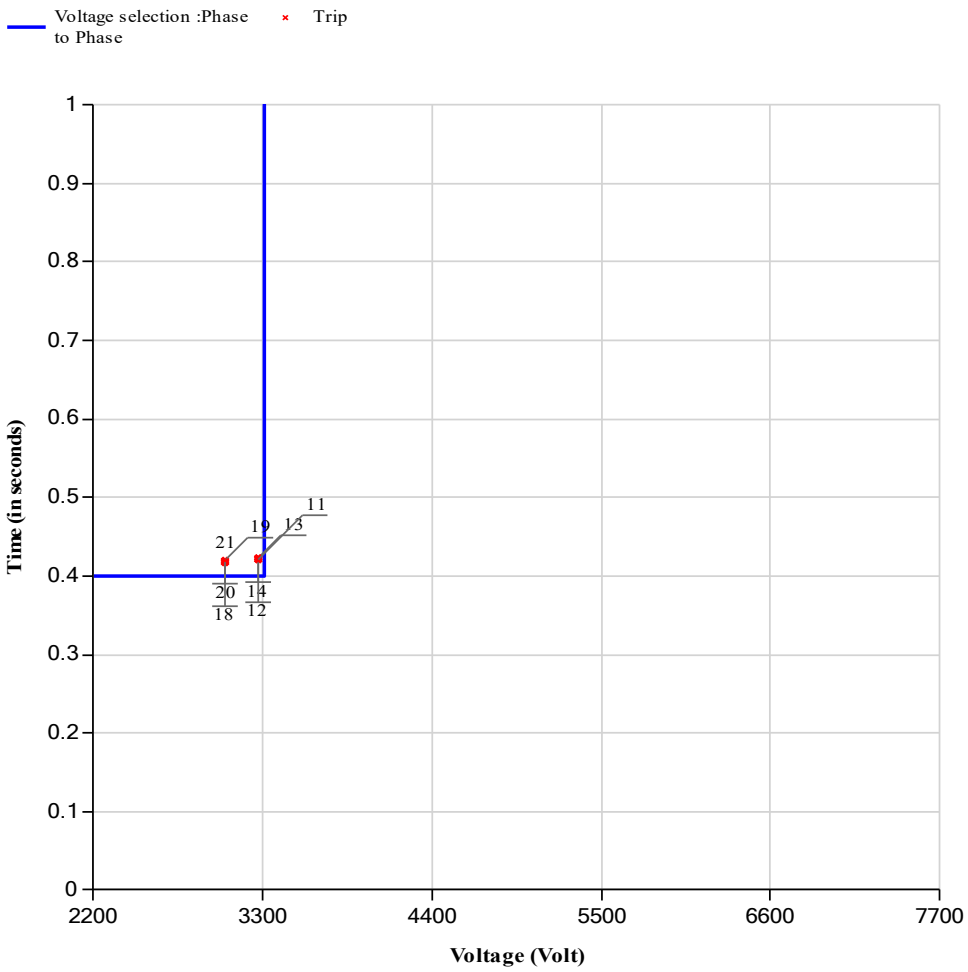
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : PHPTUV2
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 : 0.20 xUn
Enable block value : True
Voltage selection : Phase to Phase
Relative hysteresis : 4.0 %
Start value : 0.50 xUn
Time multiplier : 1.00
Operating delay time : 400 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	0	0	0	3811	63.509	240	3811	63.509	120	0	0	0
2	3811	63.509	0	0	0	240	3811	63.509	120	0	0	0
3	3811	63.509	0	3811	63.509	240	0	0	120	0	0	0
4	1927	32.118	0	1927	32.118	240	3811	63.509	120	0	0	0
5	3811	63.509	0	1927	32.117	240	1927	32.117	120	0	0	0
6	1927	32.114	0	3811	63.509	240	1927	32.114	120	0	0	0
7	1927	32.116	0	1927	32.116	240	1927	32.116	120	0	0	0
8	0	0	0	3811	63.509	240	3811	63.509	120	0	0	0
9	3811	63.509	0	0	0	240	3811	63.509	120	0	0	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 : -TR-200AD1

RELAY TYPE : ABB REX640

ITEM : UNIT A6

Sn. : 1VHR81041859

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

IEC61850 : PHPTUV2

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	0	0	120	0	0	0
11	1888	31.46	0	1888	31.46	240	3811	63.509	120	400	421	5.25
12	3811	63.509	0	1888	31.463	240	1888	31.463	120	400	423	5.75
13	1888	31.463	0	3811	63.509	240	1888	31.463	120	400	423	5.75
14	1888	31.461	0	1888	31.461	240	1888	31.461	120	400	421	5.25
15	0	0	0	3811	63.509	240	3811	63.509	120	0	0	0
16	3811	63.509	0	0	0	240	3811	63.509	120	0	0	0
17	3811	63.509	0	3811	63.509	240	0	0	120	0	0	0
18	1763	29.386	0	1763	29.386	240	3811	63.509	120	400	418	4.5
19	3811	63.509	0	1763	29.387	240	1763	29.387	120	400	420	5
20	1763	29.387	0	3811	63.509	240	1763	29.387	120	400	419	4.75
21	1763	29.385	0	1763	29.385	240	1763	29.385	120	400	417	4.25

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 : -TR-200AD1

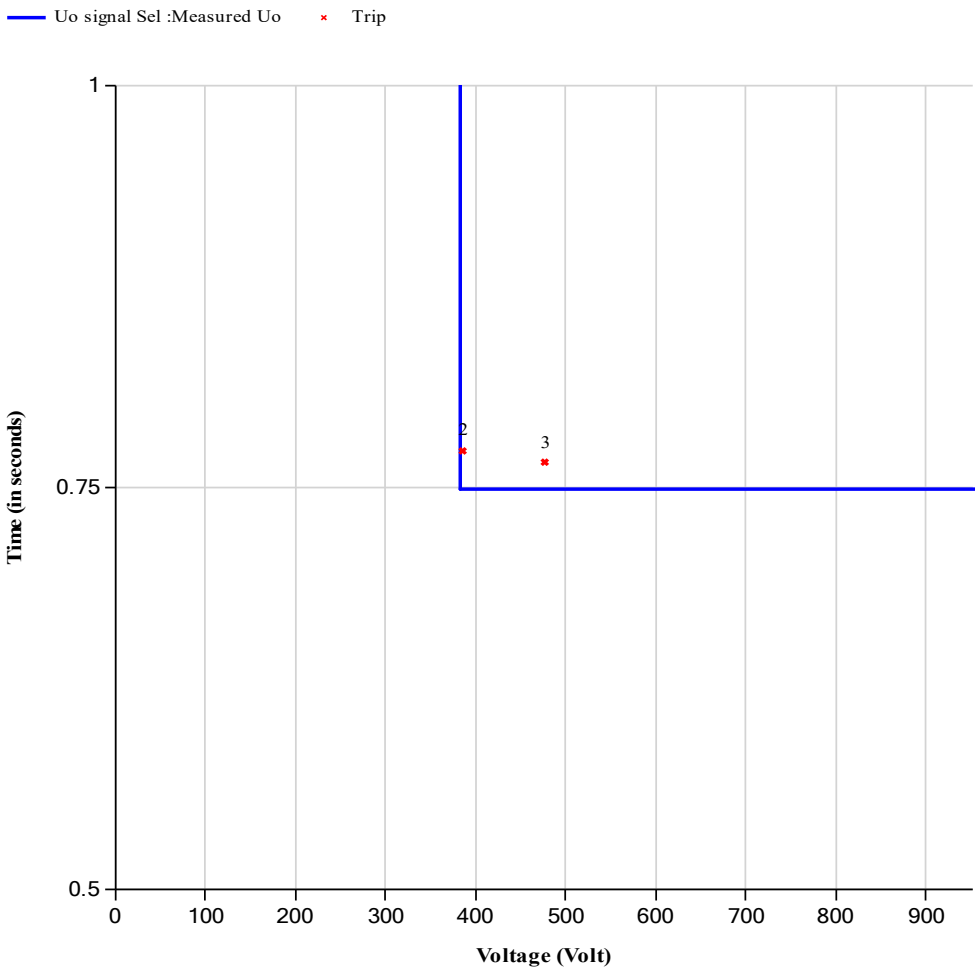
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

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 : 750 msec



NB : ALARM ONLY

N.	V0(V)	V0(V)	Exp.(ms)	Trip(ms)	Dev.(%)
1	376	10.845	0	0	0
2	385	11.125	750	773	3.07
3	477	13.757	750	766	2.13

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 : -TR-200AD1

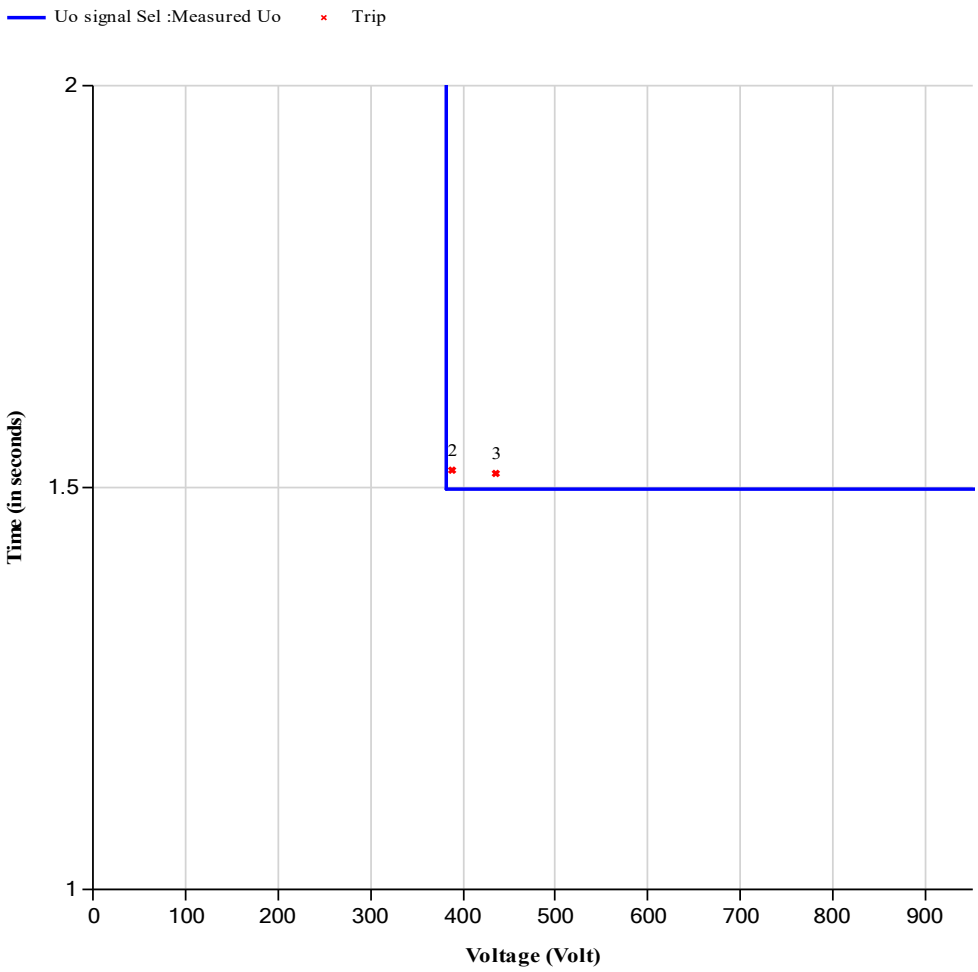
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : ROVPTOV2
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 : 1500 msec



N.	V0(V)	V0(V)	Exp.(ms)	Trip(ms)	Dev.(%)
1	375	10.823	0	0	0
2	388	11.205	1500	1522	1.47
3	435	12.57	1500	1518	1.2

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 : -TR-200AD1

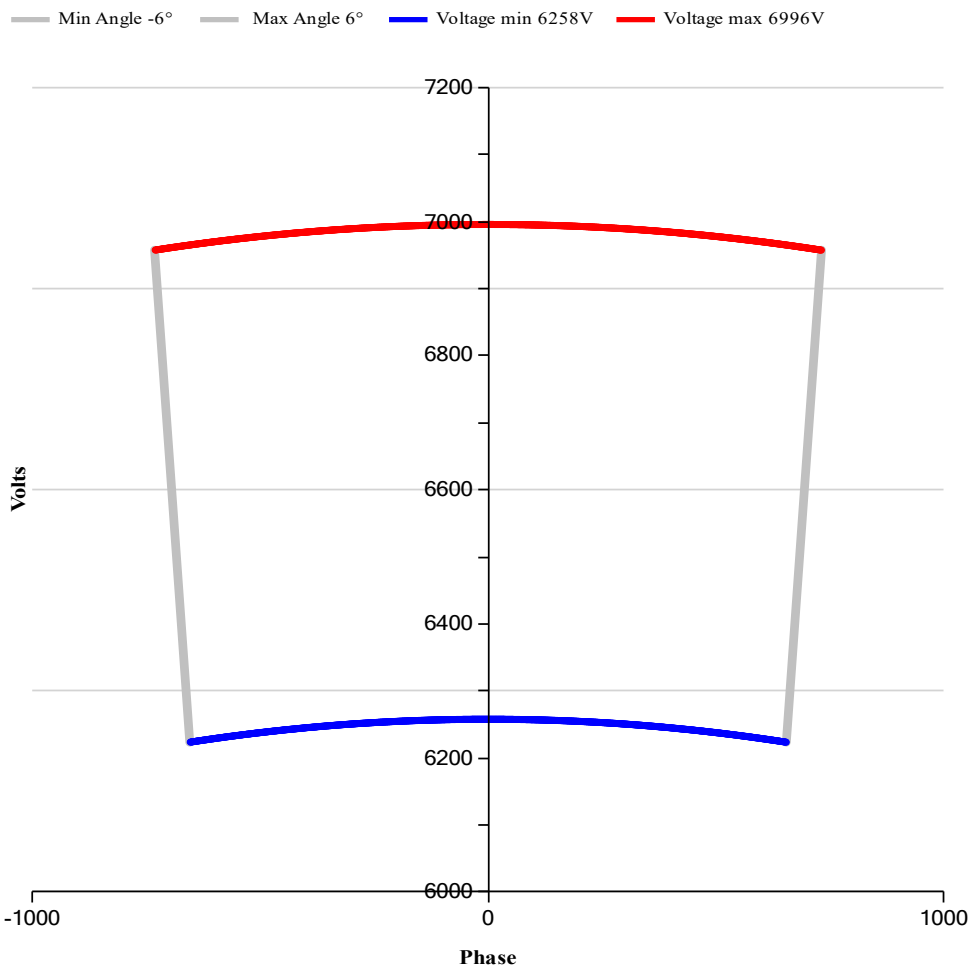
ITEM : UNIT A6

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

RELAY TYPE : ABB REX640

Sn. : 1VHR81041859

IEC61850 : SECRSYN1
Nominal Voltage : 6600 V
Frequency Nominal : 50 Hz
VT RATIO : 6600 / 110 V
Synchro check Mode : Asynchronous
Control Mode : Continuous
Dead line value : 0.10 xUn
Live line value : 0.50 xUn
Dead bus value : 0.10 xUn
Live bus value : 0.50 xUn
Close pulse : 200 ms
Max energizing V : 1.11 xUn
Phase shift : 0 deg
Minimum Syn time : 10000 ms
Maximum Syn time : 10000 ms
Energizing time : 100 ms
Closing time CB : 50 ms
Live dead mode : Not Both Live
Difference voltage : 0.05 xUn
Difference frequency : 0.010 xFn
Difference angle : 5 deg



N.	V1(V)	V1"(V)	V1(°)	V2(V)	V2"(V)	V2(°)	V3(V)	V3"(V)	V3(°)	V4(V)	V4"(V)	V4(°)	F (Hz)
1	3811	63.509	0	3811	63.509	240	3811	63.509	120	6258	104.3	30	50
2	3811	63.509	0	3811	63.509	240	3811	63.509	120	6996	116.6	30	50
3	3811	63.509	0	3811	63.509	240	3811	63.509	120	6600	110	24	50
4	3811	63.509	0	3811	63.509	240	3811	63.509	120	6600	110	36	50
5	3811	63.509	0	3811	63.509	240	3811	63.509	120	6600	110	30	49.5
6	3811	63.509	0	3811	63.509	240	3811	63.509	120	6600	110	30	50.45

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

ITEM	Tag	SG-100D1-QM	: INCOMER - SG-100D1-QM		Dwg	1723002197-EL-DG-00010	
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)		Module		
TASK	code	C10002920	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-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	**NOTE1													
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 .

Page 1/1	Performed by	☐ WITNESS ☐● REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Mattia Girotti	Kristian Castellani	Witness waived
Date	2025-02-04	2025-02-04	2025-02-04
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2025-02-04T10:09:25.144Z	PROVERLIS Digitaly signed by Kristian Castellani 2025-02-04T12:10:03.227Z	PROVERLIS Digitaly signed by Witness waived 2025-02-04T13:36:56.629Z

Step	Description	Result	Verified by	Date
84	Internal space heater test The internal space heater is installed only inside the auxiliary compartment. The thermostat HGR is installed inside the same compartment, its range is -10 ÷ +80°C. Decrease the set point till switch on the space heater and KGR relay will be ON. - Verify and confirm.....☐ - Led-12 "SPACE HEATER ON" on protection relay REX640 HMI will turn to red .....☐			
85	Internal 230Vac Socket test The internal 230Vac Socket XS1 is installed only inside the auxiliary compartment. Take a Multimeter and measure the voltage between socket poles. - Verify and confirm (230Vac).....☐			

5.4.2.3 EMCS EC61850 - Electrical Monitoring & Control System

The EMCS will be tested with the 6.6kV Switchboard SG-100D1: In detail it will be tested the functionalities provided on I/O lists, refer to vendor document 1723002197-EL-LIS-00041 with the A6 Unit INCOMER.

5.4.2.4 EMCS IEC61850 – A6 Unit I/O list

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

SIGNAL_DESCRIPTION	TYPE ANALOG/DIGITAL	IEC61850 ITEM TAG
INCOMING FEEDER TR-100AD1 "A6"		
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

SIGNAL_DESCRIPTION	TYPE ANALOG/DIGITAL	IEC61850 ITEM TAG
SYNCHRO "OK"	DIGITAL	LD0.LEDGGIO1.ST.Ind3.stVal
PROTECTION TRIPPED "59N-1"	DIGITAL	LD0.ROVPTOV1.ST.Op.general
PROTECTION TRIPPED "59N-2"	DIGITAL	LD0.ROVPTOV2.ST.Op.general
PROTECTION TRIPPED "27-1"	DIGITAL	LD0.PHPTUV1.ST.Op.general
PROTECTION TRIPPED "27-2"	DIGITAL	LD0.PHPTUV2.ST.Op.general
PROTECTION TRIPPED "59-1"	DIGITAL	LD0.PHPTOV1.ST.Op.general
PROTECTION TRIPPED "59-2"	DIGITAL	LD0.PHPTOV2.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
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

SIGNAL_DESCRIPTION	TYPE ANALOG/DIGITAL	IEC61850 ITEM TAG
TRANSFORMER PROTECTION ALARM "OIL TEMPERATURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind8.stVal
TRANSFORMER PROTECTION TRIPPED "OIL PRESSURE"	DIGITAL	LD0.SCBIGGIO1.ST.Ind12.stVal
TRANSF. PROT. SELF DEHYDRATING BREATHER ALARM	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
TRANSFORMER PROTECTION ALARM BUCHHOLZ	DIGITAL	LD0.SDBIGGIO1.ST.Ind7.stVal
TRANSFORMER PROTECTION TRIPPED BUCHHOLZ	DIGITAL	LD0.SDBIGGIO1.ST.Ind9.stVal
TRANSFORMER OLTC PROTECTION RELAY	DIGITAL	LD0.SBBIGGIO1.ST.Ind9.stVal
TRANSFORMER PROTECTION ALARM LEVEL OIL	DIGITAL	LD0.SCBIGGIO1.ST.Ind13.stVal
TRANSFORMER PROTECTION TRIPPED LEVEL OIL	DIGITAL	LD0.SCBIGGIO1.ST.Ind7.stVal
TRANSFORMER PROTECTION ALARM OIL LEVEL INDICATOR	DIGITAL	LD0.SDBIGGIO1.ST.Ind3.stVal
TRANSF. OLTC PROTECTION TRIPPED OIL LEVEL INDICATOR	DIGITAL	LD0.SCBIGGIO1.ST.Ind1.stVal
TRANSFORMER PROTECTION ALARM MEMBRANE CONTROL	DIGITAL	LD0.SCBIGGIO1.ST.Ind6.stVal
WATCHDOG PROTECTION RELAY	DIGITAL	LD0.LPHD1.PhyHealth.stVal
V.T. HEALTLY CIRCUIT	DIGITAL	LD0.SCBIGGIO1.ST.Ind2.stVal
INTERTRIP SEND TO 66kV SWITCHB.	DIGITAL	LD0.MVGAPC1.ST.SPCSO4.stVal
K86 TRIPPED	DIGITAL	LD0.SBBIGGIO1.ST.Ind7.stVal

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SIGNAL_DESCRIPTION	TYPE ANALOG/DIGITAL	IEC61850 ITEM TAG
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.SPCSO5.stVal
C.B. READY (TCS)	DIGITAL	LD0.TCSSCBR1.ST.CircAlm.stVal
C.B. READY TO CLOSE	DIGITAL	LD0.MVGAPC2.ST.SPCSO1.stVal
OPENING COMMAND	DIGITAL	LD0.SPCGAPC1.SPCSO2.stVal
CLOSING COMMAND	DIGITAL	LD0.SPCGAPC1.SPCSO1.stVal
LIVE VOLTAGE 6.6kV ON THE MAIN BUS-BARS	DIGITAL	LD0.VMMXU2.ST.HiWrn.stVal
TRIPPED ARC CABLE COMPARTEMENT	DIGITAL	LD0.SCBOGGIO1.ST.SPCSO2.stVal
TR-100AD1 GENERAL ALAM	DIGITAL	LD0.SDBIGGIO1.ST.Ind4.stVal
RR-100D1 NER GENERAL ALARM	DIGITAL	LD0.SDBIGGIO1.ST.Ind8.stVal

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

ROSETTI MARINO — CROSSWIND

ITEM	Tag	TR-100AD1	: 66 / 6.9 kV 7 MVA Transformer		Dwg	123A90-DDL-EL-DL-20101	
	S/Sys	81-20	: Power Transformer 7 MVA (TR-100AD1)		Module	LD	
TASK	code	C10004551	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	COMM	Activity FTS	Discipline Electrical	Form	FP02	Power Transformer

DATA

Manufacturer	MF Trasformatori srl	Primary V	66.000	Secondary V	6.900
Serial N°	181023/1	Primary A	61.2	Secondary A	586
Frequency	50Hz	Fault Level	87.5	Tap Range	+-2x2.5%
Vector Group	Dyn11	Rating kVA	7.000	Cooling type	KNAN

FUNCTION TEST REQUIREMENT

1	Check MC activities have been carried out	OK
2	Check equipment for cleaness	OK
3	Check that enclosure is clean	OK
4	Visual check of earthing connection	OK
5	Prerequisites for energizing as per energization procedure	OK
6	Confirm balanced resistance values of transformer windings	OK

- L2	24,73 Ohm	- L3	24,83 Ohm	- L1	24,79 Ohm

7	Remove N - E link and perform winding insulation test (1 min)		OK
	MV - LV, E	5.800 Mohm	Use 5 kV Megger (Min value 150 Mohm)
	LV - HV, E	3.590 Mohm	Use 1 kV Megger (Min value 10 Mohm)
8	Short LV windings to earth and pressure test primary connection for 1 min		OK
	Test Voltage 2119,7 kV DC	Leakage Current 42,75 mAmps	
9	Discharge both LV and HV windings to earth for 30 mins		OK
10	Remove N - E link and perform winding insulation test (1 min)		NA
	MV - LV, E	NA Mohm	Use 5 kV Megger (Min value 150 Mohm)
	LV - HV, E	NA Mohm	Use 1 kV Megger (Min value 10 Mohm)
11	Confirm no deterioration of insulation resistance since pressure test		OK
12	Confirm operation of winding tenperature monitoring system, remote indications, alarms trips and forced fan u		OK
13	Check the space heaters have been running and that no moisture is present inside enclosure		NA
14	Function check ACB/VCB control circuits and verify intertrips and protection trips		OK
15	Confirm tap setting is correct		OK
16	On completion of tests confirm transformer is left in a safe condition		OK

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity
TERAohm XA 5KV	22420123		25/10/2025
RMO50TW	21Q719		08/09/2025
IDM-8341	277C088G2		09/09/2025

Comments:

Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2025-02-10	2025-02-13	2025-02-14
Signature	Digitaly signed by Davide Zucconelli 2025-02-10T09:39:06.424Z	Digitaly signed by Kristian Castellani 2025-02-13T09:09:48.923Z	Digitaly signed by Witness waived 2025-02-14T07:10:42.672Z

Customer: ROSETTI MARINO

Transformer Nr.: 181023/1 (TR100AD1)

Rated power: 7000

Voltage ratio: 66000 V / 6900 V

Date: 31/01/2025

1. Verify integrity of tank / radiators / corrugate wave / bushings

Is necessary to make a visual check of the tank, radiators and bushings. If there are damage is necessary to signal it at MF Trasformatori.

- Tank: RESULT POSITIVE
- Radiators: RESULT POSITIVE
- Bushings: RESULT POSITIVE

2. Verify presence of oil leaks

Is necessary to make a visual check if there are oil leaks on transformer. If there are leaks is necessary to signal it at MF Trasformatori.

Leaks detected on bushing and conservator.

Leaks resolved

RESULT POSITIVE

3. Verify if radiators valves are open

Is necessary to check the radiator valves are open. Verify if the arrow on the handle valve indicate the direction of radiator.

VALVES OPEN - RESULT POSITIVE

4. Verify radiators conditions (if necessary to do the vent of radiators)

On the upper part of radiator there is the vent valve. Remove the cap and unscrew the valve. Wait until the oil comes out and close the valve.

RESULT POSITIVE

5. Check oil level

Verify the oil level indicate about the environmental temperature

RESULT POSITIVE

6. Check if there is oil into the DGPT2 (if necessary to do the vent of the device)

Verify if the DGPT2 oil indicator is FULL. If it is empty is necessary to open the vent valve on the upper part of the device and wait until the oil comes out and close the valve.

DGPT2 NOT PRESENT

7. Verify the tap changher maneuverability

Check that the tap-changer position corresponds as much as possible to the effective grid voltage value.

RESULT POSITIVE

8. Measurement of ratio voltage

The voltage ratio of a transformer is the ratio between the line voltage of one winding and the line voltage of another winding (at no load). The phase voltage ratio is also equal to the turn's ratio:

$$\frac{V1_f}{V2_f} = \frac{N1}{N2}$$

This measurement is usually performed with some instruments called "ratiometer"
The voltage ratio is performed on all the taps of the tap changer (if present); tolerance for voltage ratio are indicated in IEC 60076-1.
Also you can measure ratio with the measurement of secondary voltage.
In the table below mark the position of tap changer ++,+,0,- or - and measure the no load secondary voltage between each phase and neutral.
Divide the value of nominal primary voltage with value measured of secondary voltage and mark the results in the table below.
When you have made the measure on each positions compare the results with the test reports of the FAT.

Position	Phase U	Phase V	Phase W	Result
1	18.254	18.264	18.264	POSITIVE
2	18.052	18.052	18.052	POSITIVE
3	17.840	17.840	17.840	POSITIVE
4	17.628	17.628	17.628	POSITIVE
5	17.416	17.416	17.417	POSITIVE
6	17.204	17.204	17.205	POSITIVE
7	16.992	16.992	16.993	POSITIVE
8	16.781	16.780	16.781	POSITIVE
9	16.569	16.568	16.569	POSITIVE
10	16.357	16.356	16.357	POSITIVE
11	16.145	16.144	16.145	POSITIVE
12	15.933	15.932	15.933	POSITIVE
13	15.721	15.721	15.721	POSITIVE
14	15.510	15.509	15.509	POSITIVE
15	15.298	15.297	15.298	POSITIVE
16	15.086	15.085	15.086	POSITIVE
17	14.874	14.873	14.874	POSITIVE

9. Measurement of insulation resistance of windings

In order to measure the insulation resistance follow the above procedure:

1) Measurement of insulation resistance between MV and LV connected to ground

- short circuit the MV terminals and connect it to megger
- short circuit the LV terminals and connect them to tank and ground Take the measurement applying 5000Vdc for 1 min

2) Measurement of insulation resistance between LV and MV connected to ground

- short circuit the MV terminals and connect them to tank and ground
- short circuit the LV terminals and connect to megger. Take the measurement applying 1000Vdc for 1 min

3) Measurement of insulation resistance between MV and LV insulated from ground

- short circuit the MV terminals and connect to megger
- short circuit the LV terminals and connect to megger

Leave the tank connected to ground.

Take the measurement applying 1000Vdc for 1 min

MV - LV+ground: 5KV 1min Result 5.80 GΩ POSITIVE

LV - MV+ground: 1KV 1min Result 3.59 GΩ POSITIVE

NOTES:__

SILICAL GEL NOT INSTALLED ON THE TRANSFORMER
ALL TEST AND CHECKS POSITIVE

FRANCESCO BUCCHERI

MF Trasformatori srl

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THE GLOBAL COMPACT WE SUPPORT

ROSETTI MARINO SPA

TEST REPORT No. 181023/1

Customer : ROSETTI MARINO SPA **Serial No.:** 181023/1

MF Job No. 522/23 **Project No. :** 7000ToECO66/6,9 - TR100AD1

CE REFERENCE STANDARDS : EU/548/2014 ECO - TRANSFORMER

Reference Standards: UE/548/2014 & CEI EN 60076 - 1

DATE: 10/11 REVISION: 1 SCHEDULE: S-36OITA

RATING PLATE DATA

Power (kVA) :	7000			Type :	OIL
Primary Voltage (kV) :	66 ±2×2,5%			Connection Group :	Dyn11
Primary Current (A):	61,2			Short-circuit Voltage (%) :	8
Primary Insul. Class (kV) :	AC 140	BIL	325	Thermal Insulation Class :	A / A
Secondary Voltage (V) :	6900			Temperature Rise (K) :	60/65
Secondary Current (A) :	586			Transformer Weight (Kg)	22750
Secondary Insul. Class : (kV) :	AC 20	BIL	60	Oil Weight (Kg) :	7000
Frequency (Hz) :	50				

TRANSFORMER RATIO MEASUREMENT AND CHECK OF POLARITY AND CONNECTIONS

Tap-Changer Pos.	Primary Voltage	Secondary Voltage	U-Phase	V-Phase	W-Phase	Nominal Ratio
1	72600	6900	18,271	18,274	18,276	18,22
2	71775	6900	18,062	18,063	18,065	18,02
3	70950	6900	17,850	18,851	17,853	17,81
4	70125	6900	17,638	17,639	17,641	17,60
5	69300	6900	17,426	17,426	17,428	17,40
6	68475	6900	17,214	17,214	17,216	17,19
7	67650	6900	17,001	17,002	17,004	16,98
8	66825	6900	16,789	16,790	16,791	16,77
9	66000	6900	16,577	16,579	16,581	16,57
10	65175	6900	16,364	16,365	16,366	16,36
11	64350	6900	16,152	16,153	16,154	16,15
12	63525	6900	15,940	15,941	15,942	15,95
13	62700	6900	15,728	15,728	15,729	15,74
14	61875	6900	15,516	15,516	15,517	15,53
15	61050	6900	15,303	15,304	15,304	15,32
16	60225	6900	15,091	15,091	15,092	15,12
17	59400	6900	14,879	14,879	14,880	14,91

The polarity and connection check have been carried out during the transformer ratio measurement.
Measured Connection: Dyn11

WINDING RESISTANCE MEASUREMENT

66kV	POS. 1	POS 9	POS. 17	
R-1U1V	2,630	2,245	2,630	Ohm
R-1V1W	2,624	2,240	2,624	Ohm
R-1W1U	2,626	2,243	2,626	Ohm

Measured at ambient temperature : 33,6 °C

6900 V	R-2U2V	24,79	mOhm
	R-2V2W	24,73	mOhm
	R-2W2U	24,83	mOhm

CHECK OF AUXILIARIES

Testing	Grounded Winding
auxiliary	Grounded

Test Voltage (V)	Test Frequency	Test Duration
2500	50 Hz	60 Seconds

During the test no voltage failure occurred.

Result : POSITIVE

Name and signature of authorized person:	Date	Witnessed by :
SANDRINI MATTIA	01/08/24	

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Cod. Univoco EH1R83N

Witnessed X Reviewed ☐
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

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THE GLOBAL COMPACT WE SUPPORT

Reference Standards: UE/548/2014 & CEI EN 60076 - 1

DATE: 10/11 REVISION: 1

TEST REPORT No. 181023/1

INSULATION TEST WITH APPLIED VOLTAGE

Testing Winding	Grounded Winding	Tap-Changer Position	Test Voltage (V)	Test Frequency	Test Duration
66kV	6900 V	9	140000	50 Hz	60 Seconds

During the test no voltage failure occurred.

Result : POSITIVE

Testing Winding	Grounded Winding	Tap-Changer Position	Test Voltage (V)	Test Frequency	Test Duration
6900 V	66kV	9	20000	50 Hz	60 Seconds

During the test no voltage failure occurred.

Result : POSITIVE

INSULATION TEST WITH INDUCED VOLTAGE

Fed Winding	Tap-Changer Position	Test Voltage (V)	Test Frequency	Test Duration
6900 V	9	13800	100 Hz	60 Seconds

During the test no voltage failure occurred.

Result : POSITIVE

MEASUREMENT OF NO-LOAD LOSSES AND NO-LOAD CURRENT

Vm Phase Volt	Vm Line Volt	I U-Phase Ampere	I V-Phase Ampere	I W-Phase Ampere	Im Ampere	Losses Watt	Test Frequency	Io %
3983,7	6900	0,9859	0,8531	0,7918	0,877	5793	50 Hz	0,15

Fed Winding
6900 V

Test Temperature	
33,6	°C

Measured No-Load Losses (W) : 5793

Contract No-Load Losses (W) : 6200 Tolerance : + 0%

PEI EU/548/2014

PEI : 99,5964 %

CONTRACT PEI : > 99,580 %

TIGHTNESS TEST / OIL LEAKAGE TEST

An adequate pressure of 30kPa was applied and maintained for 8 hours. This pressure was applied using a column of liquid (oil).

Result of check : POSITIVE

Name and signature of authorized person:	Date	Witnessed by :
SANDRINI MATTIA	01/08/24	----------

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DATE: 10/11 REVISION: 1

TEST REPORT No. 181023/1

MEASUREMENT OF SHORT-CIRCUIT VOLTAGE, SHORT-CIRCUIT IMPEDANCE AND LOAD-LOSSES — 66000 V TAP CHANGER POS. 9

AmbT : 33,6 °C

Vm Phase Volt	Vm Line Volt	I U-Phase Ampere	I V-Phase Ampere	I W-Phase Ampere	Im Ampere	Losses Watt	Test Frequency	Fed Winding	Winding in S/C	TAP CHANGER POS. 9 Reference Power
2119,7	3671	42,891	42,733	42,619	42,75	15273	50 Hz	66kV	6900 V	7000 kVA

Detected Load-Losses at 75 °C (W) :	34451	Contract Load-Losses (W) :	34800	Tolerance :	+ 0%
Detected Short-circuit Voltage at 75 °C (%) :	7,97	Contract Short-circuit Voltage (%) :	8	Tolerance :	± 10 %

Measured Total Losses (W) :	40244	**Contract Total Losses (W) :**	41000	Tolerance :	+ 0%

MEASUREMENT OF SHORT-CIRCUIT VOLTAGE, SHORT-CIRCUIT IMPEDANCE AND LOAD-LOSSES — 59400 V TAP CHANGER POS. 17

AmbT : 33,6 °C

Vm Phase Volt	Vm Line Volt	I U-Phase Ampere	I V-Phase Ampere	I W-Phase Ampere	Im Ampere	Losses Watt	Test Frequency	Fed Winding	Winding in S/C	TAP CHANGER POS. 17 Reference Power
1581,9	2740	40,669	40,549	40,442	40,55	12936	50 Hz	59,4kV	6900 V	7000 kVA

Detected Load-Losses at 75 °C (W) :	40465	Contract Load-Losses (W) :	-	Tolerance :	+ 0%
Detected Short-circuit Voltage at 75 °C (%) :	7,74	Contract Short-circuit Voltage (%) :	8	Tolerance :	± 10 %

Measured Total Losses (W) :	46258	**Contract Total Losses (W) :**	-	Tolerance :	-

MEASUREMENT OF SHORT-CIRCUIT VOLTAGE, SHORT-CIRCUIT IMPEDANCE AND LOAD-LOSSES — 72600 V TAP CHANGER POS. 1

AmbT : 33,6 °C

Vm Phase Volt	Vm Line Volt	I U-Phase Ampere	I V-Phase Ampere	I W-Phase Ampere	Im Ampere	Losses Watt	Test Frequency	Fed Winding	Winding in S/C	TAP CHANGER POS. 1 Reference Power
2039,3	3532	32,367	32,213	32,051	32,21	10736	50 Hz	72,6kV	6900 V	7000 kVA

Detected Load-Losses at 75 °C (W) :	34966	Contract Load-Losses (W) :	-	Tolerance :	+ 0%
Detected Short-circuit Voltage at 75 °C (%) :	8,41	Contract Short-circuit Voltage (%) :	8	Tolerance :	± 10 %

Measured Total Losses (W) :	40759	**Contract Total Losses (W) :**	-	Tolerance :	-

Name and signature of authorized person:	Date	Witnessed by :
SANDRINI MATTIA	01/08/24	----------

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Witnessed X Reviewed ☐
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

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Reference Standards: UE/548/2014 & CEI EN 60076 - 1

DATE: 10/11 REVISION: 1

TEST REPORT No. 181023/1

MEASUREMENT OF INSULATION RESISTANCE ----- MV - (LV + G) ------

5 kV - 1 minute : 1,71 GΩ

MEASUREMENT OF INSULATION RESISTANCE ----- LV - (MV + G) ------

5 kV - 1 minute : 1,34 GΩ

TIGHTNESS TEST

Result of check : POSITIVE

MEASUREMENT OF CAPACITANCE AND DISSIPATION FACTOR ----- MV - (LV+ G) ------

C : 7,807 nF @ 12 kV Dissipation Factor : 0,449% @ 12 kV

MEASUREMENT OF CAPACITANCE AND DISSIPATION FACTOR ----- LV - (MV+ G) ------

C : 9,845 nF @ 1 kV Dissipation Factor : 0,396% @ 1 kV

MEASUREMENT OF ZERO-SEQUENCE IMPEDANCE

V :8,8571 I1 : 46,913 I2 : 46,838 Im : 46,8755 Z (V/Im) . 0,1889 Z (ZX3) : 0,56682 Ω/PHASE
566,82 mΩ/PHASE

ENCLOSURE PAINTING CHECK

Enclosure painting : RAL 7031 CHECK POSITIVE

FUNCTIONAL TEST ON ALL ACCESSORIES

THE FUNCTIONALITY OF THE AUXILIARY ACCESSORIES WAS CHECKED DURING THE FAT CHECK POSITIVE

MEASUREMENT OF INSULATION RESISTANCE & APPLIED MAGNETIC CORE - (TANK - CORE-FRAME)

2,5 kV - 1 min. 50 Hz During the test no voltage failure occurred. Result : POSITIVE

MEASUREMENT OF INSULATION RESISTANCE & APPLIED MAGNETIC CORE-FRAME - (TANK - CORE)

2,5 kV - 1 min. 50 Hz During the test no voltage failure occurred. Result : POSITIVE

Name and signature of authorized person:	Date	Witnessed by :
SANDRINI MATTIA	01/08/24	----------

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Witnessed X Reviewed ☐
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

Directive 2009/125/EU

DECLARATION OF CONFORMITY

No. 374/23

WE

MF Trasformatori srl

DECLARE THAT

the transformer 7000ToECO66/6,9 - TR100AD1 no. 181023/1

Type

OIL

Respects requirements of the Directive 2009/125/EU

with reference to Regulation

EU/548/2014

Other Specifications

.....

.....

Name and signature of authorized person

Ing. Festa M.

Date

01/08/24

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Partita IVA IT 03550350171

Witnessed ☐ Reviewed ☒
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

Directive 2014/30/EU

DECLARATION OF CONFORMITY

No. 300/24

WE

MF Trasformatori srl

DECLARE THAT

the transformer 7000ToECO66/6,9 - TR100AD1 no. 181023/1

Type

OIL

Respects the electromagnetic compatibility requirements
Directive 2014/30/EU

with reference to the harmonized standards
EN61000-6-1 Electromagnetic compatibilty emissions
EN61000-6-3 Electromagnetic compatibility immunity

Name and signature of authorized person
Ing. Festa M.

Date

01/08/24

MF Trasformatori srl
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Witnessed ☐ Reviewed ☒
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

MF Trasformatori srl

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Oil Certificate

Calcinato, 01/08/24

WE

MF Trasformatori s.r.l.

DECLARE THAT

the oil contained inside the MF transformer no. 181023/1

TYPE

MIDEL 7131

is in conformity with the Standards CEI EN 60296

" Fluids for electrotechnical applications - new mineral insultating oils for transformers"

Signature and stamp
Ing. Festa M.

Witnessed ☐ Reviewed ☒
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

MF Trasformatori srl
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WARRANTY

Calcinato, 01/08/24

Starting from this date the transformer is guaranteed for 36 MAX 48 against any manufacturing defect (accessories not included).
The incorrect use and/or modifications, which have not been expressly approved by the manufacturer - the removal of trade marks included - imply automatically the expiration of this guarantee.

Transformer No.: *181023/1*

Signature and stamp
Ing. Festa M.

Marco Festa

MF Trasformatori srl
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Tel. +39 (0)30-9636596
Codice Fiscale 01547220176
Partita IVA IT 03550350171

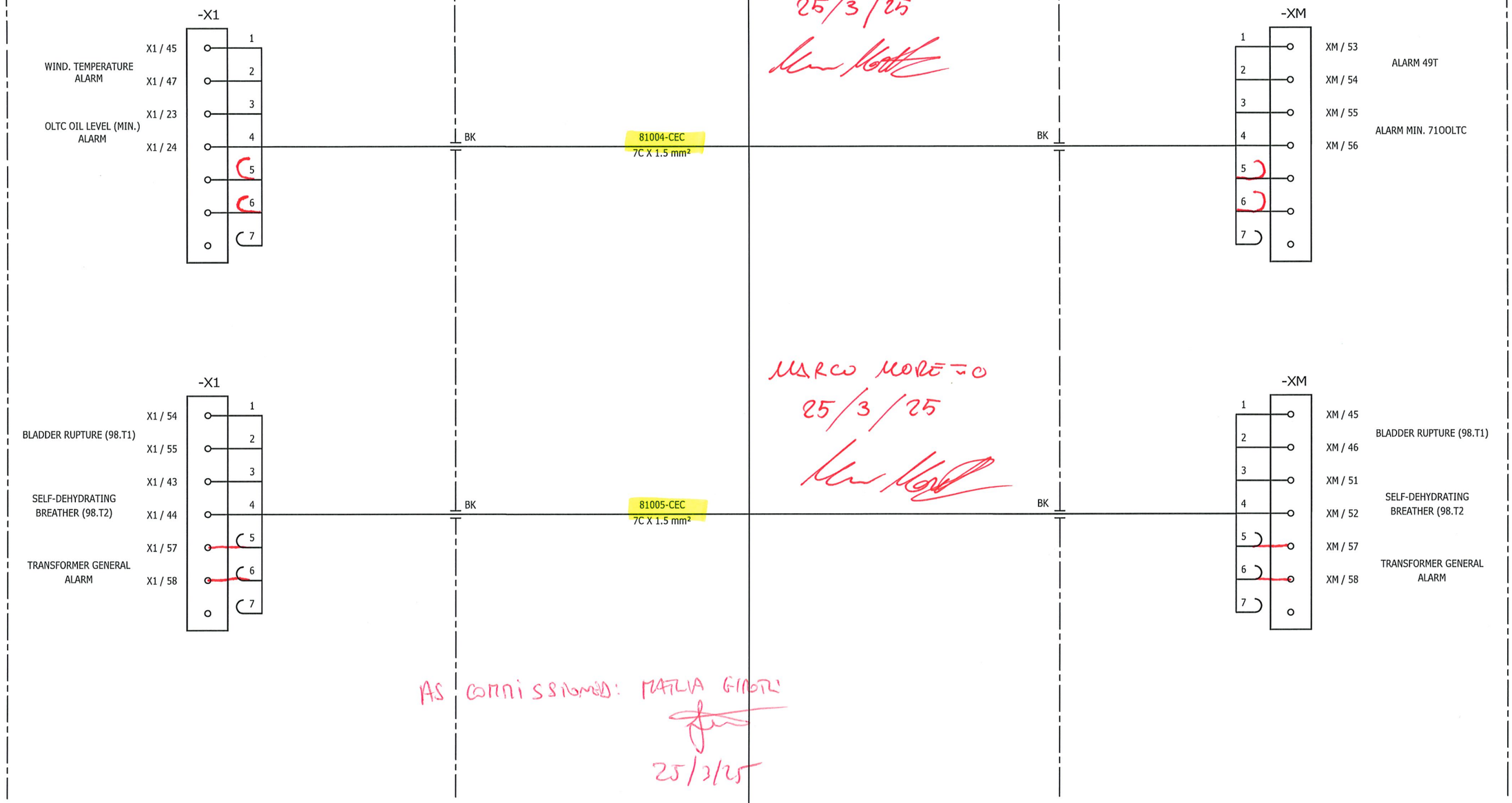
Witnessed ☐ Reviewed ☒
Lastene Bevoni
on behalf of RMG
Date 01-08-2024

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

FROM	TO
DESCRIPTION: 66KV, 7MVA TRANSFORMER TAG NUMBER: CP-100E4	DESCRIPTION: 6.6KV HV SWITCHGEAR TAG NUMBER: SG-100D1

MARCO MORETTO
25/3/25

+A6



MARCO MORETTO
25/3/25

AS COMMISSIONED: MATTIA GINOTTI
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66KV, 7MVA TRANSFORMER ALARMS PROTECTION

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 068 | REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: 66KV, 7MVA TRANSFORMER
TAG NUMBER: CP-100E4

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

MARCO MORETTO
21/3/25

+A6

-X1

BUCHHOLZ RELAY TRIP	X1 / 05	1
	X1 / 06	2
	X1 / 11	3
OIL THERMOMETER TRIP	X1 / 12	4
	X1 / 17	5
OIL LEVEL (MAX.) TRIP	X1 / 18	6
		7

BK — 81006-CEC 7C X 1.5 mm² — BK

-XM

1	XM / 27	TRIP 97T
2	XM / 28	
3	XM / 29	TRIP 26OT
4	XM / 30	
5	XM / 39	TRIP 71OT
6	XM / 40	
7		

-X1

PRESSURE RELAY TRIP	X1 / 20	1
	X1 / 21	2
	X1 / 48	3
WIND. TEMPERATURE TRIP	X1 / 50	4
		5
		6
		7

BK — 81007-CEC 7C X 1.5 mm² — BK

NO MARK UP
MARCO MORETTO
21/3/25

-XM

1	XM / 31	TRIP 63T
2	XM / 32	
3	XM / 33	TRIP 49T
4	XM / 34	
5		
6		
7		

AS COMMISSIONED: NATALIA GIRGIS
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66KV, 7MVA TRANSFORMER TRIP PROTECTION

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 069

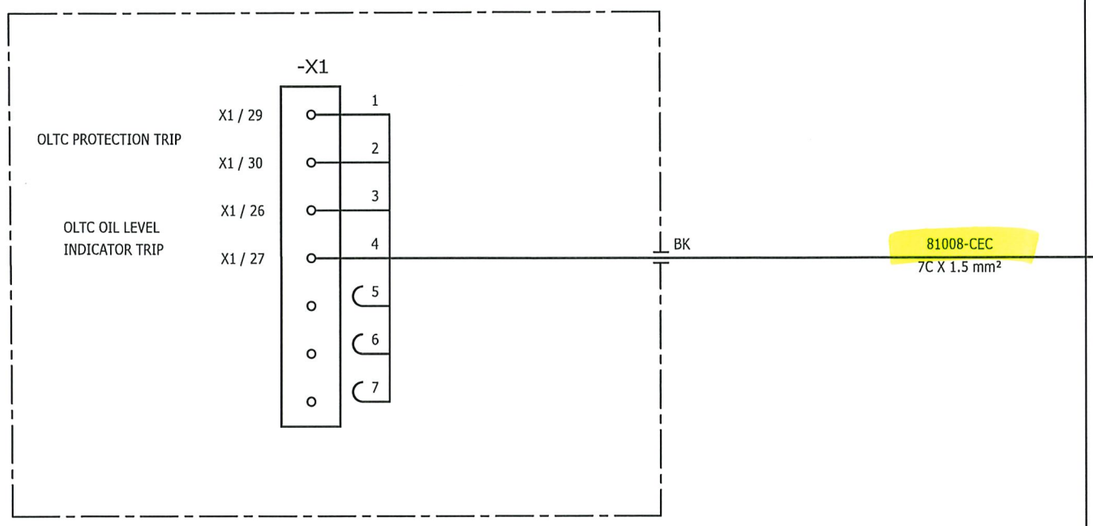
REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: 66KV, 7MVA TRANSFORMER STEP-UP AVR
TAG NUMBER: CP-100E4



MARCO MORETTO
21/3/25

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

+A6

AS COMMISSIONED: MATTIA GIROTTO
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66KV, 7MVA TRANSFORMER OLTC TRIP PROTECTION

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 070

REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: 66KV, 7MVA TRANSFORMER
TAG NUMBER: CP-100E4

COLUMN/CUBIC.: -

NEUTRAL CURRENT TRANSFORMER

-X1

X1 / 39 — FROM CT — X1 / 40 → 1, 2, 3, 4 — BK — 81001-CEC 4C X 4 mm² → BK → -X41: 1, 2, 3, 4 — X41 / 1, X41 / 2 — CT FOR 51G PROTECTION (7SJ85)

NO MARK UP
MARCO MORETTO
21/3/25

-X1

X1 / 41 — FROM CT — X1 / 42 → 1, 2, 3, 4 — BK — 81002-CEC 4C X 4 mm² → BK → COLUMN/CUBIC.:- -X43: 1, 2, 3, 4 — X43 / 1, X43 / 2 — CT FOR 87NT PROTECTION (7UT85)

NO MARK UP
MARCO MORETTO
21/3/25

-X1

BUCHHOLZ RELAY ALARM — X1 / 02, X1 / 03 → 1, 2
OIL THERMOMETER ALARM — X1 / 08, X1 / 09 → 3, 4
OIL LEVEL (MIN.) ALARM — X1 / 14, X1 / 15 → 5, 6
7

BK — 81003-CEC 7C X 1.5 mm² → BK

AS COMMISSIONED: MARCO GIROTTO
25/3/25

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

+A6

-XM: 1, 2, 3, 4, 5, 6, 7

XM / 61, XM / 62 — ALARM 97T
XM / 47, XM / 48 — ALARM 26OT
XM / 49, XM / 50 — ALARM 71OT

MARCO MORETTO
27/12/24

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66KV, 7MVA TRANSFORMER ALARMS PROTECTION

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

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	067	02

F.to UNI A3: 420mmx297mm

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

FROM	TO

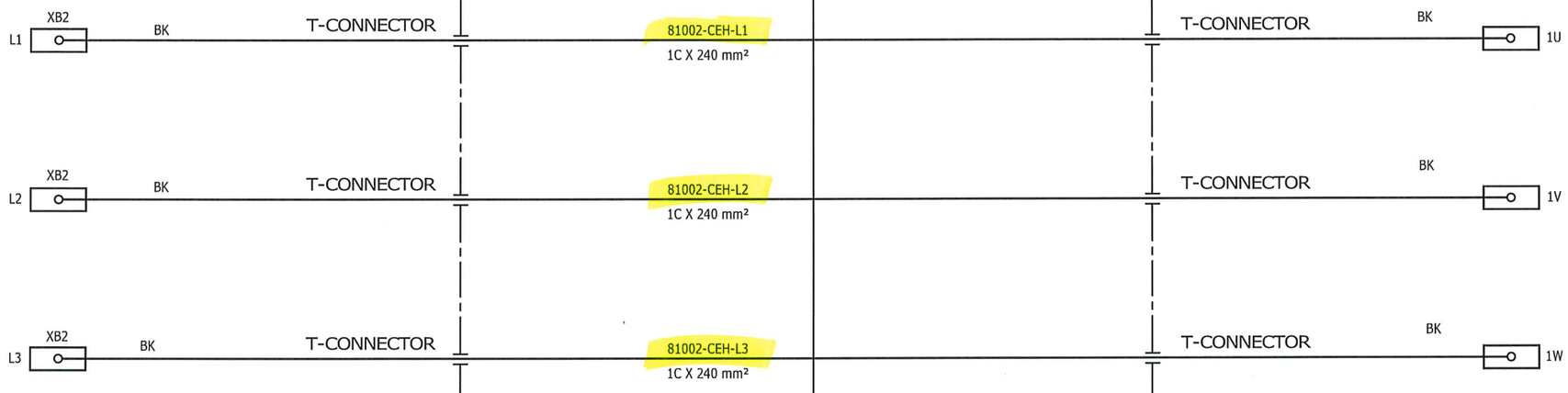
NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: 66kV SWITCHGEAR (GIS)
TAG NUMBER: HNA6-AFA70

QZ91

DESCRIPTION: 66/6.9 KV, 7MVA TRANSFORMER
TAG NUMBER: TR-100AD1

HV TERMINAL BOX OF
TR-100AD1



AS COMMISSIONED: MATTIA GIRZ
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66kV GIS SWGR

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 011

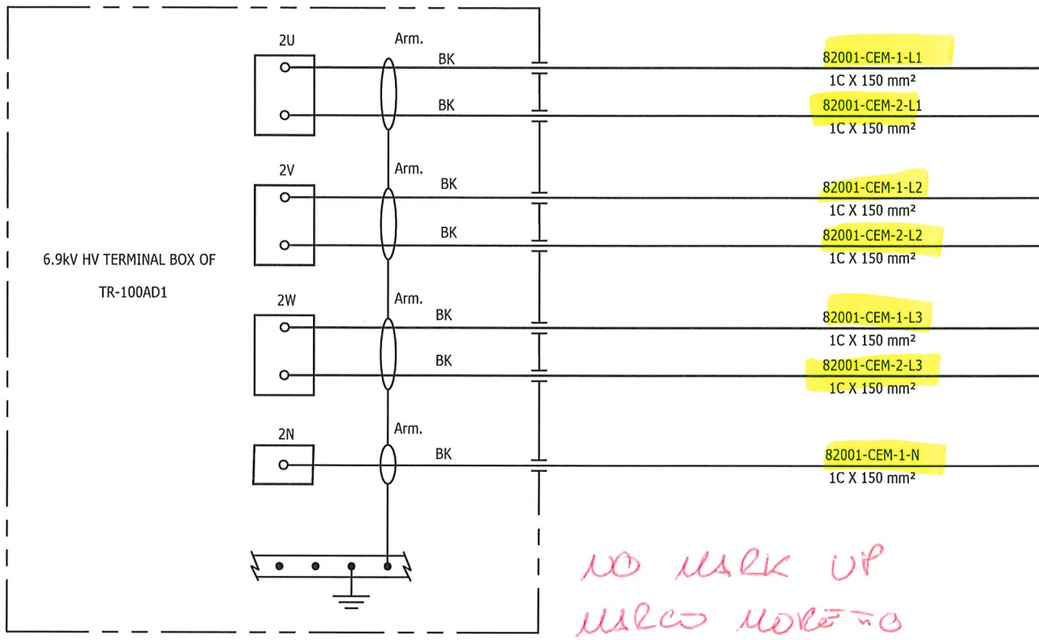
REV. 02

F.to UNI A3: 420mmx297mm

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

FROM

DESCRIPTION: 66/6.9KV, 7MVA TRANSFORMER
TAG NUMBER: TR-100AD1

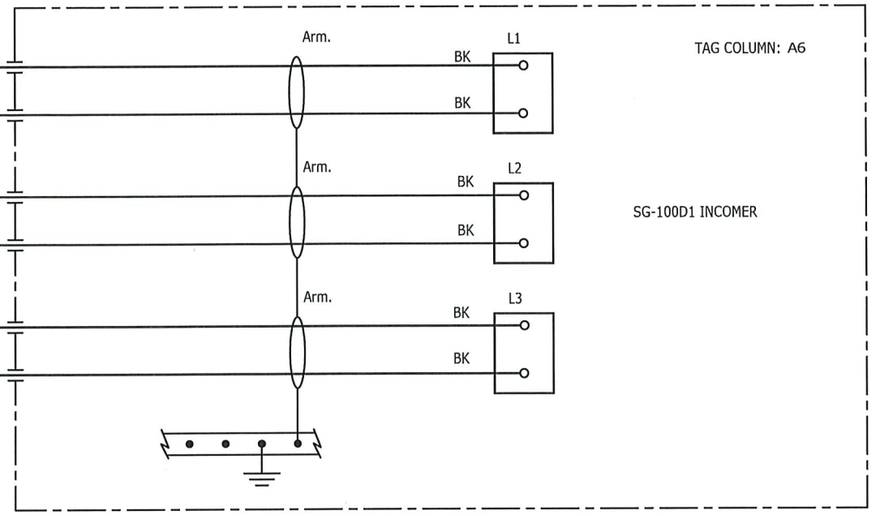


NO MARK UP
MARCO MORETTO
21/3/25

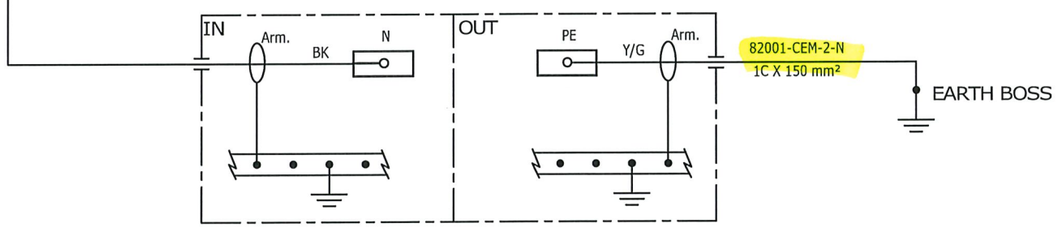
AS COMMISSIONED: NATALIA GIACOMI
25/3/25

TO

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



DESCRIPTION: NER
TAG NUMBER: RR-100D1



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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
66KV, 7MVA TRANSFORMER

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 012

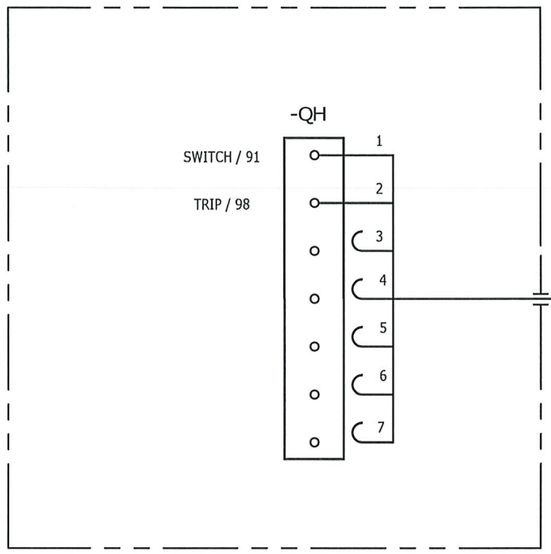
REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: NER (NEUTRAL EARTHING RESISTOR)
TAG NUMBER: RR-100D1

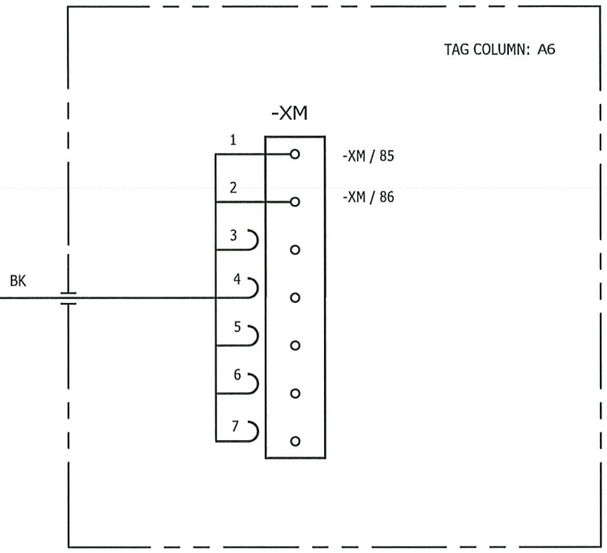


82014-CEC
7C X 1.5 mm²

NO MARK UP
MARCO MORETTO
2/3/25

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

TAG COLUMN: A6



AS COMMISSIONED: MATTIA GIROTO
25/3/25

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DG-20149
REV.: 2_F | DATE: 09/01/25 | SIGNATURE: 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
NEUTRAL–EARTHING RESISTORS

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 015 | REV. 02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: EMCS
TAG NUMBER: B400-EMCS-001

COLUMN: -

-TB-DO
~~-TB-DI~~

TB-DO / 1 ~~TB-DI / 25~~	1	
TB-DO / 2 ~~TB-DI / 26~~	2	
	3	
	4	
	5	
	6	
	7	

NO MARK UP
MARCO MORETTO
20/3/25

BK — 85002-CEC — 7C X 1.5 mm²

DESCRIPTION: BESS
TAG NUMBER: A-85000

COLUMN: -

-XT1

	1	XT1 / 19 PERMISSIVE - BESS TO SWITCH TO GRID
	2	XT1 / 20 FORMING MODE
	3	
	4	
	5	
	6	
	7	

BK

DESCRIPTION: LCP GIS
TAG NUMBER: CP-100E1

COLUMN: -

-X1

X1 / 39	1	
X1 / 40	2	
X1 / 41	3	
X1 / 42	4	
X1 / 43	5	
X1 / 44	6	
	7	

ISLAND SIGNAL

NO MARK UP
MARCO MORETTO
21/3/25

BK — 81013-CEC — 7C X 1.5 mm²

AS COMMISSIONED: NATALIA GINOTTI
21/3/25

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

COLUMN: A6

-XM

	1	XM / 43
	2	XM / 44 66 KV CB OPEN STATUS
	3	XM / 81 66 KV CB OPEN STATUS FOR ELECTROLYZER
	4	XM / 82 FEEDER
	5	XM / 83 66 KV CB OPEN STATUS FOR BESS
	6	XM / 84
	7	

BK

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

REV.:	DATE:	SIGNATURE:
2_L	13/03/25	G.Randi

ROSETTI MARINO SpA

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

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
INTERLOCKS BETWEEN LCP GIS&6.6KV HV SWITCHGEAR

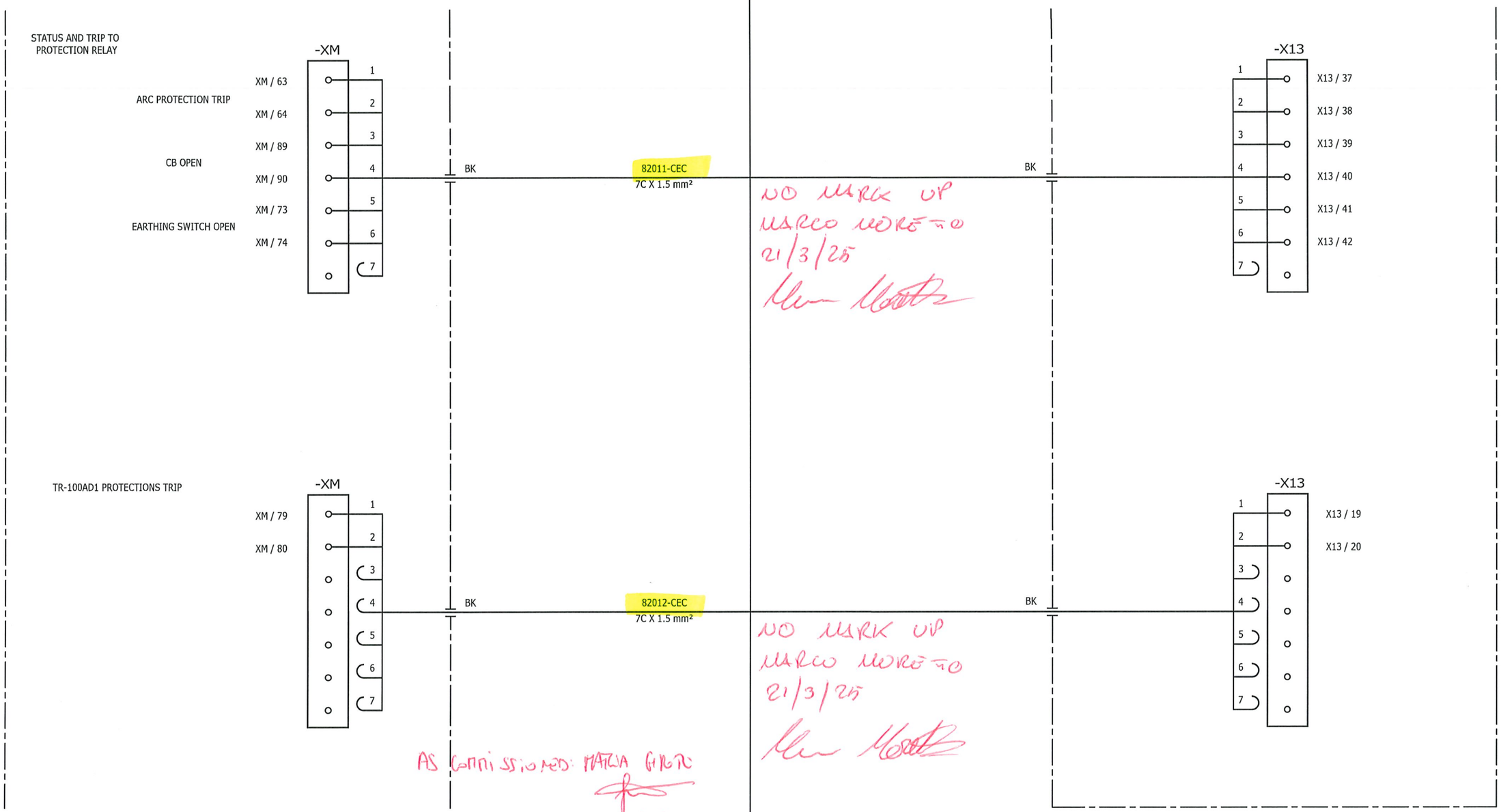
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	085	02

F.to UNI A3: 420mmx297mm

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

FROM	TO
DESCRIPTION: 6.6KV HV SWITCHGEAR TAG NUMBER: SG-100D1	DESCRIPTION: LCP GIS TAG NUMBER: CP-100E1



NO MARK UP
MARCO MORETTO
21/3/25

AS COMMISSIONED: MATRIX FIBRE
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
6.6KV HV SWITCHGEAR & LCP GIS INTERLOCK

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

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	077	02

F.to UNI A3: 420mmx297mm

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

FROM	TO

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

COLUMN/CUBIC.:A6

PERMISSIVES FROM 6.6KV TO GIS CB & EARTHING SWITCH

-XM

CB STATUS OPENED	XM / 65	1
CB CONNECTED SERVICE POSITION	XM / 66	2
EARTHING SWITCH OPENED	XM / 67	3
	XM / 68	4
CB OPEN	XM / 91	5
	XM / 92	6
		7

BK

82010-CEC
7C X 1.5 mm²

NO MARK UP MARCO MORETTO 21/3/25

AS COMMISSIONED: DATE'A FIRST: 25/3/25

DESCRIPTION: LCP GIS
TAG NUMBER: CP-100E1

COLUMN/CUBIC.:-

-X13

1	X13 / 15	
2	X13 / 16	
3	X13 / 29	
4	X13 / 30	
5	X13 / 33	
6	X13 / 34	
7		

BK

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
6.6KV HV SWITCHGEAR & LCP GIS INTERLOCK

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

SCALE : 1:X

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	076	02

F.to UNI A3: 420mmx297mm

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

FROM	TO

DESCRIPTION: LCP GIS
TAG NUMBER: CP-100E1

COLUMN/CUBIC.:-

-X12B

X12B / 11 — 1
X12B / 12 — 2
X12B / 15 — 3
X12B / 16 — 4
5
6
7

BK — 81012-CEC — 7C X 1.5 mm²

NO MARK UP
MARCO MORETTO
21/3/25

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

COLUMN/CUBIC.:A6

-XM

1 — XM / 11 — 66KV SWBD. 86 TRIP
2 — XM / 12
3 — XM / 25 — 66KV SWBD. 86 TRIP
4 — XM / 26
5
6
7

BK

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

COLUMN/CUBIC.:A6

-X1

X1 / 09 — 1
X1 / 10 — 2
CT FOR 87T PROTECTION
X1 / 11 — 3
X1 / 12 — 4

BK — 82001-CEC — 4C X 4 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: LCP GIS
TAG NUMBER: CP-100E1

COLUMN/CUBIC.:-

-X42

1 — X42 / 1
2 — X42 / 3
3 — X42 / 5
4 — X42 / 6

BK

DESCRIPTION: 6.6/0.415 KV, 7MVA TRANSFORMER
TAG NUMBER: CP-100E3

COLUMN/CUBIC.:A5

-XM

XM / 15 — 1
XM / 16 — 2
3
4
02

BK — 82002-CEC — 4C X 4 mm²

NO MARK UP
MARCO MORETTO
21/3/25

COLUMN/CUBIC.:-

-X7

1 — X7 / 3
2 — X7 / 4
3
4
02

02

N1
TAPCON
230
EXPERT

BK

AS COMMISSIONED: MARCIA GIANTI
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LCP GIS & 6.6KV HV SWITCHGEAR INTER TRIP

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

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	072	02

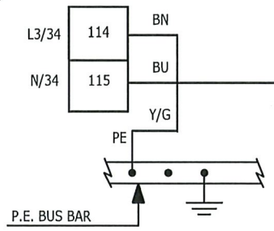
F.to UNI A3: 420mmx297mm

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

FROM	TO

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

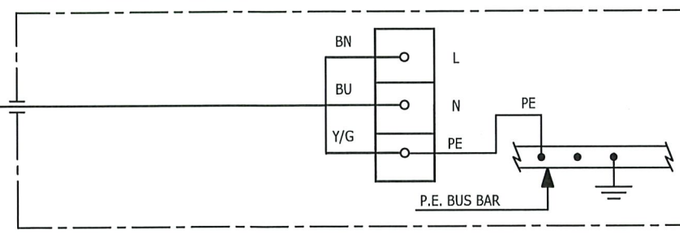
CUBICLE/CB: +03/Q34



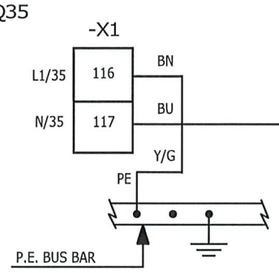
83115-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: AUXILIARY NER
TAG NUMBER: RR-100D1



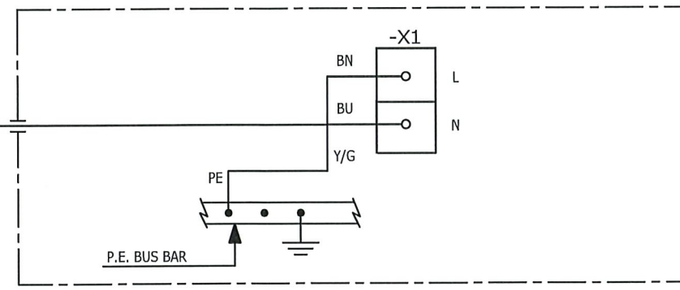
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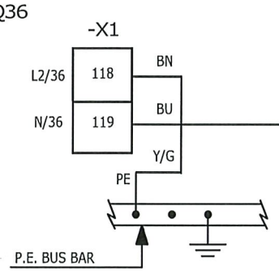
83116-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
7/03/25

DESCRIPTION: AUXILIARY TRAFO 1,6MVA
TAG NUMBER: CP-200E1



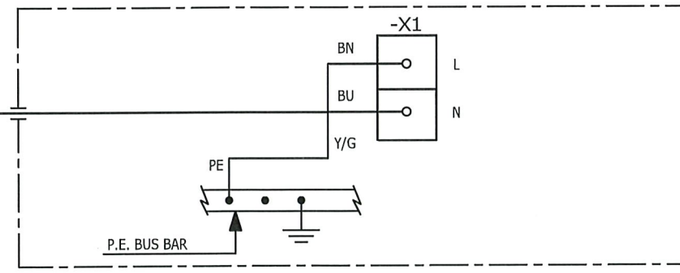
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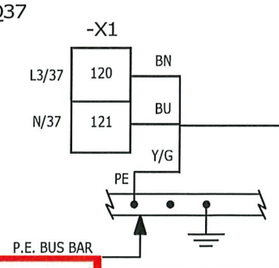
83117-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
7/03/25

DESCRIPTION: AUXILIARY TRAFO SOLAR 0,5MVA
TAG NUMBER: CP-200E2



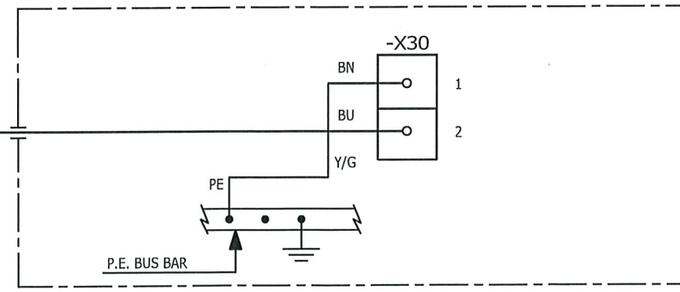
CUBICLE/CB: +03/Q37



83118-CEL
3G6 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: AUXILIARY GIS
TAG NUMBER: CP-100E1



AS COMMISSIONED : MATTIA GIRETTI
21/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

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

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

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 055 | REV. 02

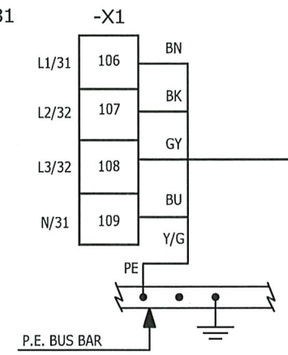
F.to UNI A3: 420mmx297mm

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

FROM	TO

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

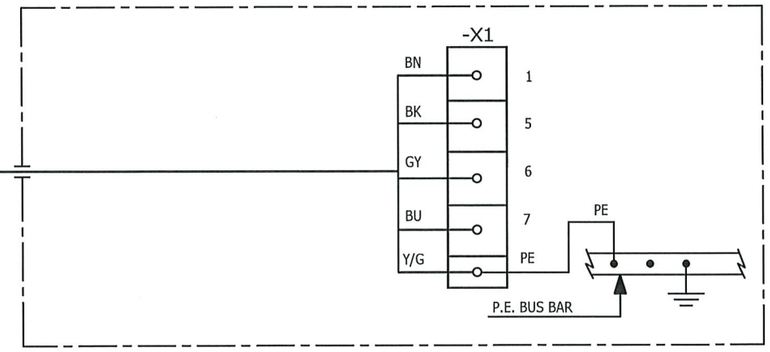
CUBICLE/CB: +03/Q31



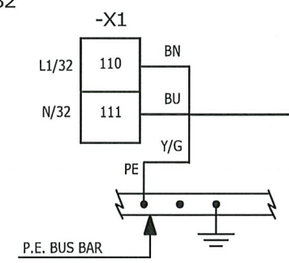
83112-CEL
5G4 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: AUXILIARY TRAFO OLTC
TAG NUMBER: CP-100E2



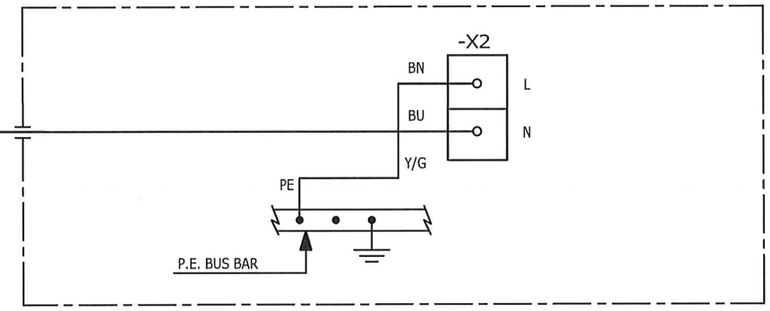
CUBICLE/CB: +03/Q32



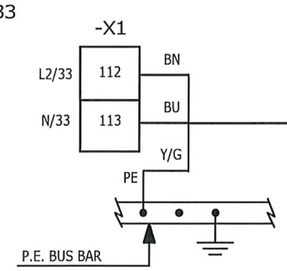
83113-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: AUXILIARY TRAFO AVR
TAG NUMBER: CP-100E3



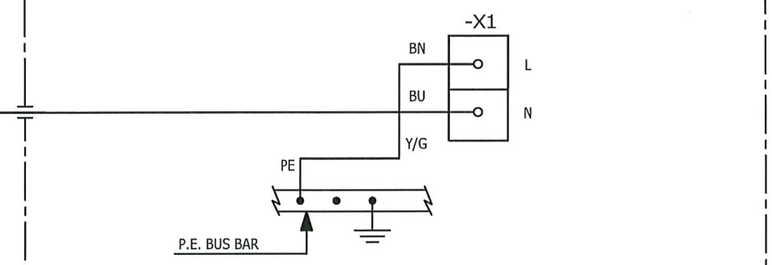
CUBICLE/CB: +03/Q33



83114-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: AUXILIARY TRAFO 7MVA
TAG NUMBER: CP-100E4



AS COMMISSIONED: MATCH GIRTH
25/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

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

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

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-EL-DG-20149	054	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)
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)

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

=							
+							
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

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

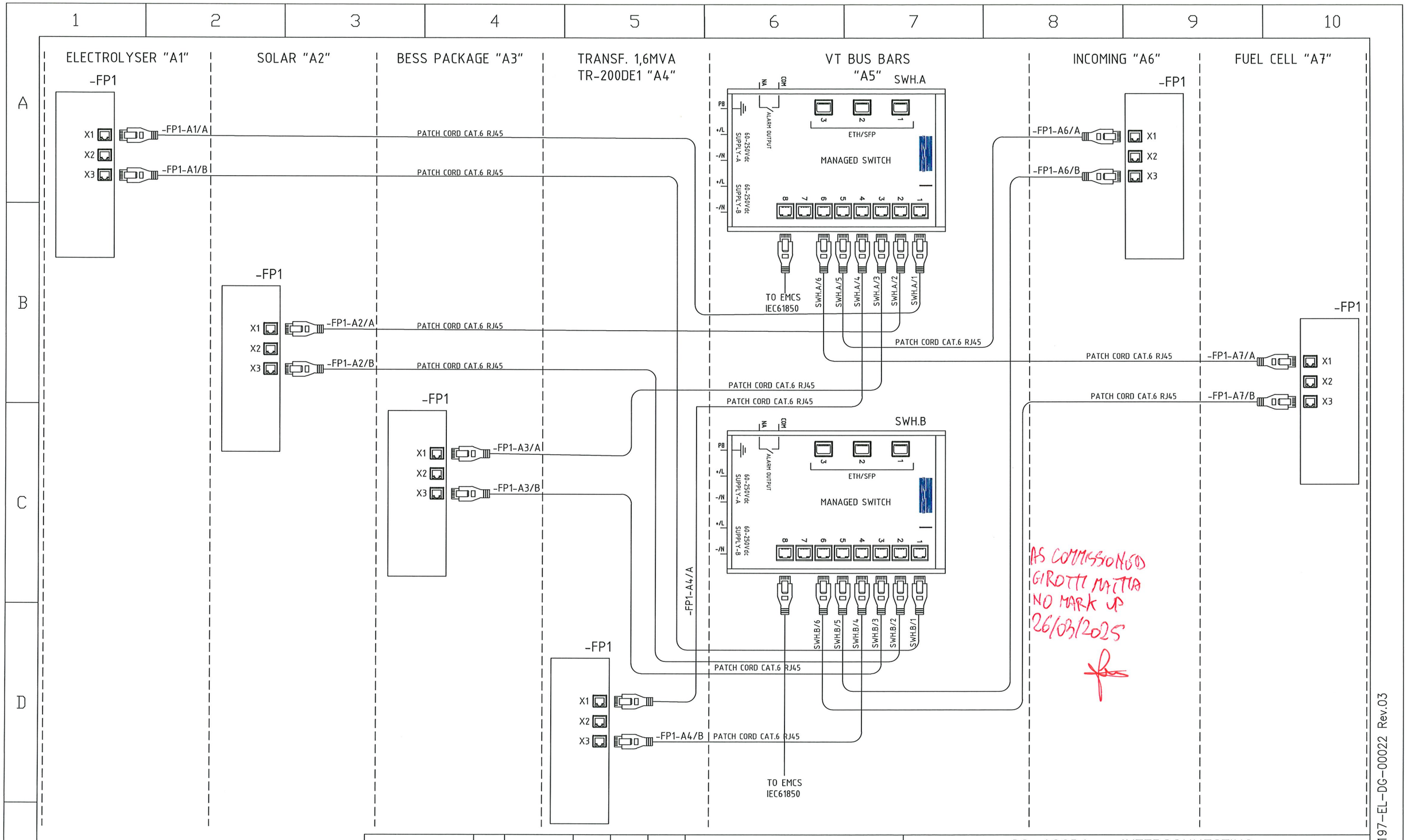
DRAWING NO. 1723002197-EL-DG-00022

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)
1	23/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
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

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)

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

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 81-20 & discipline : I

Instrumental	81-20 Power Transformer 7 MVA (TR-100AD1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
TR-100AD1	66 / 6.9 kV 7 MVA Transformer	OFFSHORE	C10004883	FJ05	0	-	-

Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.5 Telecommunication functional test sheets index

NOT APPLICABLE

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

NOT APPLICABLE

Section 5 SITE / OPERATIONAL

Section 5.1 Operational Test Procedure

Section 5.2 Operational Test Certificates

NOT APPLICABLE

Section 6 PIPING AND VESSEL PREPARATION

Section 6.1 Final Mechanical / Vessel Inspection Checks Index

NOT APPLICABLE

Section 6.2 Leak Test / Drying / Inerting Test Sheets Index

NOT APPLICABLE

Section 6.3 Chemical Loading & First Fill records Index

NOT APPLICABLE

Section 6.4 Chemical Cleaning Reports and Records Index

NOT APPLICABLE

Section 6.5 Lubrication Schedule

NOT APPLICABLE

Section 7 VENDOR

Section 7.1 Vendor Package Summary Index

NOT APPLICABLE

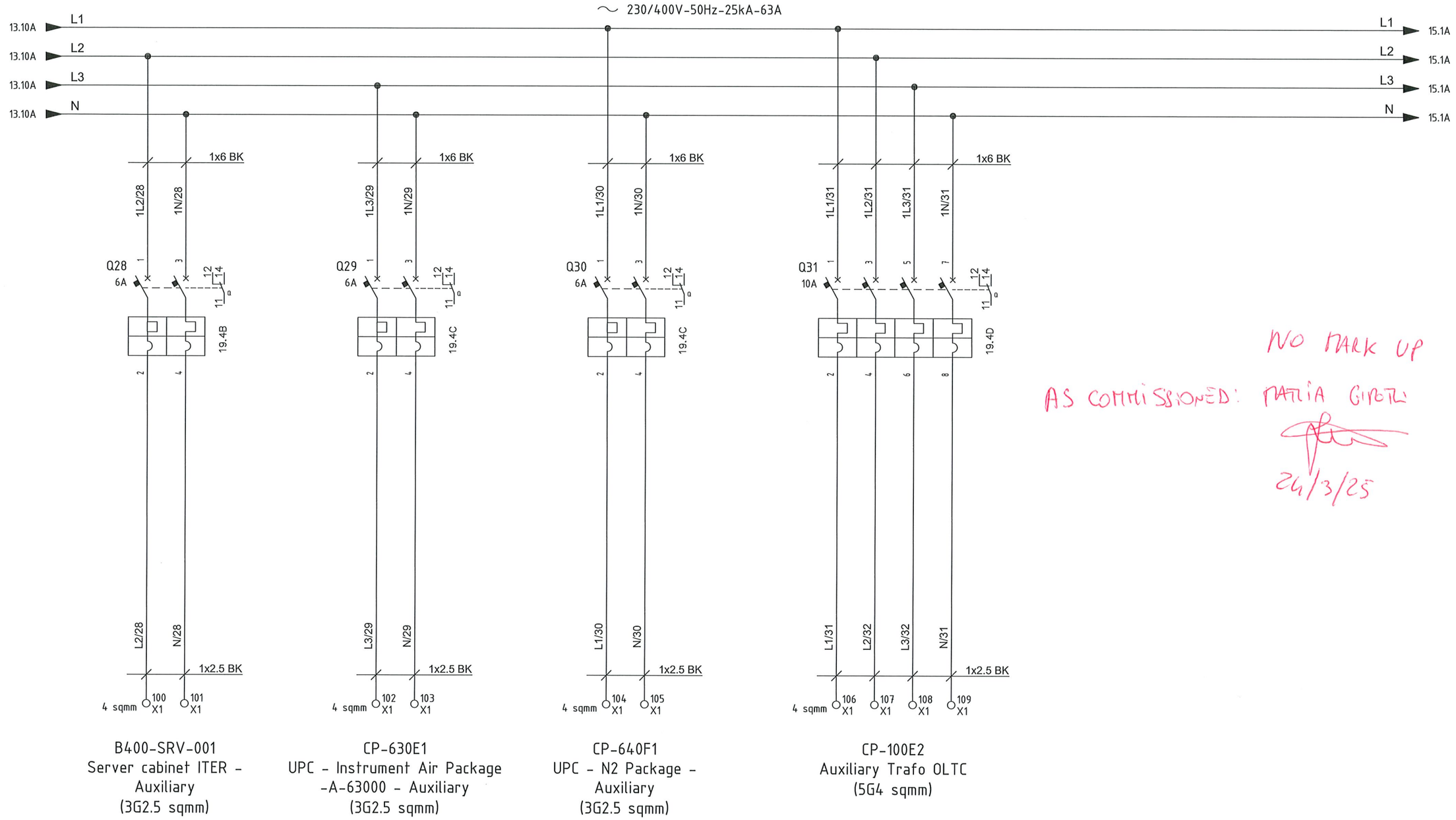
Section 7.2 SAT Procedure with associated punch list and reference (Front Page)

NOT APPLICABLE

Section 7.3 Vendor Spares & Special Tools lists references

NOT APPLICABLE

Section 7.4 Vendor Data / Operations / Maintenance Manuals References



B400-SRV-001
Server cabinet ITER - Auxiliary
(3G2.5 sqmm)

CP-630E1
UPC - Instrument Air Package -A-63000 - Auxiliary
(3G2.5 sqmm)

CP-640F1
UPC - N2 Package - Auxiliary
(3G2.5 sqmm)

CP-100E2
Auxiliary Trafo OLTC
(5G4 sqmm)

NO MARK UP

AS COMMISSIONED: MATTIA GIROTTI

24/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

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

SCALE : NTS

A3

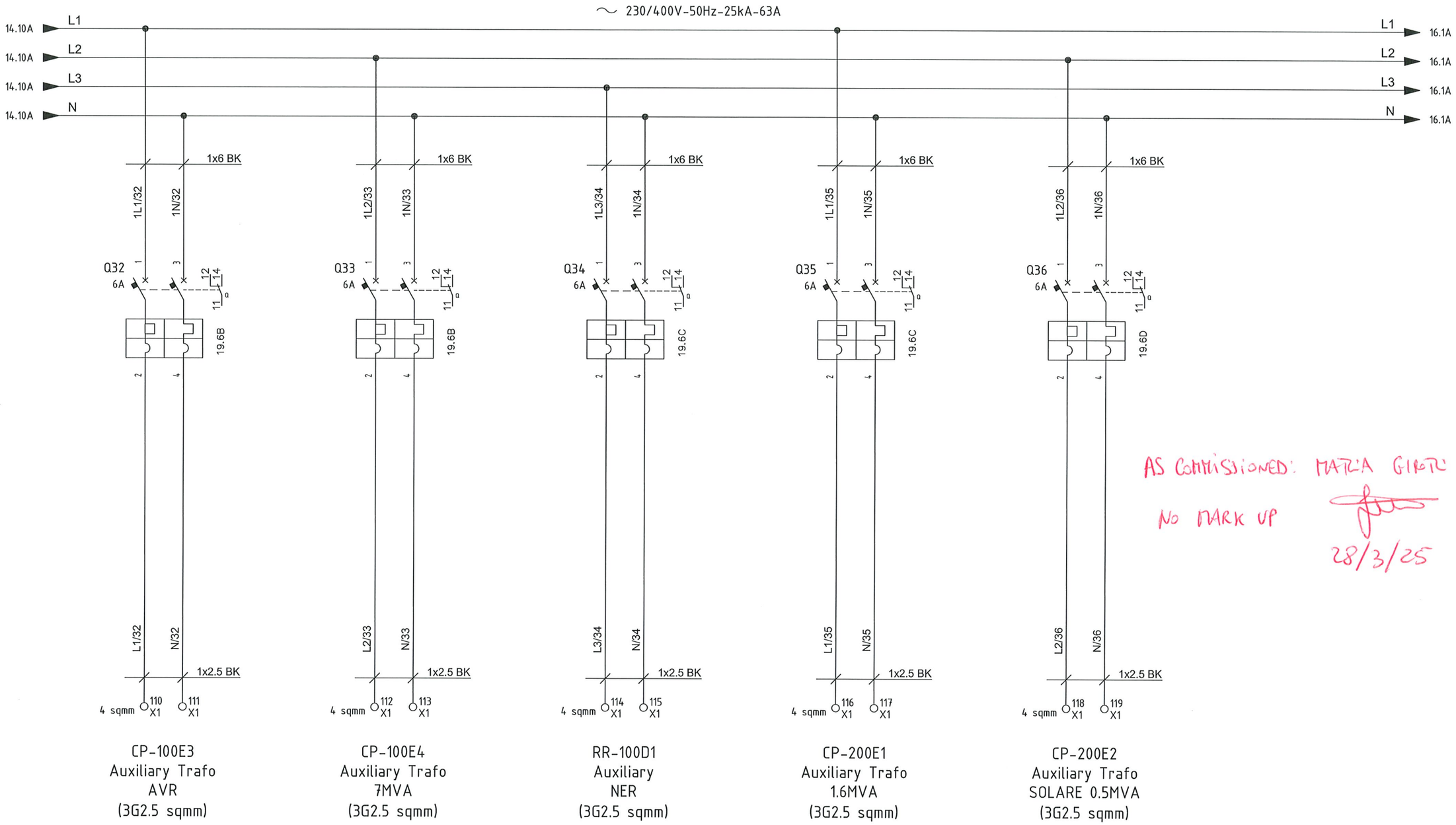
DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.4

REV. 03

F.to UNI A3: 420mmx297mm

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



CP-100E3
Auxiliary Trafo
AVR
(3G2.5 sqmm)

CP-100E4
Auxiliary Trafo
7MVA
(3G2.5 sqmm)

RR-100D1
Auxiliary
NER
(3G2.5 sqmm)

CP-200E1
Auxiliary Trafo
1.6MVA
(3G2.5 sqmm)

CP-200E2
Auxiliary Trafo
SOLARE 0.5MVA
(3G2.5 sqmm)

AS COMMISSIONED: MATTIA GIROTTI
NO MARK UP
28/3/25

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

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

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

A3 | DRAWING NO. 1723002197-EL-DG-00033 | SHEET 15 | REV. 03

F.to UNI A3: 420mmx297mm

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

"SG-100D1" HV SWBD 6,6kV (UNIT A6)

FUNCTIONAL DIAGRAM

INCOMING FEEDER TR-100AD1

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

=							
+A6							
	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
	2	26/06/2024	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

DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Cover

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 1

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 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	Available Signals	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	Terminal strips	X	X	X	X					
33	Terminal strips	X	X	X	X					
34	Terminal strips	X	X	X	X					
35	Bill of Materials	X	X	X	X					
36	Bill of Materials	X	X	X	X					
37	Bill of Materials	X	X	X	X					

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

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+A6
DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Sheets Index

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 2

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 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
S04 = RESET LOKOUT RELAY
SLOT "D":
SP01 = TRIP ARC DETECTOR ON OPENING COMMAND
SP02 = TRIP ARC DETECTOR TO 66kV SWICHB.
SP03 = TRIP ARC DETECTOR ON LOCKOUT RELAY

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

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+A6							
	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
	2	26/06/2024	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

DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Legend

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

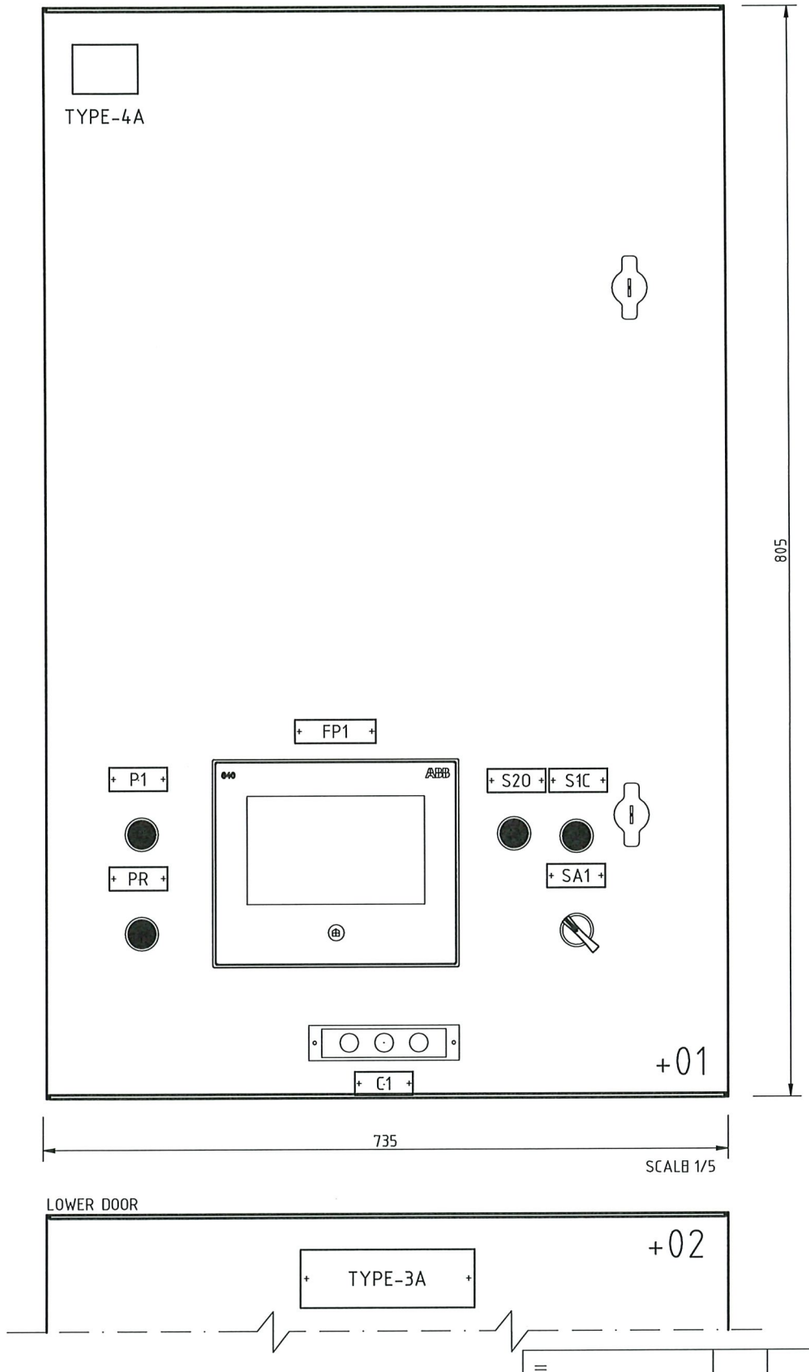
SHEET 3

REV. 03

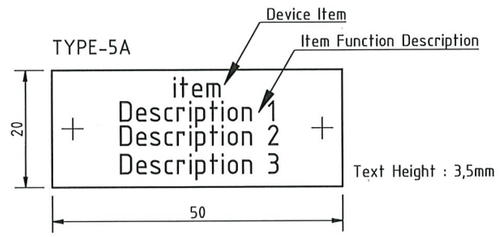
F.to UNI A3: 420mmx297mm

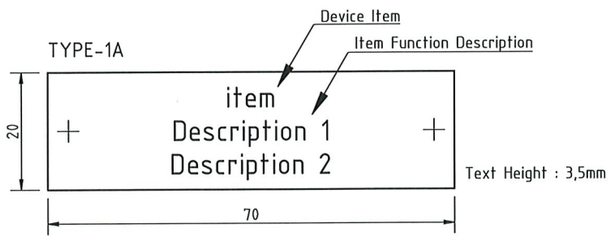
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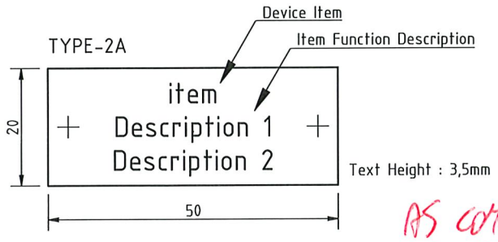
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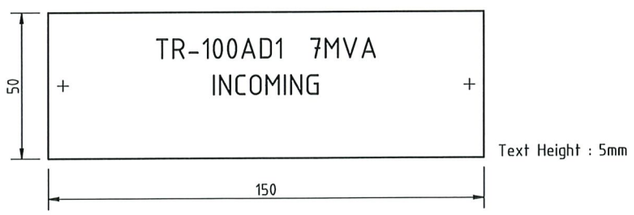


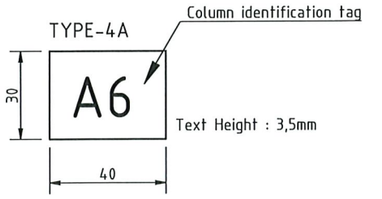
DEVICES name plate					
ITEM	COMPONENT	DESCRIPTION 1	DESCRIPTION 2	DESCRIPTION 3	NOTE
FP1	PROTECTION RELAY	PROTECTION RELAY			TYPE-1A
S2.0	PUSH BUTTON	OPEN	COMMAND	C.B.	TYPE-5A
S1.C	PUSH BUTTON	CLOSE	COMMAND	C.B.	TYPE-5A
SA1	SELECTOR SWITCH	LOCAL / REMOTE			TYPE-2A
PR	LIGHT PUSH BUTTON	RESET	LOCK-OUT	TRIP LOCK-OUT	TYPE-5A
C1	PILOT LIGHT	VOLTAGE	PRESENCE		TYPE-2A
P1	PUSH BUTTON	TRUCK-DOOR	EARTHING	ENABLING	TYPE-5A











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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

=
+A6

DWG n° : 231151/SD/15
Item n° : PF1113279

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 – FUNCTIONAL INCOMING FEEDER TR-100AD1
Door Layout

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

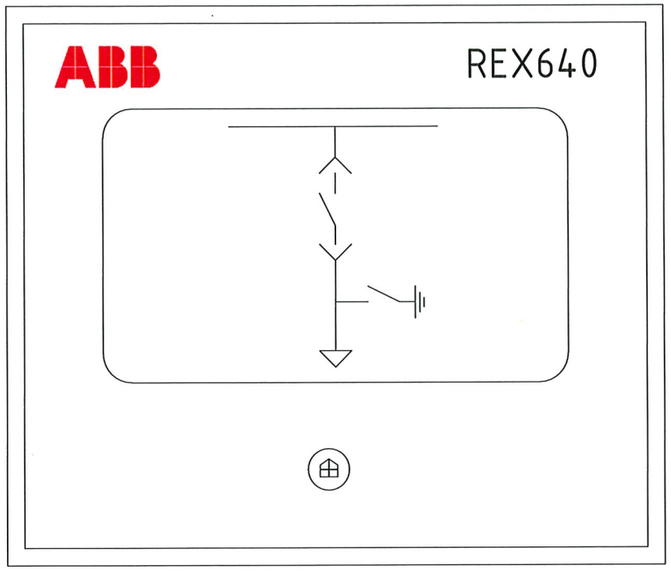
SHEET 4

REV. 03

File Name : 1723002197-EL-DG-00015 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

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

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				
LED-16				
LED-17				
LED-18				
LED-19				
LED-20				
LED-21				
LED-22				

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+A6					
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DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Protection Display REX640

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

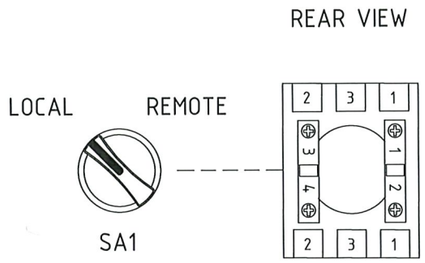
SHEET 5

REV. 03

File Name : 1723002197-EL-DG-00015 Rev.03

F.to UNI A3: 420mmx297mm

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

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

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=					
+A6					
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IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 – FUNCTIONAL INCOMING FEEDER TR-100AD1
Selector Switch Diagram

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

SCALE : NTS

A3

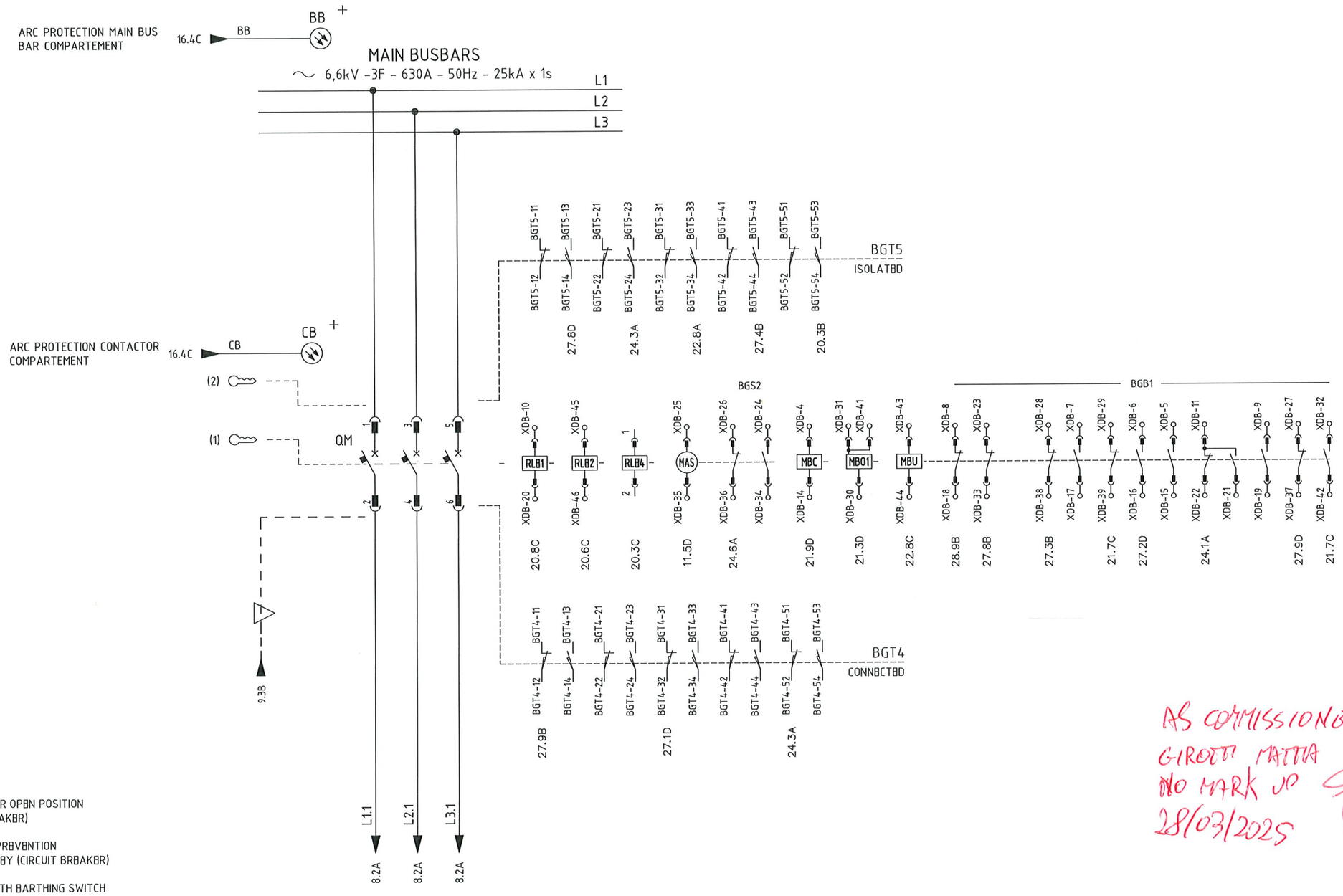
DRAWING NO. 1723002197-EL-DG-00015

SHEET 6

REV. 03

File Name : 1723002197-EL-DG-00015 Rev.03

F.to UNI A3: 420mmx297mm



(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
GIROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A6
DWG n°: 231151/SD/15
Item n°: PF1113279

EH-QMG-x

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Power Diagram

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

SCALE : NTS

A3

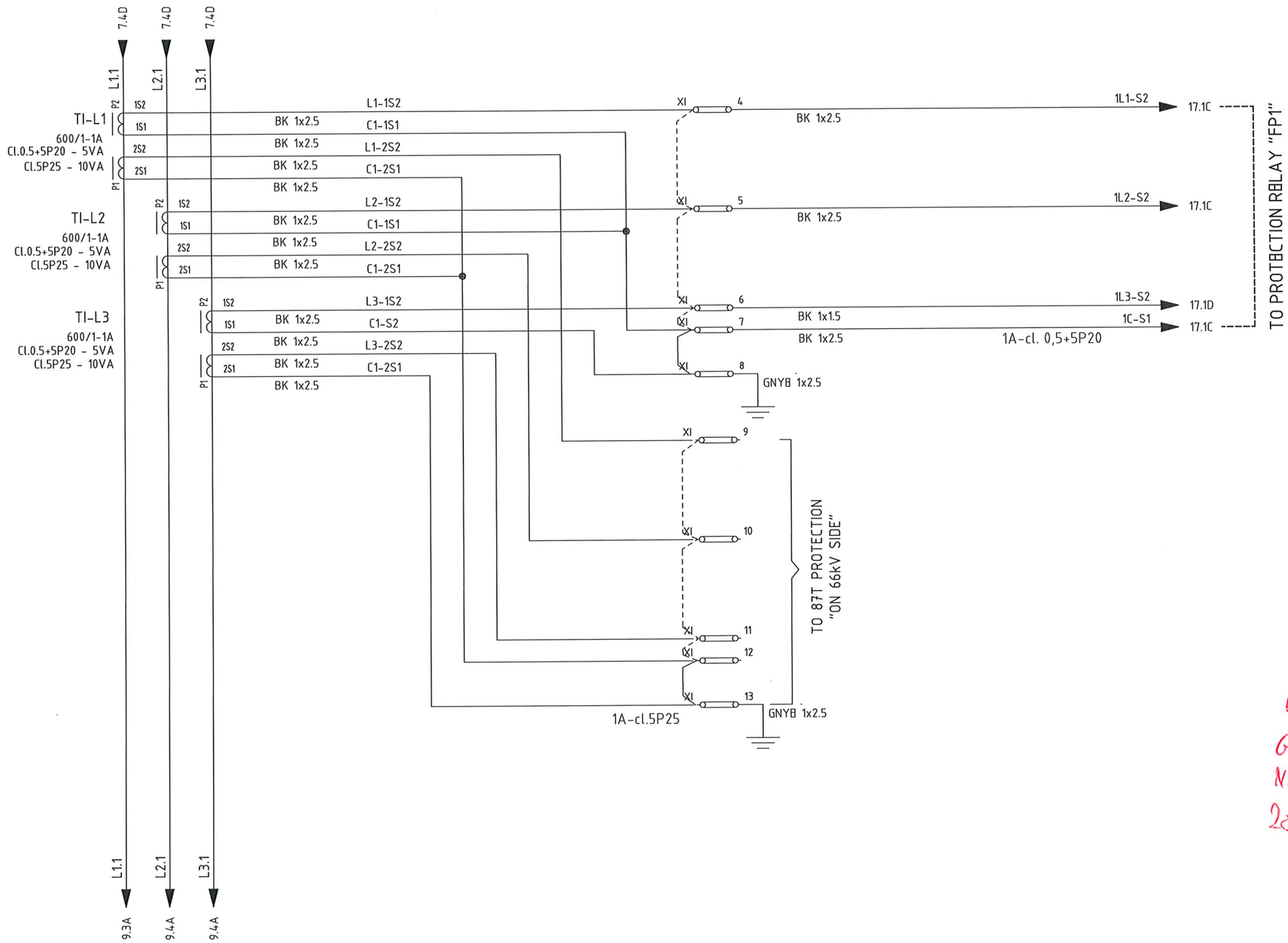
DRAWING NO. 1723002197-EL-DG-00015

SHEET 7

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03



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

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+A6

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231151/SD/15

Item n° : PF1113279

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Power Diagram

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

SCALE : NTS

A3

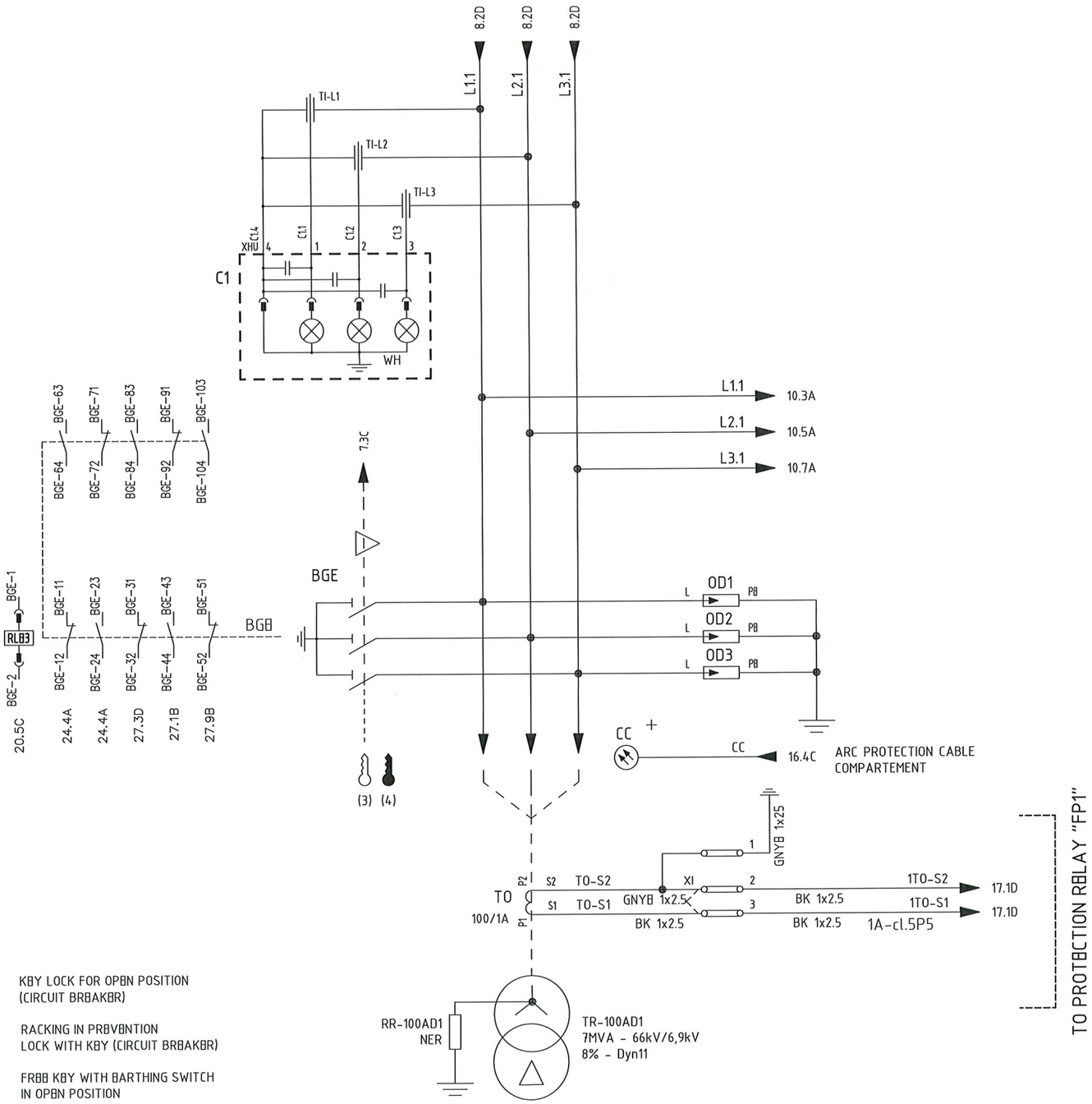
DRAWING NO. 1723002197-EL-DG-00015

SHEET 8

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 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
GIROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A6

DWG n° : 231151/SD/15

Item n° : PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :

SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1

Power Diagram

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

SCALE : NTS

A3

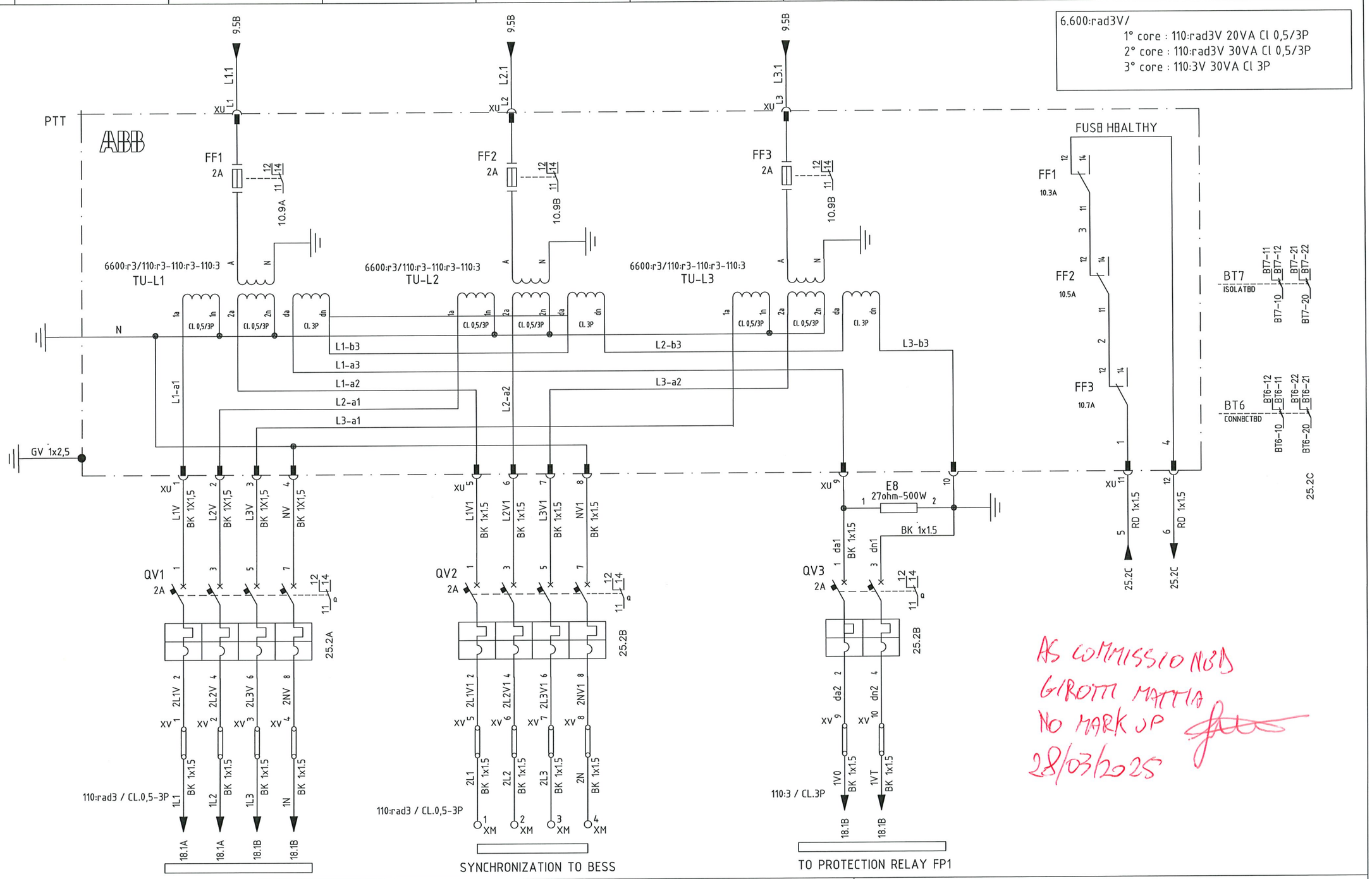
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SHEET 9

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03



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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A6

DWG n° : 231151/SD/15
Item n° : PF1113279

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Power Diagram

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 1.0

REV. 03

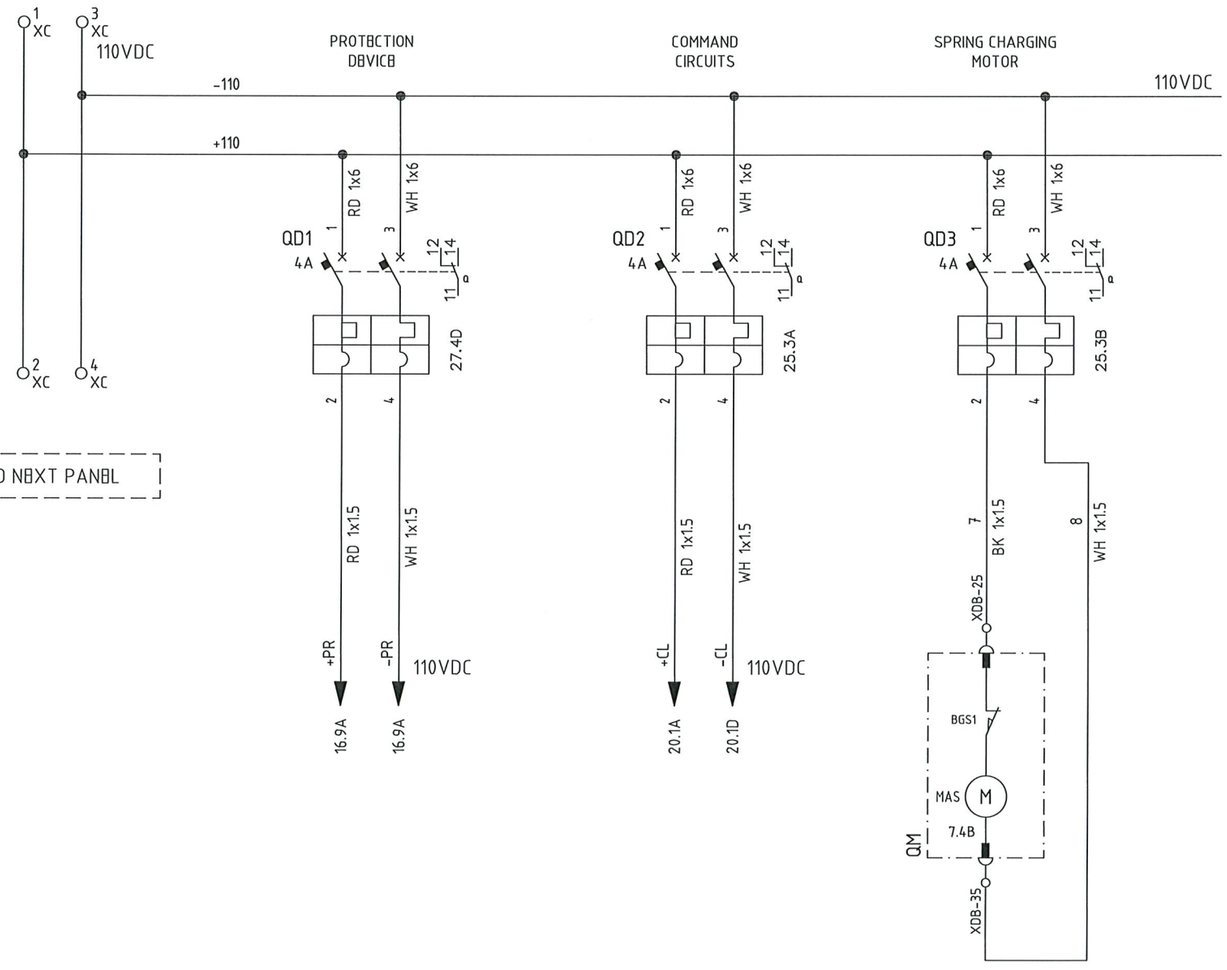
F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

110VDC DISTRIBUTION VOLTAGE

110Vdc Auxiliary Voltage from Measuring Bus Bar Unit

FROM PREVIOUS PANEL

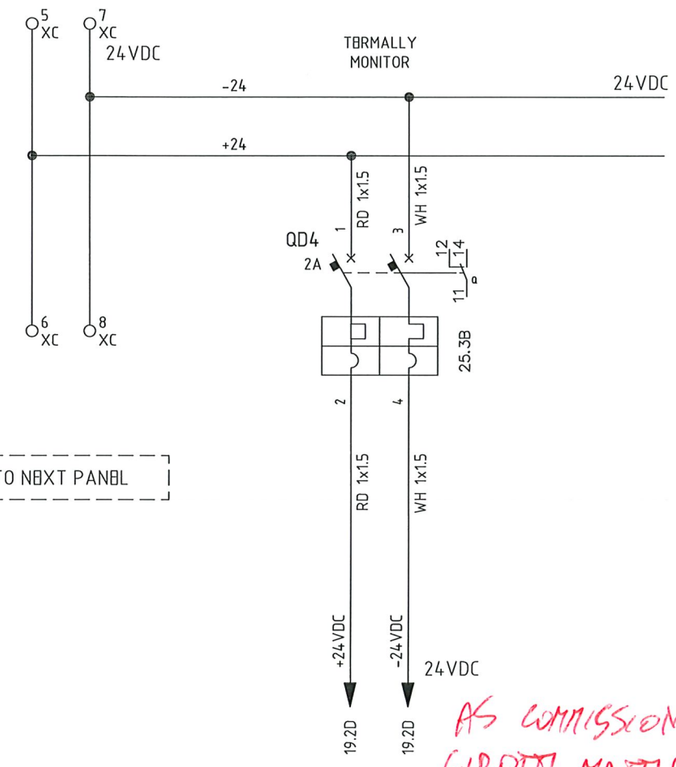


TO NEXT PANEL

24VDC DISTRIBUTION VOLTAGE

24Vdc Auxiliary Voltage from Measuring Bus Bar Unit

FROM PREVIOUS PANEL



TO NEXT PANEL

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
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+A6

DWG n°: 231151/SD/15
Item n°: PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
110Vdc / 24Vdc Distribution Voltage

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 1.1

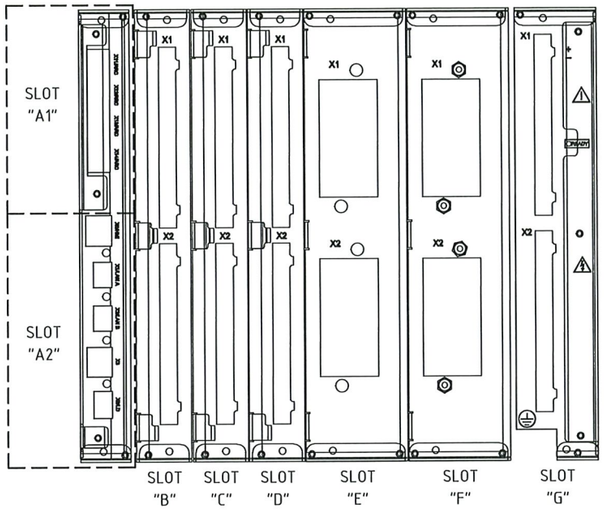
REV. 03

File Name : 1723002197-EL-DG-00015 Rev.03

F.to UNI A3: 420mmx297mm

COMPOSITION RELAY REX640

RACK VIEW



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	

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A6					
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/15

Item n°: PF1113279

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Composition Relay REX640

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 12

REV. 03

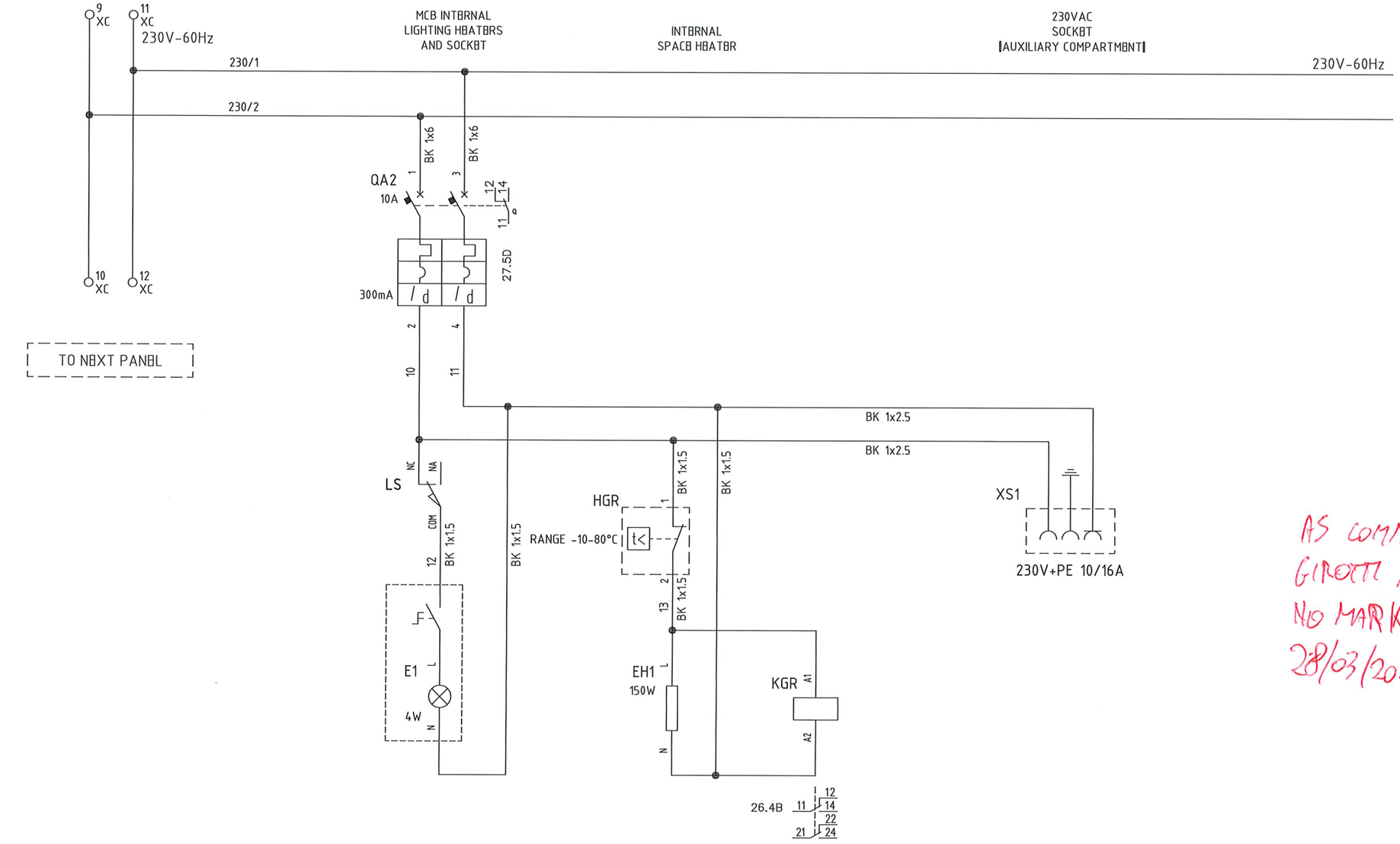
F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

230VAC DISTRIBUTION VOLTAGE

230Vac Auxiliary Voltage from Measuring Bus Bar

FROM PREVIOUS PANEL



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

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+A6							
DWG n° : 231151/SD/15	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)	
Item n° : PF1113279	2	26/06/2024	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	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 – FUNCTIONAL INCOMING FEEDER TR-100AD1
230Vac Distribution Voltage

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

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 13 | REV. 03

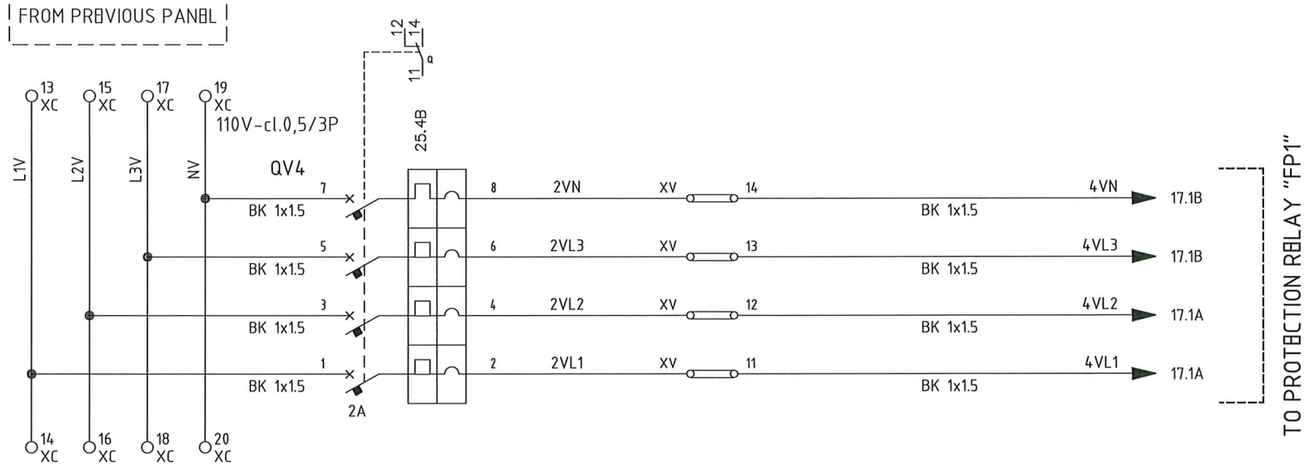
F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

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

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

FROM PREVIOUS PANEL



TO NEXT PANEL

AS COMMISSIONED
G.ROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+A6					
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)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/15
Item n°: PF1113279

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
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-00015 | SHEET 14 | REV. 03

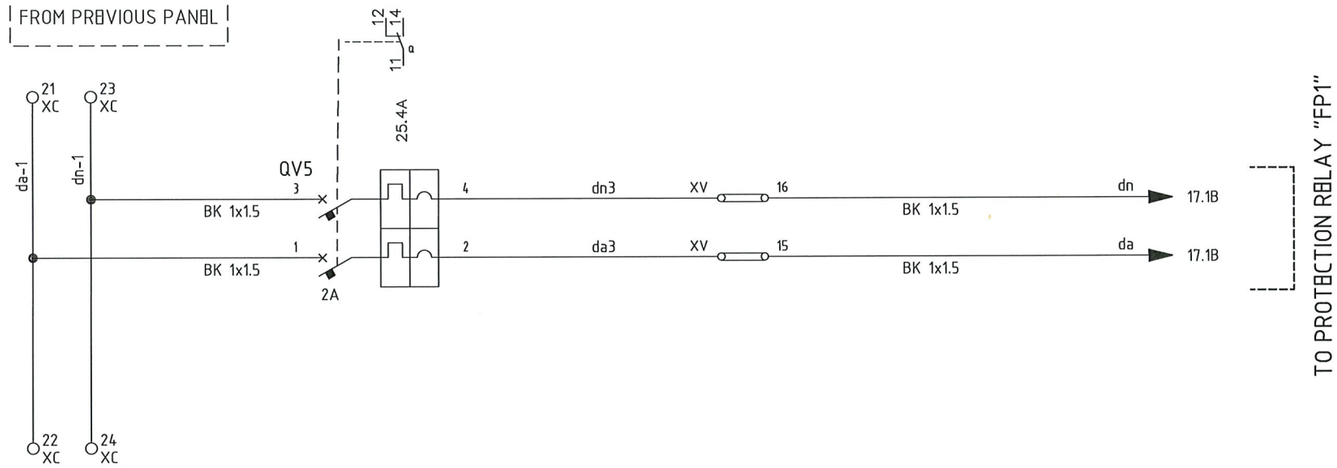
File Name : 1723002197-EL-DG-00015 Rev.03

F.to UNI A3: 420mmx297mm

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

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

FROM PREVIOUS PANEL



TO PROTECTION RELAY "FP1"

TO NEXT PANEL

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

		=						
		+A6						
	IMESA ELECTRICAL ENGINEERING	DWG n°: 231151/SD/15	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
		Item n°: PF1113279	2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
			1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
CROSSWIND	ROSETTI MARINO		0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)
			REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
110V Protection/Measure Distribution Voltage

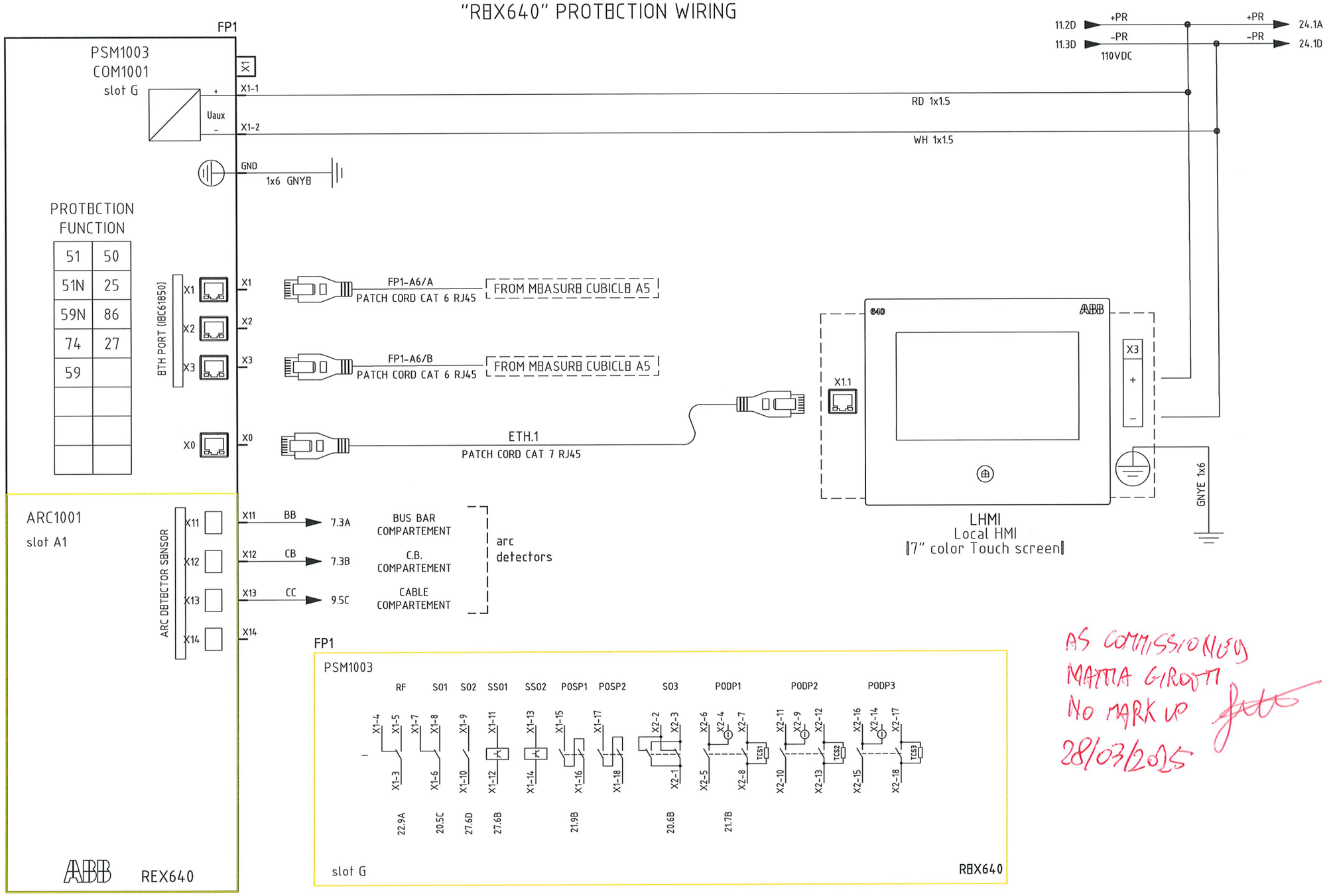
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO. 1723002197-EL-DG-00015	SHEET 15	REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

"REX640" PROTECTION WIRING



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

=							
+A6							
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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

IMESA ELECTRICAL ENGINEERING
DWG n°: 231151/SD/15
Item n°: PF1113279

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"REX640"' Protection Wiring

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

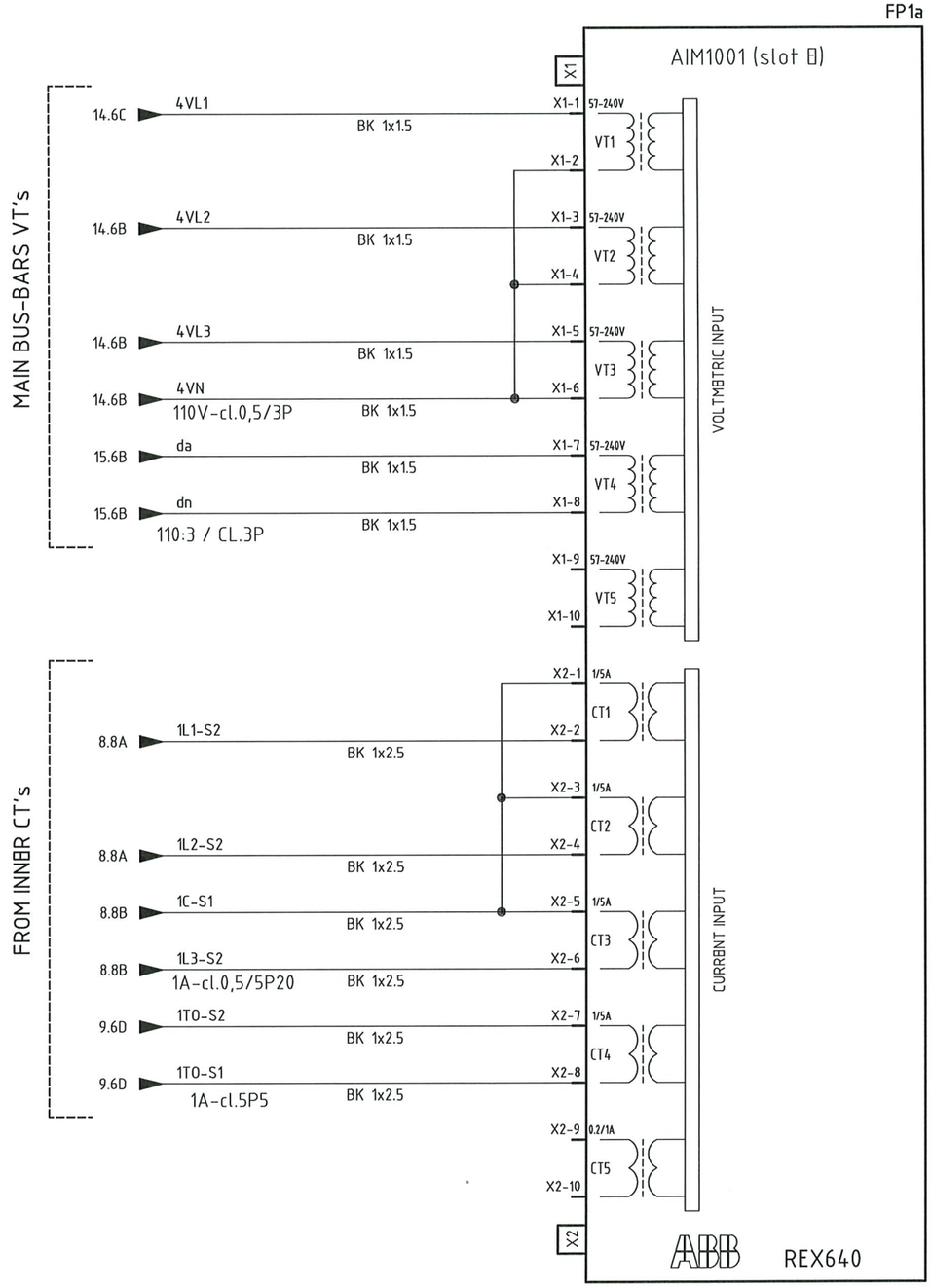
SHEET 16

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

"REX640" PROTECTION WIRING



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

=							
+A6							
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)		
2	26/06/2024	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		

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/15

Item n°: PF1113279

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"REX640"' Protection Wiring

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

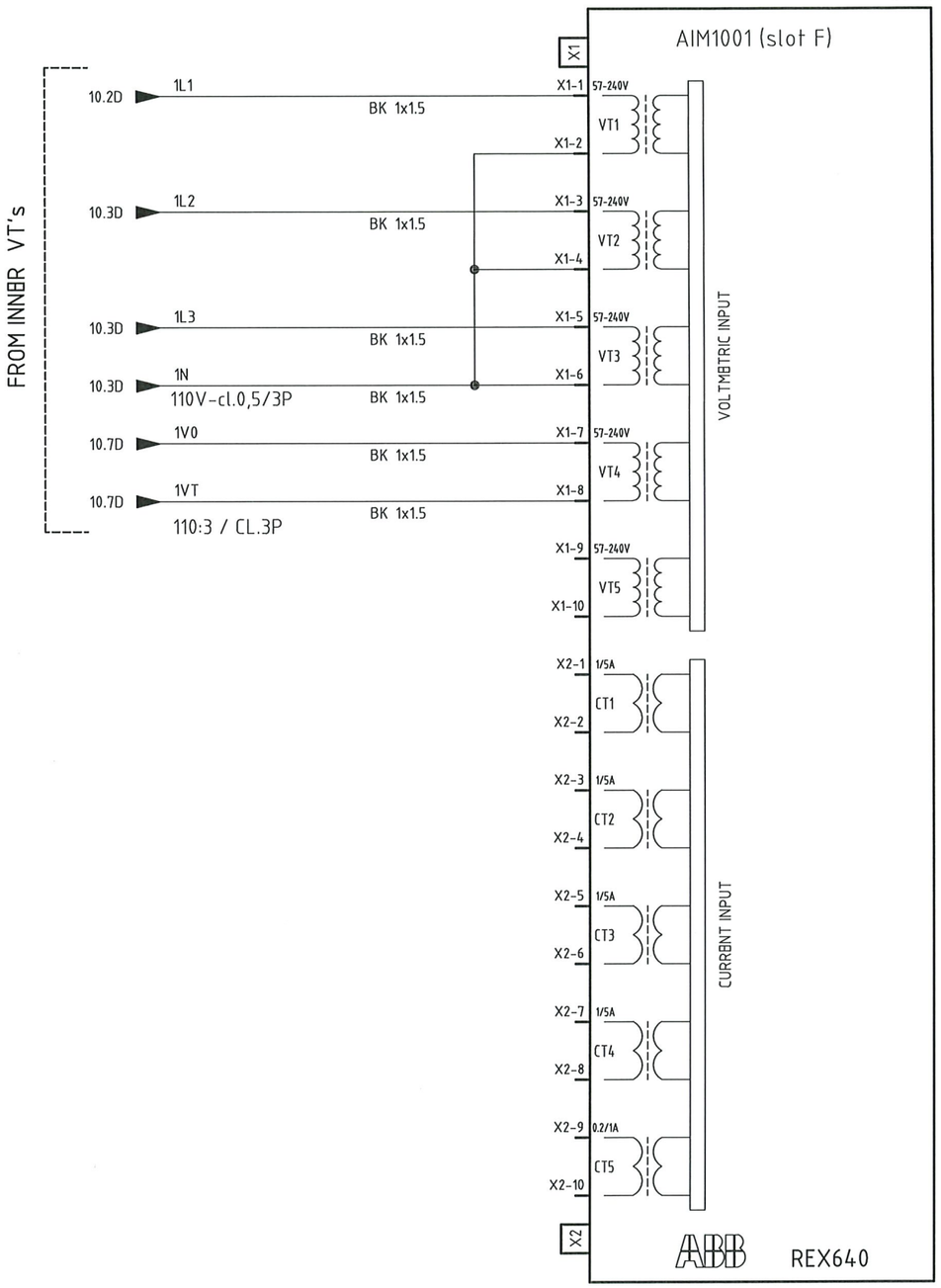
SHEET 17

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

"REX640" PROTECTION WIRING



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

=							
+A6							
	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
	2	26/06/2024	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

DWG n°: 231151/SD/15
Item n°: PF1113279

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"REX640"' Protection Wiring

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

SCALE : NTS

A3

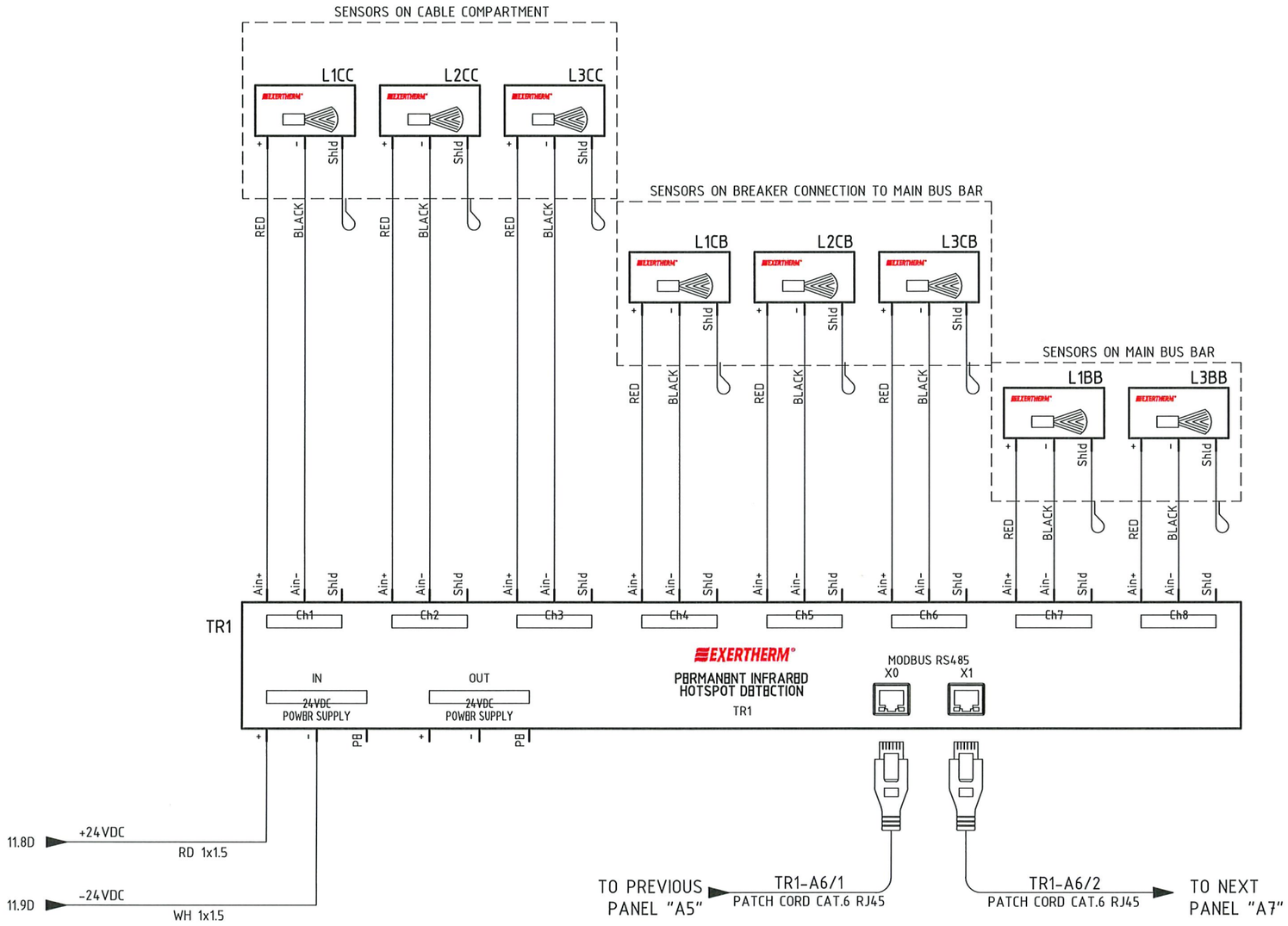
DRAWING NO. 1723002197-EL-DG-00015

SHEET 18

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03



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

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)

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+A6

DWG n° : 231151/SD/15
Item n° : PF1113279

IMESA ELECTRICAL ENGINEERING
CROSSWIND
ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Extherm Device

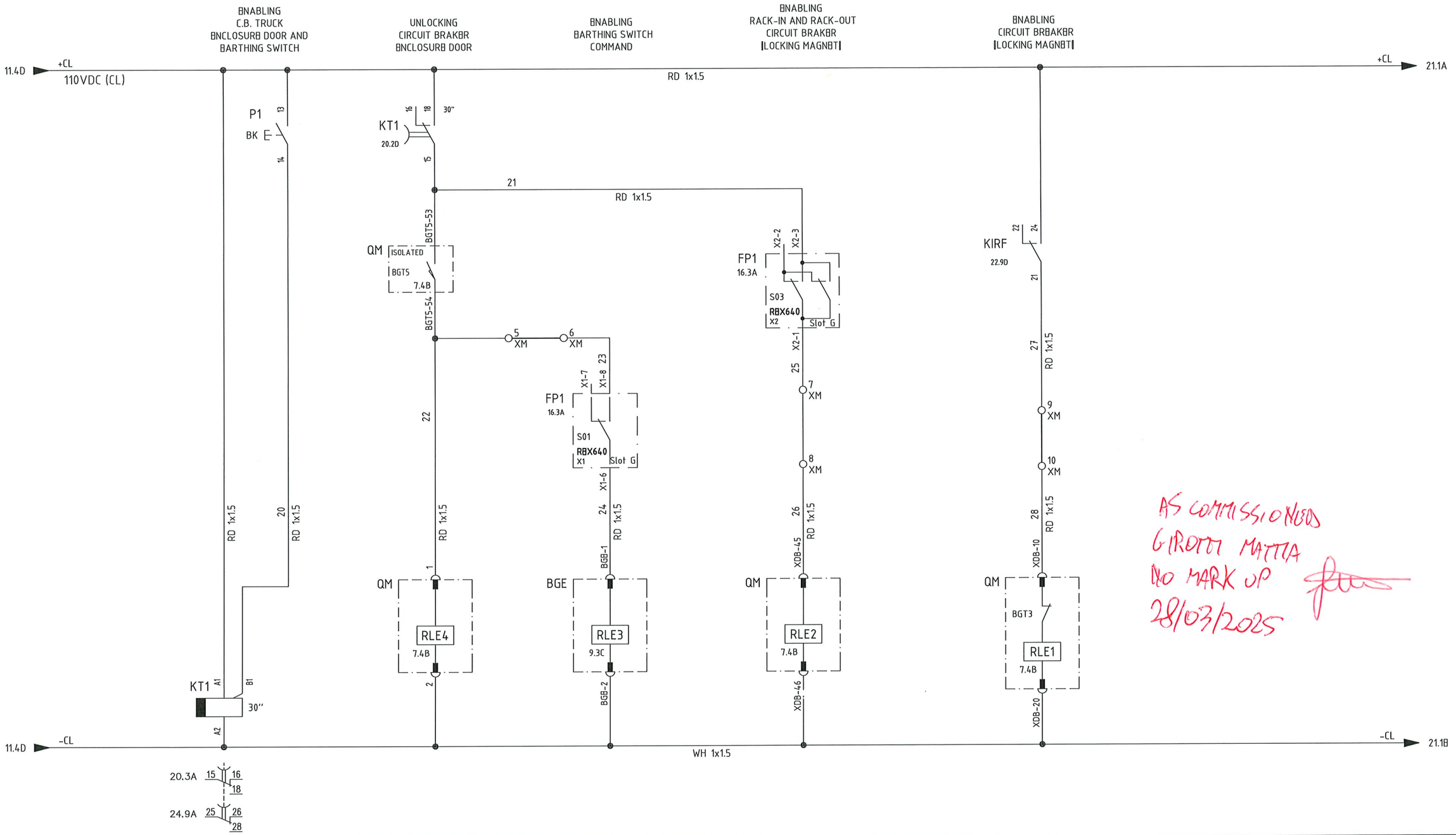
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK
SCALE : NTS

A3
DRAWING NO. 1723002197-EL-DG-00015
SHEET 19
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

COMMAND CIRCUITS



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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)
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0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)

= +A6

DWG n°: 231151/SD/15

Item n°: PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Command Circuit

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

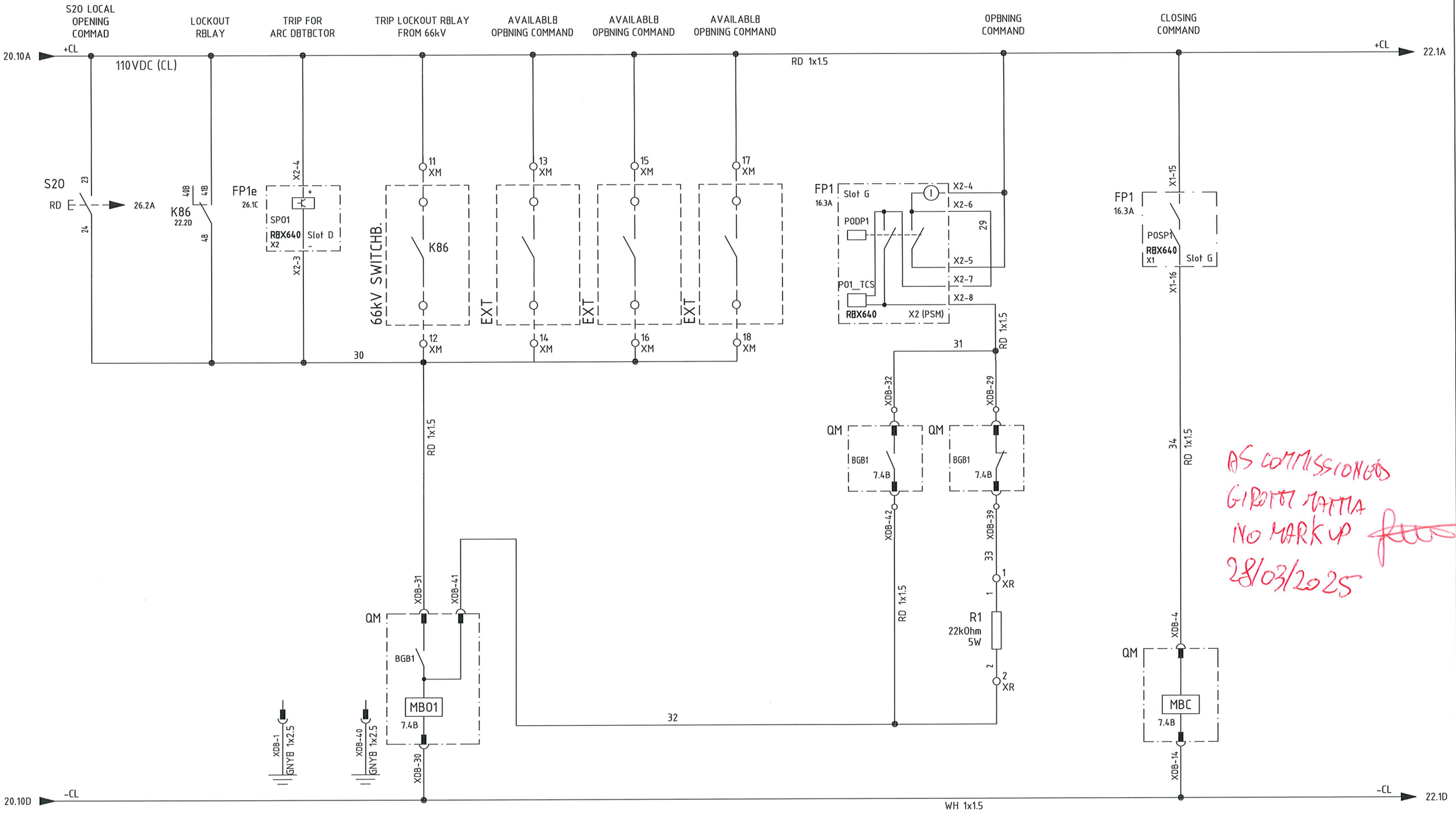
SHEET 20

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

CLOSING/OPENING COMMAND CIRCUITS



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

	=							
	+ A6							
	DWG n° : 231151/SD/15	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)	
	Item n° : PF1113279	2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)	
		1	14/05/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
CROSSWIND	ROSETTI MARINO	0	04/04/2024	Giulietti	Flamminio	Sigismondi	Issued for review (IFR)	
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Command Circuit

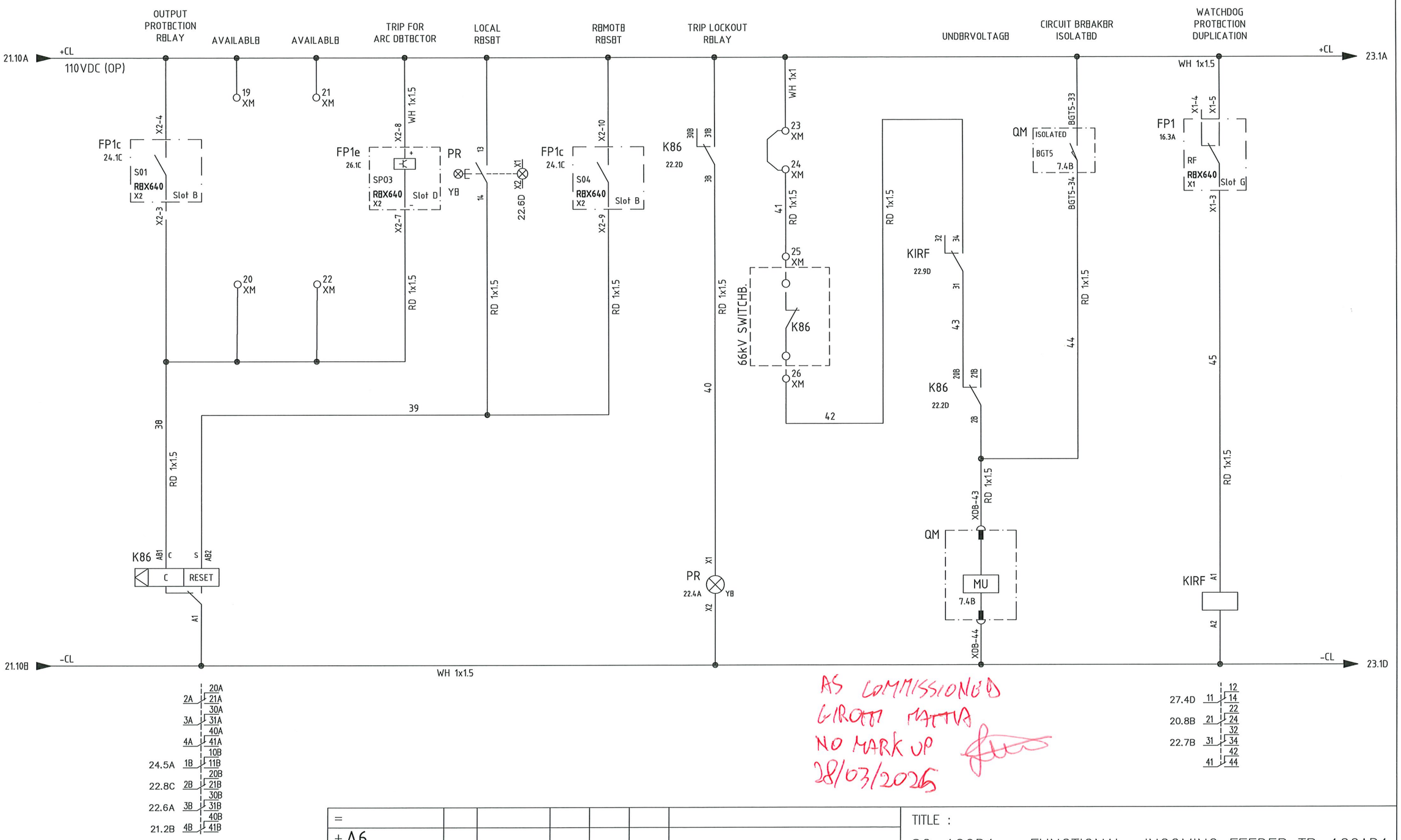
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 21 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

COMMAND CIRCUITS



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+A6							
DWG n° : 231151/SD/15	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)	
Item n° : PF1113279	2	26/06/2024	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	

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

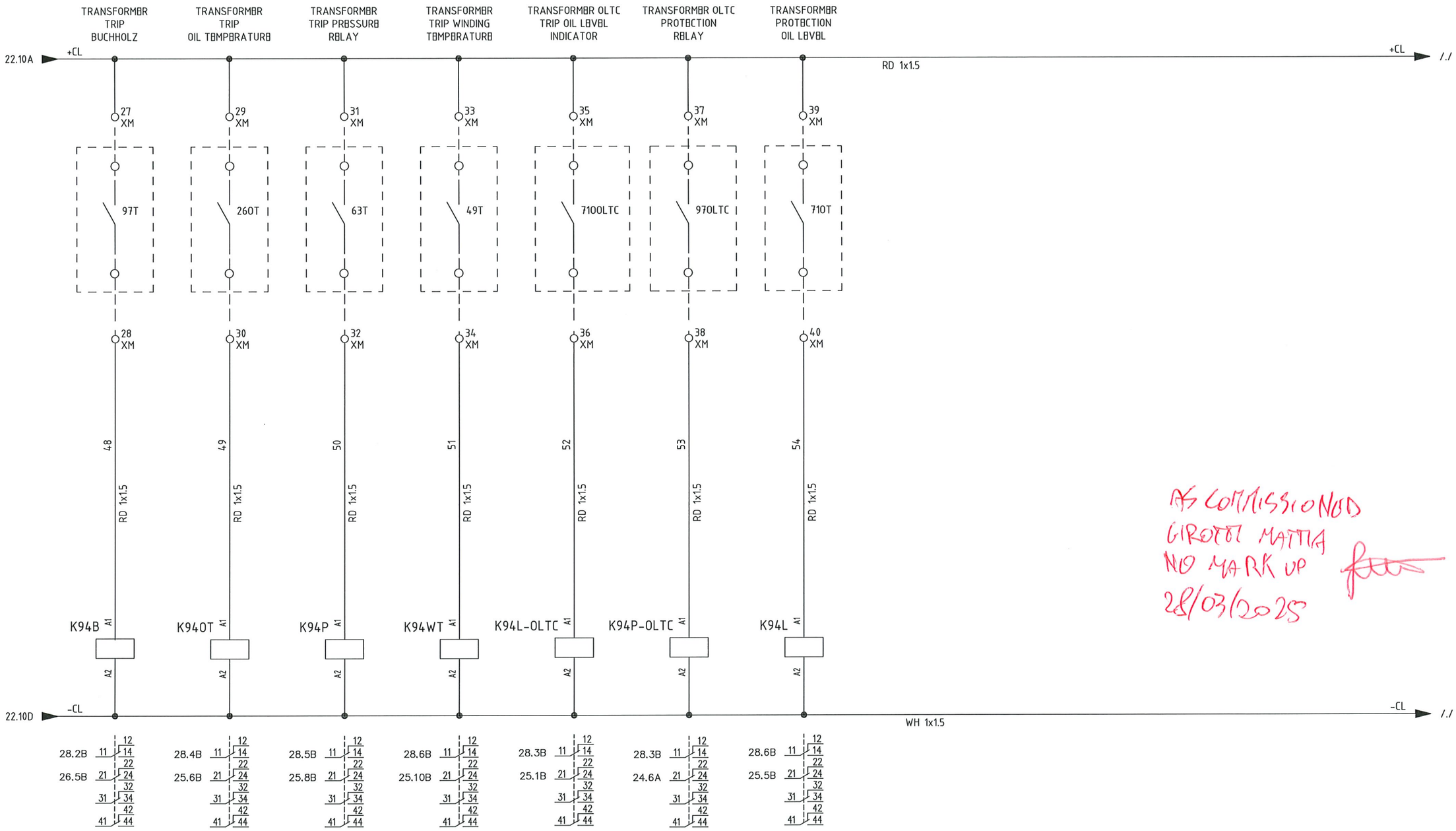
TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Command Circuit

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

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 22 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03



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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
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+A6

DWG n°: 231151/SD/15
Item n°: PF1113279

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Command Circuit

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

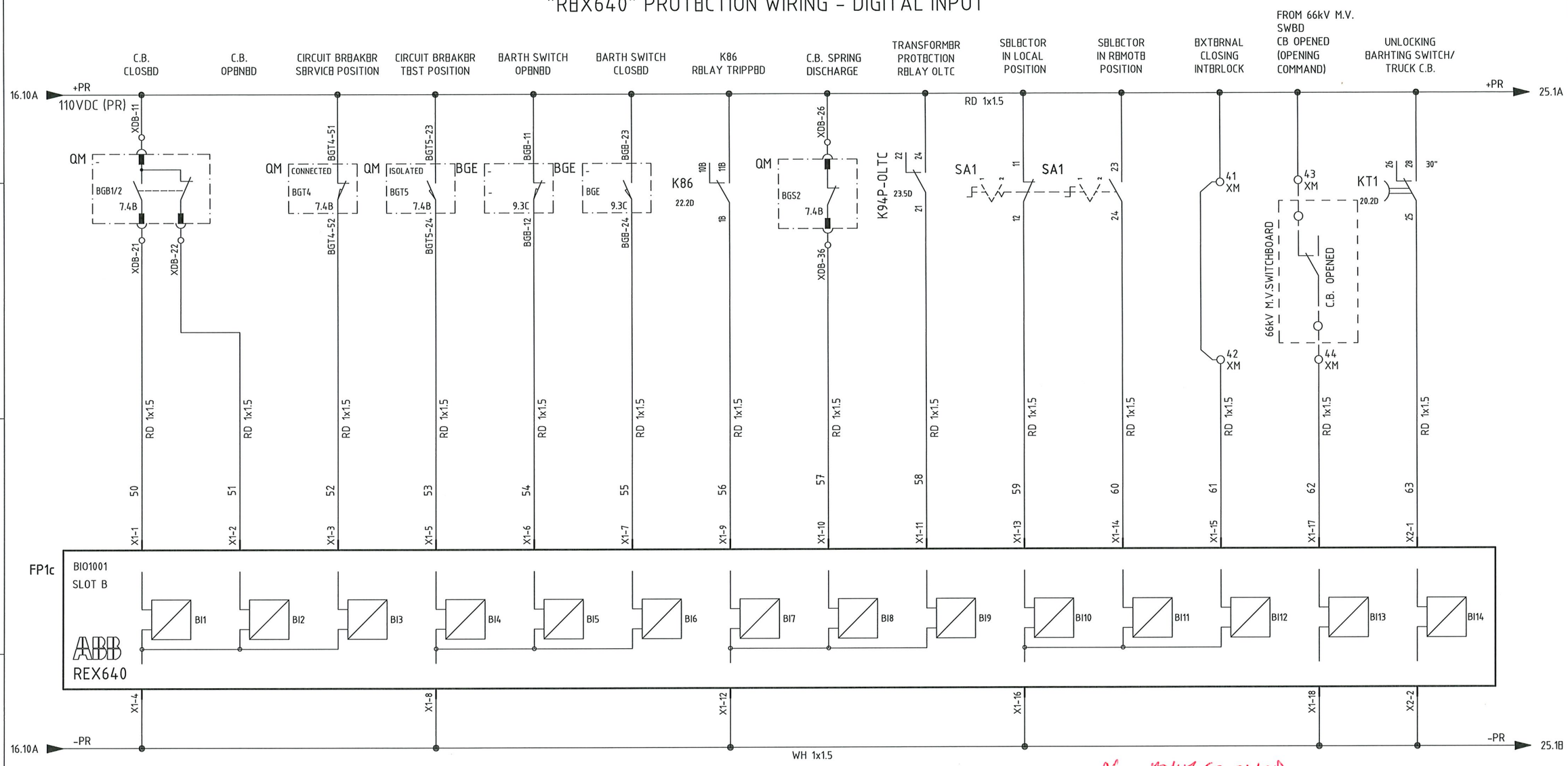
SHEET 23

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

"REX640" PROTECTION WIRING - DIGITAL INPUT



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

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+A6							
	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
	2	26/06/2024	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

DWG n°: 231151/SD/15
Item n°: PF1113279

IMESA ELECTRICAL ENGINEERING
CROSSWIND
ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"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-00015
SHEET 24
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

"REX640" PROTECTION WIRING - DIGITAL INPUT

TRANSFORMER TRIP OIL LEVEL INDICATOR OLTC
VT HEALTY CIRCUIT
BARTING SWITCH OPEN (FROM MEASURING UNIT)
CLOSED AUXILIARY CIRCUIT MCB's
CLOSED AUXILIARY V.T. SECONDARY MCB's
TRANSFORMER ALARM MEMBRANE CONTROL
TRANSFORMER TRIP OIL LEVEL
TRANSFORMER ALARM OIL TEMPERATURE
TRANSFORMER TRIP OIL TEMPERATURE
TRANSFORMER ALARM OIL LEVEL
TRANSFORMER SELF DEHYDRATING BREATHER ALARM
TRANSFORMER TRIP OIL PRESSURE
TRANSFORMER ALARM WINDING TEMPERATURE
TRANSFORMER TRIP WINDING TEMPERATURE

24.10A +PR 110VDC (PR) — +PR 26.1A

RD 1x1.5

QV1 10.2C — 12 14 — 65 — RD 1x1.5
QV2 10.4C — 12 14 — 66 — RD 1x1.5
QV3 10.7C — 12 14 — 67 — RD 1x1.5
PTT 10.2A — BT6-20 — BT6-21 — RD 1x1.5
10.9C 5
10.9C 6

QD2 11.4B — 12 14 — 69 — RD 1x1.5
QD3 11.5B — 12 14 — 69A — RD 1x1.5
QD4 11.8B — 12 14 — 11 — RD 1x1.5

QV5 15.2B — 12 14 — 71 — RD 1x1.5
QV4 14.2C — 12 14 — 11 — RD 1x1.5

25 XC — 35 XC — KA1 — 36 XC — 26 XC

45 XM — 89T.1 — 46 XM
K94L 23.6D — 22 24 — 21
47 XM — 260T — 48 XM
K94OT 23.2D — 22 24 — 21 — 97802
49 XM — 710T — 50 XM
51 XM — 89T.2 — 52 XM
K94P 23.3D — 22 24 — 21 — 97803
53 XM — 49T — 54 XM
K94WT 23.4D — 22 24 — 21 — 97804
K94L-OLTC 23.4D — 22 24 — 21

64 — 68 — 70 — 72 — 73 — 74 — 75 — 76 — 77 — 78 — 79 — 80 — 81 — RD 1x1.5

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

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

X1-4 X1-8 X1-12 X1-16 X1-18 X2-2

24.10D -PR — WH 1x1.5 — -PR 26.1D

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

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+A6							
DWG n°: 231151/SD/15	3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)	
Item n°: PF1113279	2	26/06/2024	Giulietti	Flamminio	Sigismondi	Accepted for Construction (AFC)	
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	REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

IMESA ELECTRICAL ENGINEERING
CROSSWIND
ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"REX640" Protection Wiring - Digital Input

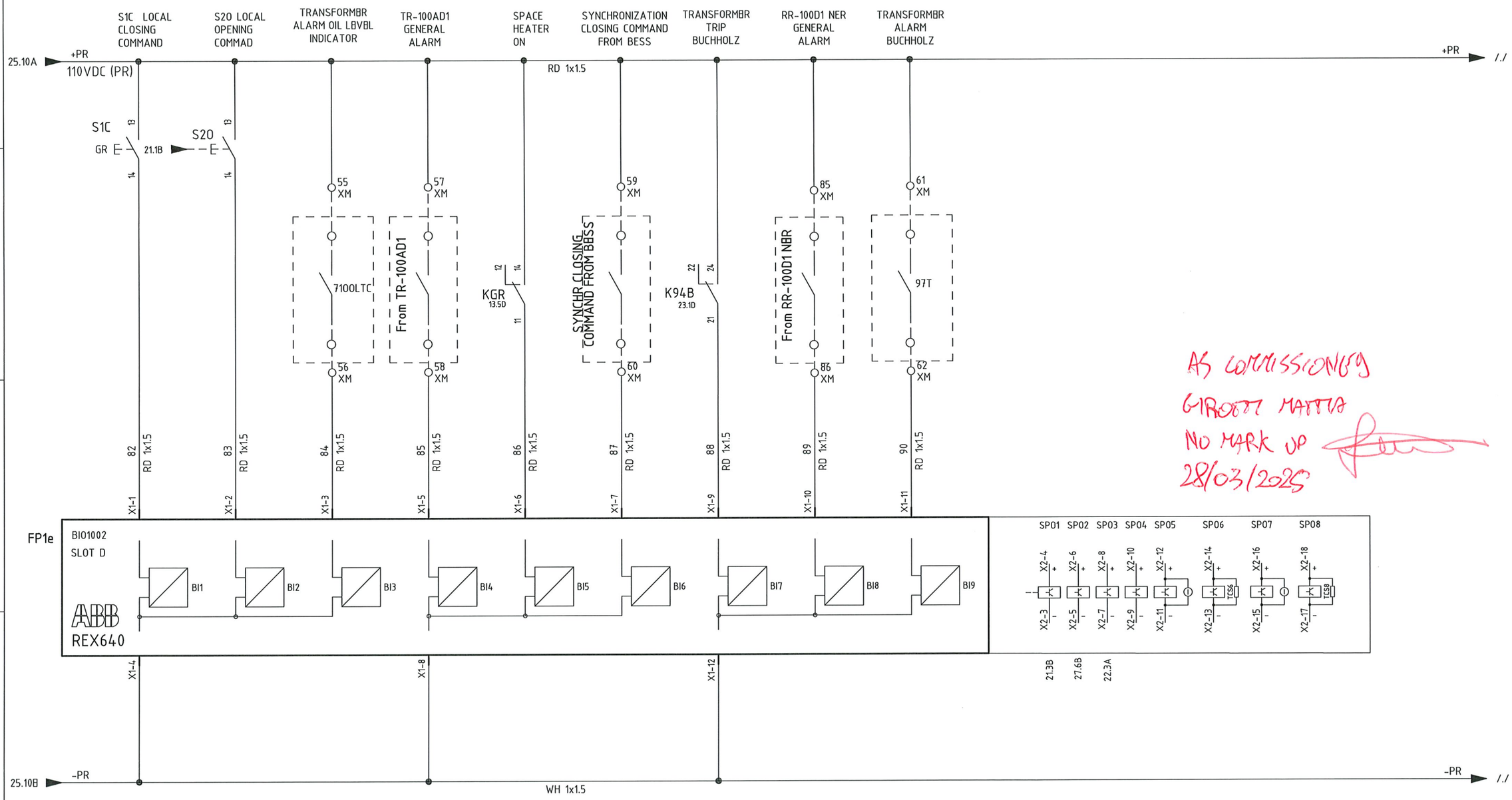
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 25 | REV. 03

File Name : 1723002197-EL-DG-00015 Rev.03

F.to UNI A3: 420mmx297mm

"REX640" PROTECTION WIRING - DIGITAL INPUT



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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
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+A6
DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
"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-00015

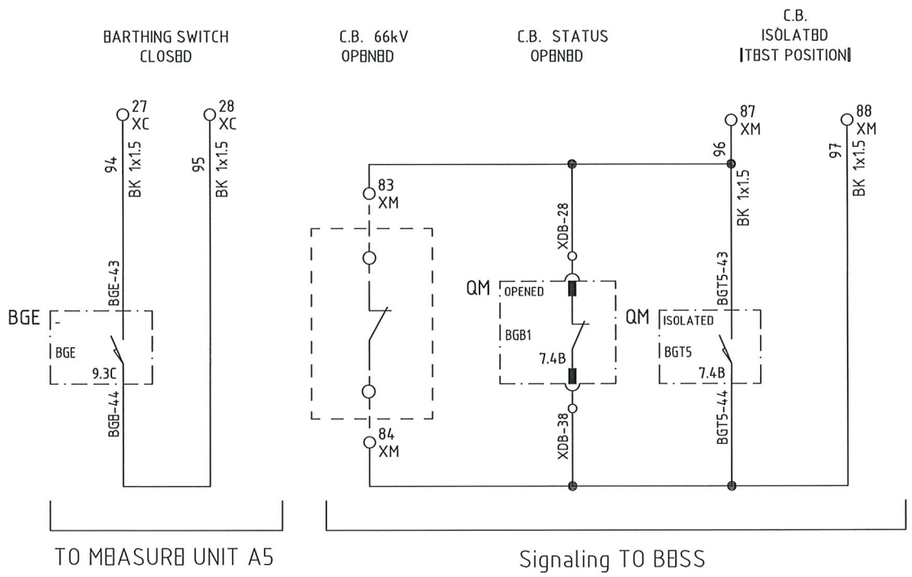
SHEET 26

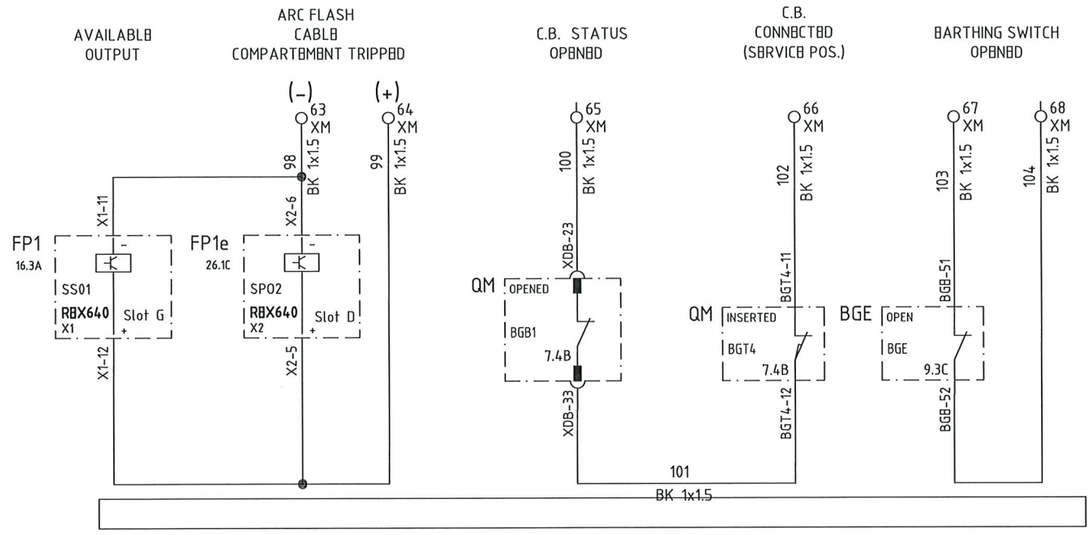
REV. 03

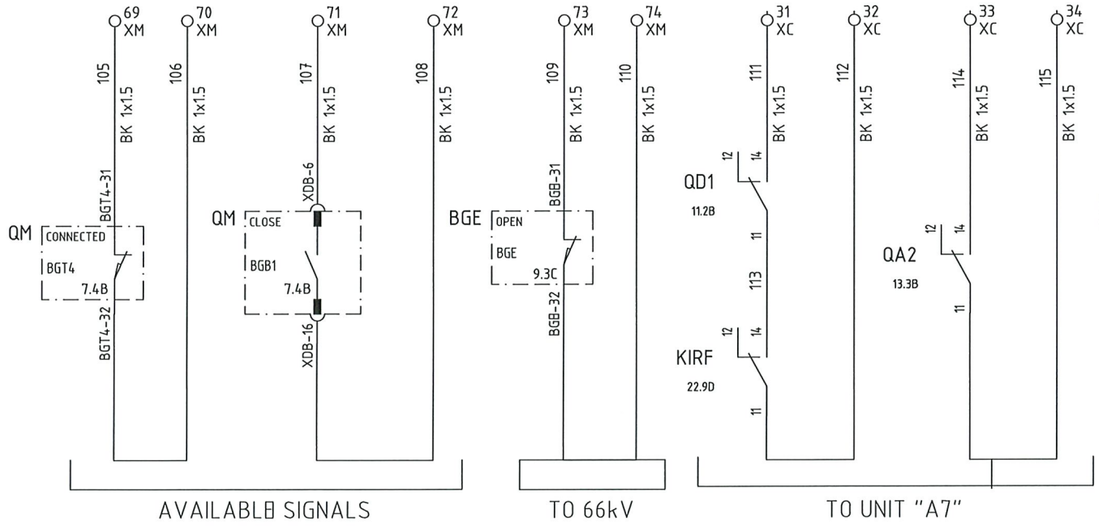
F.to UNI A3: 420mmx297mm

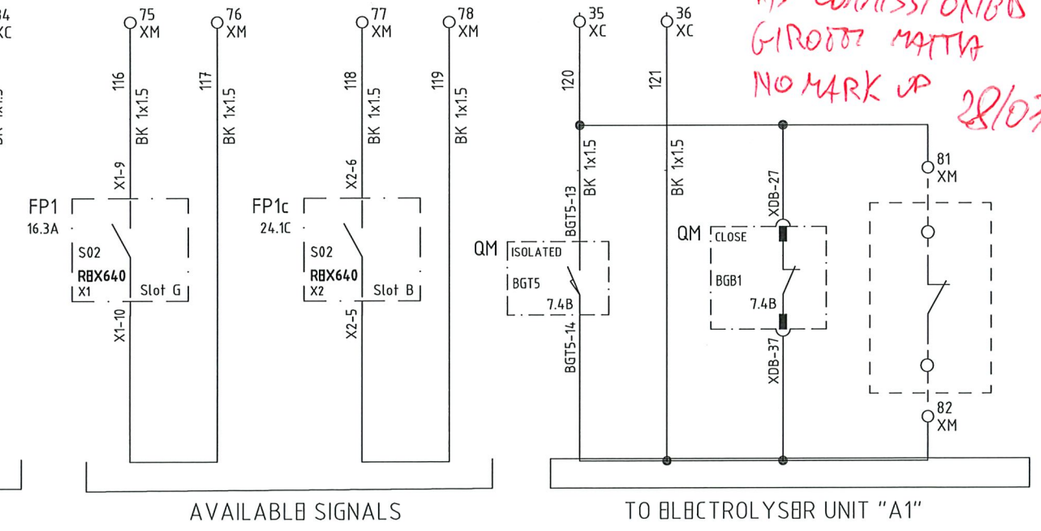
File Name : 1723002197-EL-DG-00015 Rev.03

AVAILABLE SIGNALS









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+A6							
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)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/15

Item n° : PF1113279

CROSSWIND

ROSETTI MARINO

TITLE :

SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1

Availables Signals

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

SCALE : NTS

A3

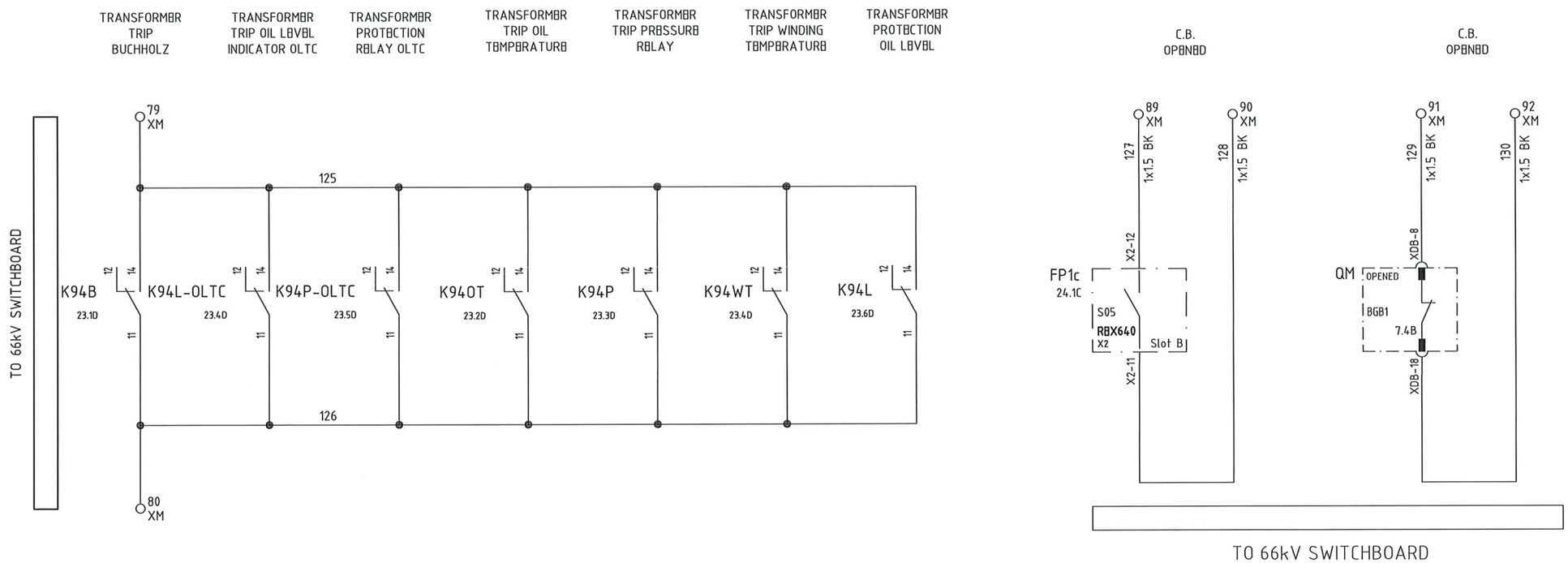
DRAWING NO. 1723002197-EL-DG-00015

SHEET 27

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03



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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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)

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DWG n° : 231151/SD/15
Item n° : PF1113279

CROSSWIND
IMESA ELECTRICAL ENGINEERING
ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Available Signals

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

SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 28 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
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	8.5A	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
5	8.5A	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
6	8.5B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
7	8.5B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
8	8.5B	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
9	8.5B	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
10	8.5C	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
11	8.5C	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
12	8.5C	6	HB220GR	Cabur	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type
13	8.5D	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

TYP - INCOMING
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

TYP - INCOMING
XR

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	21.7D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
2	21.7D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey

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

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DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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 INCOMING FEEDER TR-100AD1
Terminal strips

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK
SCALE : NTS
A3
DRAWING NO. 1723002197-EL-DG-00015
SHEET 29
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
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
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	27.1A	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		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
30		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
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	27.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
36	27.8C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
37		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

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

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DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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 INCOMING FEEDER TR-100AD1
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 3,0 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
XC
Interconnection Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
38		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey

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

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DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Terminal strips

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 31

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
XM
Interface Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
1	10.4E	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
2	10.5E	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
3	10.5E	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
4	10.5E	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	21.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
12	21.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
13	21.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
14	21.4B	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	22.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
24	22.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
25	22.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
26	22.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
27	23.1A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
28	23.1B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
29	23.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
30	23.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
31	23.3A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
32	23.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
33	23.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
34	23.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
35	23.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
36	23.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
37	23.5A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
38	23.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
39	23.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
40	23.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

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

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DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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)

IMESA ELECTRICAL ENGINEERING
CROSSWIND
ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Terminal strips

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

A3
DRAWING NO. 1723002197-EL-DG-00015
SHEET 32
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
XM
Interface Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
41	24.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
42	24.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
43	24.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
44	24.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
45	25.5A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
46	25.5B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
47	25.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
48	25.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
49	25.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
50	25.7B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
51	25.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
52	25.8B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
53	25.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
54	25.9B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
55	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
56	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
57	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
58	26.3B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
59	26.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
60	26.4B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
61	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
62	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
63	27.6A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
64	27.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
65	27.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
66	27.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
67	27.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
68	27.10A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
69	27.1C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
70	27.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
71	27.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
72	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
73	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
74	27.3C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
75	27.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
76	27.6C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
77	27.7C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
78	27.7C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
79	28.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
80	28.2C	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
81	27.9D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type

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

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DWG n° : 231151/SD/15
Item n° : PF1113279

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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 INCOMING FEEDER TR-100AD1
Terminal strips

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

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 3,3 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

TYP - INCOMING
XM
Interface Terminals

NumM	Fg.	Sez.	Tipo	Costruttore	Descrizione
82	27.9D	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
83	27.2A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
84	27.2B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
85	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
86	26.6B	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
87	27.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
88	27.4A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
89	28.7A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
90	28.8A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
91	28.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
92	28.9A	4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
93		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
94		4	HM250GR	Cabur	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type
			HM251GR	Cabur	HMT.4/PT/GR End section - Grey

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+A6					
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231151/SD/15
Item n° : PF1113279

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Terminal strips

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 34

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 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	A6	INCOMING FEEDER TR-100AD1
BGE	9	1VCF599700R0131	1	EARTHING SWITCH ST-E 17.31 150	ABB	A6	INCOMING FEEDER TR-100AD1
		1VCF599504R0063	1	KEY LOCKS ON EARTHING SWITCH	ABB	A6	INCOMING FEEDER TR-100AD1
		1VCF599700R0290	1	EARTHING SWITCH OPERATING LEVER	ABB	A6	INCOMING FEEDER TR-100AD1
		1VCF599505R0002	1	10 AUX CONTACTS FOR EARTHING SWITCH	ABB	A6	INCOMING FEEDER TR-100AD1
C1	9	43931118	1	VPIS 3,3÷36KV - DEVICE SIGNALLING VOLTAGE PRESENT KIT	ELECTRONSYSTEM	A6	INCOMING FEEDER TR-100AD1
CB	7	1VCF698000R0012	1	OPTICAL FIBER CABLE PRE-MANUFACT. LENS L=5M	ABB	A6	INCOMING FEEDER TR-100AD1
CC	9	1VCF698000R0012	1	OPTICAL FIBER CABLE PRE-MANUFACT. LENS L=5M	ABB	A6	INCOMING FEEDER TR-100AD1
E1	13	74041	1	LED LAMP 4W 4000K 313x30x22	Beghelli	A6	INCOMING FEEDER TR-100AD1
E8	10	1VCF501000R0001	1	RESISTOR TR318 27R/J 27ohm 500W L=2,5M	ABB	A6	INCOMING FEEDER TR-100AD1
EH1	13	R1R150230	1	SPACE HEATER SKR 150W ALIM. 220VCA	Torresan	A6	INCOMING FEEDER TR-100AD1
FF1	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A6	INCOMING FEEDER TR-100AD1
FF2	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A6	INCOMING FEEDER TR-100AD1
FF3	10	1YMB751209M1502	1	FUSE-LINKS FOR VOLTAGE TRANSFORMER PROTECTION 6/12kV 2A 192x53mm - CEF-VT	ABB	A6	INCOMING FEEDER TR-100AD1
FP1	16	1VCF698331R0001	1	REX640B10NN+AIM1+AIM1+ARC1+BIO1+BIO1+BI+O2+CMP2+COM1+LNG1+MCT1+PCL4+PSM3+SCT	ABB	A6	INCOMING FEEDER TR-100AD1
HGR	13	TRT-10A230V-NC	1	Regolable Thermostat -10÷80°C 1NC IP20 DIN Mounting	Fandis	A6	INCOMING FEEDER TR-100AD1
K86	22	RMBE13-C110T	1	MONOSTABLE RELAY 110VDC 7SC-5A TROP.	Amra	A6	INCOMING FEEDER TR-100AD1
		PAVM321	1	SOCKET WITH SCREW TO RELAY TYPE PAVM321	Amra	A6	INCOMING FEEDER TR-100AD1
K94B	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94L	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94L-OLTC	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94OT	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94P	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94P-OLTC	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
K94WT	23	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
KGR	13	ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 552 0	1	CR-M230AC2L SUPPLY 230VAC 2C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
KIRF	22	ER 589 2	1	CR-M110DC4L SUPPLY 110VDC 4C/O 250V/6A LED	ABB	A6	INCOMING FEEDER TR-100AD1
		ER 686 6	1	CR-M4SS SOCKET STANDARD X 2/4 C/O(CR-M)	ABB	A6	INCOMING FEEDER TR-100AD1

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

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DWG n° : 231151/SD/15
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)
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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Bill of Materials

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 35

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
KIRF	22	ER 728 6	1	CR-MH1 METAL RETAINING JUMPER	ABB	A6	INCOMING FEEDER TR-100AD1
KT1	20	H3DKM2ACDC24240	1	MULTIFUNCTION TIMER RELAY Vaux=24÷240Vac/dc - 2SC	Omron	A6	INCOMING FEEDER TR-100AD1
L1C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L1I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L1MS	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L2C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L2I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L3C	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L3I	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
L3MS	19	801100	1	IR SENSOR 10m CABLE	EXERTHERM	A6	INCOMING FEEDER TR-100AD1
LS	13	Z15GW2-1-1453270	1	MICROSWITCH 1sc	Omron	A6	INCOMING FEEDER TR-100AD1
		APB-PG	1	COVER TO MICRO-SWITCH	Omron	A6	INCOMING FEEDER TR-100AD1
OD1	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A6	INCOMING FEEDER TR-100AD1
OD2	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A6	INCOMING FEEDER TR-100AD1
OD3	9	990003	1	MEDIUM VOLTAGE DISCHARGE DMI-9-10-1-L Ur=9kV	DEHN	A6	INCOMING FEEDER TR-100AD1
P1	20	KW 080 2	1	MP1-10B BLACK PUSH BUTTON UNSTABLE	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A6	INCOMING FEEDER TR-100AD1
PR	22	KW 101 6	1	YELLOW LIGHT PUSH BUTTON	ABB	A6	INCOMING FEEDER TR-100AD1
		KV 022 5	1	MLBL-05W YELLOW LED BLOCK INTEGRATED 110÷130VAC	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A6	INCOMING FEEDER TR-100AD1
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	A6	INCOMING FEEDER TR-100AD1
		1VCF499800R0302	1	NAMEPLATE IN ENGLISH LANGUAGE FOR TV/F	ABB	A6	INCOMING FEEDER TR-100AD1
QA2	13	B427917	1	DDA202 AC 25A 300MA RCD BLOCK 2P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
		S550284	1	S202M C10 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
QD1	11	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
		S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
QD2	11	S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
		a563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
QD3	11	S550253	1	S202M C 4 AUTOMATIC CIRCUIT-BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
QD4	11	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
		S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
QM	7	1VCF337121R1141	1	VACUUM CIRCUIT BREAKER VD4/P 3P 12KV 630A 25KA WITHDRAWABLE 12.06.25 P150	ABB AS COMMISSIONED	A6	INCOMING FEEDER TR-100AD1
		1VCF339700R0882	1	NAMEPLATE IN ENGLISH LANGUAGE FOR CIRCUIT-BREAKER	ABB GIROTTI MATTIA	A6	INCOMING FEEDER TR-100AD1
		1VCF339700R1885	1	VD4 FOR POWERCUBE	ABB NO MARK UP	A6	INCOMING FEEDER TR-100AD1
		1VCF349700R4881	1	WIRING WITH AFUMEX N07G9-K CABLE	ABB	A6	INCOMING FEEDER TR-100AD1
		1VCF339701R2909	1	FIRST OPENING COIL IST. 110Vdc (MB01)	ABB 28/03/2025	A6	INCOMING FEEDER TR-100AD1
		1VCF339800R6913	1	CLOSING COIL 110..127 Vac/dc (MBC)	ABB	A6	INCOMING FEEDER TR-100AD1
QV1	10	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1

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DWG n° : 231151/SD/15
Item n° : PF1113279

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE :
SG-100D1 - FUNCTIONAL INCOMING FEEDER TR-100AD1
Bill of Materials

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

A3 | DRAWING NO. 1723002197-EL-DG-00015 | SHEET 36 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

Nome/Item	Fg/Sh	Tipo/Type	Q.tà	Descrizione/Description	Costruttore/Manufacturer	Ubicazione (descrizione)	Quadro (descrizione)
QV2	10	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
QV3	10	A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
		S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
QV4	14	S550680	1	S204M C 2 AUTOMATIC CIRCUIT-BREAKER 10KA 4P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
QV5	15	S550239	1	S202M C 2 AUTOMATIC CIRCUIT BREAKER 10KA 2P	ABB	A6	INCOMING FEEDER TR-100AD1
		A563819	1	S2-CS/H6R AUXILIARY STATE CONTACT 1CO	ABB	A6	INCOMING FEEDER TR-100AD1
R1	21	01062220	1	RESISTANCE 22kOhm 5W		A6	INCOMING FEEDER TR-100AD1
S1C	26	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A6	INCOMING FEEDER TR-100AD1
		KW 076 0	1	MP1-10G PUSH BUTTON GREEN WITH BLACK RING	ABB	A6	INCOMING FEEDER TR-100AD1
S2O	21	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 570 5	2	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A6	INCOMING FEEDER TR-100AD1
		KW 075 2	1	MP1-10R PUSH BUTTON RED WITH BLACK RING	ABB	A6	INCOMING FEEDER TR-100AD1
SA1	24	EO 569 7	1	MCBH-00 FIXING SUPPORT 3 CONTACTS	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 571 3	1	MCB-01 CONTACT NC FOR PUSHBUTTOM	ABB	A6	INCOMING FEEDER TR-100AD1
		EO 570 5	1	MCB-10 CONTACT NO FOR PUSHBUTTONS	ABB	A6	INCOMING FEEDER TR-100AD1
		KW 329 3	1	M2SS2-10B HANDLE SELECTOR 2P 90° BLACK RING BLACK	ABB	A6	INCOMING FEEDER TR-100AD1
TI-L1	8	ATB-10-BS_011	1	CURRENT TRANSFORMER 7,2kV 50Hz 600/1-1A cl.0,5-5P20 (5VA) - cl.5P20 (10VA)- 25kA	ESITAS	A6	INCOMING FEEDER TR-100AD1
TI-L2	8	ATB-10-BS_011	1	CURRENT TRANSFORMER 7,2kV 50Hz 600/1-1A cl.0,5-5P20 (5VA) - cl.5P20 (10VA)- 25kA	ESITAS	A6	INCOMING FEEDER TR-100AD1
TI-L3	8	ATB-10-BS_011	1	CURRENT TRANSFORMER 7,2kV 50Hz 600/1-1A cl.0,5-5P20 (5VA) - cl.5P20 (10VA)- 25kA	ESITAS	A6	INCOMING FEEDER TR-100AD1
TO	9	KAP-150/250-95	1	CURRENT TRANSFORMER 0,72/3/-kV 100/1 50Hz	ESITAS	A6	INCOMING FEEDER TR-100AD1
TR1	19	800208	1	MODBUS DATACARD 8 CHANNELS	Exertherm	A6	INCOMING FEEDER TR-100AD1
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	A6	INCOMING FEEDER TR-100AD1
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	A6	INCOMING FEEDER TR-100AD1
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	A6	INCOMING FEEDER TR-100AD1
XC		HM320GR	12	HMM.6/GR Feed-through Terminal Block - Grey (6 mmq)	Cabur AS COMMISSIONED	A6	INCOMING FEEDER TR-100AD1
		HM250GR	26	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur GIROTTI MATTIA	A6	INCOMING FEEDER TR-100AD1
		HM251GR	2	HMT.4/PT/GR End section - Grey	Cabur NO MARK UP	A6	INCOMING FEEDER TR-100AD1
		HM321GR	3	HMT.6/PT/GR End section - Grey	Cabur 28/03/2025	A6	INCOMING FEEDER TR-100AD1
XI		HB220GR	13	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - spring type	Cabur	A6	INCOMING FEEDER TR-100AD1
		HB201GR	3	HSCB.6/PT/GR End section - Grey	Cabur	A6	INCOMING FEEDER TR-100AD1
XM		HM250GR	94	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	A6	INCOMING FEEDER TR-100AD1
		HM251GR	2	HMT.4/PT/GR End section - Grey	Cabur	A6	INCOMING FEEDER TR-100AD1
XR		HM250GR	2	HMM.4/GR Feed-through Terminal Block - Grey (4 mmq) - spring type	Cabur	A6	INCOMING FEEDER TR-100AD1
		HM251GR	1	HMT.4/PT/GR End section - Grey	Cabur	A6	INCOMING FEEDER TR-100AD1
XS1	13	E 9447 7	1	SOCKET	ABB	A6	INCOMING FEEDER TR-100AD1
XV		HB210GR	16	HSCB.6/GR Disconnect by slide link Terminal Block - Grey (6 mmq) - Spring type	Cabur	A6	INCOMING FEEDER TR-100AD1
		HB201GR	5	HSCB.6/PT/GR End section - Grey	Cabur	A6	INCOMING FEEDER TR-100AD1

=
+A6

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/15
Item n°: PF1113279

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	08/08/2024	Giulietti	Flamminio	Sigismondi	As - Built (ASB)
2	26/06/2024	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 INCOMING FEEDER TR-100AD1
Bill of Materials

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00015

SHEET 37

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00015 Rev.03

BASE LOAD POWER HUB (BLPH)

TR-100AD1 Termination and Wiring Diagram

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
FRONT PAGE

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 001

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

REV.	SHEET NUMBER	DESCRIPTION	REF. CODE
03	001	FRONT PAGE	
03	002	SUMMARY and GENERAL NOTES	
03	003	LAYOUT - AUXILIARY CONTROL PANEL	
03	004	INTERNAL POWER CIRCUIT DIAGRAM	
03	005	PROTECTION DEVICES ON TRANSFORMER	
03	006	THERMAL CONTROL UNIT	
03	007	BLADDER RUPTURE RELAY	
03	008	TERMINAL STRIP	
03	009	EQUIPMENT LIST	
03	010	LAYOUT - AVR PANEL	
03	011	INTERNAL POWER CIRCUIT DIAGRAM - AVR PANEL	
03	012	WIRINGS BETWEEN AVR AND MDU	
03	013	TERMINAL STRIP - AVR PANEL	
03	014	EQUIPMENT LIST - AVR PANEL	
03	015	AVR - TAPCON 230 EXPERT	
03	016	AVR - TAPCON 230 EXPERT	
03	017	AVR - TAPCON 230 EXPERT	
03	018	MDU - WIRINGS	
03	019	MDU - WIRINGS	
03	020	MDU - WIRINGS	
03	021	MDU - WIRINGS	
03	022	MDU - WIRINGS	
03	023	MDU - WIRINGS	

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GIROTTI MATTIA
NO MARK UP
28/03/2025

MF Trasformatori srl

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ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
SUMMARY and GENERAL NOTES

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

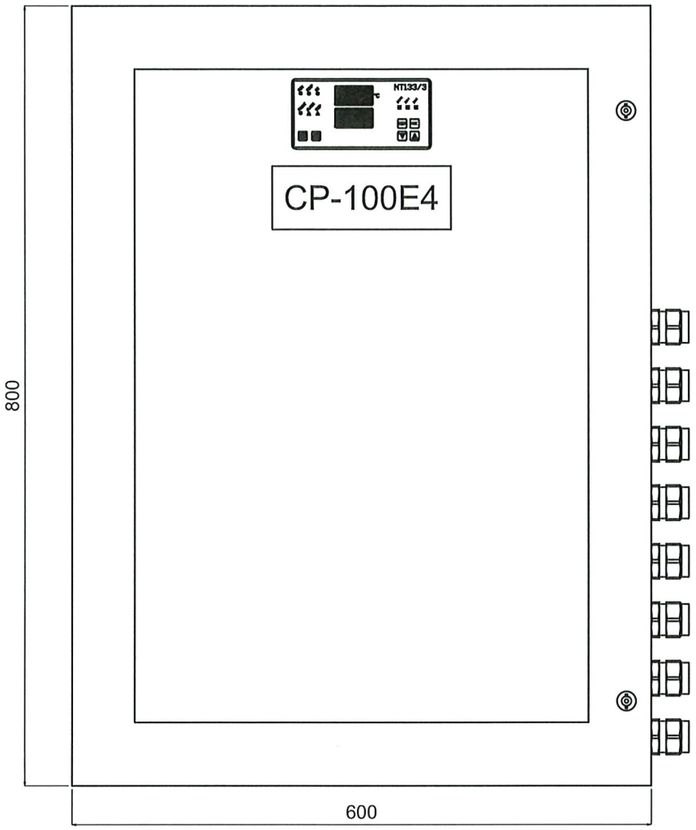
A3 | DRAWING NO. 1723001697-EL-DG-00010 | SHEET 002 | REV. 03

F.to UNI A3: 420mmx297mm

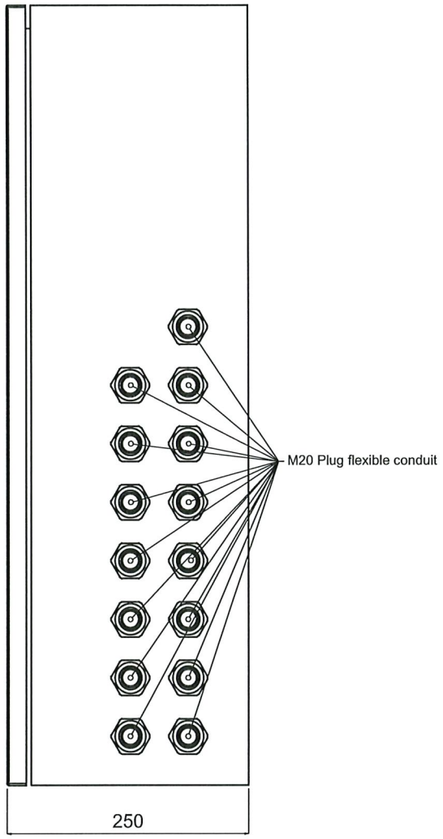
File Name : 1723001697-EL-DG-00010 Rev. 03

LAYOUT - AUXILIARY CONTROL PANEL

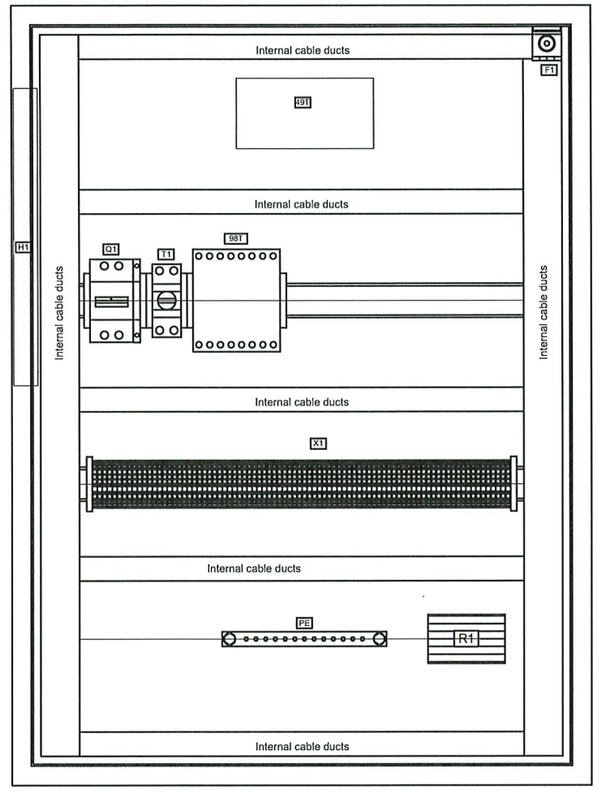
Frontal view



Left side view

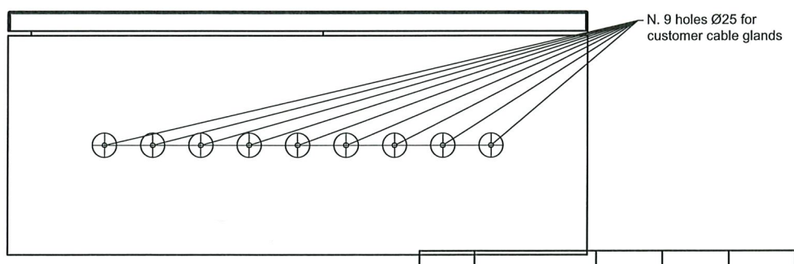


Internal view



PE BAR IS GROUNDED ON INTERNAL PLATE
OF THE PANEL BOX

Bottom view



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

AUXILIARY CONTROL PANEL	
PROTECTION DEGREE :	IP65
VENTILATION :	NATURAL
BOX MATERIAL :	STAINLESS STEEL 15/10
INTERNAL REMOVABLE PLATE :	STELL 15/10

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
LAYOUT - AUXILIARY CONTROL PANEL

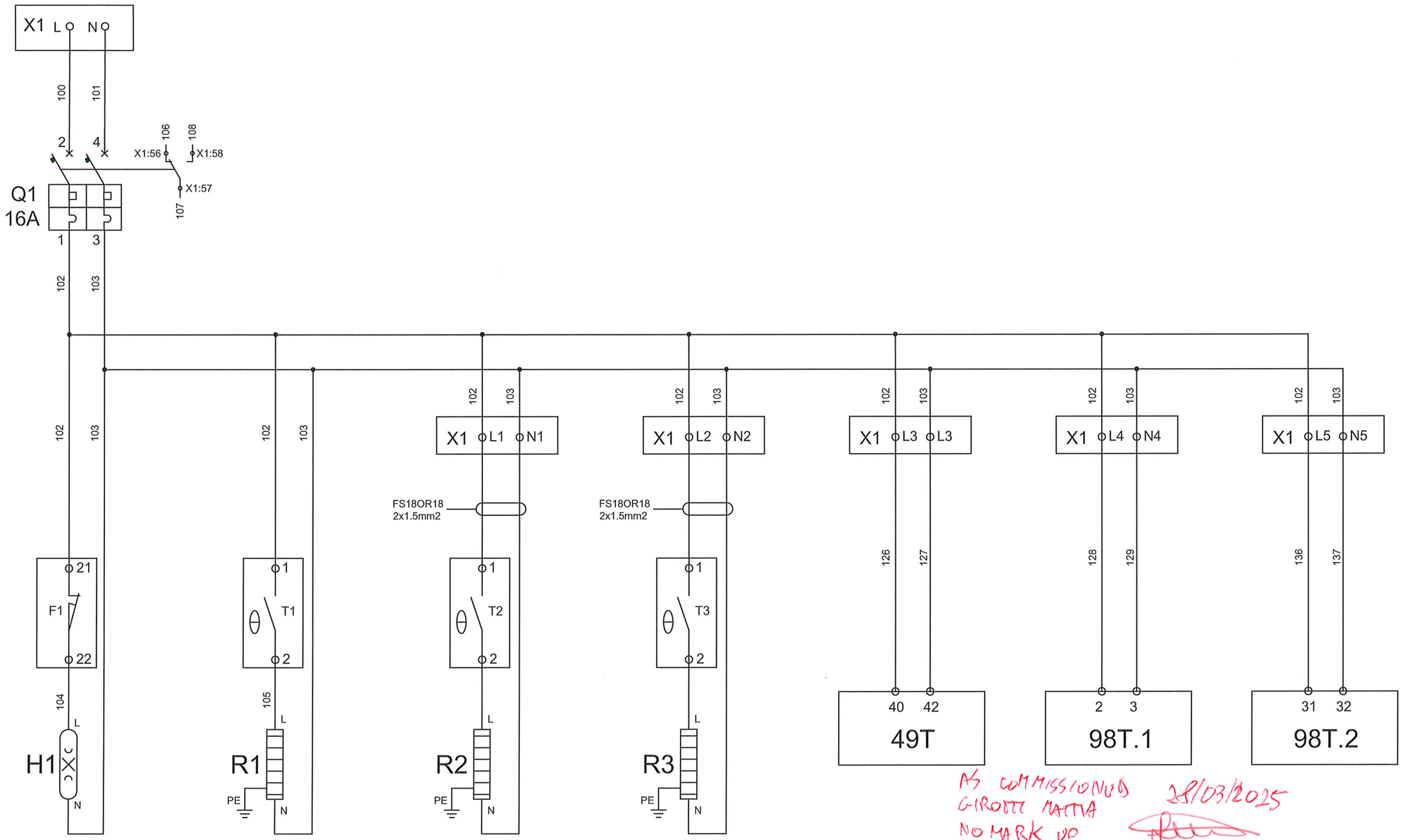
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723001697-EL-DG-00010 | SHEET 003 | REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

1Ph+N/Pe = 50Hz 230V
Power supply



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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
INTERNAL POWER CIRCUIT DIAGRAM

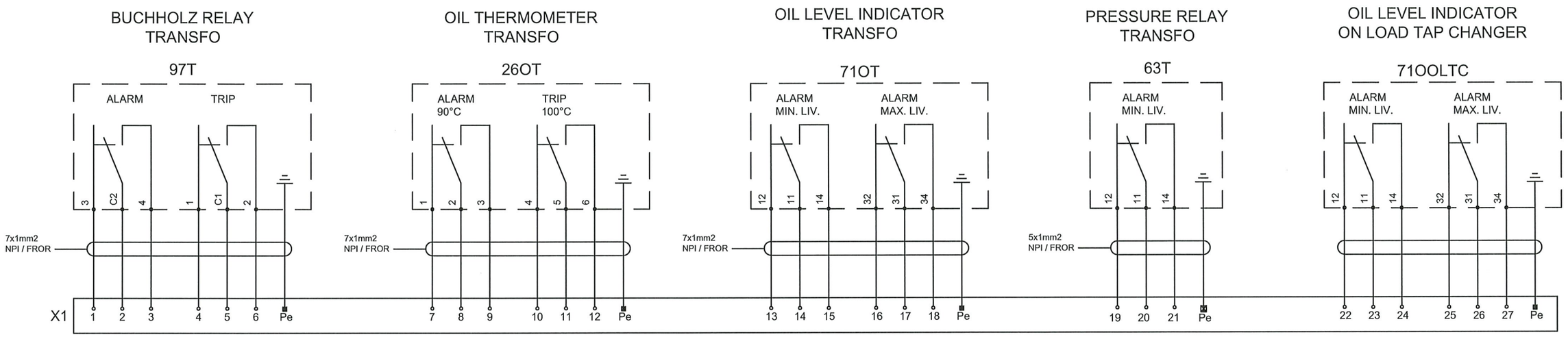
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

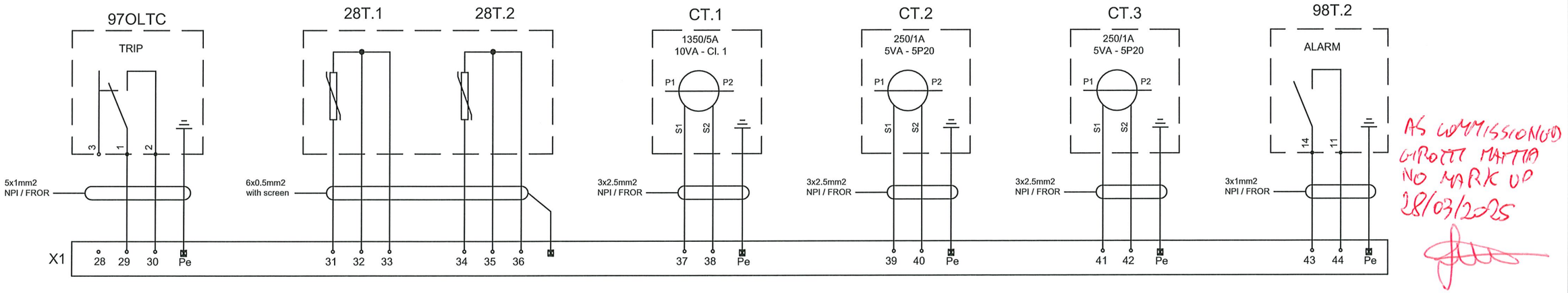
A3 | DRAWING NO. 1723001697-EL-DG-00010 | SHEET 004 | REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

TRANSFORMER PROTECTIONS





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NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
PROTECTION DEVICES ON TRANSFORMER

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 005

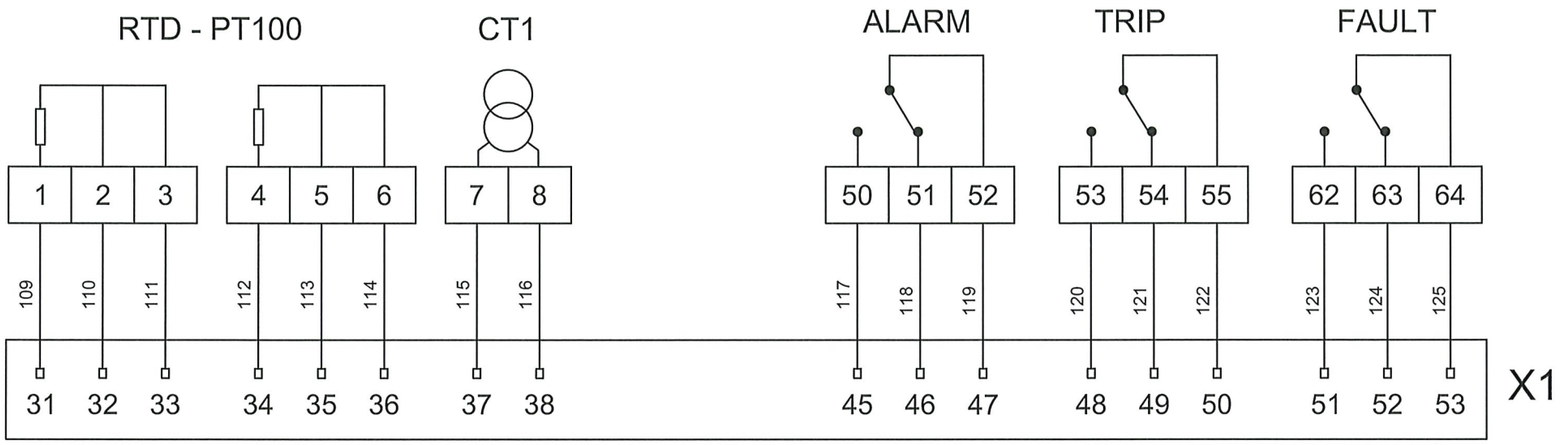
REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

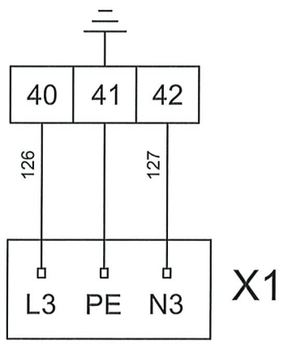
F.to UNI A3: 420mmx297mm

THERMAL IMAGE - WINDING TEMPERATURE INDICATOR (WTI)

49T (NT133/3)



Power supply
24-240 Vac-cc



SETTING:

-	NPT:	2
-	NCT:	1
-	DT:	5
-	CT1:	4.6A
-	TC:	6min
-	OIL ALARM:	90°C
-	WINDING ALARM:	95°C
-	TRIP OIL:	100°C
-	TRIP WINDING:	105°C

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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
THERMAL CONTROL UNIT

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 006

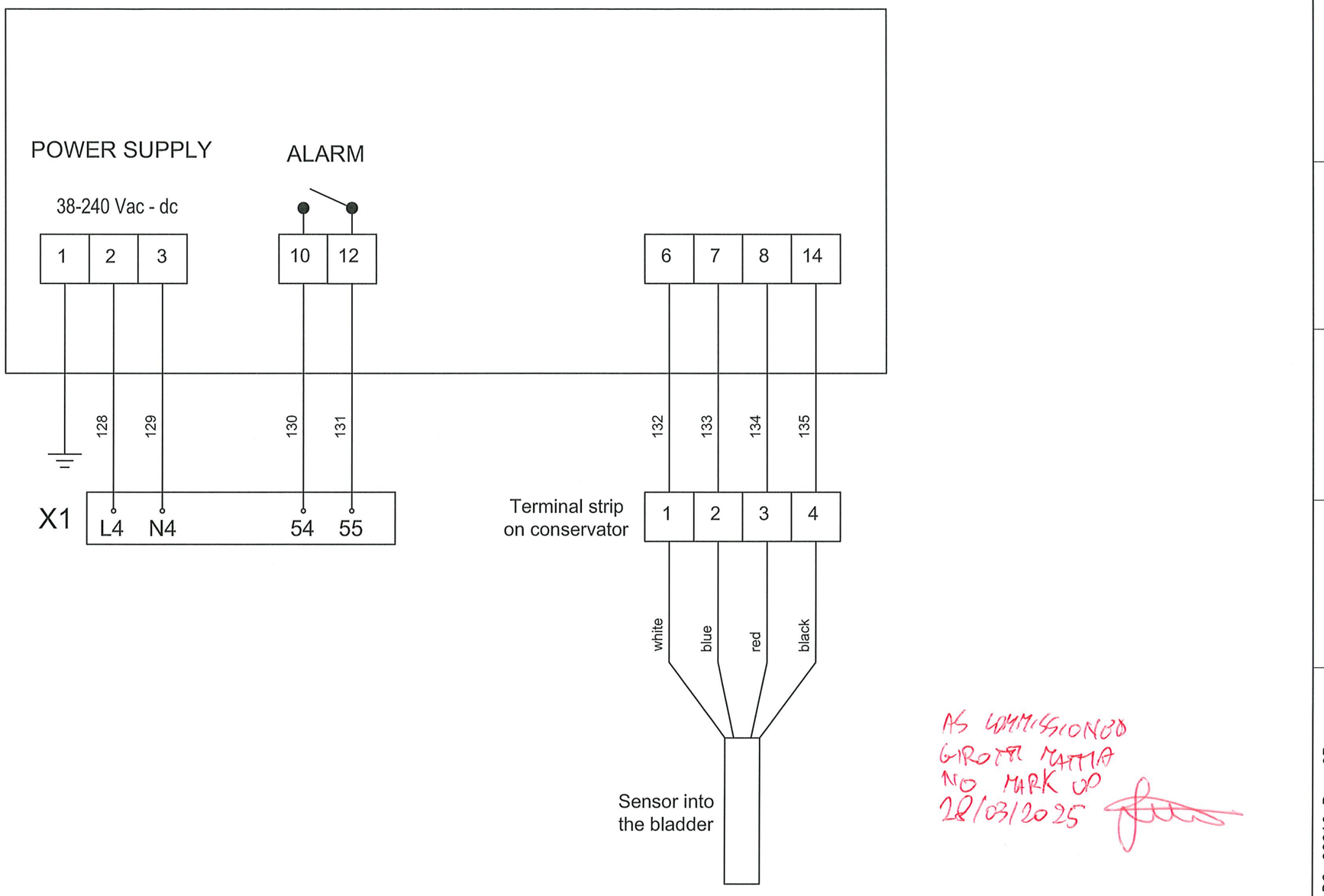
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

BLADDER RUPTURE RELAY

98T.1 (STP-BRR)



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NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
FRONT PAGE

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

SCALE : NTS

A3

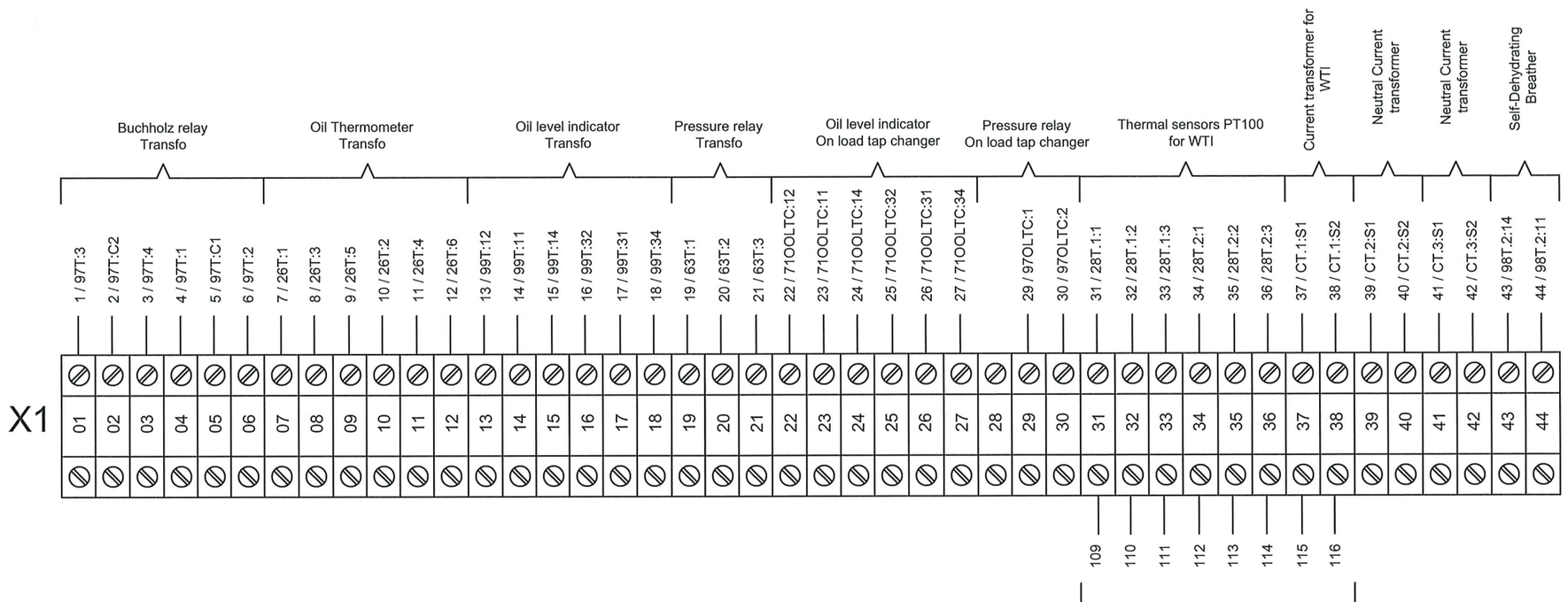
DRAWING NO. 1723001697-EL-DG-00010

SHEET 007

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03



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NO MARK UP
28/03/2025

ALL PE CONDUCTORS WILL BE CONNECTED AT PE BAR

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
TERMINAL STRIP

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 008

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

Label	Description	Supplier	Model No.	Quantity	
Q1	MCB	ABB	S202 - C16 + S2C - H6R	1	
H1	CONTROL PANEL LAMP	ARTELETA	230V - 8W	1	
F1	MICROSWITCH	PIZZATO	FM 1815-S1	1	
R1	CONTROL PANEL HEATER - 15W	FANDIS	HWM015	1	
T1	CONTROL PANEL THERMOSTAT	FANDIS	TRT-10A230V-NCF	1	
R2	H.V. 66kV - CABLE BOX HEATER - 100W	FANDIS	HWM0100	1	
T2	H.V. 66kV - CABLE BOX HEATER THERMOSTAT	FANDIS	TRT-10A230V-NCF	1	
R3	L.V. 6.9kV - CABLE BOX HEATER - 100W	FANDIS	HWM0100	1	
T3	L.V. 6.9kV - CABLE BOX HEATER THERMOSTAT	FANDIS	TRT-10A230V-NCF	1	
49T	WINDING TEMPERATURE INDICATOR	TECSYSTEM	NT133	1	
98T.1	BLADDER RUPTURE RELAY	PRONAL	STP-BRR	1	
98T.2	SELF DEHYDRATING BREATHER	COMEM	ESDB 14C	1	
X1	TERMINAL STRIP	PHOENIX	ST2.5	70	

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

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
EQUIPMENT LIST

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

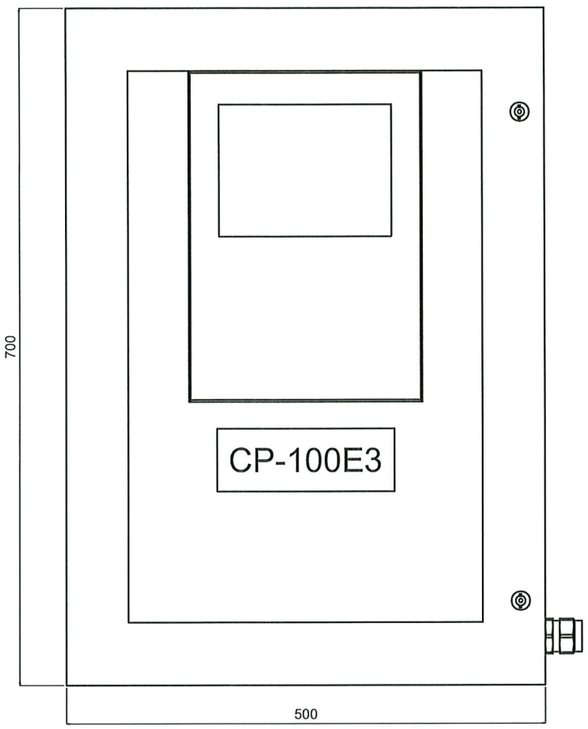
A3 | DRAWING NO. 1723001697-EL-DG-00010 | SHEET 009 | REV. 03

F.to UNI A3: 420mmx297mm

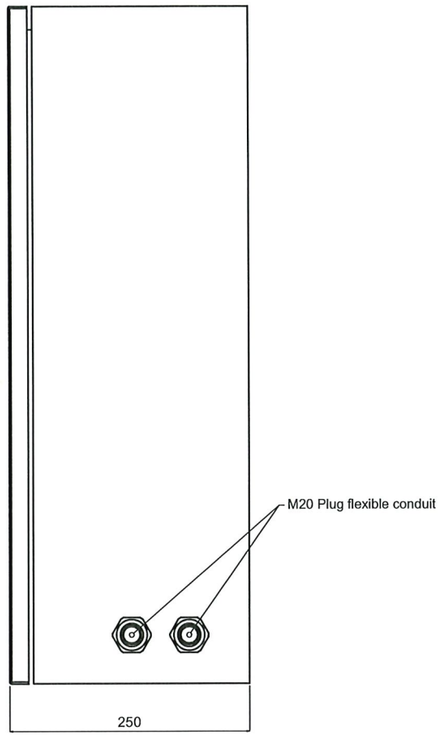
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LAYOUT - AVR PANEL

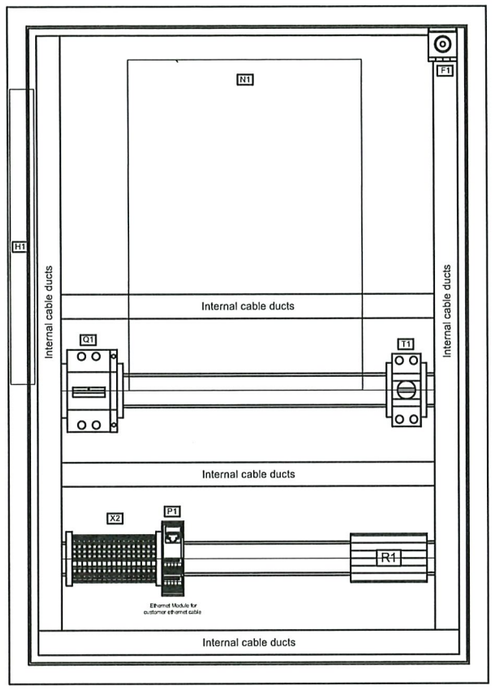
Frontal view



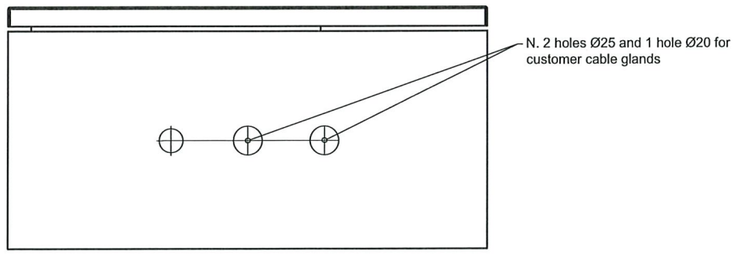
Left side view



Internal view



Bottom view



AUXILIARY CONTROL PANEL	
PROTECTION DEGREE :	IP65
VENTILATION :	NATURAL
BOX MATERIAL :	STAINLESS STEEL 15/10
INTERNAL REMOVABLE PLATE :	STELL 15/10

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
LAYOUT - AVR PANEL

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

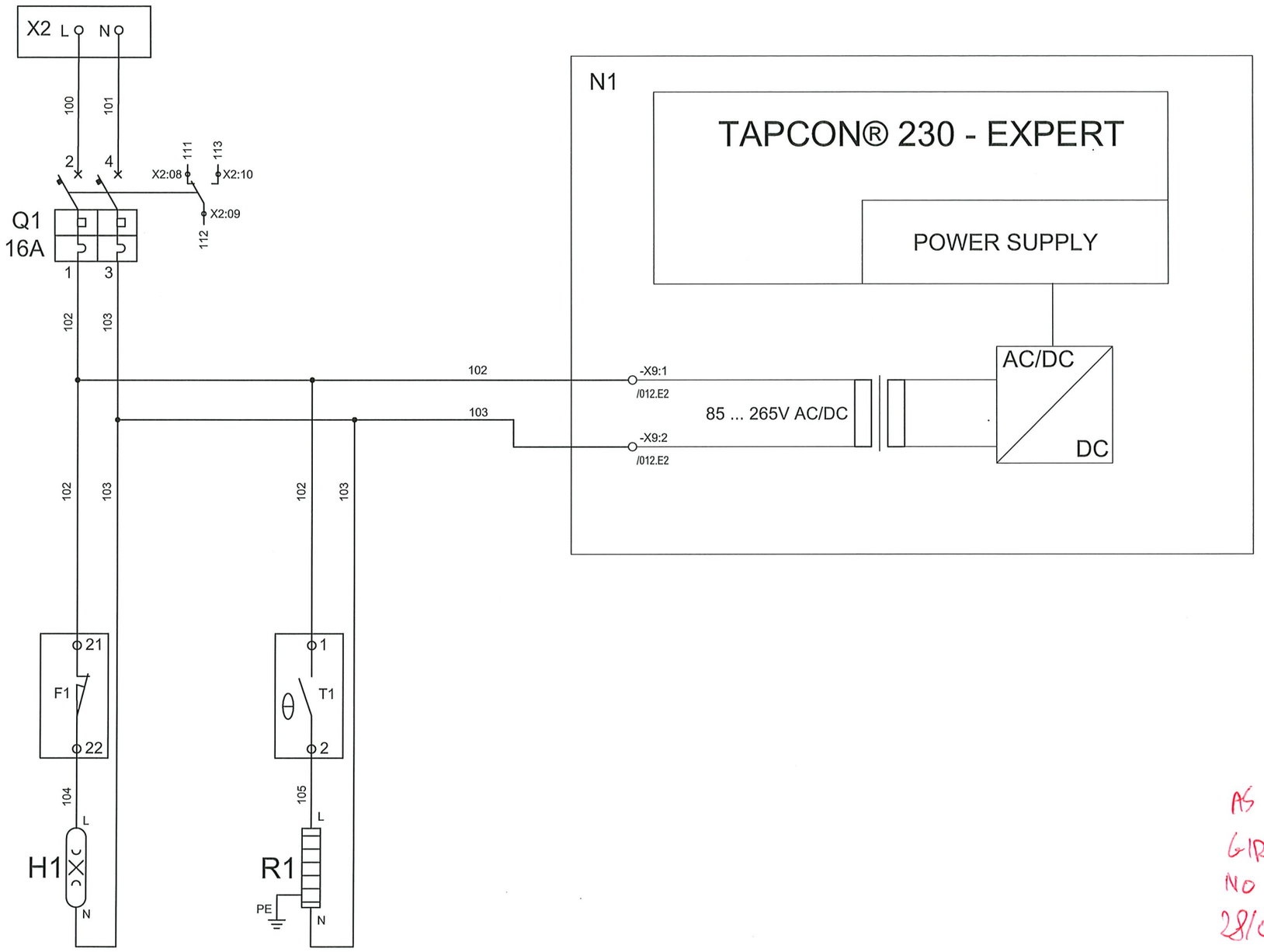
SHEET 010

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

1Ph+N/Pe = 50Hz 230V
Power supply



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GIROTTI MATTIA
NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
02	31/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	16/07/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
LAYOUT – AVR PANEL

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

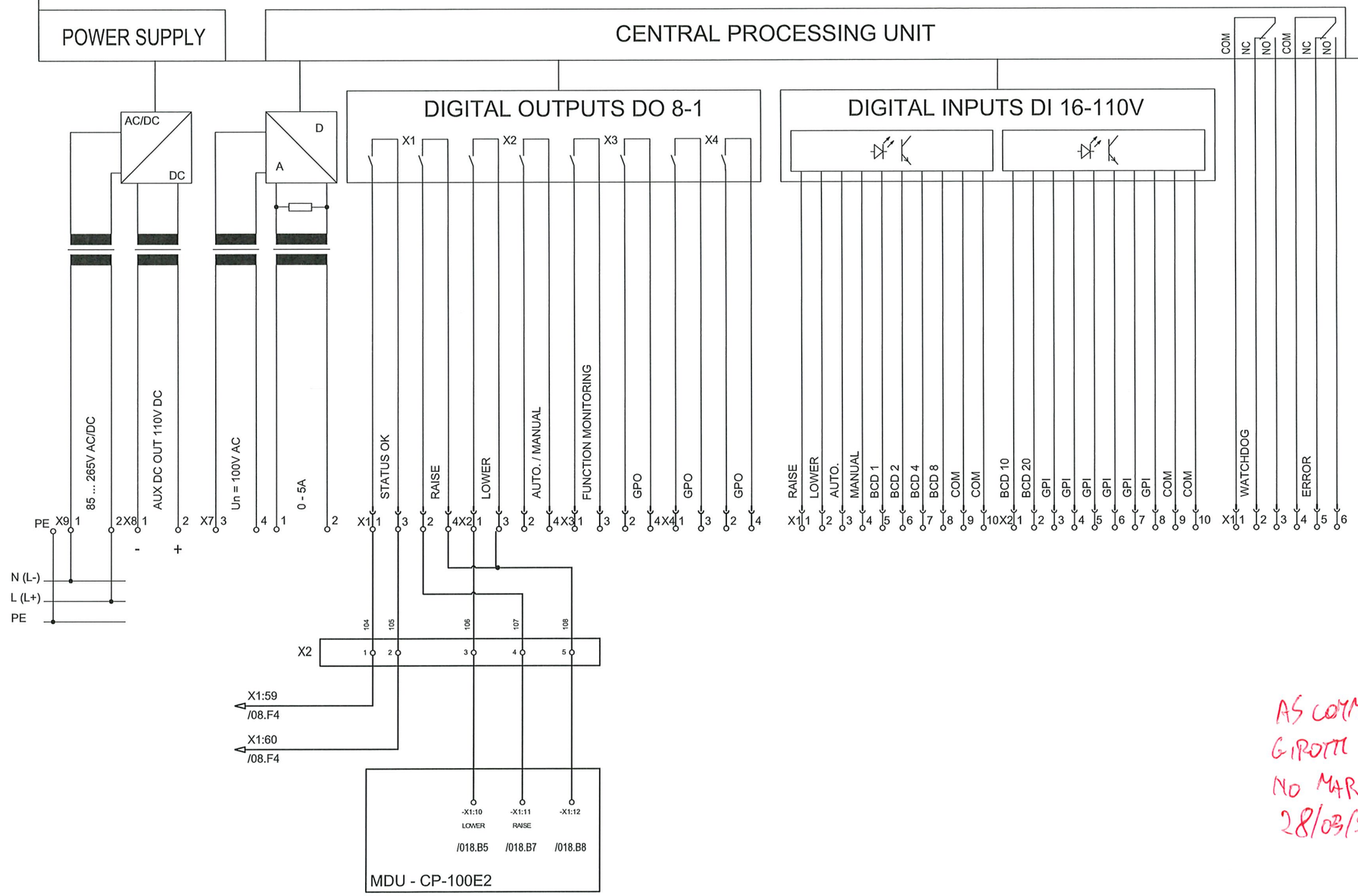
SHEET 011

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

TAPCON® 230 - EXPERT



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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR–100AD1 Termination and Wiring Diagram
INTERNAL POWER CIRCUIT DIAGRAM – AVR PANEL

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

SCALE : NTS

A3

DRAWING NO. 1723001697–EL–DG–00010

SHEET 012

REV. 03

File Name : 1723001697–EL–DG–00010 Rev. 03

F.to UNI A3: 420mmx297mm

TAPCON® 230 - EXPERT

CENTRAL PROCESSING UNIT

COM

SCADA ETHERNET
RJ45

DIGITAL OUTPUTS DO 8-2

X1 X2 X3 X4

GPO

X1 1 3 2 X1 1 3 2 4 X2 1 3 2 4 X3 1 3 2 4 X4 1

ANALOG INPUTS AI 4

D A

U+ I+ I- U- TAP POSITION

U+ I+ I- U- DESIRED VALUE

U+ I+ I- U- GPAI

U+ I+ I- U- POSITION TRANSMITTER MODULE, RESISTOR-TYPE

X1 1 2 3 4 X2 1 2 3 4 X3 1 2 3 4 X4 1 2 3 4

109 110

X2 6 7

-X1:211 -X1:212
4...20 mA
/021.E4 /021.E4

MDU - CP-100E2

RJ45 P1

Ethernet Module for
customer ethernet cable

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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
INTERNAL POWER CIRCUIT DIAGRAM – AVR PANEL

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

SCALE : NTS

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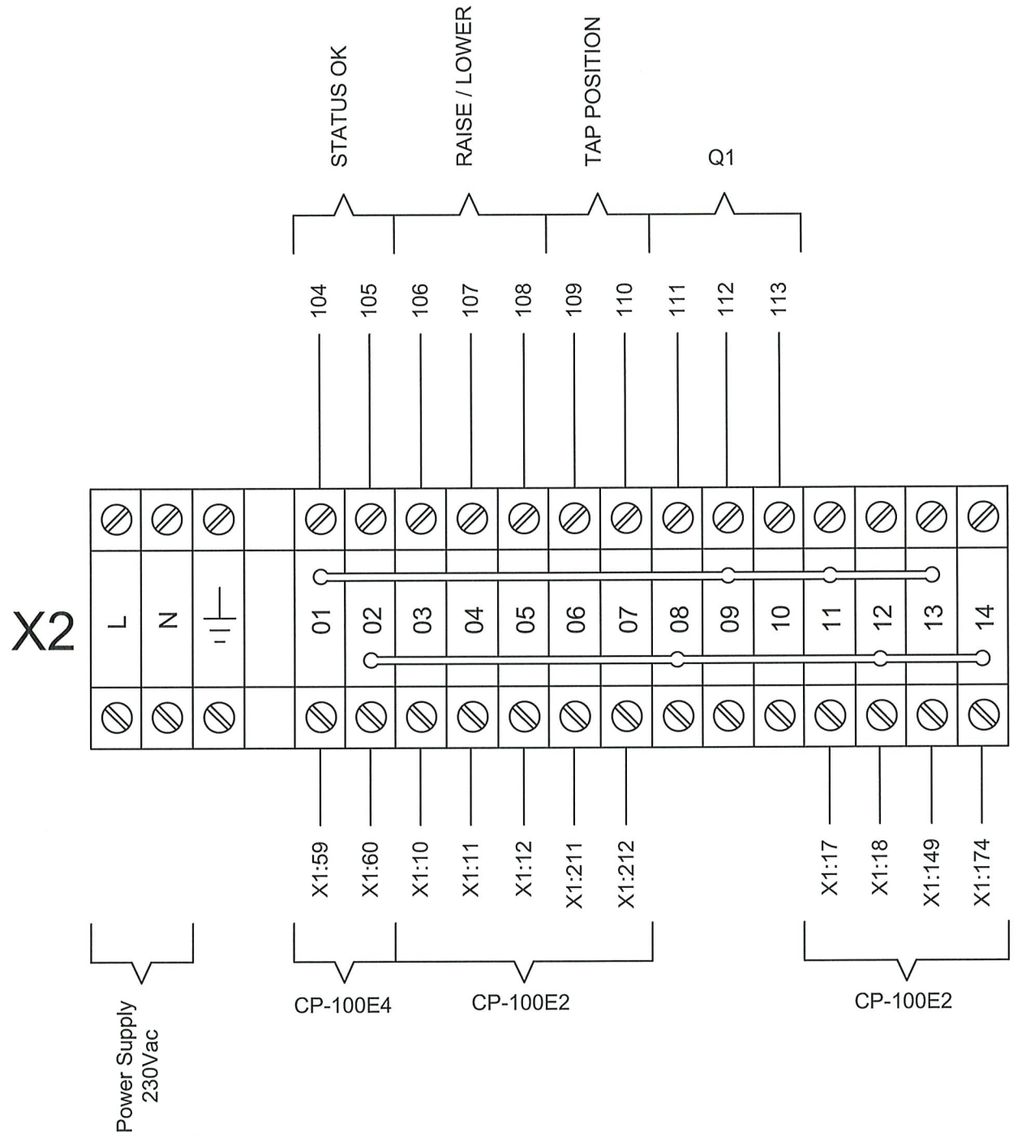
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SHEET 013

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm



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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
TERMINAL STRIP – AVR PANEL

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

A3 | DRAWING NO. 1723001697-EL-DG-00010 | SHEET 014 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

Label	Description	Supplier	Model No.	Quantity	
Q1	MCB	ABB	S202 - C16 + S2C - H6R	1	
H1	CONTROL PANEL LAMP	ARTELETA	230V - 8W	1	
F1	MICROSWITCH	PIZZATO	FM 1815-S1	1	
R1	CONTROL PANEL HEATER - 15W	FANDIS	HWM015	1	
T1	CONTROL PANEL THERMOSTAT	FANDIS	TRT-10A230V-NCF	1	
N1	AUTOMATIC VOLTAGE REGULATOR	MR	TAPCON EXPERT	1	
P1	PASSIVE MODULE ETHERNET CABLE CONNECTOR	PHOENIX	UMK-RJ45/S/8PTDA	1	
X2	TERMINAL STRIP	PHOENIX	ST2.5	11	

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GIROTTI MATTIA 28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
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00	11/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
EQUIPMENT LIST - AVR PANEL

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 015

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

CP-100E2
MDU - MOTOR DRIVE UNIT
WIRING DIAGRAM

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NO MARK UP
28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/09/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU - WIRINGS

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

SCALE : NTS

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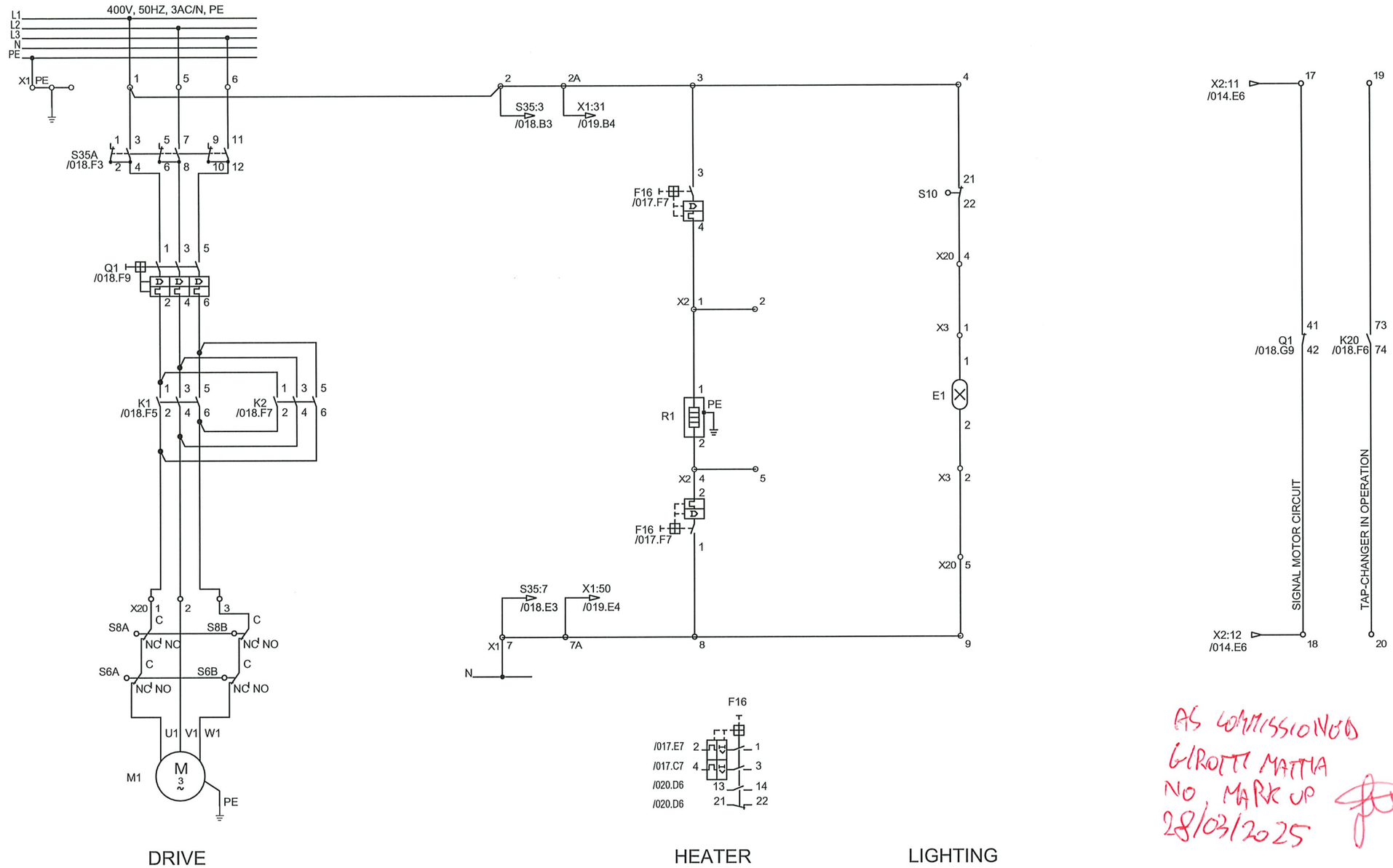
DRAWING NO. 1723001697-EL-DG-00010

SHEET 016

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03



DRIVE

HEATER

LIGHTING

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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU - WIRINGS

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

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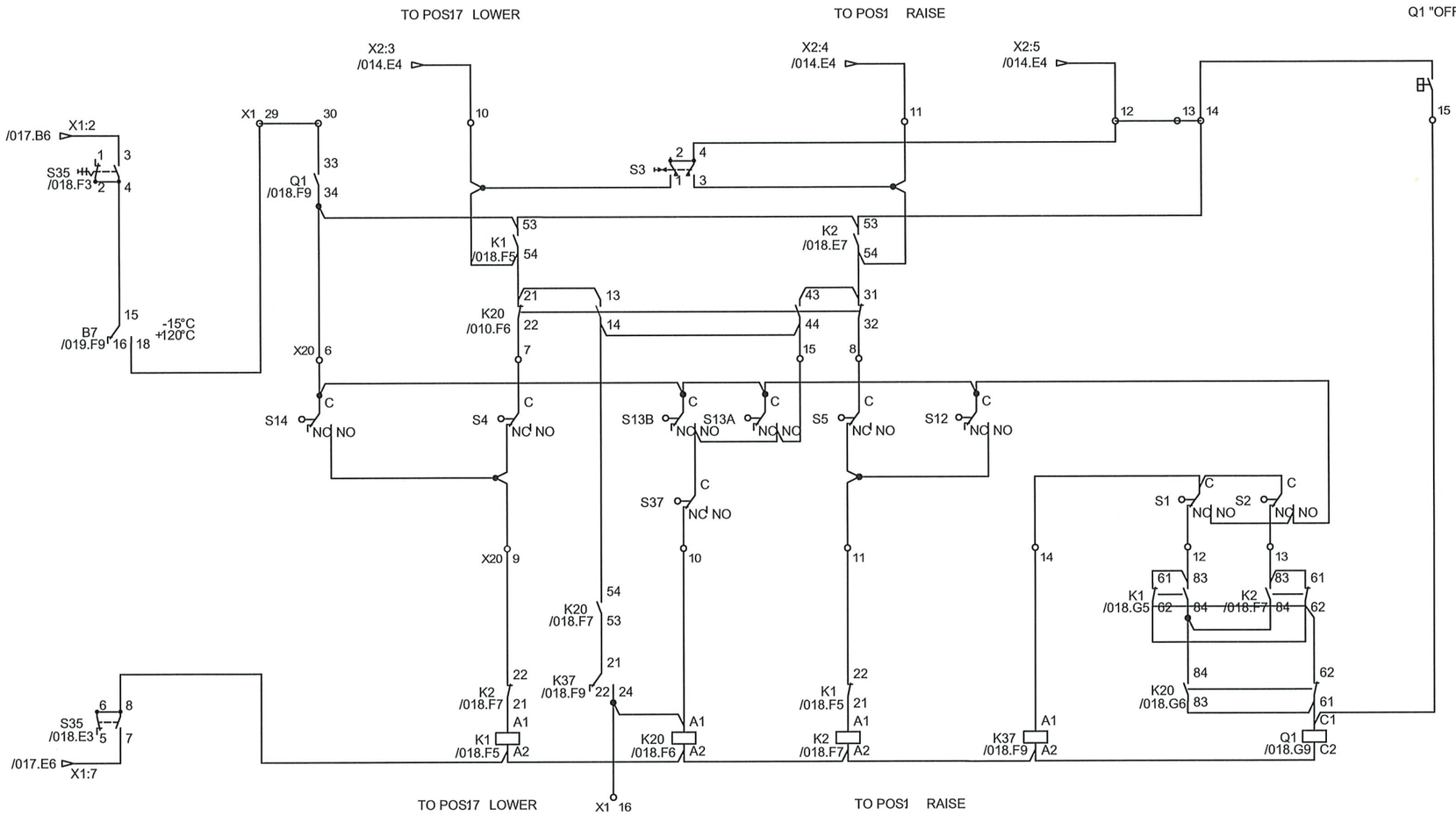
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REV. 03

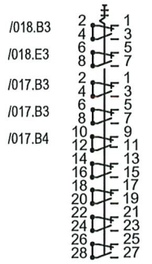
F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

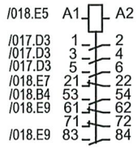
WITH STEP-BY-STEP OPERATION



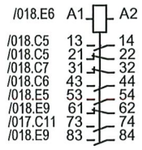
S35 / S35A



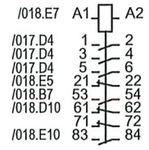
K1



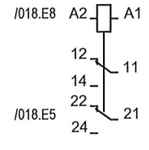
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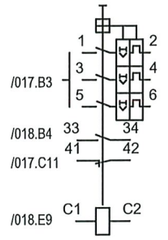
K2



K37



Q1



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MF Trasformatori srl

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ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU – WIRINGS

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

SCALE : NTS

A3

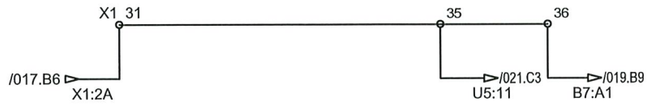
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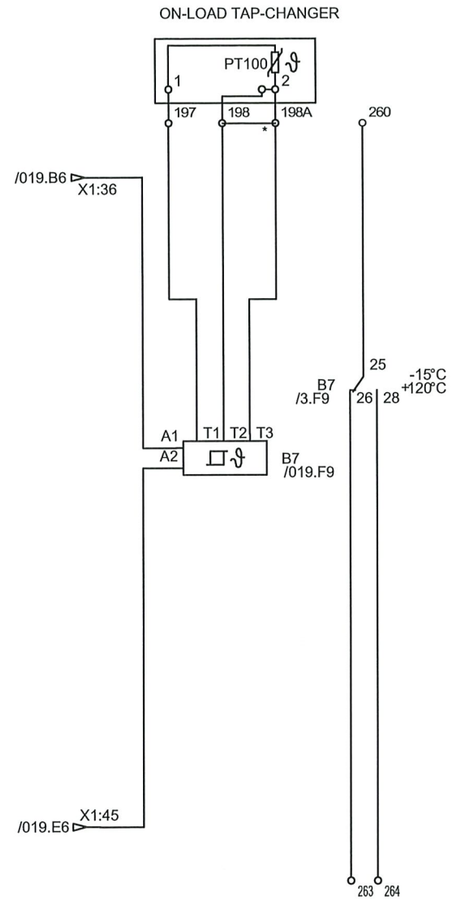
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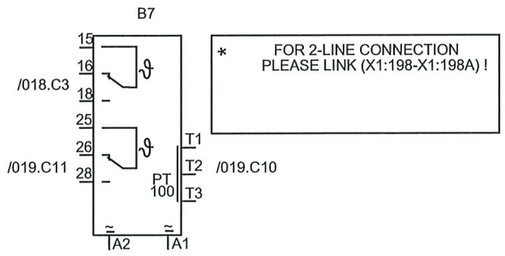
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03







TAP CHANGER TEMPERATURE

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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU – WIRINGS

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

SCALE : NTS

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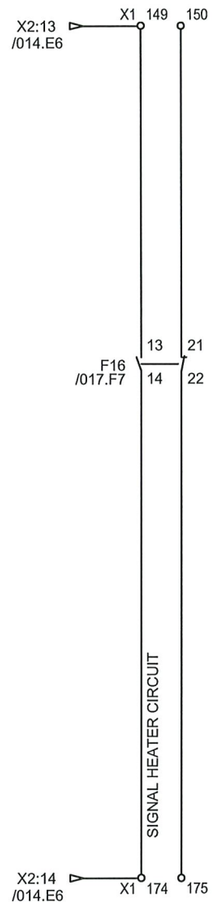
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SHEET 019

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm



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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU - WIRINGS

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

SCALE : NTS

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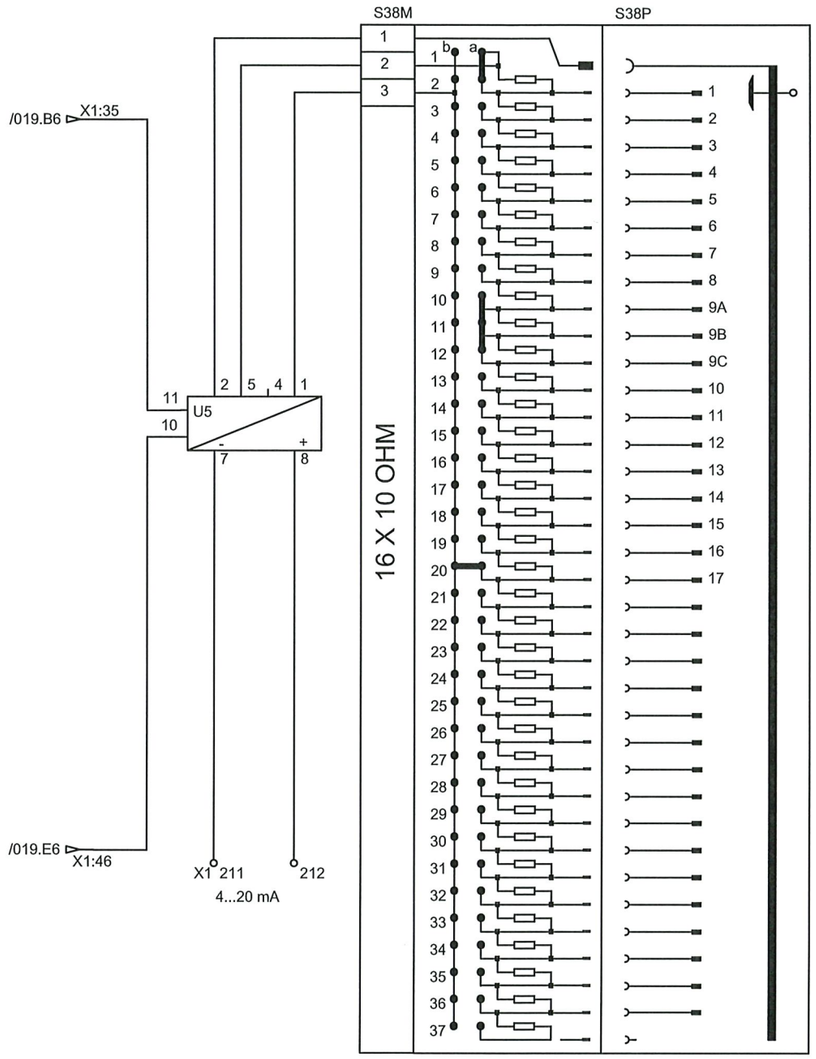
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SHEET 020

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03



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REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

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CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU - WIRINGS

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

SCALE : NTS

A3

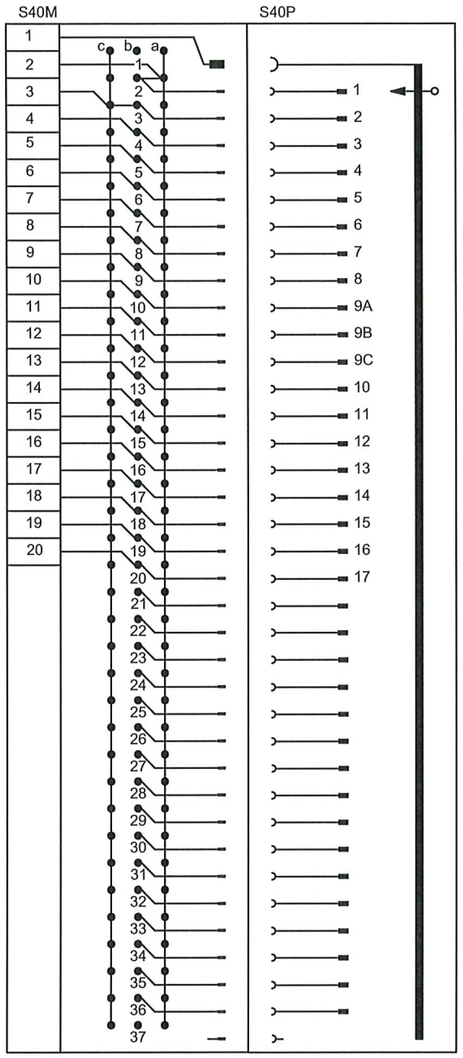
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SHEET 021

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm



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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
MDU - WIRINGS

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

SCALE : NTS

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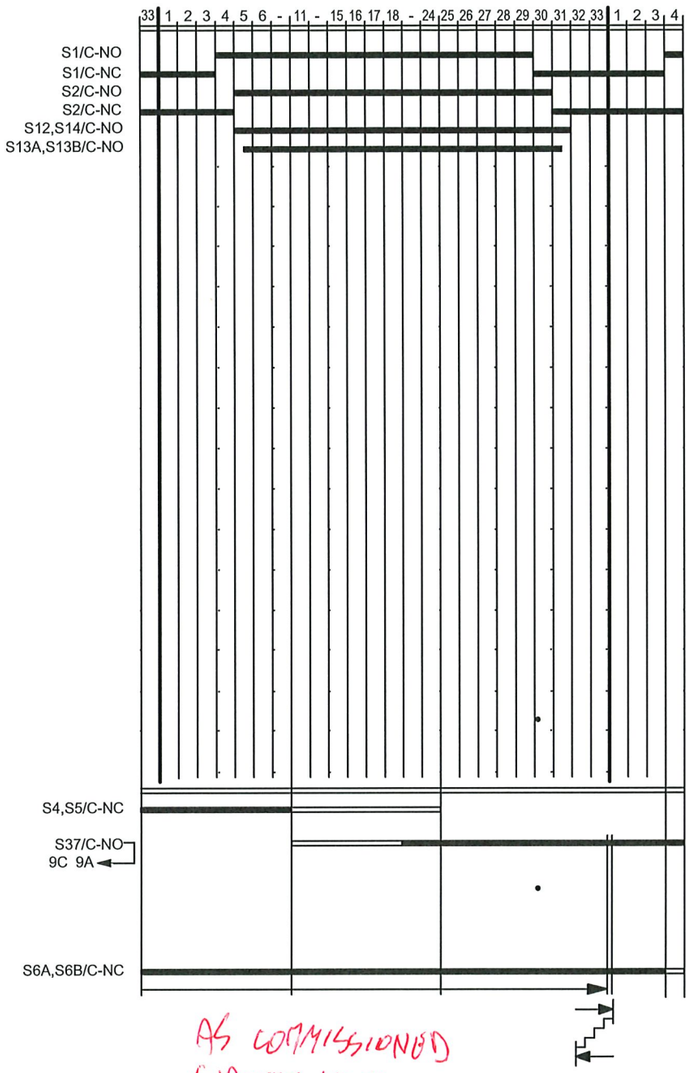
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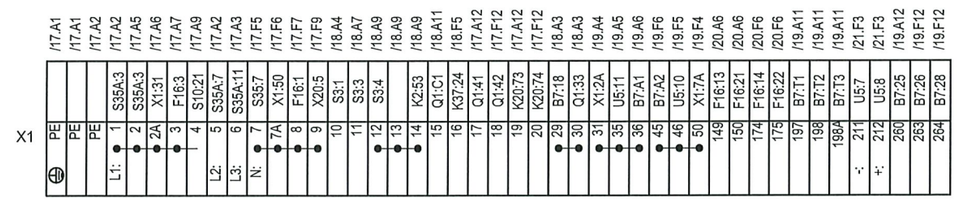
REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00010 Rev. 03

B7	MEASURING AMPLIFIER
E1	HAND LAMP
F16	AUTOMATIC CUT-OUT
K1	MOTOR CONTACTOR
K2	MOTOR CONTACTOR
K20	AUXILIARY CONTACTOR
K37	COUPLING RELAY FOR AUTOMATIC PASSAGE OF POSITIONS
M1	MOTOR
Q1	MOTOR PROTECTIVE SWITCH
R1	HEATER
S1	CAM-OPERATED SWITCH
S2	CAM-OPERATED SWITCH
S3	RAISE/LOWER CONTROL SWITCH
S4	END POSITION SWITCH
S5	END POSITION SWITCH
S6A	END POSITION SWITCH
S6B	END POSITION SWITCH
S8A	HAND CRANK SAFETY SWITCH
S8B	HAND CRANK SAFETY SWITCH
S10	DOOR CONTACT
S12	CAM-OPERATED DIRECTIONAL SWITCH
S13A	CAM-OPERATED DIRECTIONAL SWITCH
S13B	CAM-OPERATED DIRECTIONAL SWITCH
S14	CAM-OPERATED DIRECTIONAL SWITCH
S35	MAIN SWITCH
S35A	MAIN SWITCH
S37	SWITCH FOR AUTOMATIC PASSAGE OF POSITIONS
S38M	POSITION TRANSMITTER MODULE, RESISTOR-TYPE
S38P	POSITION TRANSMITTER BOARD
S40M	POSITION TRANSMITTER MODULE WITH N/O CONTACT RANGE
S40P	POSITION TRANSMITTER BOARD
U5	MEASURING TRANSDUCER
X1	TERMINAL
X2	TERMINAL
X3	TERMINAL
X20	TERMINAL





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28/03/2025

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MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
TR-100AD1 Termination and Wiring Diagram
EQUIPMENT LIST – AVR PANEL

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00010

SHEET 023

REV. 03

File Name : 1723001697-EL-DG-00010 Rev. 03

F.to UNI A3: 420mmx297mm

BASE LOAD POWER HUB (BLPH)

RR-100D1 termination and Wiring diagram

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28/03/2025

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ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	14/06/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	10/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	16/02/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
RR-100D1 termination and Wiring diagram
FRONT PAGE

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00013

SHEET 001

REV. 02

File Name : 1723001697-EL-DG-00013 Rev. 02

F.to UNI A3: 420mmx297mm

REV.	SHEET NUMBER	DESCRIPTION	REF. CODE
01	001	FRONT PAGE	
01	002	SUMMARY and GENERAL NOTES	
01	003	WIRING DIAGRAM	

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28/03/2025

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
RR-100D1 termination and Wiring diagram
SUMMARY and GENERAL NOTES

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00013

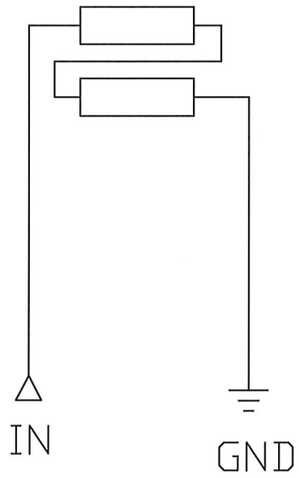
SHEET 002

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00013 Rev. 02

SCHEMATIC DIAGRAM
POWER CIRCUIT

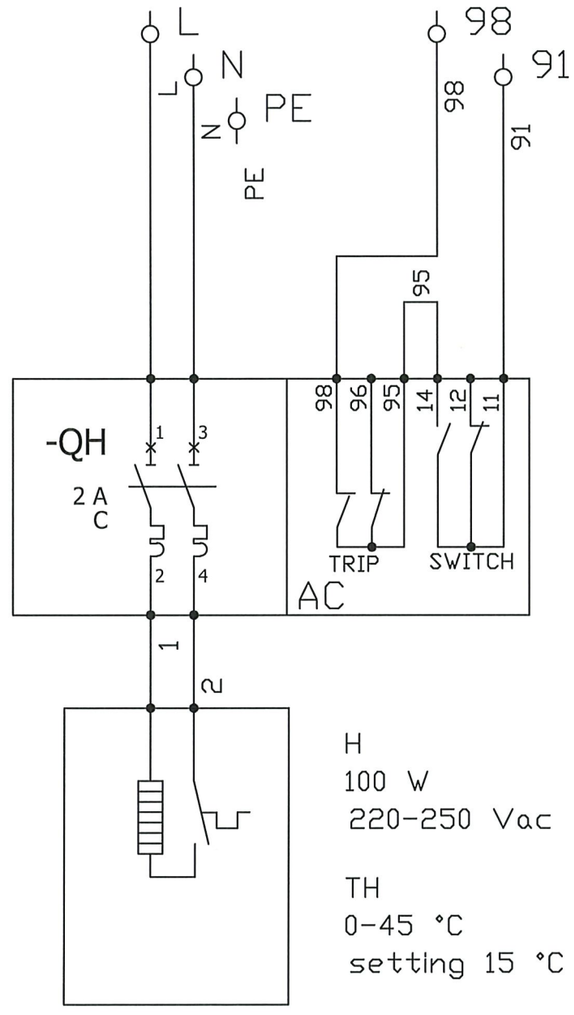


R
9,96 OHM (OVERALL RESISTANCE VALUE)
400 A FOR 10 SEC.
20 A CONTINUOUS

Rated Voltage 6,9/√3 kV
Insulation level 12/28/75 kV

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

SCHEMATIC DIAGRAM
AUXILIARY CIRCUIT



H
100 W
220-250 Vac

TH
0-45 °C
setting 15 °C

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	14/06/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
01	10/04/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)
00	16/02/24	ML	MF	MF	ISSUE FOR INFORMATION (IFI)

MF Trasformatori srl

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
RR-100D1 termination and Wiring diagram
WIRING DIAGRAM

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

SCALE : NTS

A3

DRAWING NO. 1723001697-EL-DG-00013

SHEET 003

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723001697-EL-DG-00013 Rev. 02

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE