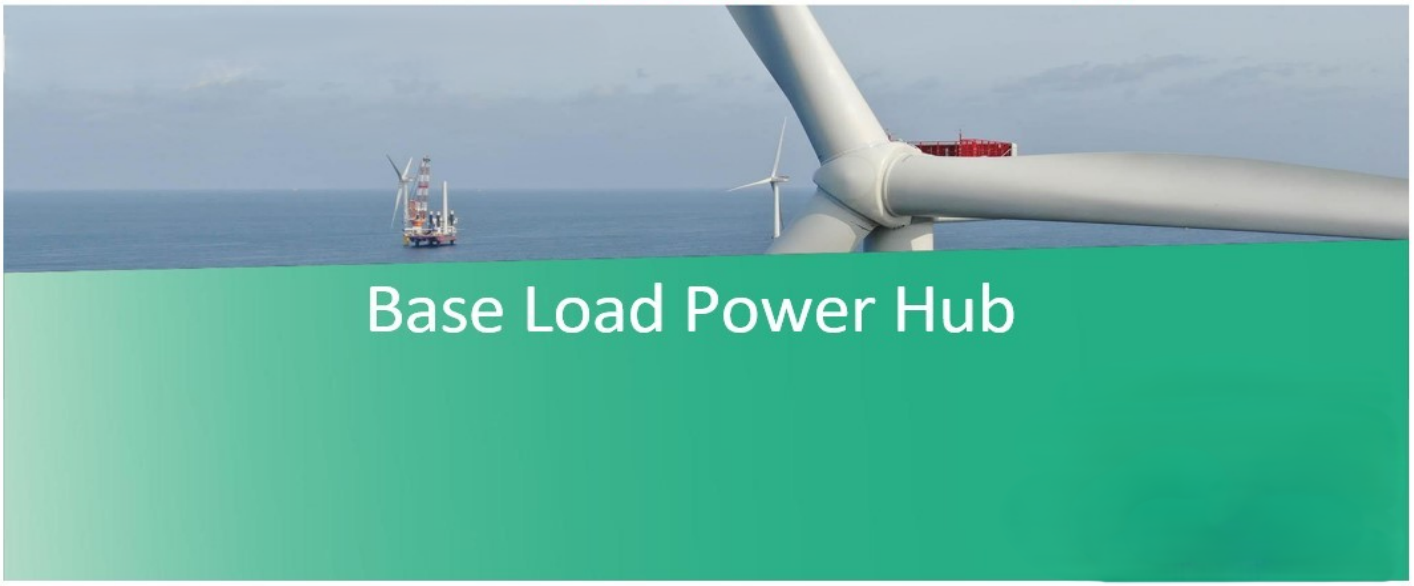
CROSSWIND

ROSETTI MARINO

PROVERUS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	86 Telecommunication
SUBSYSTEM	86-00 Data Networks

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

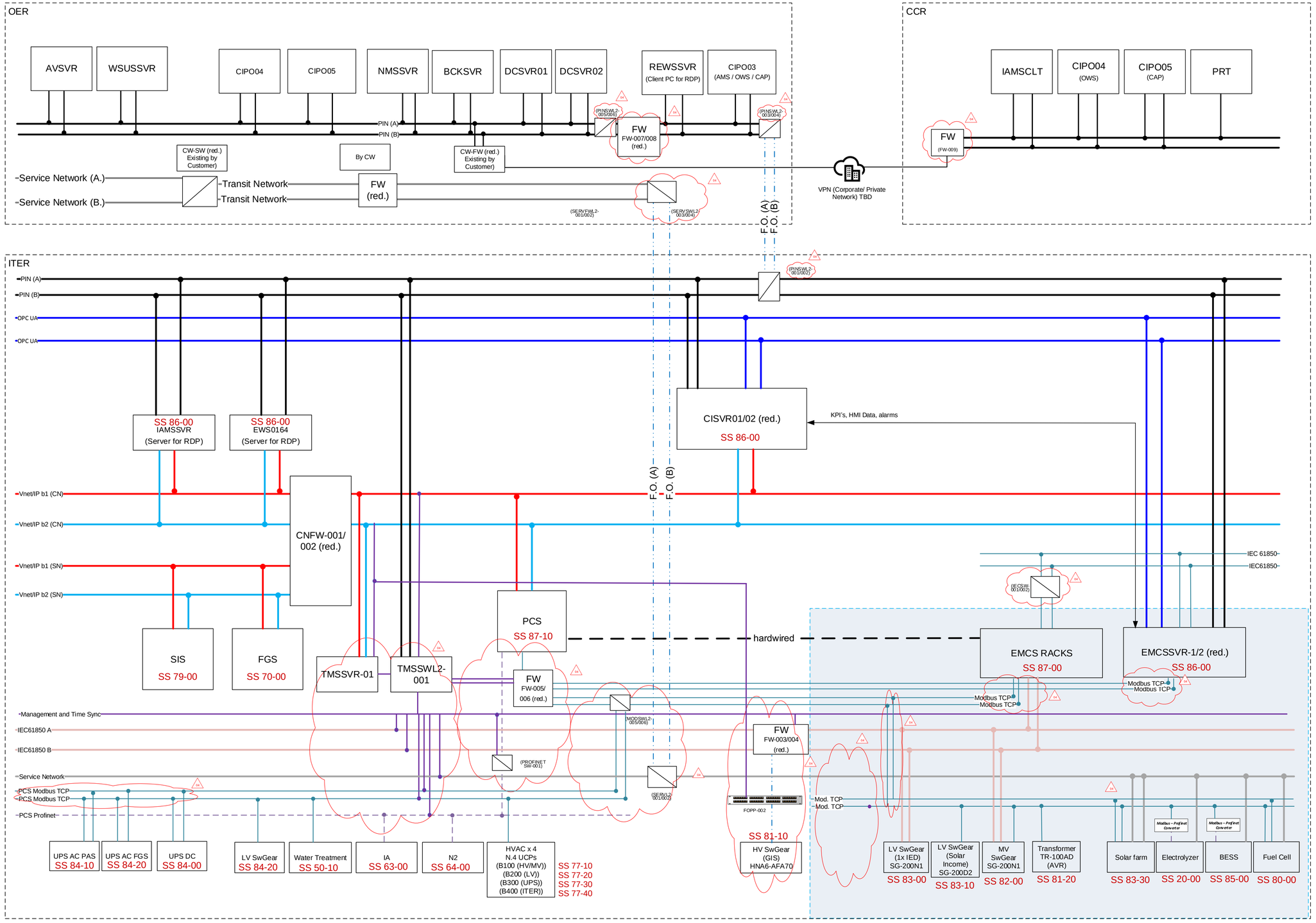
Sub System N°:	86-00	**Tick as appropriate**	ONSHORE	OK
Description:	Data Networks		OFFSHORE	

1. *SUB-SYSTEM DEFINITION*	OK
1.1 Sub-System Description / Boundary Limit Drawings	
2. *READY FOR OPERATION CERTIFICATE*	OK
2.1 Achievement Of Ready for Operation Certificate (RFO)	
2.2 Exception Punch Lists (per discipline)	
2.3 “As-Commissioned” P&ID’s / SLD’s / D&ID’s / C&E’s	
3. *CONSOLIDATED PUNCH LISTS*	OK
3.1 Cleared and Residual Items (sorted by discipline)	
4. *FUNCTIONAL TESTS SHEETS*	OK
4.1 Electrical functional test sheets index	
4.2 Electrical “As-Commissioned” interconnection diagrams	
4.3 Instrumentation Functional Test Sheets Index	
4.4 Instrumentation “As-Commissioned” interconnection diagrams	
4.5 Telecommunication Functional Test Sheets Index	
4.6 Telecommunication “As-Commissioned” I.C.D. / TSLD’s	
5. *SITE / OPERATIONAL:*	OK
5.1 Operational Test Procedure	
5.2 Operational Test Certificates	
6. *PIPING AND VESSEL PREPARATION*	NA
6.1 Final Mechanical / Vessel Inspection Checks Index	
6.2 Leak Test / Drying / Inerting Test Sheets Index	
6.3 Chemical Loading & First Fill records Index	
6.4 Chemical Cleaning Reports and Records Index	
6.5 Lubrication Schedule	
7. *VENDORS*	OK
7.1 Vendor Package Summary Index	
7.2 SAT Procedure with associated punch list and reference (Front Page)	
7.3 Vendor Spares & Special Tools lists references	
7.4 Vendor Data / Operations / Maintenance Manuals References	
8. *LIST OF MODIFICATIONS*	NA
8.1 List of changes initiated during the WORKSITE Commissioning phase pertaining to the relevant Sub-System will be incorporated in this section with relevant references (with location and position of blinds/spades, isolation LO & LC valves, list of electrical isolation status, and remaining inhibits and overrides)	
9. *SUPPORTING DOCUMENTS*	NA
9.1 Other supporting documents (as applicable)	

	Contractor Commissioning Site Leader	Company Commissioning Site Leader
Name	Anthony Iveson	Martin Taylor
Date	2025-09-26	2025-09-26
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-09-26T10:06:28.529Z	PROVERLIS Digitaly signed by Martin Taylor 2025-09-26T10:18:54.634Z

Section 1 SUB-SYSTEM DEFINITION

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.

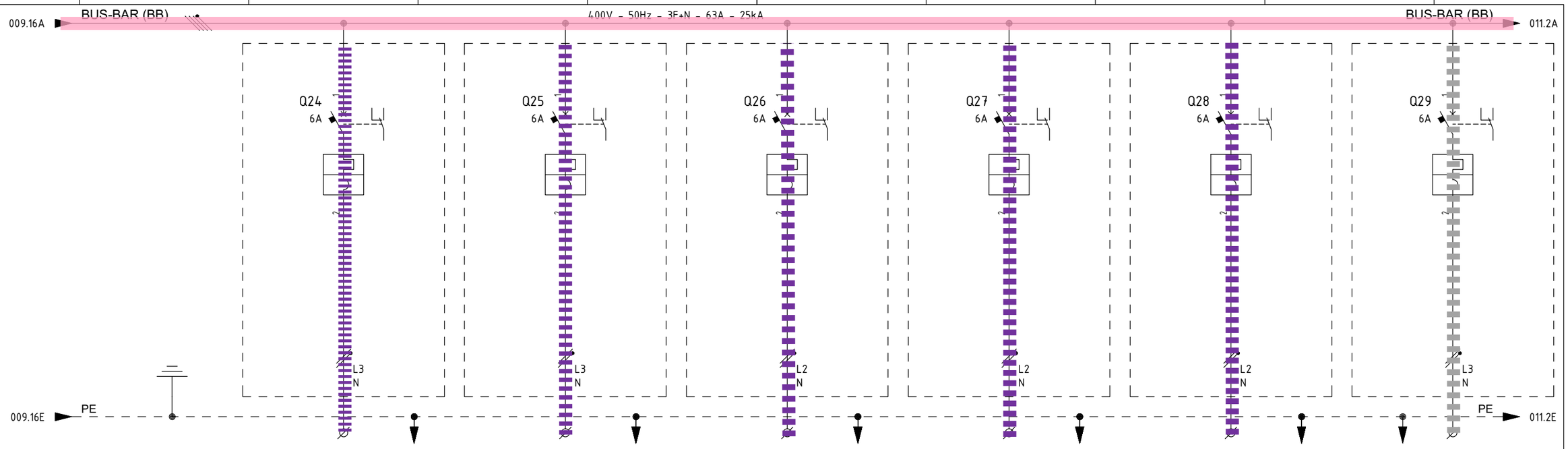
Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer 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	B400-PCS-001	B400-EMCS-001	B400-FGS-001	B400-NET-001	B400-SRV-001	CP-630E1
UTILITY			2	PCS-CONTROLLER AND I/O CABINET - AUXILIARY	EMCS-CONTROLLER AND I/O CABINET - AUXILIARY	FGS FIRE & GAS PANEL - AUXILIARY	SYSTEM SERVER / NETWORK CABINET - AUXILIARY	SERVER CABINET ITER - AUXILIARY	UCP - INSTRUMENT AIR PACKAGE -A-63000 - AUXILIARY
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	0.5 KW | 2.72 A	0.8 KW | 4.35 A	0.5 KW | 2.72 A	0.5 KW | 2.72 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S302P-C6	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=6A - 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	SUBSYSTEM 87-10	SUBSYSTEM 87-00	SUBSYSTEM 70-00	SUBSYSTEM 86-00	SUBSYSTEM 86-00	SUBSYSTEM 63-00
		Range t	16						
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	3G2.5	3G2.5	3G2.5	3G2.5	3G2.5

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

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

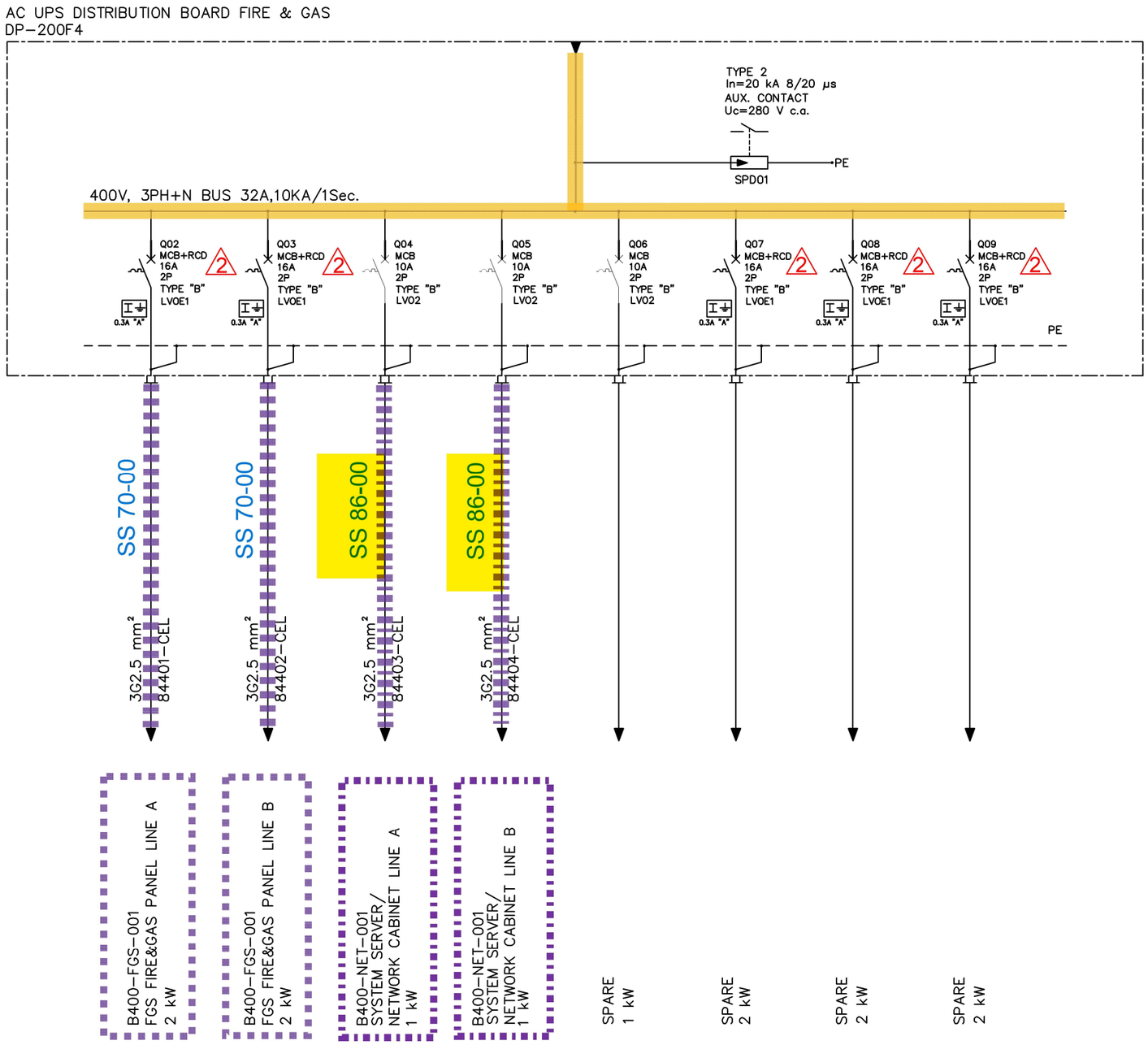
SHEET 010

REV. 03

F.to UNI A3: 420mmx297mm

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

AC UPS – FIRE & GAS SINGLE LINE DIAGRAM (UP–200F4) DISTRIBUTION BOARD DETAILS



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

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL SINGLE LINE DIAGRAMS AC UPS SYSTEMS
AC UPS DISTRIBUTION BOARD FIRE & GAS (UP–200F4)

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

SCALE : 1:X

A3

DRAWING NO. 123A90–DDL–EL–DG–20160

SHEET 007

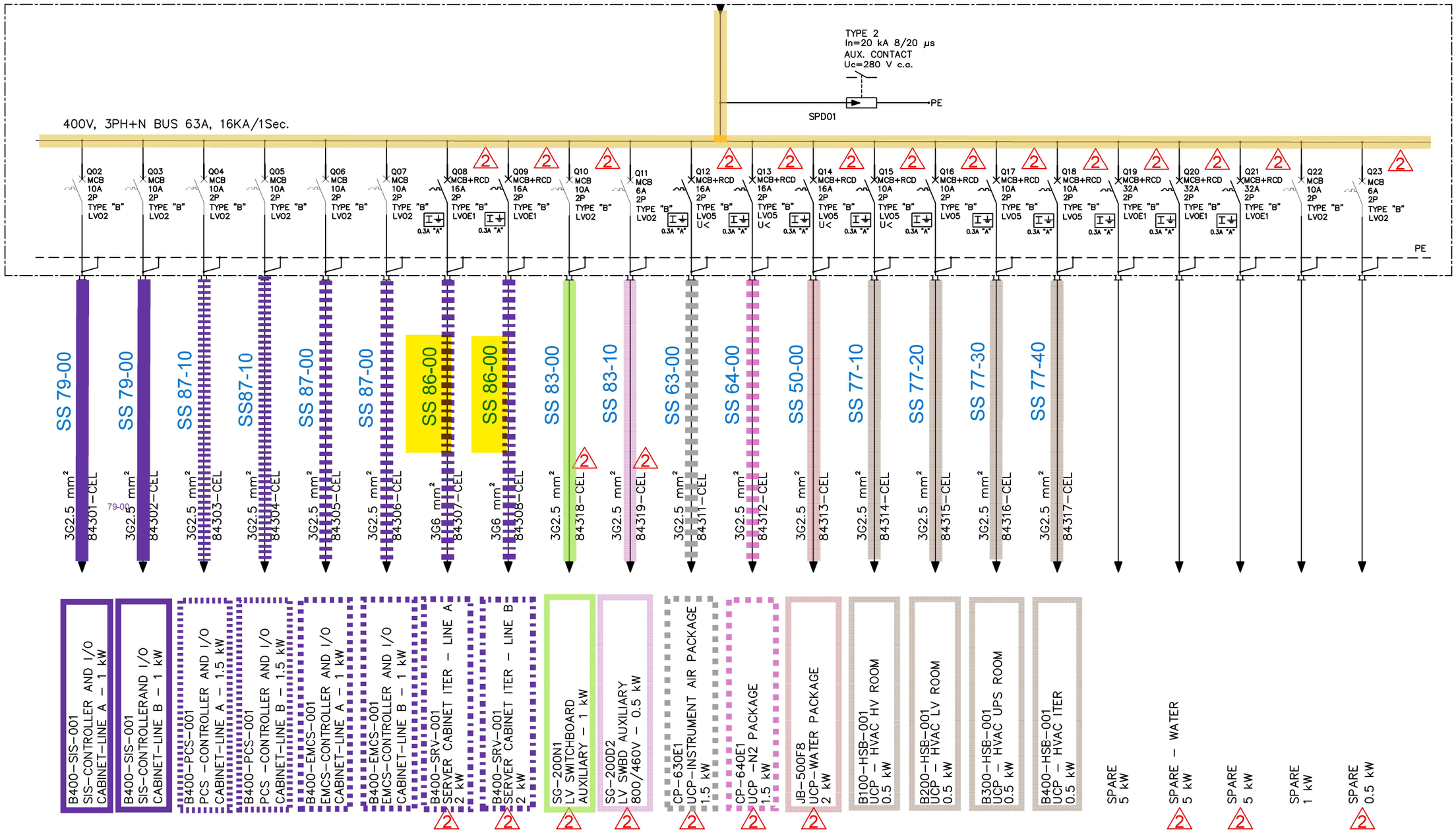
REV. 02

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

F.to UNI A3: 420mmx297mm

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

AC UPS DISTRIBUTION BOARD–PAS
DP–200F3



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

CROSSWIND

ROSETTI MARINO

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

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

A3 | DRAWING NO. 123A90–DDL–EL–DG–20160 | SHEET 005 | REV. 02

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

F.to UNI A3: 420mmx297mm

Section 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Operation (RFO) Certificate

COMPLETE		PARTIAL	●

Revision:	4		Issued on:	2025-07-31	

System:	86	/	Telecommunication
SubSystem:	86-00	/	Data Networks

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: 2

REMARKS:

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	
Date	2025-07-31	
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-07-31T14:34:49.122Z	

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 86-00 & process: COMM

Electrical	86-00 Data Networks						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q27	POWER SUPPLY SERVER NETWORK AUX - DP-200N1-Q27	ONSHORE	C10002849	FTR-2	100	2024-10-28	RFO 4
DP-200N1-Q28	POWER SUPPLY ITER AUX - DP-200N1-Q28	ONSHORE	C10002846	FTR-2	100	2024-10-28	RFO 4
UP-200F3-QF37	POWER SUPPLY ITER LINE A - UP-200F3-QF37	ONSHORE	C10002844	FTR-2	100	2024-11-08	RFO 4
UP-200F3-QF38	POWER SUPPLY ITER LINE B - UP-200F3-QF38	ONSHORE	C10002845	FTR-2	100	2024-11-08	RFO 4
UP-200F4-QF36	ALIM. SYSTEM SERVER NETWORK CABINET - LINE A	ONSHORE	C10004592	FTR-2	100	2024-11-14	RFO 4
UP-200F4-QF37	ALIM. SYSTEM SERVER NETWORK CABINET - LINE B	ONSHORE	C10004593	FTR-2	100	2024-11-14	RFO 4

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 86-00 & process: COMM

Miscellaneous	86-00 Data Networks						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
123A90-PML-COM-PRO-03051	OTP - Data Network Systems	ONSHORE	C10004631	5300	100	2025-06-27	RFO 4
		OFFSHORE	C10004951	5300	0	-	-

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	86	Telecommunication
SUBSYSTEM	86-00	Data Networks

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000356	A	B400-NET-001	Install MCT frame “C” on roof		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000357	A	B400-SRV-001	Install MCT frame “C” on roof		activity done	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000363	A	B400-NET-001	MCT module missing in NET cabinet (frame “D”) with related rubber devices.		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000364	A	B400-SRV-001	MCT module missing in NET cabinet (frame “D”) with related rubber devices.		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000358	B	B400-NET-001	Closing panels with brush to be added on network cables passthrough points.		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000359	B	B400-SRV-001	Closing panels with brush to be added on network cables passthrough points.		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000360	B	B400-NET-001	Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured		Activity done	SLinari 2024-10-22	Vendor 2025-03-21	SLinari 2025-03-21	2025-03-21
C30000361	B	B400-SRV-001	Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured		Activity done	SLinari 2024-10-22	Vendor 2025-03-21	SLinari 2025-03-21	2025-03-21
C30000362	B	B400-NET-001	N.1 SFP module missing on SERVSWL2-002 port 1		installed	SLinari 2024-10-22	SLinari 2024-12-13	SLinari 2024-12-13	2024-12-13

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000365	B	B400-NET-001	Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)		installed	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000366	B	B400-SRV-001	Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000367	B	B400-NET-001	Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010		activity done and verified	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000368	B	B400-SRV-001	Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010		activity done and verified	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000646	B	B400-NET-001 C10000841	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW	.	The issuance of the as-built documentation is part of the vendor's contractual	Gtangianu 2024-11-20	RDegliEsposti 2025-06-16	RDegliEsposti 2025-06-16	2025-06-16
C30000655	B	B400-NET-001 C10000841	base plate will be installed after commissioning.	.		Gtangianu 2024-11-20	2025-04-30	Gtangianu 2025-04-30	2025-04-30
C30000656	B	B400-NET-001 C10000841	Cleaning is required inside the panels.	.		Gtangianu 2024-11-20	2024-12-28	Gtangianu 2024-12-28	2024-12-28
C30000657	B	B400-SRV-001 C10000845	The GA (1724000594-IN-DG-00022) does not match the installed.	.		Gtangianu 2024-11-20	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000659	B	B400-SRV-001 C10000845	base plate will be installed after commissioning.	.		Gtangianu 2024-11-20	2025-04-30	Gtangianu 2025-04-30	2025-04-30

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000660	B	B400-SRV-001 C10000845	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW	.	The issuance of the as-built documentation is part of the vendor's contractual	Gtangianu 2024-11-20	RDegliEsposti 2025-06-16	RDegliEsposti 2025-06-16	2025-06-16

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000338	B	84307-CEL C10000585	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on B-400 cable trays.	.		Gtangianu 2024-11-08	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30000339	B	84307-CEL C10000585	Missing cable tag inside the panel _B400-SRV-001 (LINE A).	.		Gtangianu 2024-11-08	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000340	B	84308-CEL C10000586	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000342	B	84308-CEL C10000586	Missing cable tag inside/outside the panel (B400-SRV-001).	.		Gtangianu 2024-11-08	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000352	B	84403-CEL C10000596	Plastic cable ties used to fix the cable tag should be replaced on all external routing.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000353	B	84403-CEL C10000596	Identification tag wires are wrong,	.		Gtangianu 2024-11-08	2024-12-16	Gtangianu 2024-12-16	2024-12-16
C30000354	B	84403-CEL C10000596	missing plastic cable tag inside the panel (UP-200F4)	.		Gtangianu 2024-11-08	2024-11-23	Lmussi 2024-11-23	2024-11-23
C30000355	B	84403-CEL C10000596	Identification cable tag is wrong . Written wrong terminal strip.	.		Gtangianu 2024-11-08	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30000387	B	84404-CEL C10000597	Plastic cable ties used to fix the cable tag should be replaced on all external routing.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000388	B	84404-CEL C10000597	Identification tags wires is wrong.	need to be changed.		Gtangianu 2024-11-08	2024-12-16	Gtangianu 2024-12-16	2024-12-16
C30000389	B	84404-CEL C10000597	Identification numbers on terminal strip are missing (PE)	.		Gtangianu 2024-11-08	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30000390	B	84404-CEL C10000597	Cable to be fixed with proper cable ties, after MCT installetion (point valid for internal and exsternal cable routing)	.		Gtangianu 2024-11-08	2025-01-31	Gtangianu 2025-01-31	2025-01-31
C30000412	B	83109-CEL C10000628	Plastic cable ties to be replaced on external routing	.		Gtangianu 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000413	B	83108-CEL C10000627	Plastic cable ties to be replaced on external routing	.		Gtangianu 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000414	B	83108-CEL C10000627	Missing cable tags on routing, inside and outside the panels	.		Ecarotenuto 2024-11-09	2025-03-04	JKrizanic 2025-03-04	2025-03-04
C30000417	B	83109-CEL C10000628	Missing cable tags on routing, inside and outside the panels	.		Ecarotenuto 2024-11-09	2025-03-04	JKrizanic 2025-03-04	2025-03-04

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	86	Telecommunication
SUBSYSTEM	86-00	Data Networks

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001031	B	C-GPSANT/B400-NET-001 C10004721	Missing cables tag , cabinet side B400-NET-001	.		APolo 2024-11-29	2025-02-21	Ecarotenuto 2025-02-21	2025-02-21
C30001032	B	C-GPSANT/B400-NET-001 C10004721	Missing cable tag SS , near the C-GPSANT.	.		APolo 2024-11-29	2025-02-26	APolo 2025-02-26	2025-02-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Miscellaneous

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004395	B	123A90-PML-COM-PRO-03051 C10004631	During the execution of the OTP “123A90-PML-COM-PRO-03051 – Data Network Systems”, several issues were identified that	Please find attached consolidated list of punches noted during execution of the Data Networks OTP. Delmissier Giandonato will	Fixed signals	RDegliEsposti 2025-06-26	FSirigu 2025-07-26	FSirigu 2025-07-26	JMcallister 2025-07-26
C30004402	B	123A90-PML-COM-PRO-03051 C10004951	The airflow monitoring sensors supplied ofr the following cabinets: - B400-FGS-001/002 - B400-PCS-002 - B400-EMCS-001 -	Replace sensors with correct type		FSirigu 2025-07-26			
C30004403	B	123A90-PML-COM-PRO-03051 C10004951	In B400-NET-001 there is not key to lock inner swing frame	Provide key or replace lock		FSirigu 2025-07-26			

Section 2.2 Exception Punch Lists (per discipline)

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

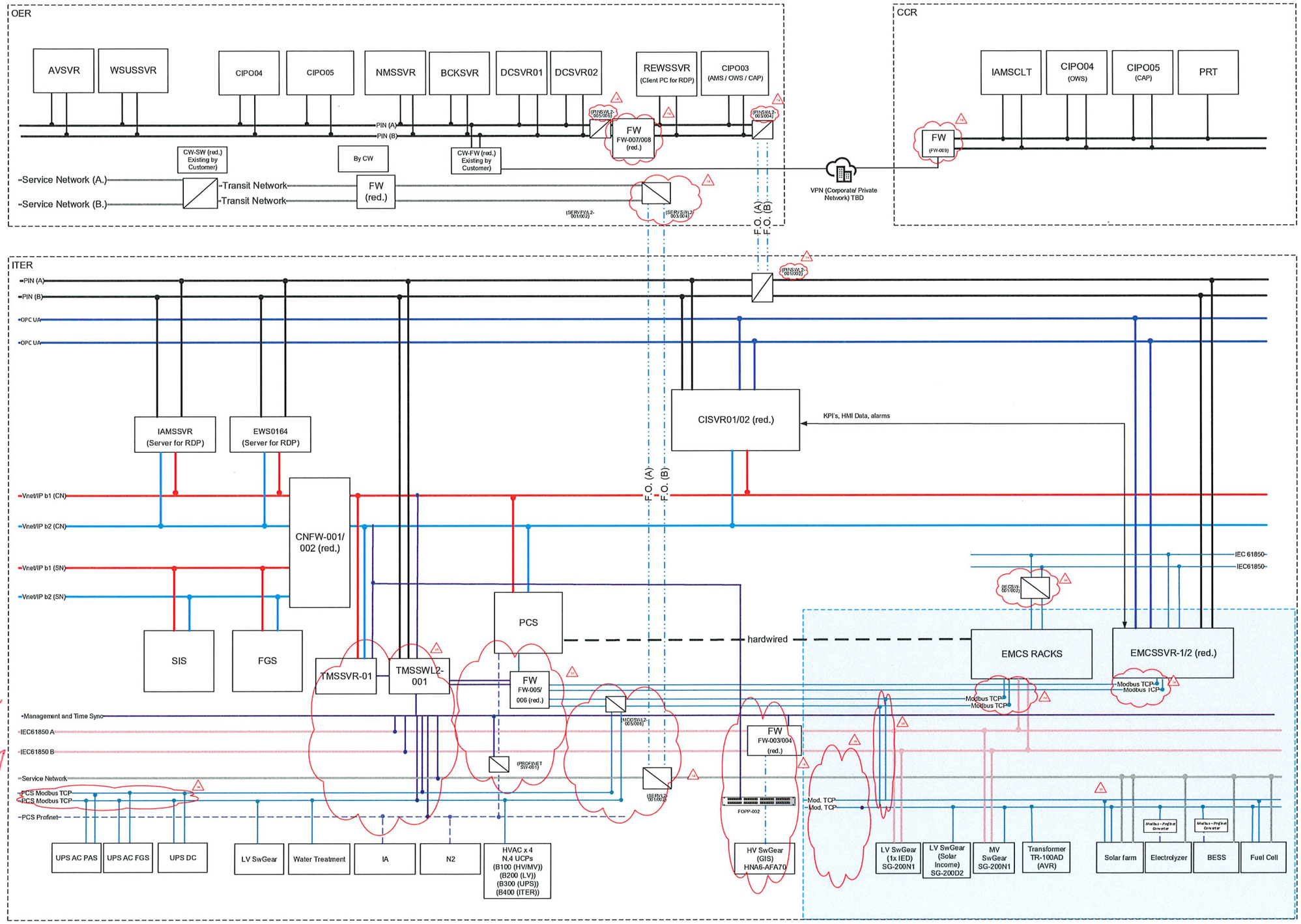
SYSTEM 86 Telecommunication

SUBSYSTEM 86-00 Data Networks

Miscellaneous									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004402	B	123A90-PML-COM-PRO-03051 C10004951	The airflow monitoring sensors supplied ofr the following cabinets: - B400-FGS-001/002 - B400-PCS-002 - B400-EMCS-001 -	Replace sensors with correct type		FSirigu 2025-07-26			
C30004403	B	123A90-PML-COM-PRO-03051 C10004951	In B400-NET-001 there is not key to lock inner swing frame	Provide key or replace lock		FSirigu 2025-07-26			

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

CROSSWIND BLPH PROJECT - SYSTEM BLOCK DIAGRAM



AS COMMISSIONED
08-05-2023
Giovanna De Nisco

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 Information	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.

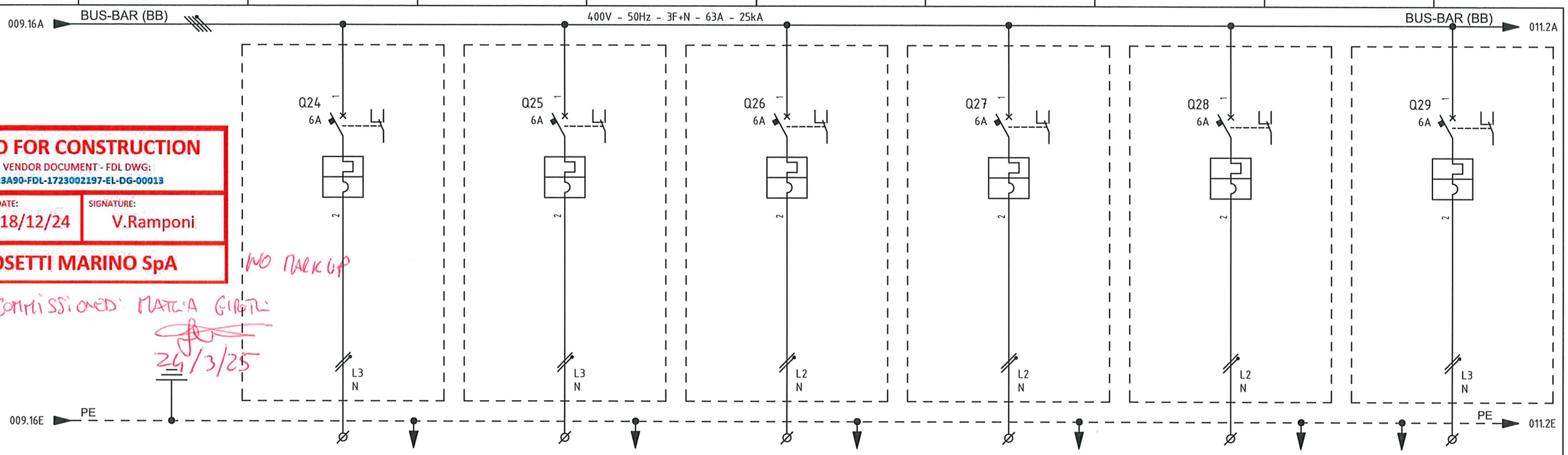
Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer 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



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

NO MARK UP

AS COMMISSIONED: MARCIA GIUSTI 26/3/25

ITEM			1	B400-PCS-001		B400-EMCS-001		B400-FGS-001		B400-NET-001		B400-SRV-001		CP-630E1	
UTILITY			2	PCS-CONTROLLER AND I/O CABINET - AUXILIARY		EMCS-CONTROLLER AND I/O CABINET - AUXILIARY		FGS FIRE & GAS PANEL - AUXILIARY		SYSTEM SERVER / NETWORK CABINET - AUXILIARY		SERVER CABINET ITER - AUXILIARY		UCP - INSTRUMENT AIR PACKAGE -A-63000 - AUXILIARY	
CUBICLE			3	+03		+03		+03		+03		+03		+03	
RATED POWER	RATED CURRENT		4/5	0.5 KW	2.72 A	0.5 KW	2.72 A	0.8 KW	4.35 A	0.5 KW	2.72 A	0.5 KW	2.72 A	0.5 KW	2.72 A
TYPICAL FUNCTIONAL			6	-		-		-		-		-		-	
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6		S302P-C6		S302P-C6		S302P-C6		S302P-C6		S302P-C6	
	VERSION		8	2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE	
	TRIP UNITS		9	In=6A - Curve C		In=6A - 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		3G2.5		3G2.5		3G2.5		3G2.5		3G2.5	

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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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 010

REV. 04

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

F.to UNI A3: 420mmx297mm

CAE EPLAN Electric P8

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

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

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

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

Not included in the AEG shipment

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

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

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

-Q28.1 NC
-Q28.2 NC

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

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

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

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

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

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

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

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

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

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

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

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

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

ROSETTI MARINO SpA

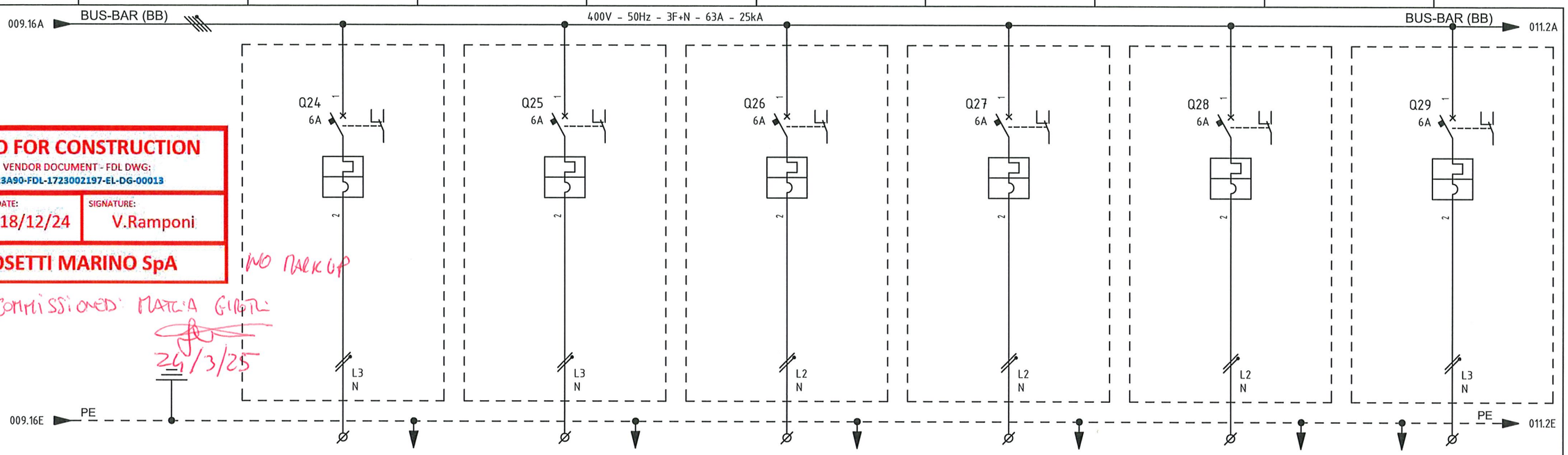
AS-COMMISSIONED
DAVIDE ZUCCONELLI
NO MARK UP
21/03/2025

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

*2 Connection cables are not included.

1000007888_010

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



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

NO MARK UP

AS COMMISSIONED: MARCIA GIUSTI 26/3/25

ITEM			1	B400-PCS-001		B400-EMCS-001		B400-FGS-001		B400-NET-001		B400-SRV-001		CP-630E1	
UTILITY			2	PCS-CONTROLLER AND I/O CABINET - AUXILIARY		EMCS-CONTROLLER AND I/O CABINET - AUXILIARY		FGS FIRE & GAS PANEL - AUXILIARY		SYSTEM SERVER / NETWORK CABINET - AUXILIARY		SERVER CABINET ITER - AUXILIARY		UCP - INSTRUMENT AIR PACKAGE -A-63000 - AUXILIARY	
CUBICLE			3	+03		+03		+03		+03		+03		+03	
RATED POWER	RATED CURRENT		4/5	0.5 KW	2.72 A	0.5 KW	2.72 A	0.8 KW	4.35 A	0.5 KW	2.72 A	0.5 KW	2.72 A	0.5 KW	2.72 A
TYPICAL FUNCTIONAL			6	-		-		-		-		-		-	
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6		S302P-C6		S302P-C6		S302P-C6		S302P-C6		S302P-C6	
	VERSION		8	2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE		2P / MINIATURE	
	TRIP UNITS		9	In=6A - Curve C		In=6A - 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		3G2.5		3G2.5		3G2.5		3G2.5		3G2.5	

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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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 010

REV. 04

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

F.to UNI A3: 420mmx297mm

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	86	Telecommunication
SUBSYSTEM	86-00	Data Networks

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000356	A	B400-NET-001	Install MCT frame “C” on roof		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000357	A	B400-SRV-001	Install MCT frame “C” on roof		activity done	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000363	A	B400-NET-001	MCT module missing in NET cabinet (frame “D”) with related rubber devices.		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000364	A	B400-SRV-001	MCT module missing in NET cabinet (frame “D”) with related rubber devices.		ACTIVITY DONE	SLinari 2024-10-22	SLinari 2024-11-27	SLinari 2024-11-27	2024-11-27
C30000358	B	B400-NET-001	Closing panels with brush to be added on network cables passthrough points.		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000359	B	B400-SRV-001	Closing panels with brush to be added on network cables passthrough points.		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-10	SLinari 2024-12-10	2024-12-10
C30000360	B	B400-NET-001	Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured		Activity done	SLinari 2024-10-22	Vendor 2025-03-21	SLinari 2025-03-21	2025-03-21
C30000361	B	B400-SRV-001	Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured		Activity done	SLinari 2024-10-22	Vendor 2025-03-21	SLinari 2025-03-21	2025-03-21
C30000362	B	B400-NET-001	N.1 SFP module missing on SERVSWL2-002 port 1		installed	SLinari 2024-10-22	SLinari 2024-12-13	SLinari 2024-12-13	2024-12-13

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000365	B	B400-NET-001	Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)		installed	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000366	B	B400-SRV-001	Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)		INSTALLED	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000367	B	B400-NET-001	Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010		activity done and verified	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000368	B	B400-SRV-001	Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010		activity done and verified	SLinari 2024-10-22	SLinari 2024-12-18	SLinari 2024-12-18	2024-12-18
C30000646	B	B400-NET-001 C10000841	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW	.	The issuance of the as-built documentation is part of the vendor's contractual	Gtangianu 2024-11-20	RDegliEsposti 2025-06-16	RDegliEsposti 2025-06-16	2025-06-16
C30000655	B	B400-NET-001 C10000841	base plate will be installed after commissioning.	.		Gtangianu 2024-11-20	2025-04-30	Gtangianu 2025-04-30	2025-04-30
C30000656	B	B400-NET-001 C10000841	Cleaning is required inside the panels.	.		Gtangianu 2024-11-20	2024-12-28	Gtangianu 2024-12-28	2024-12-28
C30000657	B	B400-SRV-001 C10000845	The GA (1724000594-IN-DG-00022) does not match the installed.	.		Gtangianu 2024-11-20	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000659	B	B400-SRV-001 C10000845	base plate will be installed after commissioning.	.		Gtangianu 2024-11-20	2025-04-30	Gtangianu 2025-04-30	2025-04-30

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication

SUBSYSTEM 86-00 Data Networks

Instrumental									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000660	B	B400-SRV-001 C10000845	All documentation listed in the SMIR, shall be re-issued in final revision and approved by RM and CW	.	The issuance of the as-built documentation is part of the vendor's contractual	Gtangianu 2024-11-20	RDegliEsposti 2025-06-16	RDegliEsposti 2025-06-16	2025-06-16

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000338	B	84307-CEL C10000585	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on B-400 cable trays.	.		Gtangianu 2024-11-08	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30000339	B	84307-CEL C10000585	Missing cable tag inside the panel _B400-SRV-001 (LINE A).	.		Gtangianu 2024-11-08	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000340	B	84308-CEL C10000586	Plastic cable ties to be replaced on external routing. Cable needs to be fixed also on cable trays inside B-400.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000342	B	84308-CEL C10000586	Missing cable tag inside/outside the panel (B400-SRV-001).	.		Gtangianu 2024-11-08	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30000352	B	84403-CEL C10000596	Plastic cable ties used to fix the cable tag should be replaced on all external routing.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000353	B	84403-CEL C10000596	Identification tag wires are wrong,	.		Gtangianu 2024-11-08	2024-12-16	Gtangianu 2024-12-16	2024-12-16
C30000354	B	84403-CEL C10000596	missing plastic cable tag inside the panel (UP-200F4)	.		Gtangianu 2024-11-08	2024-11-23	Lmussi 2024-11-23	2024-11-23
C30000355	B	84403-CEL C10000596	Identification cable tag is wrong . Written wrong terminal strip.	.		Gtangianu 2024-11-08	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30000387	B	84404-CEL C10000597	Plastic cable ties used to fix the cable tag should be replaced on all external routing.	.		Gtangianu 2024-11-08	2025-02-26	Pschintu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication
SUBSYSTEM 86-00 Data Networks

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000388	B	84404-CEL C10000597	Identification tags wires is wrong.	need to be changed.		Gtangianu 2024-11-08	2024-12-16	Gtangianu 2024-12-16	2024-12-16
C30000389	B	84404-CEL C10000597	Identification numbers on terminal strip are missing (PE)	.		Gtangianu 2024-11-08	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30000390	B	84404-CEL C10000597	Cable to be fixed with proper cable ties, after MCT installetion (point valid for internal and exsternal cable routing)	.		Gtangianu 2024-11-08	2025-01-31	Gtangianu 2025-01-31	2025-01-31
C30000412	B	83109-CEL C10000628	Plastic cable ties to be replaced on external routing	.		Gtangianu 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000413	B	83108-CEL C10000627	Plastic cable ties to be replaced on external routing	.		Gtangianu 2024-11-09	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000414	B	83108-CEL C10000627	Missing cable tags on routing, inside and outside the panels	.		Ecarotenuto 2024-11-09	2025-03-04	JKrizanic 2025-03-04	2025-03-04
C30000417	B	83109-CEL C10000628	Missing cable tags on routing, inside and outside the panels	.		Ecarotenuto 2024-11-09	2025-03-04	JKrizanic 2025-03-04	2025-03-04

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	86	Telecommunication
SUBSYSTEM	86-00	Data Networks

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001031	B	C-GPSANT/B400-NET-001 C10004721	Missing cables tag , cabinet side B400-NET-001	.		APolo 2024-11-29	2025-02-21	Ecarotenuto 2025-02-21	2025-02-21
C30001032	B	C-GPSANT/B400-NET-001 C10004721	Missing cable tag SS , near the C-GPSANT.	.		APolo 2024-11-29	2025-02-26	APolo 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 86 Telecommunication

SUBSYSTEM 86-00 Data Networks

Miscellaneous

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004395	B	123A90-PML-COM-PRO-03051 C10004631	During the execution of the OTP “123A90-PML-COM-PRO-03051 – Data Network Systems”, several issues were identified that	Please find attached consolidated list of punches noted during execution of the Data Networks OTP. Delmissier Giandonato will	Fixed signals	RDegliEsposti 2025-06-26	FSirigu 2025-07-26	FSirigu 2025-07-26	JMcallister 2025-07-26
C30004402	B	123A90-PML-COM-PRO-03051 C10004951	The airflow monitoring sensors supplied ofr the following cabinets: - B400-FGS-001/002 - B400-PCS-002 - B400-EMCS-001 -	Replace sensors with correct type		FSirigu 2025-07-26			
C30004403	B	123A90-PML-COM-PRO-03051 C10004951	In B400-NET-001 there is not key to lock inner swing frame	Provide key or replace lock		FSirigu 2025-07-26			

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004402

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004951	1.4 Discipline	Miscellaneous
1.2 Item	123A90-PML-COM-PRO-03051	OTP - Data Network Systems	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

The airflow monitoring sensors supplied ofr the following cabinets:
- B400-FGS-001/002
- B400-PCS-002
- B400-EMCS-001
- B400-NET-001

are NO type but actually they should be NC type

Name: Fabio Sirigu

Date: 2025-07-26

Signature: Digitaly signed by Fabio Sirigu 2025-07-26T10:22:59.466Z

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal: Replace sensors with correct type

3.2 Material required:

3.3 Priority: B PL B

3.4 Activity code: COMM Commissioning

3.5 Action by: VND Vendor

Name: Fabio Sirigu

Date: 2025-07-26

Signature: Digitaly signed by Fabio Sirigu 2025-07-26T10:23:51.613Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Name

Date

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004403

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004951	1.4 Discipline	Miscellaneous
1.2 Item	123A90-PML-COM-PRO-03051	OTP - Data Network Systems	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

In B400-NET-001 there is not key to lock inner swing frame

Name: Fabio Sirigu

Date: 2025-07-26

Signature: Digitaly signed by Fabio Sirigu 2025-07-26T15:02:26.997Z

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal	Provide key or replace lock		
3.2 Material required			
3.3 Priority	B PL B	Name	Fabio Sirigu
3.4 Activity code	VEND Vendor	Date	2025-07-26
3.5 Action by	VND Vendor	Signature	Digitaly signed by Fabio Sirigu 2025-07-26T15:03:20.147Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Name

Date

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000338

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000585	1.4 Discipline	Electrical
1.2 Item	84307-CEL	AC UPS - PAS DB / Server Cabinet ITER - Line A	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

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

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T12:51:13.494Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority: B PL B

3.4 Activity code: MC Mechanical Completion

3.5 Action by: RM_CONSTR RM

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T12:51:25.959Z

4 - PERFORMED ACTION

Name

Date: 2025-03-12

Signature

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-12

Signature: Digitaly signed by Josip Krizanic 2025-03-12T13:41:51.581Z

6- CLEARANCE APPROVAL

Name

Date: 2025-03-12

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000339

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000585	1.4 Discipline	Electrical
1.2 Item	84307-CEL		AC UPS - PAS DB / Server Cabinet ITER - Line A
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Missing cable tag inside the panel _B400-SRV-001 (LINE A).

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T12:52:43.301Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T12:52:55.662Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature: Digitaly signed by Giovanni Tangianu 2025-02-21T15:42:57.293Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000340

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000586	1.4 Discipline	Electrical
1.2 Item	84308-CEL	AC UPS - PAS DB / Server Cabinet ITER - Line B	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

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

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T13:03:02.770Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T13:03:16.268Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature: Digitaly signed by Paolo Schintu 2025-02-26T12:38:09.373Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000342

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000586	1.4 Discipline	Electrical
1.2 Item	84308-CEL		AC UPS - PAS DB / Server Cabinet ITER - Line B
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Missing cable tag inside/outside the panel (B400-SRV-001).

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T13:11:14.184Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T13:11:26.014Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature: Digitaly signed by Giovanni Tangianu 2025-02-21T15:43:17.543Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000352

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000596	1.4 Discipline	Electrical
1.2 Item	84403-CEL		AC UPS - F&G DB / System Server / Network Cabinet - Line A
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Plastic cable ties used to fix the cable tag should be replaced on all external routing.

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Digitaly signed by Giovanni Tangianu 2024-11-07T16:10:59.544Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T13:52:04.063Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature: Digitaly signed by Paolo Schintu 2025-02-26T12:38:40.414Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000353

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000596	CPX09	1.4 Discipline	Electrical
1.2 Item	84403-CEL			
1.3 Subsystem	86-00			

2 - OBSERVATION

Identification tag wires are wrong,

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-07T15:59:55+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T13:52:43.646Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2024-12-16

Signature: Digitaly signed by Giovanni Tangianu
2024-12-16T16:19:55.570Z

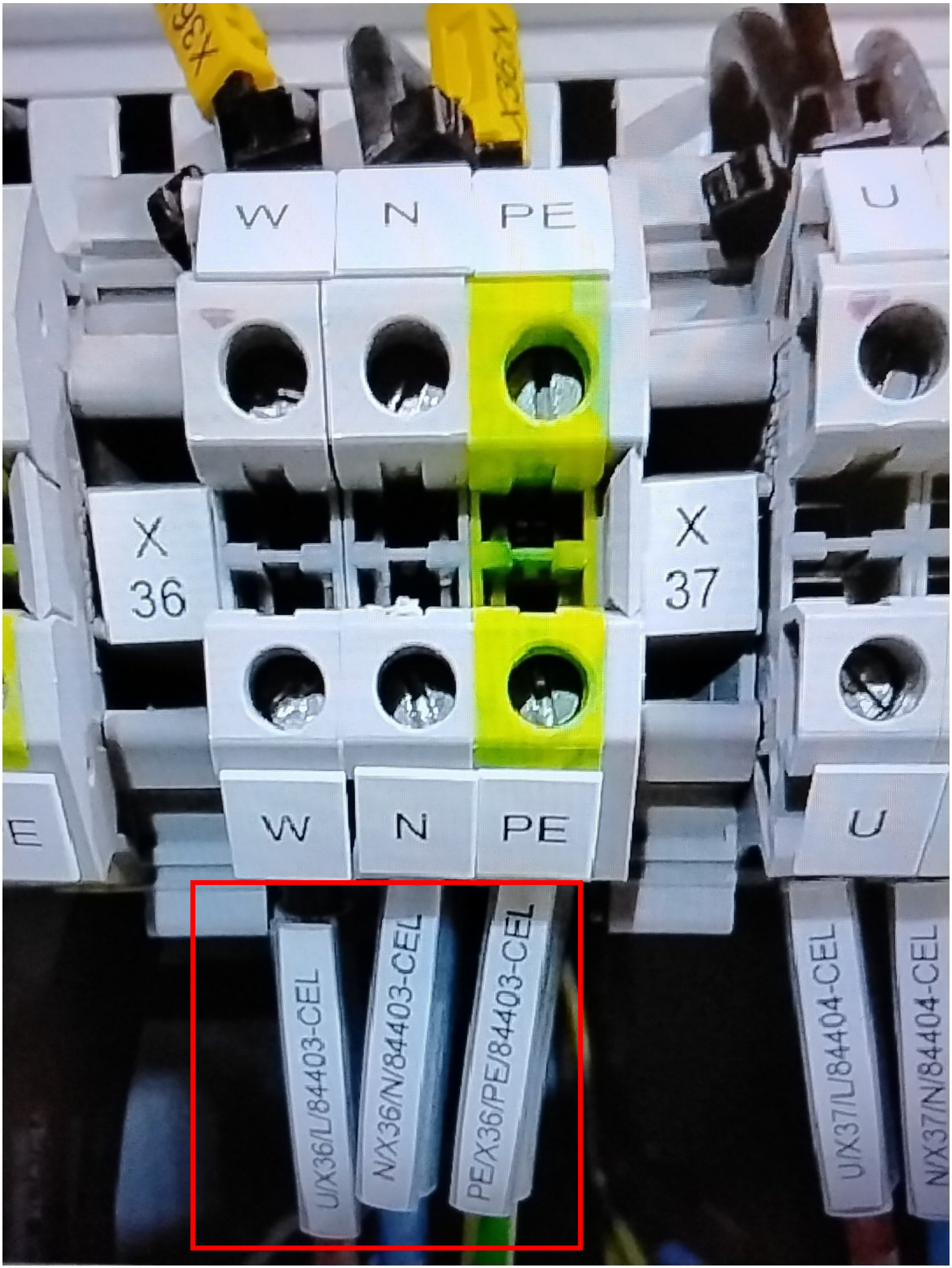
6- CLEARANCE APPROVAL

Name

Date

Signature

2024-11-07 15:59 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000354

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000596	CPX09	1.4 Discipline	Electrical
1.2 Item	84403-CEL			
1.3 Subsystem	86-00			

2 - OBSERVATION

missing plastic cable tag inside the panel (UP-200F4)

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-07T16:01:29+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T13:53:40.067Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Done

Name: Luca Mussi

Date: 2024-11-21

Signature: Digitaly signed by Luca Mussi
2024-11-21T17:05:31.467Z

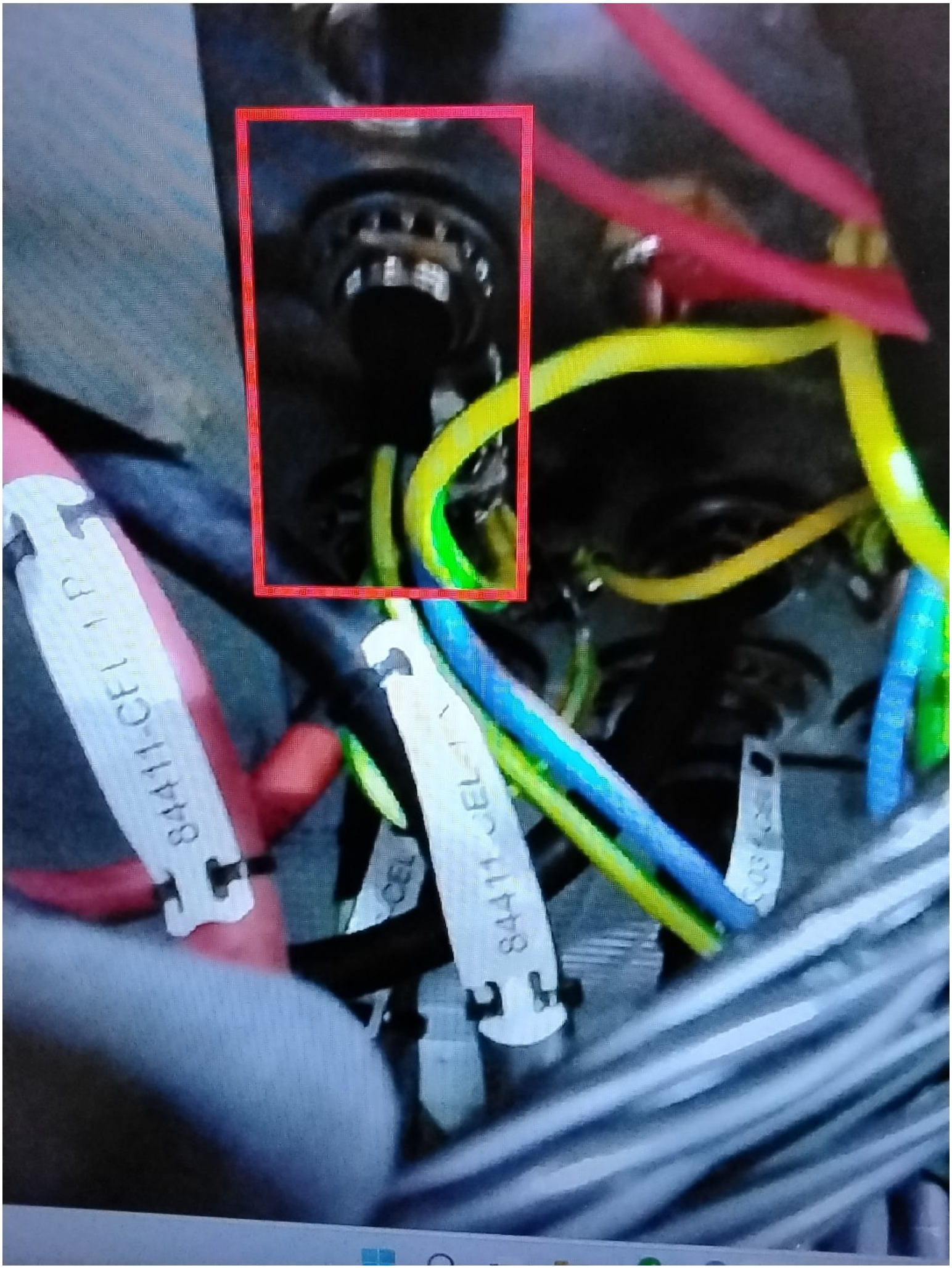
6- CLEARANCE APPROVAL

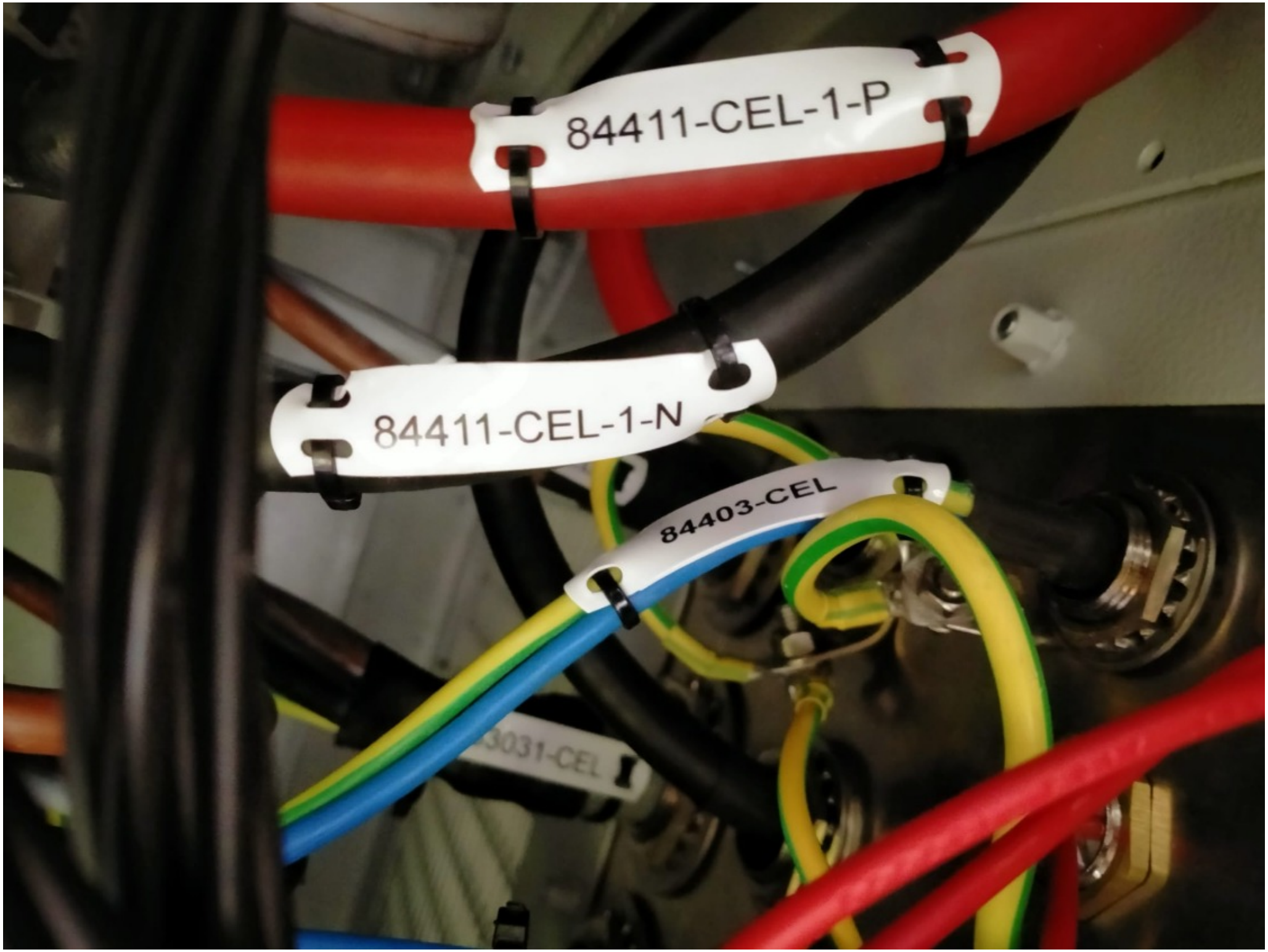
Name

Date

Signature

2024-11-07 16:01 By Giovanni Tangianu




84411-CEL-1-P
84411-CEL-1-N
84403-CEL

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000355

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000596	1.4 Discipline	Electrical
1.2 Item	84403-CEL		AC UPS - F&G DB / System Server / Network Cabinet - Line A
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Identification cable tag is wrong .

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by Giovanni Tangianu 2024-11-08T14:18:40.348Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T14:18:54.165Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-16

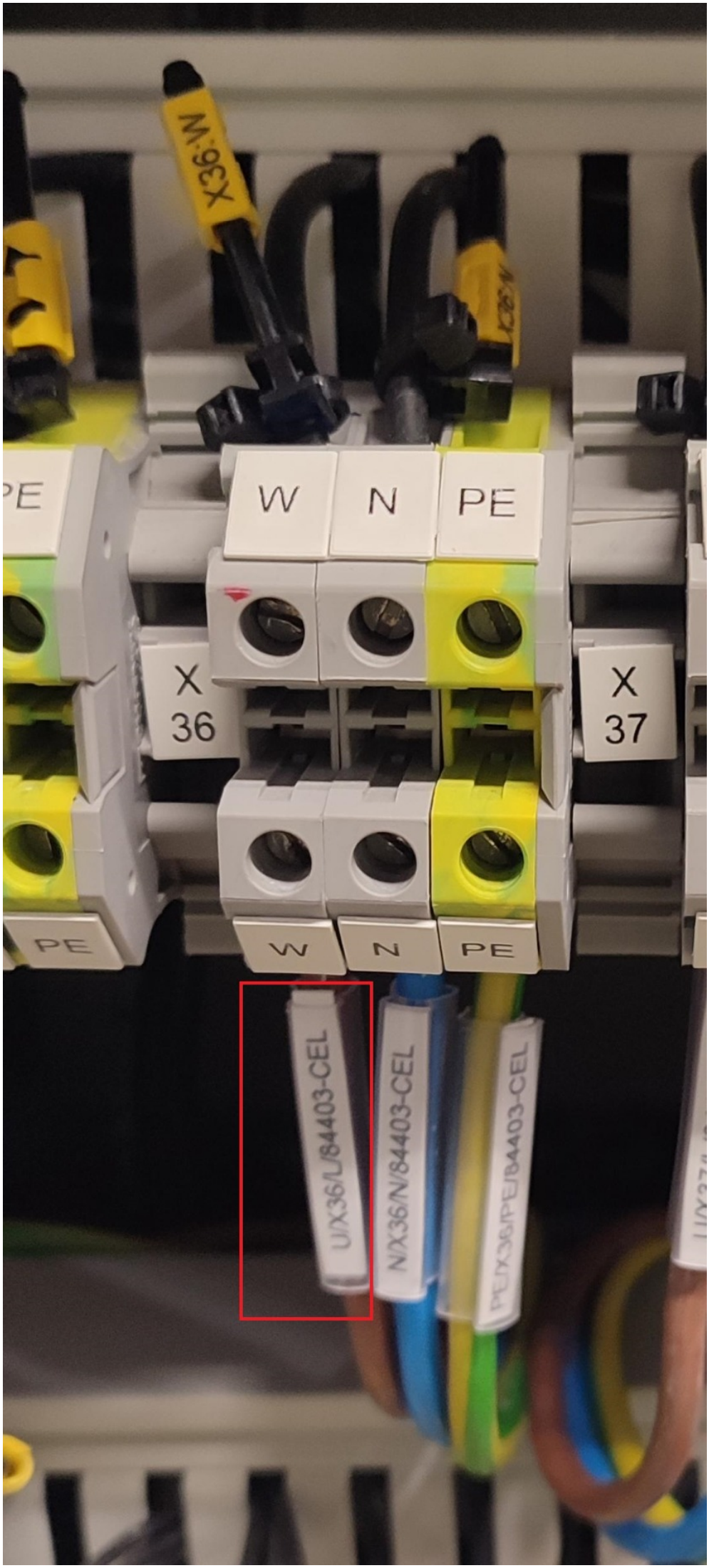
Signature: Digitaly signed by Giovanni Tangianu 2025-04-16T06:59:56.086Z

6- CLEARANCE APPROVAL

Name

Date

Signature


W
N
PE
X
36
X
37
PE
W
N
PE
U/X36/L/84403-CEL
N/X36/N/84403-CEL
PE/X36/PE/84403-CEL

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000356

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Install MCT frame “C” on roof

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

ACTIVITY DONE

Name YOKOGAWA

Date 2024-11-27

Signature Digitaly signed by YOKOGAWA 2024-11-27T15:28:15.101Z

5 - CLEARANCE CHECK

ACTIVITY DONE

Name Stefano Linari

Date 2024-11-27

Signature Digitaly signed by Stefano Linari 2024-11-27T15:28:33.053Z

6- CLEARANCE APPROVAL

Name

Date

Signature


B400-NET-001
Fandis



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000357

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001		Server Cabinet ITER
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Install MCT frame “C” on roof

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

activity done

Name YOKOGAWA

Date 2024-11-27

Signature PROVERLIS Digitaly signed by YOKOGAWA 2024-11-27T15:19:22.151Z

5 - CLEARANCE CHECK

ACTIVITY DONE

Name Stefano Linari

Date 2024-11-27

Signature PROVERLIS Digitaly signed by Stefano Linari 2024-11-27T15:19:42.702Z

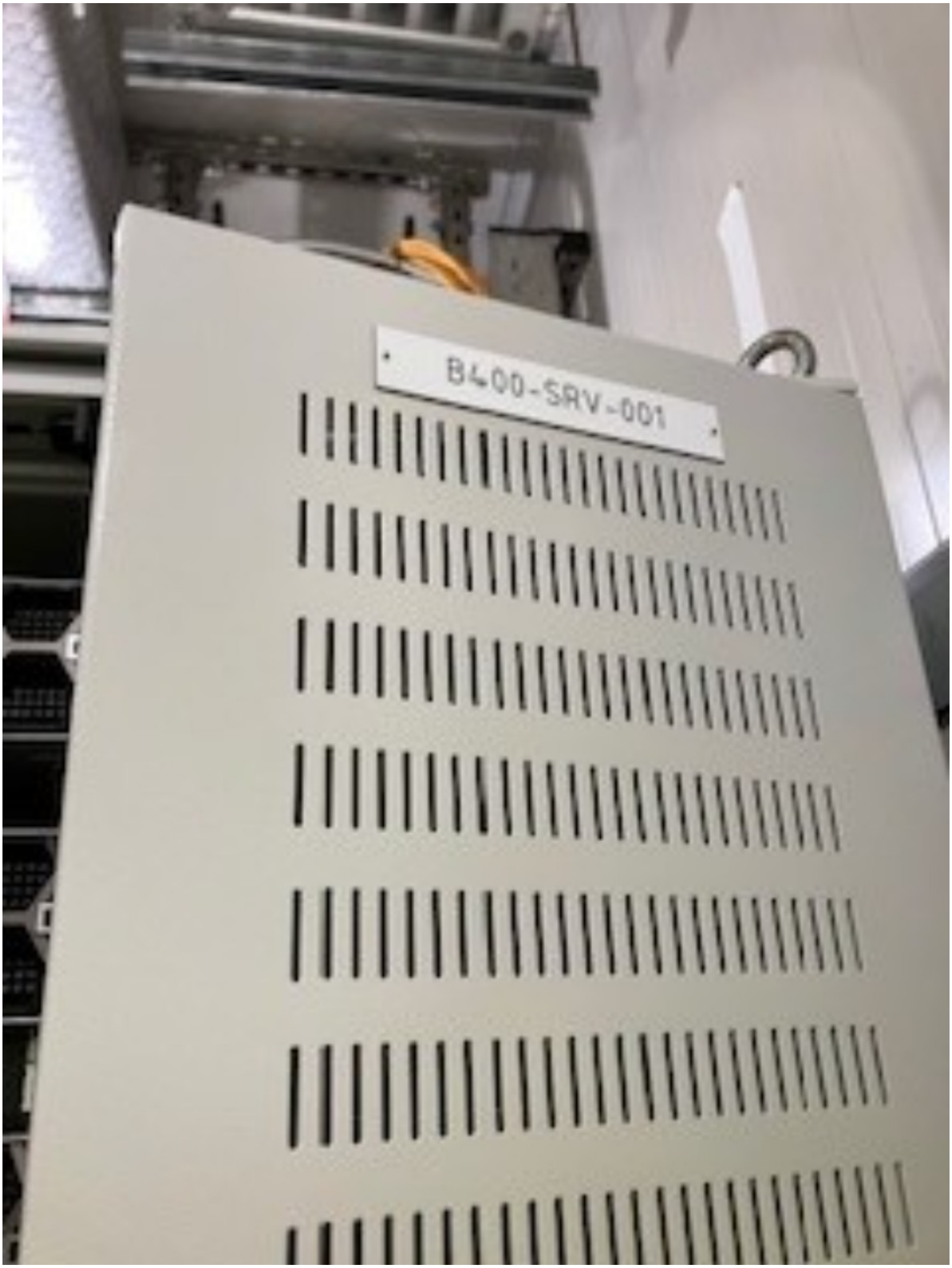
6- CLEARANCE APPROVAL

Name

Date

Signature




B400-SRV-001

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000358

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Closing panels with brush to be added on network cables passthrough points.

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

INSTALLED

Name VENDOR YOKOGAWA

Date 2024-12-10

Signature PROVERLIS Digitaly signed by VENDOR YOKOGAWA 2024-12-10T14:37:17.879Z

5 - CLEARANCE CHECK

INSTALLED

Name Stefano Linari

Date 2024-12-10

Signature PROVERLIS Digitaly signed by Stefano Linari 2024-12-10T14:37:30.647Z

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000359

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Instrumental

1.2 Item B400-SRV-001 Server Cabinet ITER

1.3 Subsystem 86-00 Data Networks

2 - OBSERVATION

Closing panels with brush to be added on network cables passthrough points.

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority B PL B

3.4 Activity code FAT factory acceptance test

3.5 Action by

Name Stefano Linari

Date 2024-10-22

Signature --- Proverlis ---
Duplicata issued from database information
Signature is on original form

4 - PERFORMED ACTION

INSTALLED

Name VENDOR YOKOGAWA

Date 2024-12-10

Signature Digitaly signed by VENDOR YOKOGAWA 2024-12-10T14:38:16.945Z

5 - CLEARANCE CHECK

INSTALLED

Name Stefano Linari

Date 2024-12-10

Signature Digitaly signed by Stefano Linari 2024-12-10T14:38:33.987Z

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000360

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Activity done

Name YOKOGAWA

Date 2025-03-21

Signature Digitaly signed by YOKOGAWA 2025-03-21T07:40:34.213Z

5 - CLEARANCE CHECK

Name Stefano Linari

Date 2025-03-21

Signature Digitaly signed by Stefano Linari 2025-03-21T07:40:48.100Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000361

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001		Server Cabinet ITER
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Check diagnostic signals from Hirschmann switches through WhatsUp Gold or through wirings. WhatUp Gold still to be configured

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Activity done

Name YOKOGAWA

Date 2025-03-21

Signature Digitaly signed by YOKOGAWA 2025-03-21T07:41:09.974Z

5 - CLEARANCE CHECK

Name Stefano Linari

Date 2025-03-21

Signature Digitaly signed by Stefano Linari 2025-03-21T07:41:19.671Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000362

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Instrumental

1.2 Item B400-NET-001 Network Cabinet

1.3 Subsystem 86-00 Data Networks

2 - OBSERVATION

N.1 SFP module missing on SERVSWL2-002 port 1

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority B PL B

3.4 Activity code FAT factory acceptance test

3.5 Action by

Name Stefano Linari

Date 2024-10-22

Signature --- Proverlis ---
Duplicata issued from database information
Signature is on original form

4 - PERFORMED ACTION

installed

Name VENDOR YOKOGAWA

Date 2024-12-13

Signature Digitaly signed by VENDOR YOKOGAWA 2024-12-13T09:39:31.516Z

5 - CLEARANCE CHECK

installed

Name Stefano Linari

Date 2024-12-13

Signature Digitaly signed by Stefano Linari 2024-12-13T09:39:44.664Z

6- CLEARANCE APPROVAL

Name

Date

Signature


SERVSWL2-002
BRS40
P1
0V
0V
P2
Power
TSN
USB
1
2
3
4
SERVSWL2-002:P6 /
MODSWL2-002:P9

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000363

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

MCT module missing in NET cabinet (frame “D”) with related rubber devices.

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

ACTIVITY DONE

Name YOKOGAWA

Date 2024-11-27

Signature Digitaly signed by YOKOGAWA 2024-11-27T15:29:47.673Z

5 - CLEARANCE CHECK

ACTIVITY DONE

Name Stefano Linari

Date 2024-11-27

Signature Digitaly signed by Stefano Linari 2024-11-27T15:30:01.930Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000364

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001		Server Cabinet ITER
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

MCT module missing in NET cabinet (frame “D”) with related rubber devices.

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

ACTIVITY DONE

Name YOKOGAWA

Date 2024-11-27

Signature PROVERLIS Digitaly signed by YOKOGAWA 2024-11-27T15:24:27.775Z

5 - CLEARANCE CHECK

ACTIVITY DONE

Name Stefano Linari

Date 2024-11-27

Signature PROVERLIS Digitaly signed by Stefano Linari 2024-11-27T15:24:45.848Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000365

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

installed

Name VENDOR YOKOGAWA

Date 2024-12-18

Signature PROVERLIS Digitaly signed by VENDOR YOKOGAWA 2024-12-18T14:54:04.169Z

5 - CLEARANCE CHECK

installed

Name Stefano Linari

Date 2024-12-18

Signature PROVERLIS Digitaly signed by Stefano Linari 2024-12-18T14:54:15.144Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000366

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001		Server Cabinet ITER
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Missing N.4 SFP modules (multimode) to be installed in FW003 (ports P13, P14) and FW004 (ports P13, P14)

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

INSTALLED

Name VENDOR YOKOGAWA

Date 2024-12-18

Signature PROVERLIS Digitaly signed by VENDOR YOKOGAWA 2024-12-18T14:55:23.912Z

5 - CLEARANCE CHECK

INSTALLED

Name Stefano Linari

Date 2024-12-18

Signature PROVERLIS Digitaly signed by Stefano Linari 2024-12-18T14:55:34.343Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000367

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-NET-001		Network Cabinet
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010 from SIS

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

activity done and verified

Name VENDOR YOKOGAWA

Date 2024-12-18

Signature Digitaly signed by VENDOR YOKOGAWA 2024-12-18T14:51:07.193Z

5 - CLEARANCE CHECK

ACTIVITY DONE and verified

Name Stefano Linari

Date 2024-12-18

Signature Digitaly signed by Stefano Linari 2024-12-18T14:51:32.624Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000368

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001		Server Cabinet ITER
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Add devices and wiring to implement power cut-off of switches and firewalls related to network connection in open area (external) by 79-XS-010 from SIS

Name

Date

Signature

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	FAT factory acceptance test	Date	2024-10-22
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

activity done and verified

Name VENDOR YOKOGAWA

Date 2024-12-18

Signature Digitaly signed by VENDOR YOKOGAWA 2024-12-18T14:52:31.239Z

5 - CLEARANCE CHECK

activity done and verified

Name Stefano Linari

Date 2024-12-18

Signature Digitaly signed by Stefano Linari 2024-12-18T14:52:41.759Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000387

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000597	1.4 Discipline	Electrical
1.2 Item	84404-CEL		AC UPS - F&G DB / System Server / Network Cabinet - Line B
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Plastic cable ties used to fix the cable tag should be replaced on all external routing.

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Digitaly signed by Giovanni Tangianu 2024-11-07T16:14:14.591Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T14:33:02.375Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature: Digitaly signed by Paolo Schintu 2025-02-26T12:38:47.727Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000388

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000597	CPX09	1.4 Discipline	Electrical
1.2 Item	84404-CEL			
1.3 Subsystem	86-00			

2 - OBSERVATION

Identification tags wires is wrong.

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-07T16:22:17+0100

3 - DEFECT ASSESSMENT

need to be changed.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority: B PL B

3.4 Activity code: MC Mechanical Completion

3.5 Action by: RM_CONSTR RM

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Digitaly signed by
Giovanni Tangianu
2024-11-08T14:33:54.399Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2024-12-16

Signature: Digitaly signed by
Giovanni Tangianu
2024-12-16T16:20:17.236Z

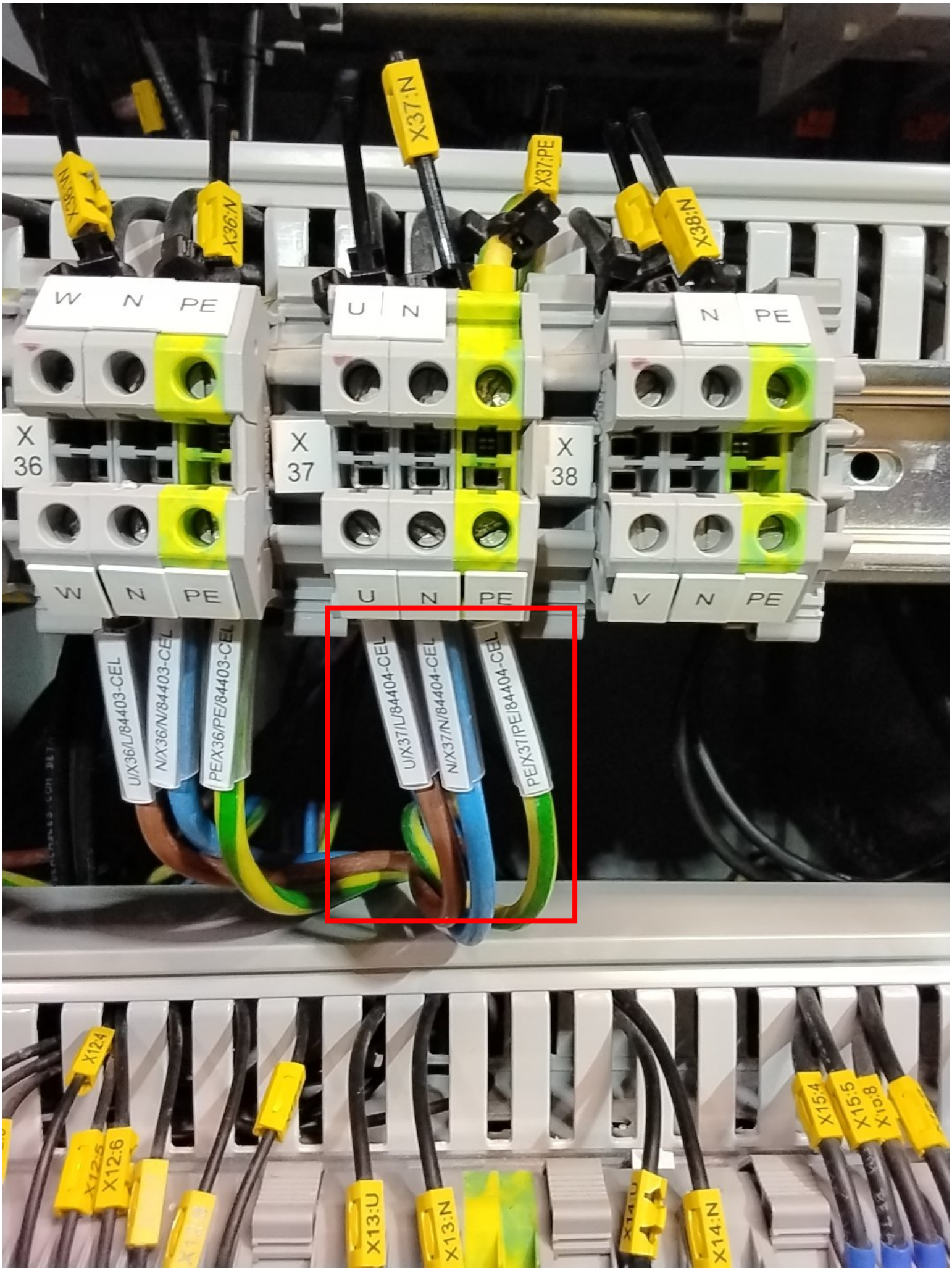
6- CLEARANCE APPROVAL

Name

Date

Signature

2024-11-07 14:43 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000389

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000597	CPX09	1.4 Discipline	Electrical
1.2 Item	84404-CEL			
1.3 Subsystem	86-00			

2 - OBSERVATION

Identification numbers on terminal strip are missing (PE)

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-07T16:22:27+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T14:34:50.004Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature: Digitaly signed by Giovanni Tangianu 2025-02-04T12:57:11.016Z

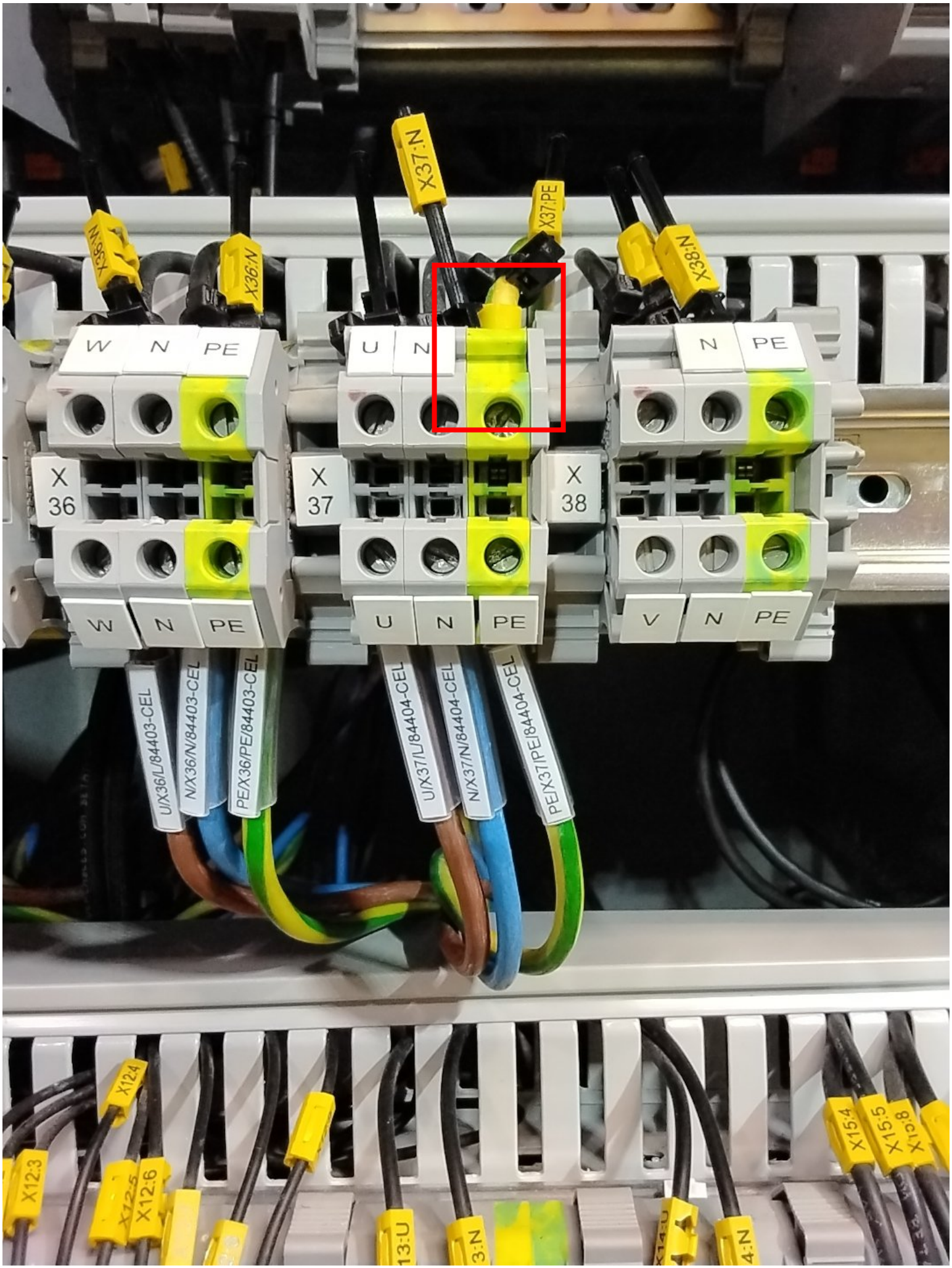
6- CLEARANCE APPROVAL

Name

Date

Signature

2024-11-07 14:45 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000390

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000597	CPX09	1.4 Discipline	Electrical
1.2 Item	84404-CEL			
1.3 Subsystem	86-00			

2 - OBSERVATION

Cable to be fixed with proper cable ties, after MCT installetion (point valid for internal and exsternal cable routing)

Name: Giovanni Tangianu

Date: 2024-11-07

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-07T16:24:59+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-08
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-08T14:35:36.410Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

FIXED.

Name: Giovanni Tangianu

Date: 2025-01-31

Signature: Digitaly signed by Giovanni Tangianu
2025-01-31T10:48:12.431Z

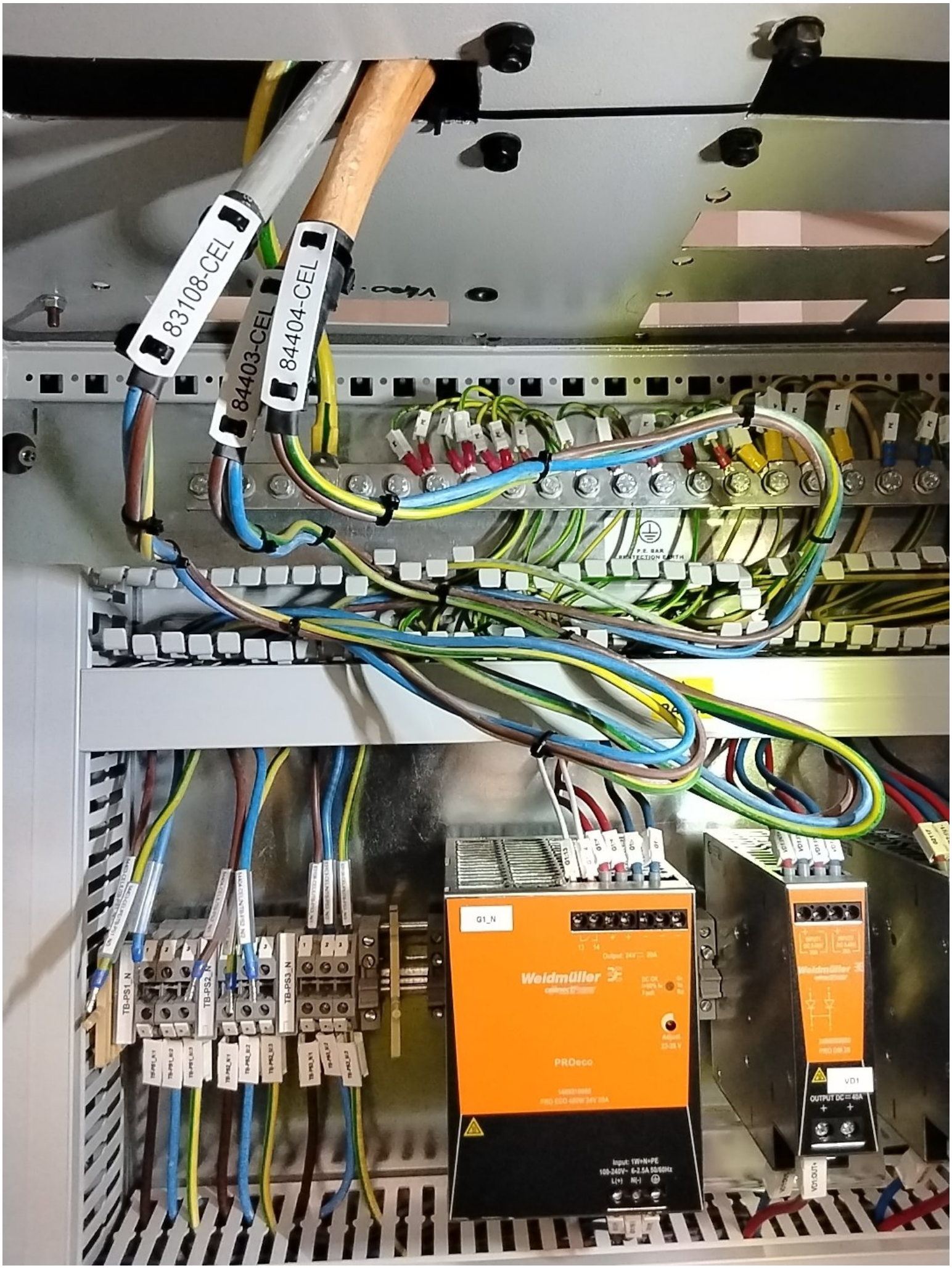
6- CLEARANCE APPROVAL

Name

Date

Signature

2024-11-07 12:06 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000412

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000628	1.4 Discipline	Electrical
1.2 Item	83109-CEL		Lighting & Small Power DB BoP / Server cabiner ITER - Auxiliary
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Plastic cable ties to be replaced on external routing

Name: Giovanni Tangianu

Date: 2024-11-09

Signature: Digitaly signed by Giovanni Tangianu 2024-11-09T10:09:49.160Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-09
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-09T10:10:04.615Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature: Digitaly signed by Paolo Schintu 2025-02-26T12:55:18.363Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000413

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000627	1.4 Discipline	Electrical
1.2 Item	83108-CEL		Lighting & Small Power DB BoP / System Server / Network Cabinet - Auxiliary
1.3 Subsystem	86-00		Data Networks

2 - OBSERVATION

Plastic cable ties to be replaced on external routing

Name: Giovanni Tangianu

Date: 2024-11-09

Signature: Digitaly signed by Giovanni Tangianu 2024-11-09T10:10:39.281Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-09
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-09T10:10:52.387Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature: Digitaly signed by Paolo Schintu 2025-02-26T12:55:28.441Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000414

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000627	CPX09	1.4 Discipline	Electrical
1.2 Item	83108-CEL		Lighting & Small Power DB BoP / System Server / Network Cabinet - Auxiliary	
1.3 Subsystem	86-00		Data Networks	

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-08T10:02:36+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Eleonora Carotenuto
3.4 Activity code	MC Mechanical Completion	Date	2024-11-09
3.5 Action by	PRE-COMM	Signature	Digitaly signed by Eleonora Carotenuto 2024-11-09T10:35:01.099Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-04

Signature: Digitaly signed by Josip Krizanic
2025-03-04T15:38:44.850Z

6- CLEARANCE APPROVAL

Name

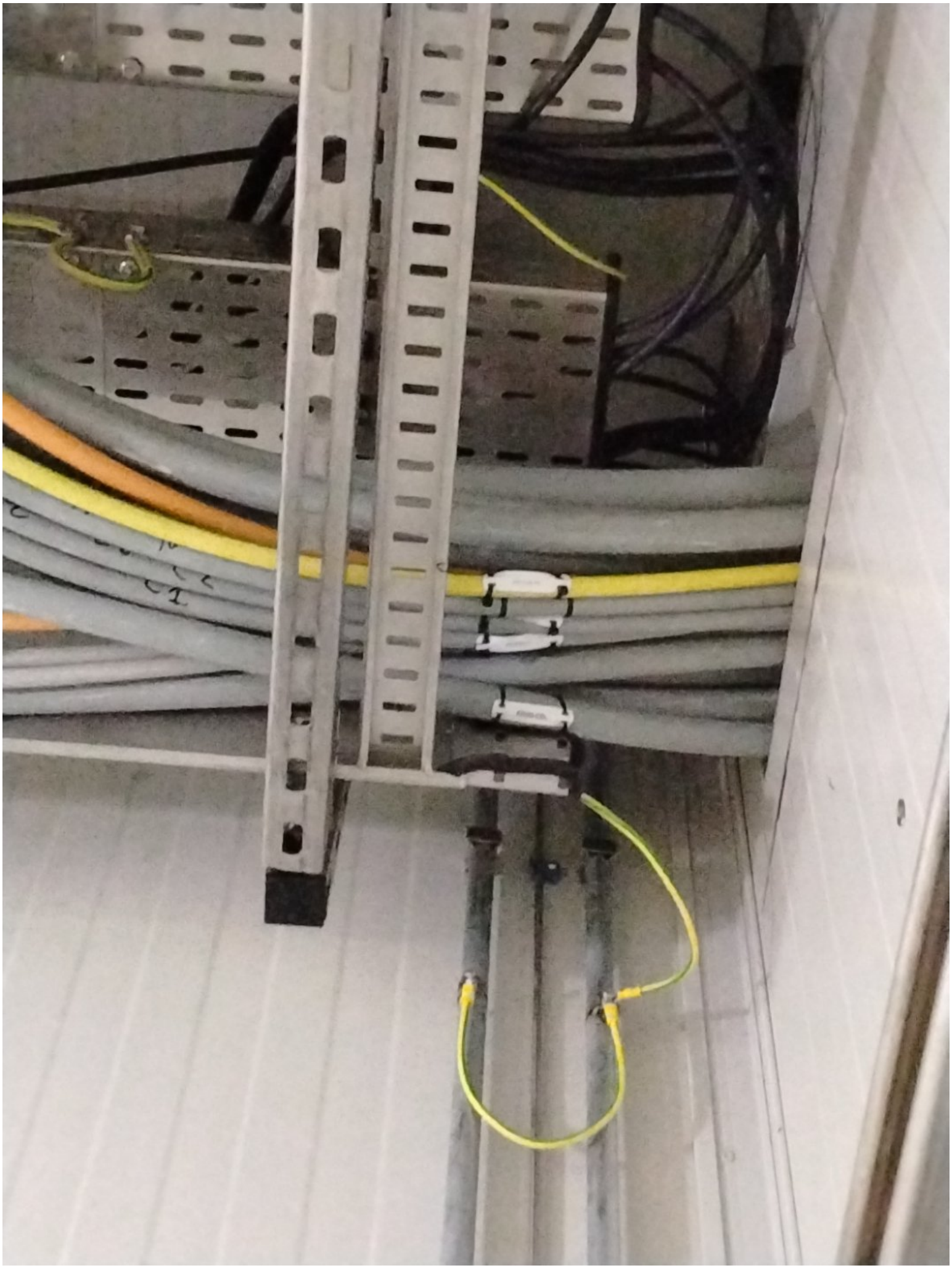
Date

Signature

2024-11-08 10:02 By Giovanni Tangianu



2024-11-08 10:02 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000417

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000628	CPX09	1.4 Discipline	Electrical
1.2 Item	83109-CEL		Lighting & Small Power DB BoP / Server cabiner ITER - Auxiliary	
1.3 Subsystem	86-00		Data Networks	

2 - OBSERVATION

Missing cable tags on routing, inside and outside the panels

Name: Giovanni Tangianu

Date: 2024-11-08

Signature: Firma Digitale Sicura
Giovanni Tangianu
2024-11-08T10:08:22+0100

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority: B PL B

3.4 Activity code: MC Mechanical Completion

3.5 Action by: PRE-COMM

Name: Eleonora Carotenuto

Date: 2024-11-09

Signature: Digitaly signed by
Eleonora Carotenuto
2024-11-09T10:44:28.434Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-04

Signature: Digitaly signed by
Josip Krizanic
2025-03-04T15:39:20.568Z

6- CLEARANCE APPROVAL

Name

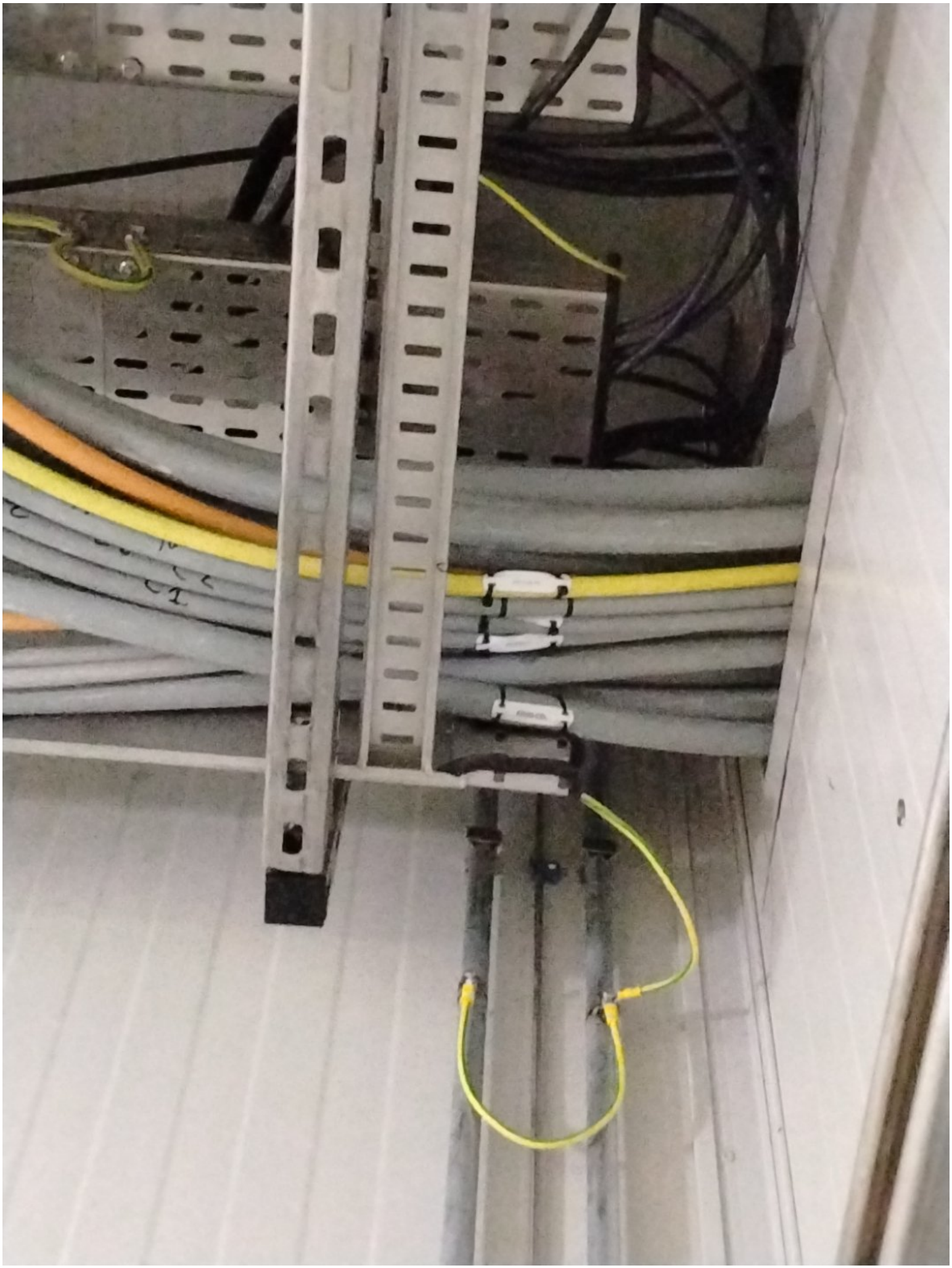
Date

Signature

2024-11-08 10:08 By Giovanni Tangianu



2024-11-08 10:08 By Giovanni Tangianu



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000646

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000841	1.4 Discipline	Instrumental
1.2 Item	B400-NET-001	Network Cabinet	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

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

Name: Giovanni Tangianu

Date: 2024-11-20

Signature: Digitaly signed by Giovanni Tangianu 2024-11-20T13:41:20.785Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	VND Vendor	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T13:42:46.616Z

4 - PERFORMED ACTION

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

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

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature: Digitaly signed by Raffaele Degli Esposti 2025-06-16T14:23:13.310Z

5 - CLEARANCE CHECK

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature: Digitaly signed by Raffaele Degli Esposti 2025-06-16T14:23:18.658Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000655

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000841	1.4 Discipline	Instrumental
1.2 Item	B400-NET-001	Network Cabinet	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

base plate will be installed after commissioning.

Name: Giovanni Tangianu

Date: 2024-11-20

Signature: Digitaly signed by Giovanni Tangianu 2024-11-20T14:06:30.141Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	PRE-COMM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T14:06:43.705Z

4 - PERFORMED ACTION

Name

Date: 2025-04-30

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-30

Signature: Digitaly signed by Giovanni Tangianu 2025-04-30T08:53:34.465Z

6- CLEARANCE APPROVAL

Name

Date: 2025-04-30

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000656

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000841	1.4 Discipline	Instrumental
1.2 Item	B400-NET-001	Network Cabinet	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

Cleaning is required inside the panels.

Name: Giovanni Tangianu

Date: 2024-11-19

Signature: Digitaly signed by Giovanni Tangianu 2024-11-19T14:56:12.320Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T14:07:42.691Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2024-12-28

Signature: Digitaly signed by Giovanni Tangianu 2024-12-28T08:55:22.129Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000657

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000845	1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001	Server Cabinet ITER	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

The GA (1724000594-IN-DG-00022) does not match the installed.

Name: Giovanni Tangianu

Date: 2024-11-19

Signature: Digitaly signed by Giovanni Tangianu 2024-11-19T16:12:34.086Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	VND Vendor	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T14:15:14.822Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature: Digitaly signed by Giovanni Tangianu 2025-02-21T15:43:50.225Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000659

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000845	1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001	Server Cabinet ITER	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

base plate will be installed after commissioning.

Name: Giovanni Tangianu

Date: 2024-11-20

Signature: Digitaly signed by Giovanni Tangianu 2024-11-20T14:23:42.644Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	PRE-COMM	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T14:23:59.789Z

4 - PERFORMED ACTION

Name

Date: 2025-04-30

Signature

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-04-30

Signature: Digitaly signed by Giovanni Tangianu 2025-04-30T08:53:25.247Z

6- CLEARANCE APPROVAL

Name

Date: 2025-04-30

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000660

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000845	1.4 Discipline	Instrumental
1.2 Item	B400-SRV-001	Server Cabinet ITER	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

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

Name: Giovanni Tangianu

Date: 2024-11-20

Signature: Digitaly signed by Giovanni Tangianu 2024-11-20T14:24:23.221Z

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-20
3.5 Action by	VND Vendor	Signature	Digitaly signed by Giovanni Tangianu 2024-11-20T14:24:42.915Z

4 - PERFORMED ACTION

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

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

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature: Digitaly signed by Raffaele Degli Esposti 2025-06-16T14:23:52.776Z

5 - CLEARANCE CHECK

Name: Raffaele Degli Esposti

Date: 2025-06-16

Signature: Digitaly signed by Raffaele Degli Esposti 2025-06-16T14:23:57.909Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001031

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004721	1.4 Discipline	Telecom
1.2 Item	C-GPSANT/B400-NET-001	C-GPSANT/B400-NET-001	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

Missing cables tag , cabinet side B400-NET-001

Name: Alessio Polo

Date: 2024-11-29

Signature: Digitaly signed by Alessio Polo 2024-11-29T12:27:09.519Z

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	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Alessio Polo 2024-11-29T12:27:22.166Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-02-21

Signature: Digitaly signed by Eleonora Carotenuto 2025-02-21T11:53:45.356Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001032

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004721	1.4 Discipline	Telecom
1.2 Item	C-GPSANT/B400-NET-001	C-GPSANT/B400-NET-001	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

Missing cable tag SS , near the C-GPSANT.

Name: Alessio Polo

Date: 2024-11-29

Signature: Digitaly signed by Alessio Polo 2024-11-29T12:28:03.495Z

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	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	Digitaly signed by Alessio Polo 2024-11-29T12:28:15.136Z

4 - PERFORMED ACTION

Name

Date

Signature

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-26

Signature: Digitaly signed by Alessio Polo 2025-02-26T13:10:44.707Z

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004395

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004631	1.4 Discipline	Miscellaneous
1.2 Item	123A90-PML-COM-PRO-03051	OTP - Data Network Systems	
1.3 Subsystem	86-00	Data Networks	

2 - OBSERVATION

During the execution of the OTP “123A90-PML-COM-PRO-03051 – Data Network Systems”, several issues were identified that require either clarification or corrective actions. These points were discussed and shared with CW during the test activities and are documented within the OTP.

Name: Raffaele Degli Esposti

Date: 2025-06-26

Signature: Digitaly signed by Raffaele Degli Esposti 2025-06-26T07:05:16.871Z

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal	Please find attached consolidated list of punches noted during execution of the Data Networks OTP. Delmissier Giandonato will manage closure of OTP and SAT punches, starting on 27/06/2025		
3.2 Material required			
3.3 Priority	B PL B	Name	Raffaele Degli Esposti
3.4 Activity code	COMM Commissioning	Date	2025-06-26
3.5 Action by	COMM Commissioning	Signature	Digitaly signed by Raffaele Degli Esposti 2025-06-26T07:06:13.202Z

4 - PERFORMED ACTION

Fixed signals

Name: Fabio Sirigu

Date: 2025-07-26

Signature: Digitaly signed by Fabio Sirigu 2025-07-26T09:21:35.259Z

5 - CLEARANCE CHECK

Fixed signals

Name: Fabio Sirigu

Date: 2025-07-26

Signature: Digitaly signed by Fabio Sirigu 2025-07-26T09:22:08.278Z

6- CLEARANCE APPROVAL

Name: Jamie McAllister

Date: 2025-07-28

Signature: Digitaly signed by Jamie McAllister 2025-07-28T14:07:12.077Z

PUNCH LIST OTP - Data Network Systems

			NOTE
87-XA-061	NET Panel Ventilation Fan Fault	broken sensor	already included in SAT procedure
70-XA-051	FGS Panel Ventilation Fan Fault	broken sensor	already included in SAT procedure
70-XA-052	FGS Panel Power Supply&Diodes failure	inverted software	
70-XA-053	FGS PanelCumulative Breaker Fault Q4	reversed software	
79-XA-051	SIS Panel Ventilation Fan Fault	sensor failure	already included in SAT procedure
87-XA-091	EMCS Panel Ventilation Fan Fault	sensor not working	already included in SAT procedure
87-XA-092	EMCS Panel Power Supply&Diodes failure	not mapped	
87-XA-093	EMCS Panel Cumulative Breaker Fault	not mapped	

PUNCH LIST OTP - Data Network Systems

87-XA-061 ✓	NET Panel Ventilation Fan Fault	~~broken sensor~~ REVERSED
70-XA-051 ✓	FGS Panel Ventilation Fan Fault	~~broken sensor~~ REVERSED
70-XA-052 ✓	FGS Panel Power Supply&Diodes failure	~~inverted software~~ FIXED
70-XA-053 ✓	FGS PanelCumulative Breaker Fault Q4	~~reversed software~~ FIXED
79-XA-051 ✓	SIS Panel Ventilation Fan Fault	~~sensor failure~~ FIXED
87-XA-091 ✓	EMCS Panel Ventilation Fan Fault	~~sensor not working~~ FIXED
87-XA-092 ✓	EMCS Panel Power Supply&Diodes failure	~~not mapped~~ FIXED
87-XA-093 ✓	EMCS Panel Cumulative Breaker Fault	~~not mapped~~ FIXED

COMMUNICATION OK

—

VENTICATION FAN SENSORS TO BE REPLACED WITH NC TYPE:

- B400-FGS-001/002
- B400-PCS-002
- B400-~~SIST~~ NET-001

FSIRIGIA (ROS) 26 JUL '25

JMCALLISTER (CW) 26 July 25

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 86-00 & process: COMM & discipline : E

Electrical	86-00 Data Networks						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
DP-200N1-Q27	POWER SUPPLY SERVER NETWORK AUX - DP-200N1-Q27	ONSHORE	C10002849	FTR-2	100	2024-10-28	RFO 4
DP-200N1-Q28	POWER SUPPLY ITER AUX - DP-200N1-Q28	ONSHORE	C10002846	FTR-2	100	2024-10-28	RFO 4
UP-200F3-QF37	POWER SUPPLY ITER LINE A - UP-200F3-QF37	ONSHORE	C10002844	FTR-2	100	2024-11-08	RFO 4
UP-200F3-QF38	POWER SUPPLY ITER LINE B - UP-200F3-QF38	ONSHORE	C10002845	FTR-2	100	2024-11-08	RFO 4
UP-200F4-QF36	ALIM. SYSTEM SERVER NETWORK CABINET - LINE A	ONSHORE	C10004592	FTR-2	100	2024-11-14	RFO 4
UP-200F4-QF37	ALIM. SYSTEM SERVER NETWORK CABINET - LINE B	ONSHORE	C10004593	FTR-2	100	2024-11-14	RFO 4

ITEM	Tag	UP-200F3-QF37	: POWER SUPPLY ITER LINE A - UP-200F3-QF37		Dwg	1724000372-EL-DG-00009	
	S/Sys	86-00	: Data Networks		Module		
TASK	code	C10002844	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:	A-TYPE
Auxiliary supply:	NA	Location:	B300	Cubicle:	QF37
Switchboard:	UP-200F3				

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
64	300mA	300mA	240mA	FIXED	37,5ms

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	2024-11-08	2024-11-08	2024-11-08
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-11-08T14:33:57.156Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-08T15:03:11.748Z	PROVERLIS Digitaly signed by Witness waived 2024-11-08T16:24:33.058Z

ITEM	Tag	UP-200F3-QF38	: POWER SUPPLY ITER LINE B - UP-200F3-QF38			Dwg	1724000372-EL-DG-00009
	S/Sys	86-00	: Data Networks			Module	
TASK	code	C10002845		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:	A-TYPE
Auxiliary supply:	NA	Location:	B300	Cubicle:	QF38
Switchboard:	UP-200F3				

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

ANSI function	Setting	Injection	Trip value	Time delay	
				Setting	Trip value
64	300mA	300mA	240mA	FIXED	36,4ms

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	2024-11-08	2024-11-08	2024-11-08
Signature	PROVERLIS Digitaly signed by Mattia Girotti 2024-11-08T14:25:12.396Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-08T15:04:44.827Z	PROVERLIS Digitaly signed by Witness waived 2024-11-08T16:24:45.381Z

ITEM	Tag	DP-200N1-Q28	: POWER SUPPLY ITER AUX - DP-200N1-Q28		Dwg	1723002197-EL-DG-00013	
	S/Sys	86-00	: Data Networks		Module		
TASK	code	C10002846	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:

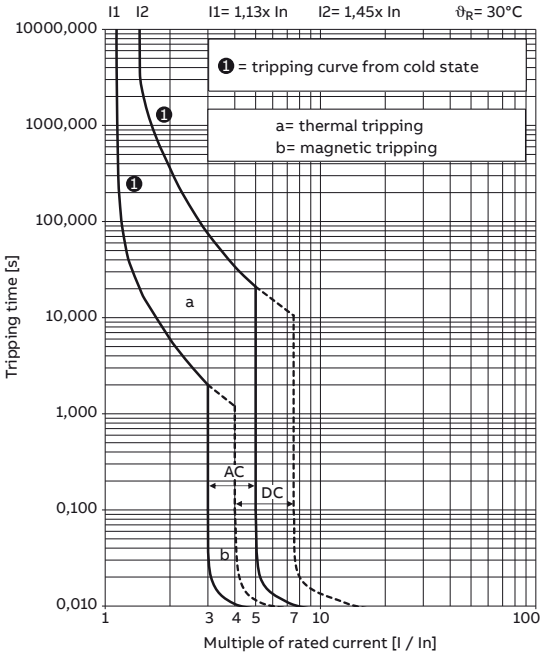
Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-10-28	2024-10-28	2024-10-28
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2024-10-28T11:24:02.556Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-28T12:58:00.281Z	PROVERLIS Digitaly signed by Witness waived 2024-10-28T13:29:22.159Z

Miniature Circuit breakers S300P

Tripping characteristics

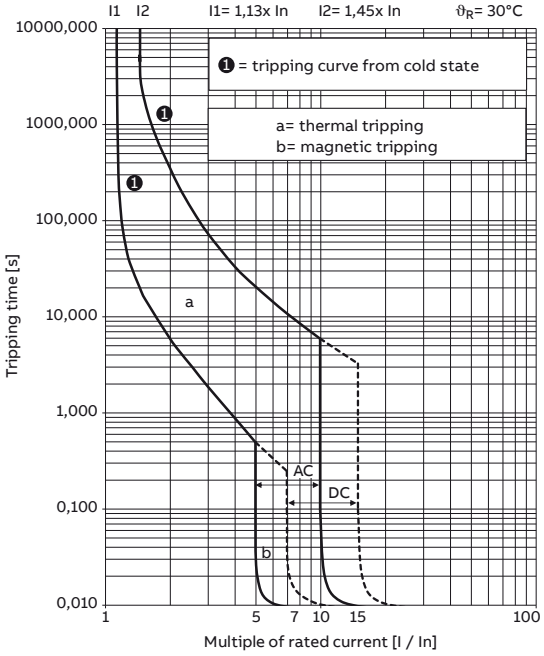
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



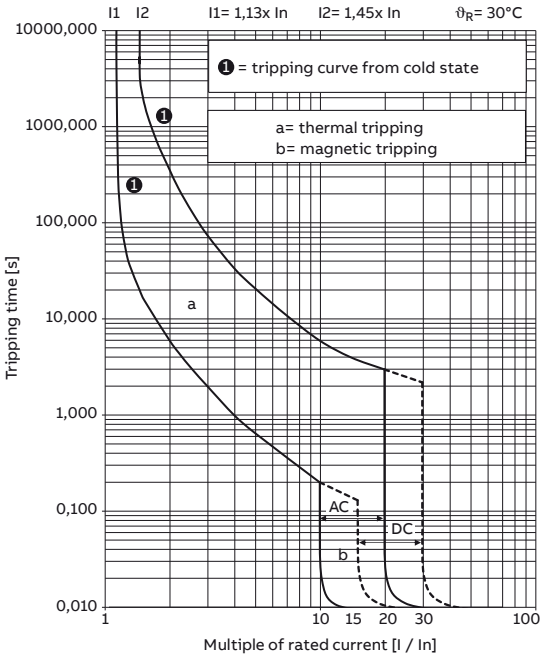
MCB Type S300P - C (5 ... 10 x I_n AC)

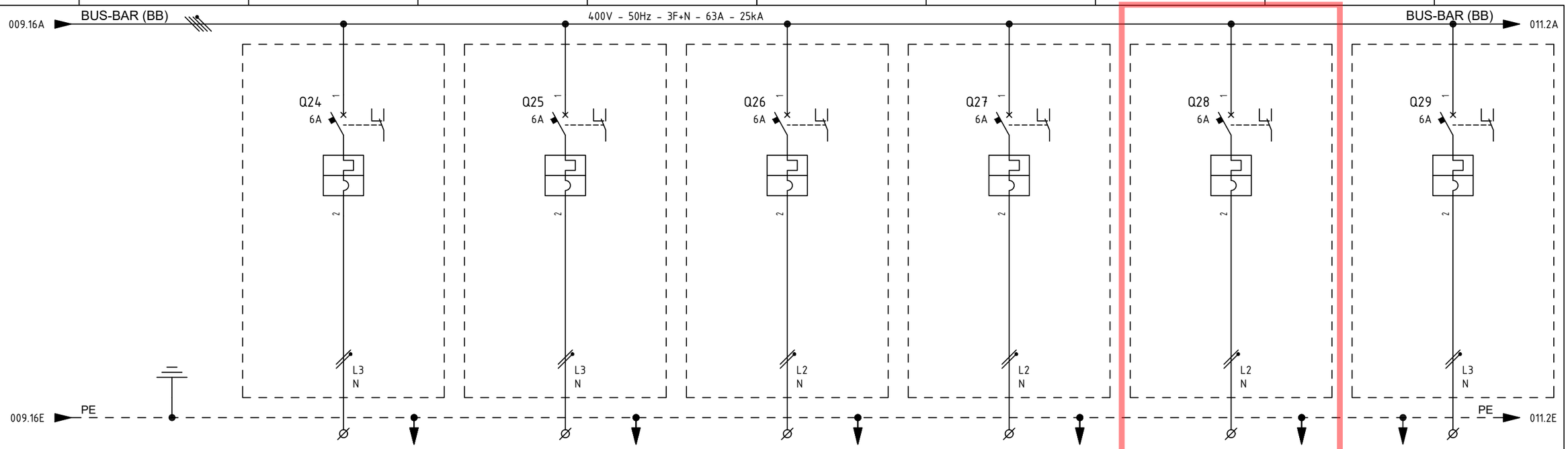
Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1





ITEM			1	B400-PCS-001	B400-EMCS-001	B400-FGS-001	B400-NET-001	B400-SRV-001	CP-630E1
UTILITY			2	PCS-CONTROLLER AND I/O CABINET - AUXILIARY	EMCS-CONTROLLER AND I/O CABINET - AUXILIARY	FGS FIRE & GAS PANEL - AUXILIARY	SYSTEM SERVER / NETWORK CABINET - AUXILIARY	SERVER CABINET ITER - AUXILIARY	UCP - INSTRUMENT AIR PACKAGE -A-63000 - AUXILIARY
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	0.5 KW | 2.72 A	0.8 KW | 4.35 A	0.5 KW | 2.72 A	0.5 KW | 2.72 A	0.5 KW | 2.72 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S302P-C6	S302P-C6	S302P-C6	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=6A - 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	3G2.5	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

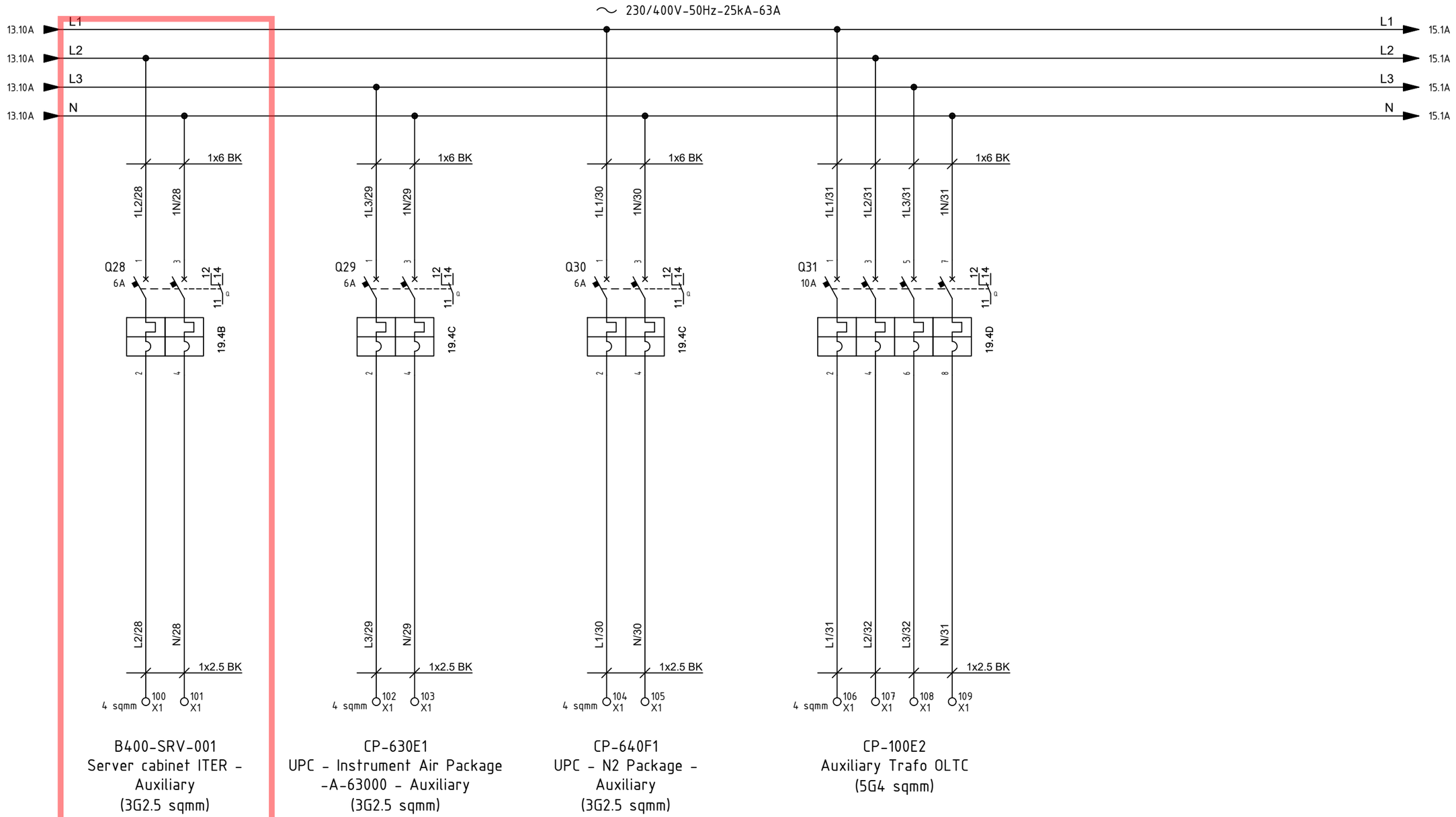
DRAWING NO. 1723002197-EL-DG-00013

SHEET 010

REV. 04

F.to UNI A3: 420mmx297mm

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



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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231298/SD/33

Item n° : PF1002888/101

TITLE : "DP-200N1"

LV SWBD FUNCTIONAL DIAGRAMS

Functional Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.4

REV. 02

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

F.to UNI A3: 420mmx297mm

ITEM	Tag	DP-200N1-Q27	: POWER SUPPLY SERVER NETWORK AUX - DP-200N1-Q27			Dwg	1723002197-EL-DG-00013
	S/Sys	86-00	: Data Networks			Module	
TASK	code	C10002849		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FTR-2 Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

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

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

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

Testing & measurement instruments used

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

Comments:

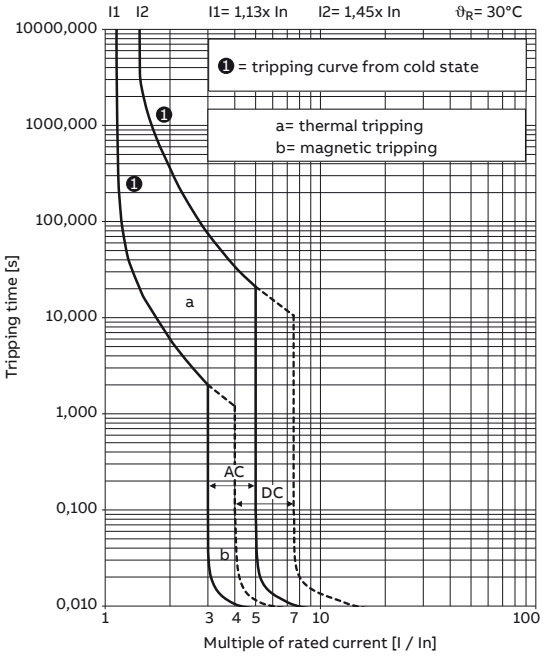
Page 1/1	Performed by	☐ WITNESS ☑ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-10-28	2024-10-28	2024-10-28
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2024-10-28T11:30:14.561Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-10-28T12:58:35.677Z	PROVERLIS Digitaly signed by Witness waived 2024-10-28T13:29:46.687Z

Miniature Circuit breakers S300P

Tripping characteristics

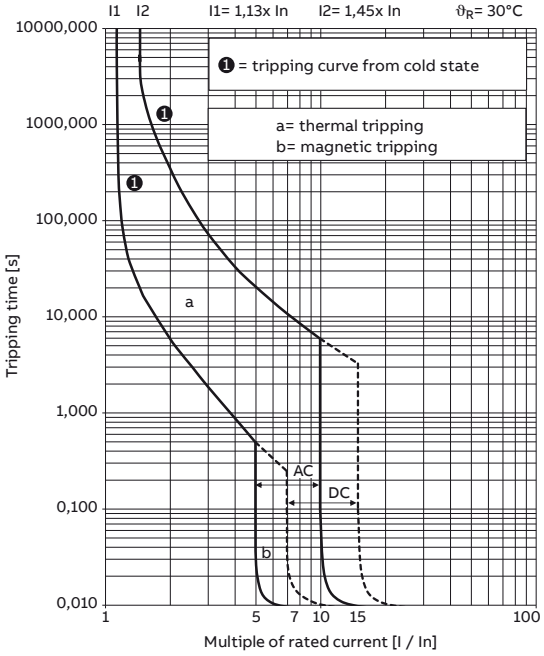
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



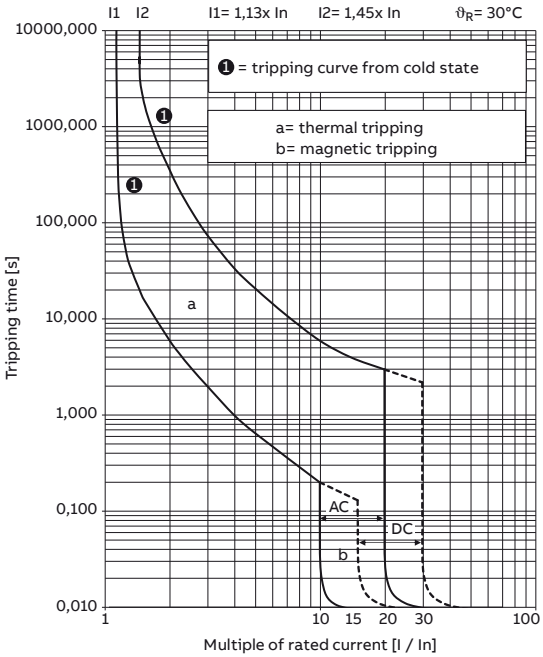
MCB Type S300P - C (5 ... 10 x I_n AC)

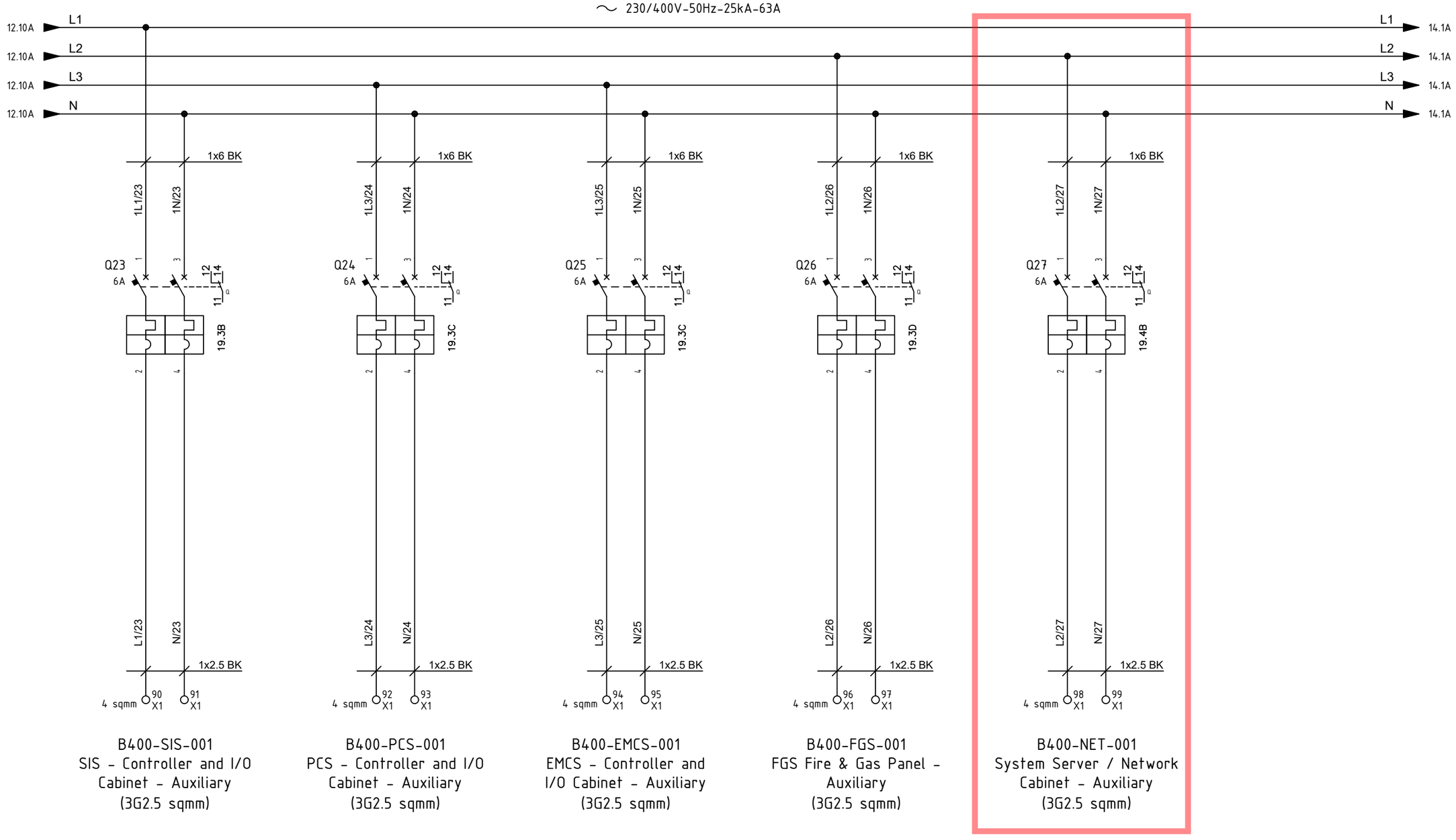
Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1





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

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

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

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

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

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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

SCALE : NTS

A3

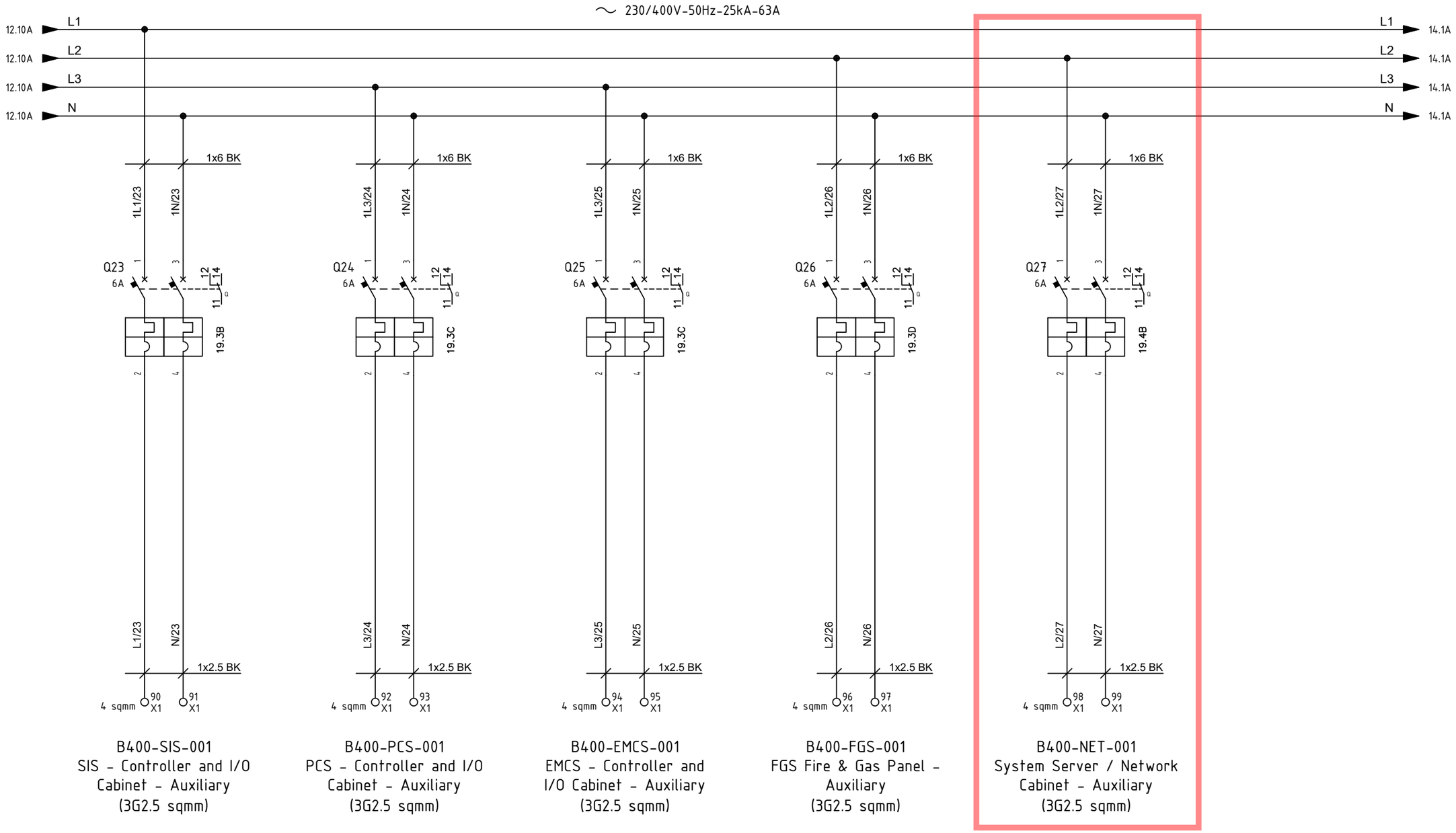
DRAWING NO. 1723002197-EL-DG-00033

SHEET 13

REV. 02

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

F.to UNI A3: 420mmx297mm



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

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

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

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

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

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

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00033

SHEET 1,3

REV. 02

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

F.to UNI A3: 420mmx297mm

ITEM	Tag	UP-200F4-QF36	: ALIM. SYSTEM SERVER NETWORK CABINET - LINE A		Dwg	1724000372-EL-DG-00009	
	S/Sys	86-00	: Data Networks		Module		
TASK	code	C10004592	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Electrical	Form	FTR-2	Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

Manufacturer:	ABB	Serial N°:	NA	Relay type:	NA
Auxiliary supply:	NA	Location:	B300	Cubicle:	NA
Switchboard:	UP-200F4				

Current transformers

Tag	Number of	Ratio	Location

Voltage transformers

Tag	Number of	Ratio	Location

Test result (refer to manufacturer's procedure)

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

Testing & measurement instruments used

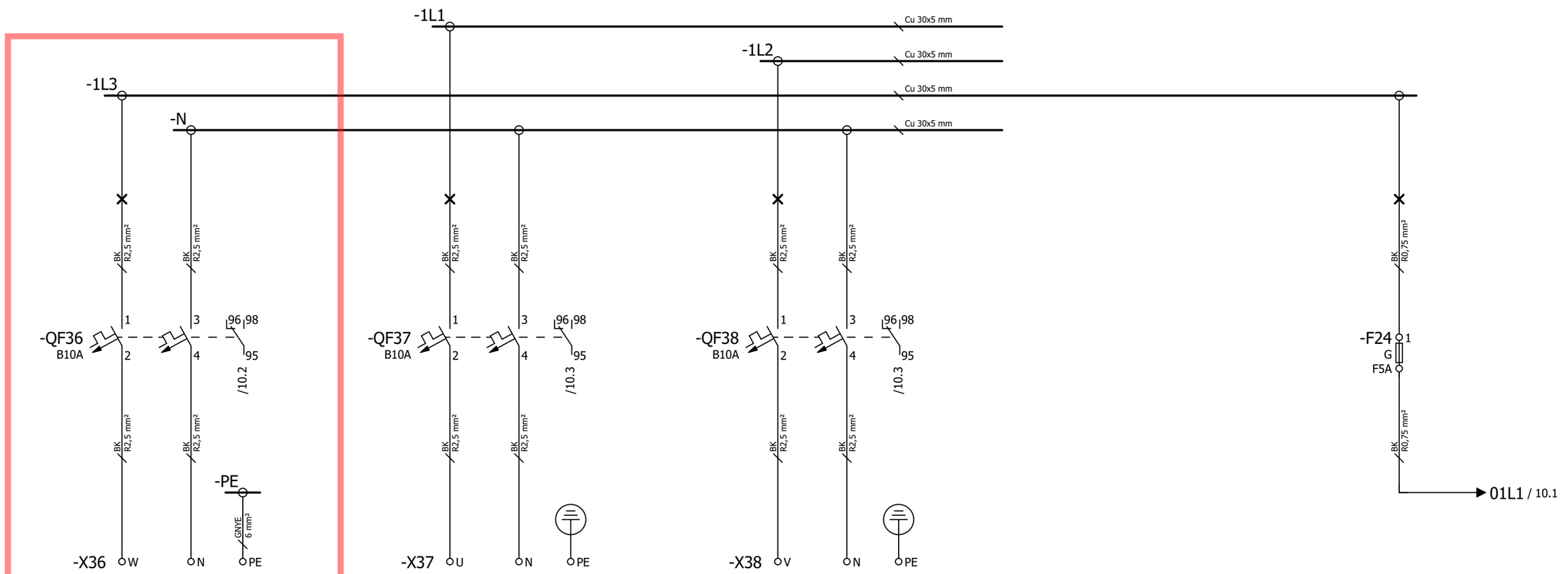
Type	Serial n°	Calibration certificate	Validity
FLUKE 376	A1711003	7710/24	10/07/2025

Comments:

Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-11-13	2024-11-14	2024-11-14
Signature	Digitaly signed by Davide Zucconelli 2024-11-13T10:24:58.003Z	Digitaly signed by Kristian Castellani 2024-11-14T08:21:21.717Z	Digitaly signed by Witness waived 2024-11-14T08:42:18.003Z

CAE EPLAN Electric P8

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Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE A
1KW

Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE B
1KW

Load
230V/N/PE~50Hz

SPARE
1KW

1000007888_080

				Date	28.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 20 kVA
Circuit diagram

1000007888.090
10009760

1000007888_080 en

=
+ MBC1
& EFS

A3

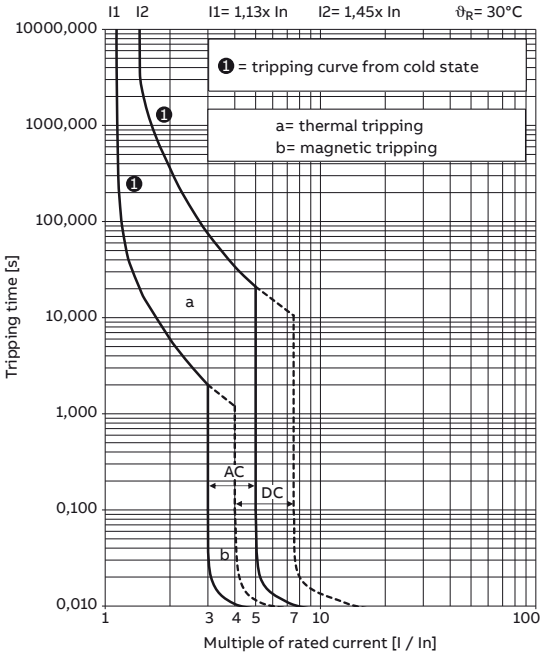
sheet 8
sheets 11

Miniature Circuit breakers S300P

Tripping characteristics

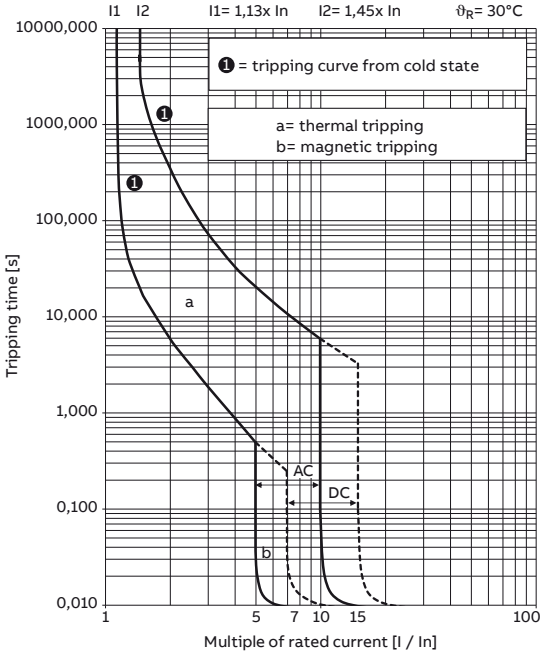
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



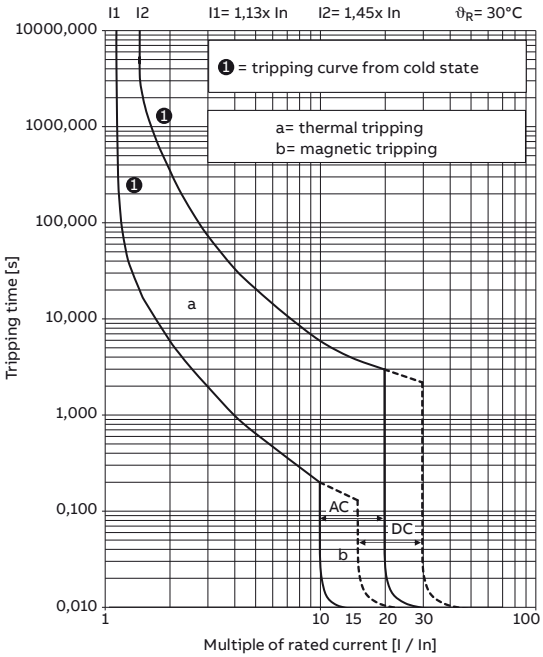
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



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

Tripping Characteristic IEC/EN 60898-1



ITEM	Tag	UP-200F4-QF37	: ALIM. SYSTEM SERVER NETWORK CABINET - LINE B			Dwg	1724000372-EL-DG-00009
	S/Sys	86-00	: Data Networks			Module	
TASK	code	C10004593		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Electrical	Form	FTR-2 Protection Relay

FTR2 - Protection relay
Record sheet

RELAY DATA

Manufacturer:	ABB	Serial N°:	NA	Relay type:	NA
Auxiliary supply:	NA	Location:	B300	Cubicle:	NA
Switchboard:	UP-200F4				

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 376	A1711003	7710/24	10/07/2025

Comments:

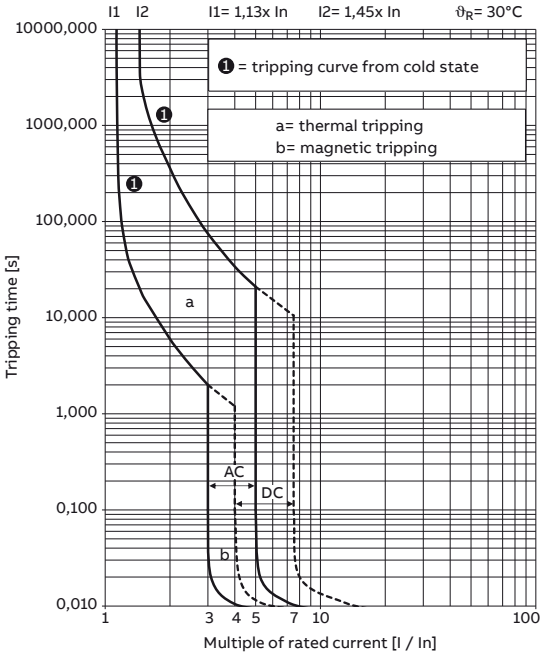
Page 1/1	Performed by	☐ WITNESS ☉ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Davide Zucconelli	Kristian Castellani	Witness waived
Date	2024-11-13	2024-11-14	2024-11-14
Signature	PROVERLIS Digitaly signed by Davide Zucconelli 2024-11-13T10:25:35.608Z	PROVERLIS Digitaly signed by Kristian Castellani 2024-11-14T08:22:36.653Z	PROVERLIS Digitaly signed by Witness waived 2024-11-14T08:42:40.003Z

Miniature Circuit breakers S300P

Tripping characteristics

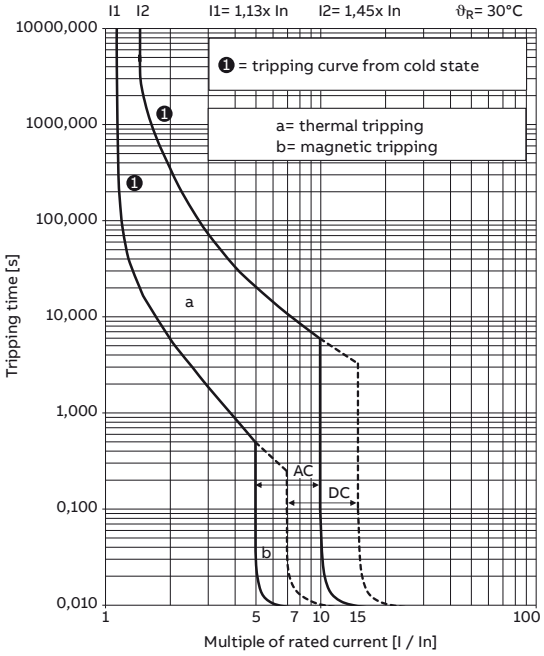
MCB Type S300P - B (3 ... 5 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



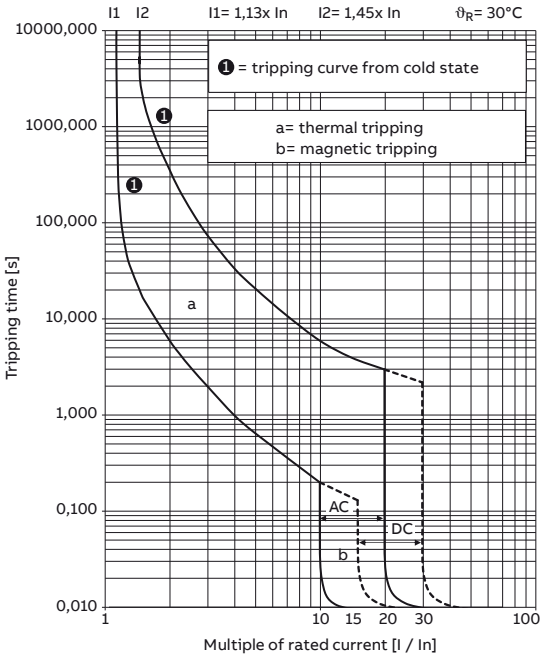
MCB Type S300P - C (5 ... 10 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



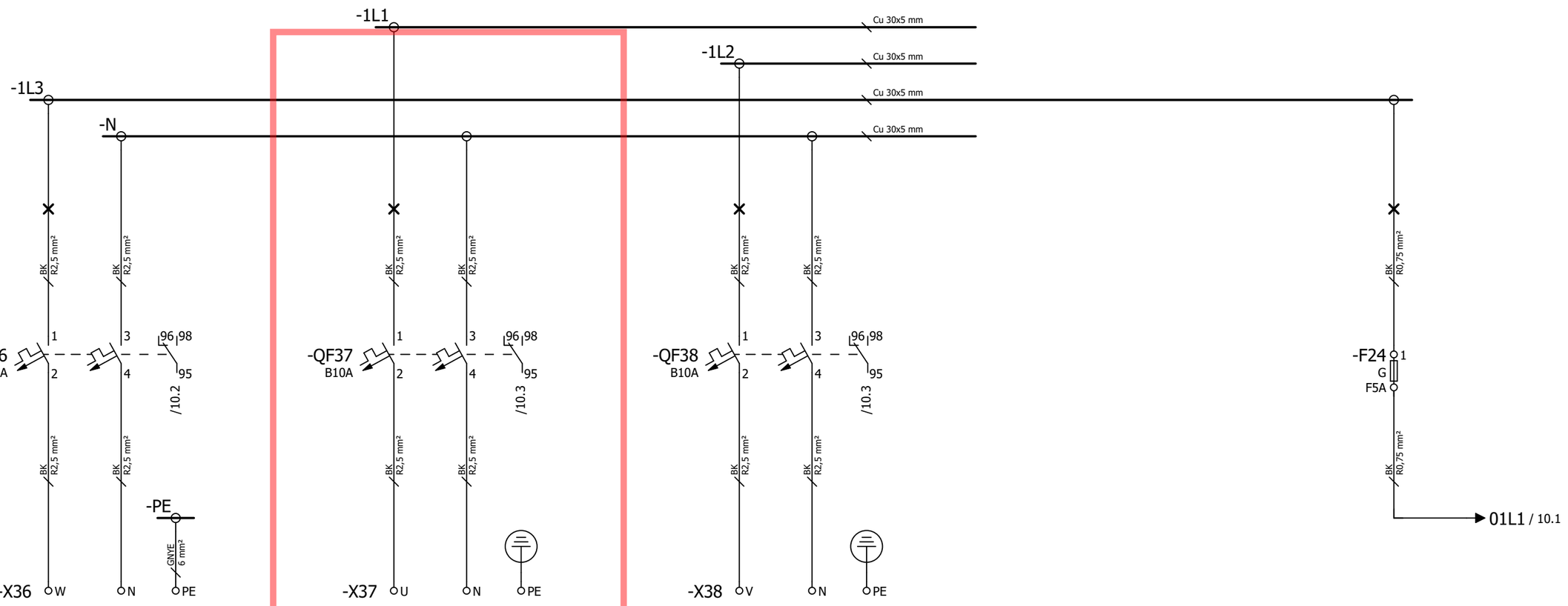
MCB Type S300P - D (10 ... 20 x I_n AC)

Tripping Characteristic IEC/EN 60898-1



CAE EPLAN Electric P8

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Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE A
1KW

Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE B
1KW

Load
230V/N/PE~50Hz

SPARE
1KW

1000007888_080

				Date	28.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 20 kVA
Circuit diagram

1000007888.090
10009760

1000007888_080 en

=
+ MBC1
& EFS

A3

sheet 8
sheets 11

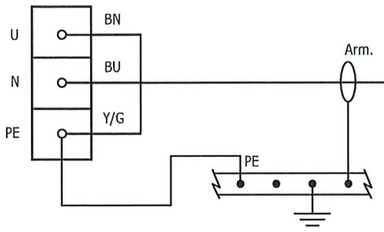
Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

FROM	TO

DESCRIPTION: AC UPS - F&G DB
TAG NUMBER: ~~DP-200F4~~ UP-200 F4 BY PASS

MARCO MORETTO 21/3/25

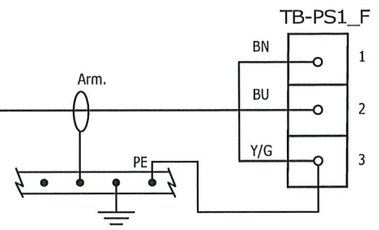
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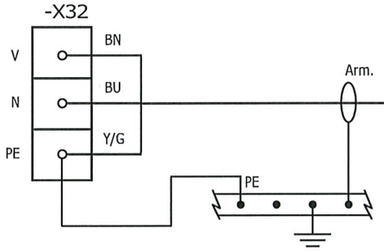
84401-CEL
3G2.5 mm²

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

TB-PS1_F



-X32

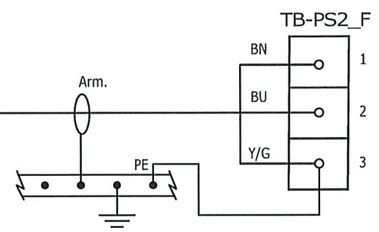


NO MARK UP
MARCO MORETTO 21/3/25

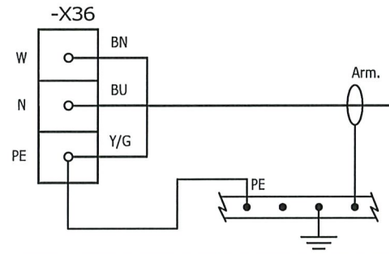
84402-CEL
3G2.5 mm²

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

TB-PS2_F



-X36

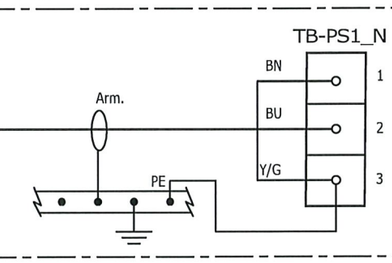


84403-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO 21/3/25

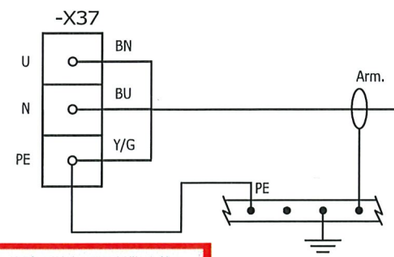
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TAG NUMBER: B400-NET-001

TB-PS1_N



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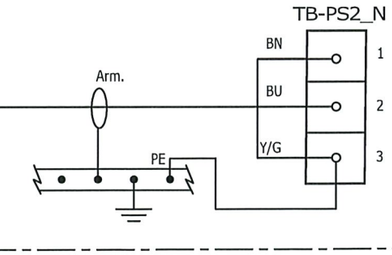
-X37



84404-CEL
3G2.5 mm²

NO MARK UP
MARCO MORETTO 21/3/25

TB-PS2_N



AS COMMISSIONED: MARIA GIROTTI
21/3/25

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FDL DWG: 123A90-FDL-EL-DG-20149

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CROSSWIND

ROSETTI MARINO

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01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
AC UPS – F&G DB (DP-200F4)

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

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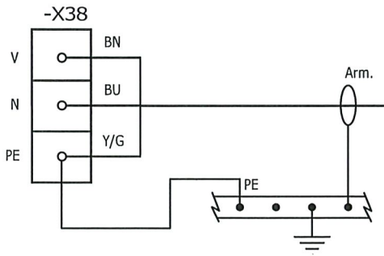
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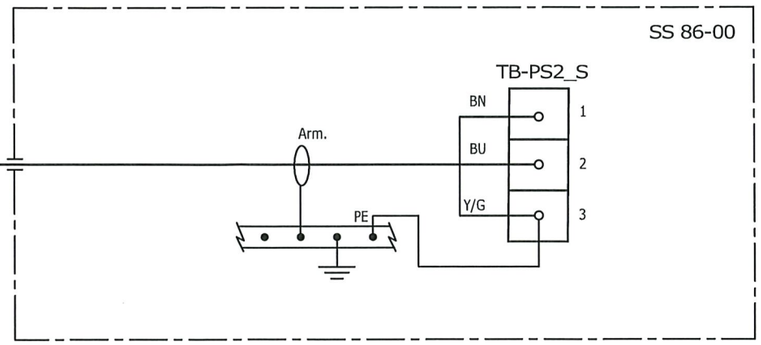
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MARCO MORETTO
21/3/25

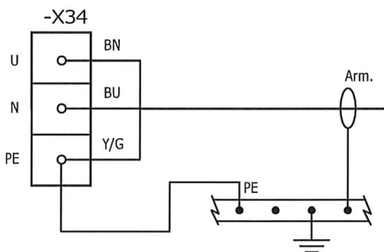


84308-CEL
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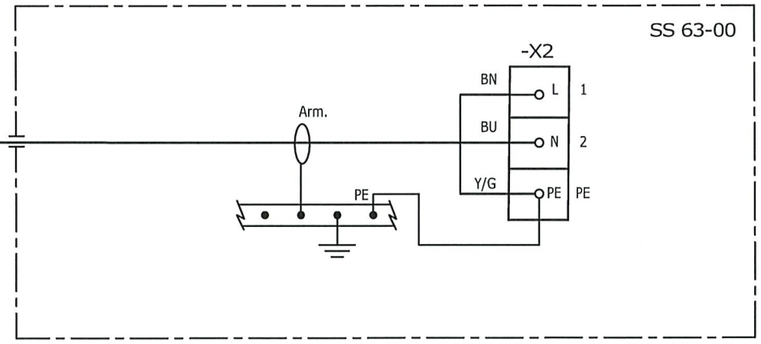


NO MARK UP
MARCO MORETTO
20/3/25



84311-CEL
3G2.5 mm²

DESCRIPTION: UCP - INSTRUMENT AIR PACKAGE A-63000
TAG NUMBER: CP-630E1



AS COMMISSIONED: MATTIA GIRGIS

21/3/25

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

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

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00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
AC UPS – PAS DB DP–200F3

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

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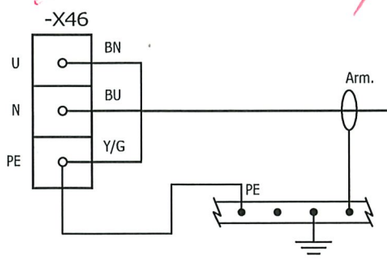
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FROM	TO

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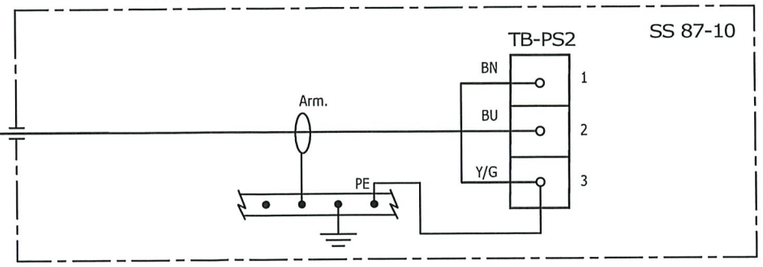
MARCO MORETTO 21/3/25

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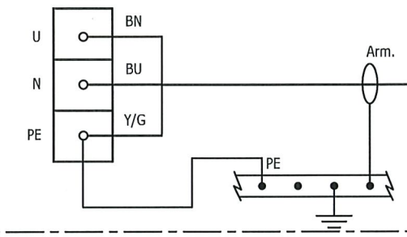


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TAG NUMBER: B400-PCS-001



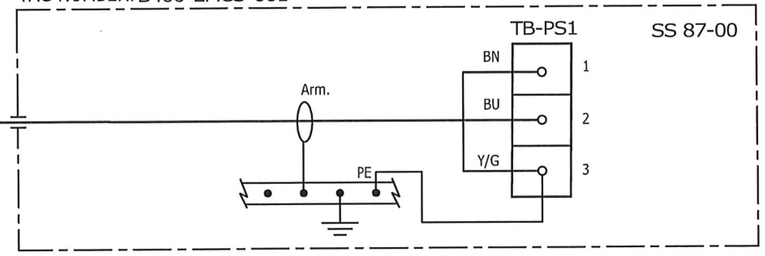
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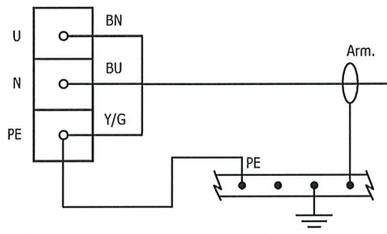
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NO MARK UP
MARCO MORETTO
21/3/25

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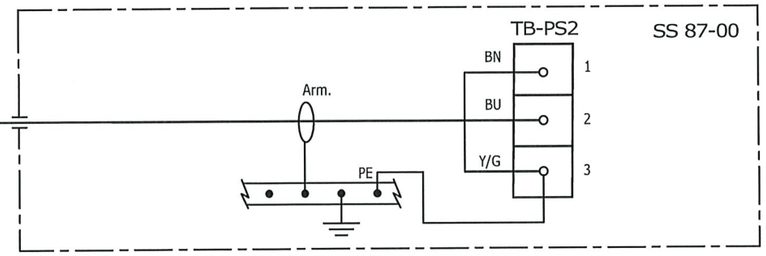
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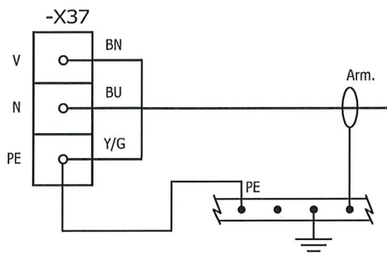
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NO MARK UP
MARCO MORETTO
21/3/25

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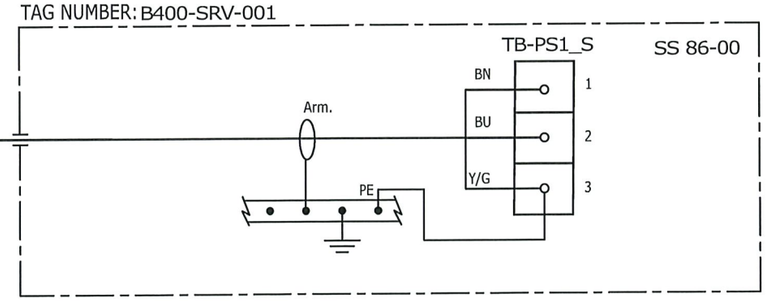
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84307-CEL
3G6 mm²

NO MARK UP
MARCO MORETTO
21/3/25

DESCRIPTION: SERVER CABINET ITER - LINE A
TAG NUMBER: B400-SRV-001



AS COMMISSIONED: MARIA GIRETTI
21/3/25

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

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2_F	09/01/25	G.Randi

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ROSETTI MARINO

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01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
AC UPS – PAS DB DP-200F3

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

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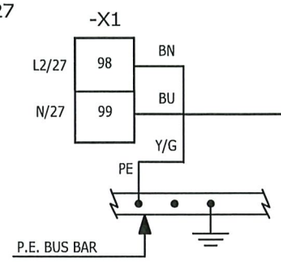
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File Name : 123A90-DDL-EL-DG-20149 Rev. 02

FROM	TO

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TAG NUMBER: DP-200N1

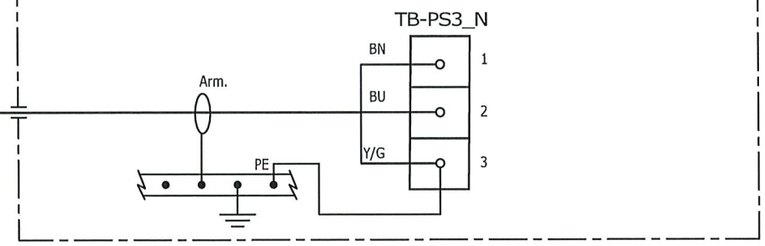
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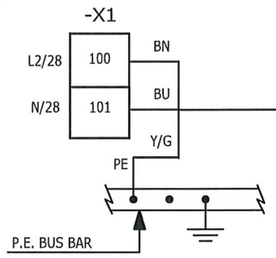
83108-CEL
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NO MARK UP
MARCO MORETTO
20/3/25

DESCRIPTION: SYSTEM SERVER / NETWORK CABINET - AUXILIARY
TAG NUMBER: B400-NET-001



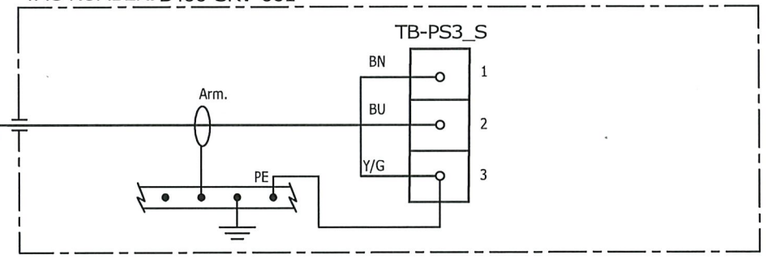
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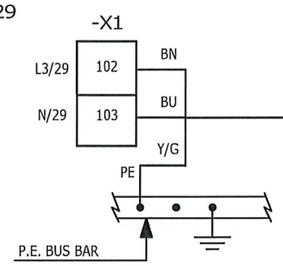
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NO MARK UP
MARCO MORETTO
20/3/25

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TAG NUMBER: B400-SRV-001



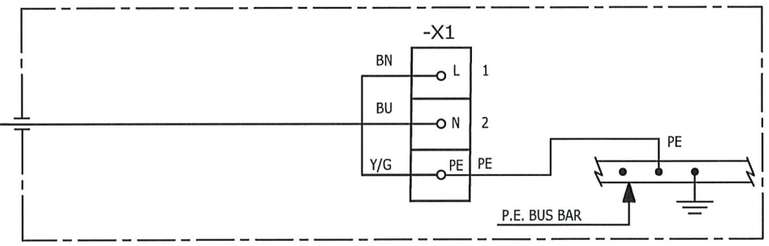
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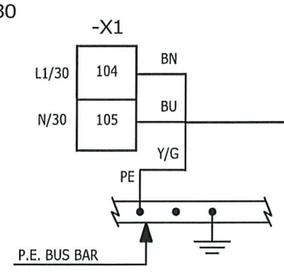
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NO MARK UP
MARCO MORETTO
20/3/25

DESCRIPTION: UCP - INSTRUMENT AIR PACKAGE -A-63000 - AUXILIARY
TAG NUMBER: CP-630E1



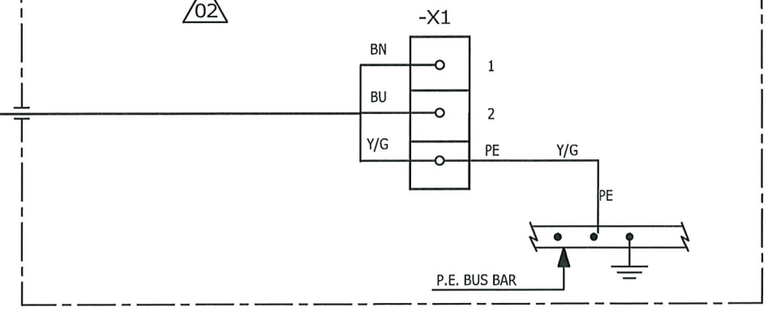
CUBICLE/CB: +03/Q30



83111-CEL
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MARCO MORETTO
19/3/25

DESCRIPTION: UCP - N2 PACKAGE - AUXILIARY
TAG NUMBER: CP-640E1 64-LP001
02



AS COMMISSIONED: MATTIA GIAZ
21/3/25

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

REV.:	DATE:	SIGNATURE:
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ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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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	053	02

F.to UNI A3: 420mmx297mm

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

Section 4.3 Instrumentation functional test sheets index

NOT APPLICABLE

Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.5 Telecommunication functional test sheets index

NOT APPLICABLE

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

NOT APPLICABLE

Section 5 SITE / OPERATIONAL

Section 5.1 Operational Test Procedure

NOT APPLICABLE

Section 5.2 Operational Test Certificates

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 86-00

Miscellaneous	86-00 Data Networks						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
123A90-PML-COM-PRO-03051	OTP - Data Network Systems	ONSHORE	C10004631	5300	100	2025-06-27	RFO 4
		OFFSHORE	C10004951	5300	0	-	-

ITEM	Tag	123A90-PML-COM-PRO-03051 : OTP - Data Network Systems				Dwg	123A90-PML-COM-PRO-03051
	S/Sys	86-00 : Data Networks				Module	
TASK	code	C10004631		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity OTS	Discipline	Miscellaneous Form 5300		Operational Test Procedure

OTP - OPERATIONAL TEST PROCEDURE

Attached procedure number: 123A90-PML-COM-PRO-03051

Associated subsystems: 86-00

Completion date: 26/06/2025

Comments/Remarks:

	Performed by	☐ WITNESS ☒ REVIEW	☐ WITNESS ☒ REVIEW
	COMMISSIONING DISCIPLINE LEAD	RM COMMISSIONING MANAGER	CPY COMMISSIONING MANAGER
Name	Fabio Sirigu	Anthony Iveson	Jamie McAllister
Date	2025-06-26	2025-06-26	2025-06-27
Signature	PROVERLIS Digitaly signed by Fabio Sirigu 2025-06-26T08:06:55.281Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-06-26T08:12:12.071Z	PROVERLIS Digitaly signed by Jamie McAllister 2025-06-27T15:29:42.761Z

Base Load Power Hub (BLPH)

OTP - Data Network Systems

Document Number: 123A90-PML-COM-PRO-03051

Document Class: 2

02	31/01/2025	Accepted for Construction (AFC)	F.SIRIGU	A.IVESON	M.BRUNELLI
01	27/12/2024	Accepted for Construction (AFC)	F.SIRIGU	A.IVESON	M.BRUNELLI
00	04/10/2024	Issue for Review (IFR)	F.SIRIGU	A.IVESON	M.BRUNELLI
Rev.	Date	Description	Prepared	Reviewed	Approved

Revision / Change Log

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

HOLDS LIST

No.	Description
1	
2	
3	
4	

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List of Attachments

Attachment 1 - Not applicable

1. INTRODUCTION

1.1 Project Overview

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

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

1.2 Project Location

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



Figure 1 - *HOLLANDSE KUST NOORD WIND PARK Location Map*

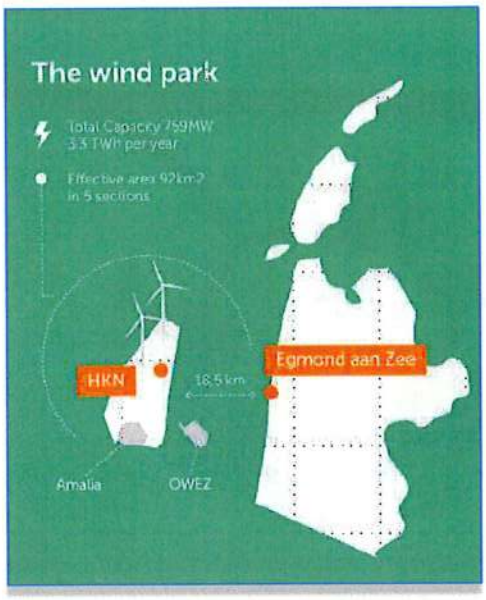


Figure 2 - *Wind Park Details*

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

1.3 Project Concept

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

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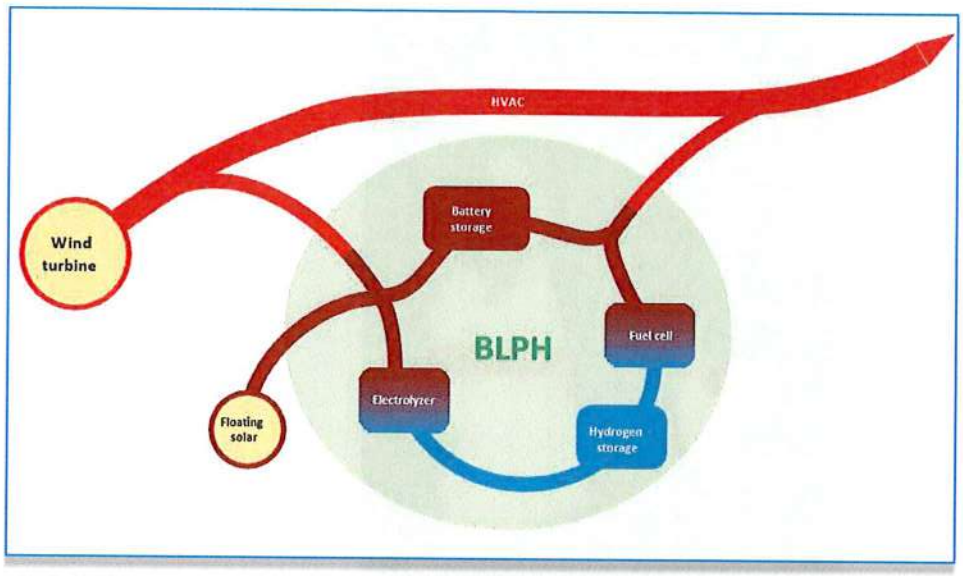


Figure 3 - *BLPH Concept*

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH is to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2. DOCUMENT SCOPE

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

CONTRACTOR, pursuant to CONTRACT and PROJECT requirements, shall implement an exacting methodology, complete with a distinct set of tools and documentation to meet the following key objectives:

Perform the Mechanical Completion, Pre-commissioning and Commissioning on the WORKSITE to the maximum extent possible so as to minimise the commissioning operations on SITE;

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

Achievement of the above objectives shall be obtained by:

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

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3. OTP SUMMARY

3.1 Test Objective

The scope of this document is to describe the testing procedure to be performed local area network (LAN) system. this document provides a step-by-step procedure of all activities required to verify the LAN system to operate as per project requirement.

This document describes both testing procedures to be performed at yard (WORKSITE) and the testing procedures to be performed in offshore (SITE).

The operating test of DATA NETWORKS (B400-SRV-001/B400-NET-001) is performed to ensure that the system is checked and verified for proper operation according to the requirements of the project.

The purpose of this document is to explain the main procedure for data network inspection and testing.

The requirements stated in this document are applicable for the following sub-system(s):

- 86-00: Data Networks

Activities shall be developed as follows:

- Onshore pre-commissioning and commissioning activities at Contractor site (WORKSITE):

PHASE 1: B400-SRV-001/B400-NET-001 located in ITER.

PHASE 2: HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01 located in OER.

- Offshore commissioning (SITE):
  - Connection between ITER and OER through WTG-57 (HNA-5) and between OER and CCR through Company network.

Upon successful completion of the testing requirements stated in this procedure, the system shall be considered ready to be handed over to COMPANY for undertaking the following activities at SITE (offshore).

For further details refer to par. 6 OTP AT OFFSHORE SITE.

The test results shall be recorded in the dedicated test sheets of this procedure.

Any deviation or discrepancy shall be recorded in the commissioning punch list in compliance with the project methodology stated in document 123A90-PML-QHSE-PRO-00117 - Punch List Management Procedure and shall be corrected with appropriate actions.

3.3 Test and System Description

This document is related to the following system:

- 86-00: Data Networks

All equipment must be properly installed in according with vendor document 1724000594-IN-DA-0001. 0001X

The Network and Server Cabinet in ITER data are the following:
GENERAL DATA:

- Supply Voltages from UPS 230V LINE 1; LINE2 and NON-UPS LINE3
- Frequency 50Hz
- Operating Temperature +5°C to 45°C
- Operating Humidity 10 to 93% RH not condensing

Detailed description of the involved sub-system(s) is provided in Project document 123A90-DDL-IN-SP-40018 – Data Network Design Specification.

The system is detailed in the relevant Block Diagram:

123A90-DDL-IN-DD-40019 – Data Network Architecture Drawings.

3.3.1 LAN System Description

For the BLPH Crosswind Project, there will be a Vnet/IP Network interconnecting the equipment's on board of the platform and a PIN (Plant Information Network) used for non-process related open communication. The network equipment in the offshore platform is contained in the cabinet B400-NET-001 which is located inside the ITER (I&T Equipment Room).

The PIN is also connected the WTG-57 tower through a fiber optic link and from there to the onshore infrastructure through another fiber optic link. Onshore there is the OER (Onshore Equipment Room), where the cabinet HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01 is located, which contains all the network equipment. From the OER there's a connection through the Company's Enterprise network to the CCR (Central Control Room), where the supervising workstations are installed.

The control network is based on Yokogawa's robust and highly reliable fully duplexed Vnet/IP real-time network with quick response.

Vnet/IP forms the network backbone connecting Centum VP systems and ProSafe-RS systems and allows data exchange between them in addition to status monitoring on the CI View. Vnet/IP is a fully dual redundant network with Control Bus 1 and 2.

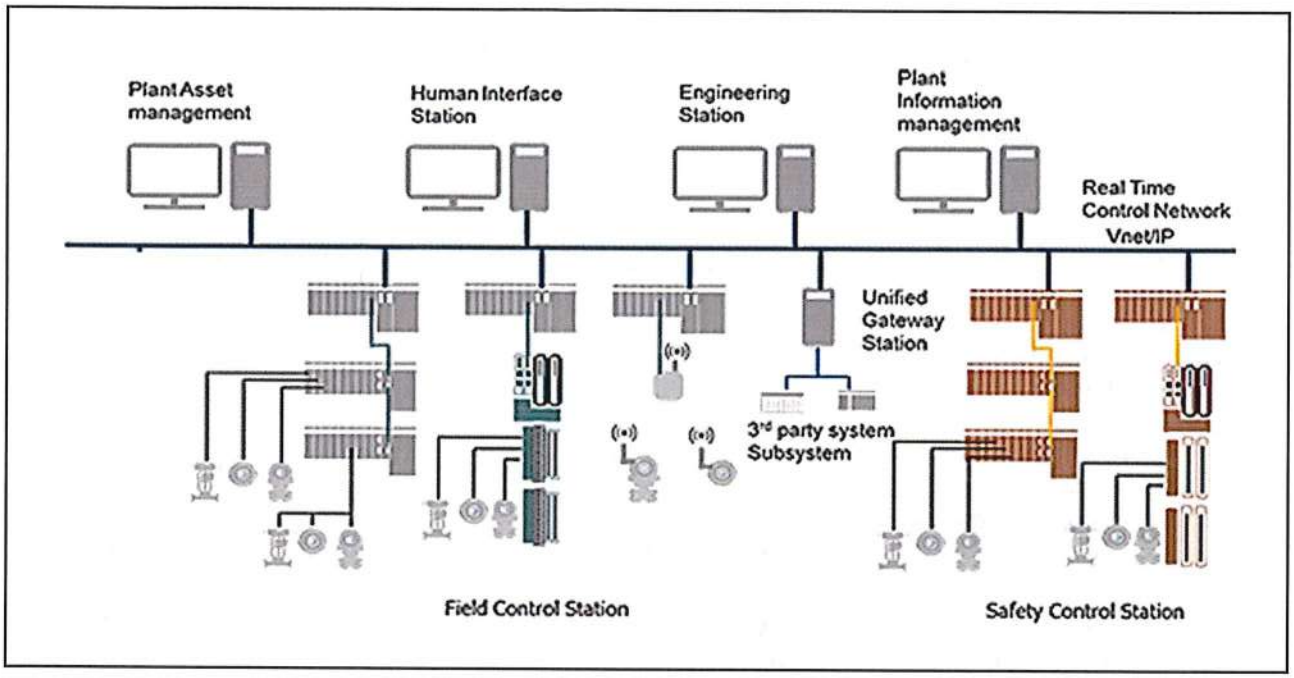


Figure 5 - Vnet/IP Features

Vnet/IP also allows communication via Ethernet-based standard protocols within predetermined bandwidth (hereinafter referred to as Open Communications). The Vnet/IP Bus2 can be used for TCP/IP protocol-based communications, such as data access through an ExaOPC interface.

A Vnet/IP network uses network category 6 cables as a minimum.

Vnet/IP Components:

- Vnet/ IP is a control bus conforming to the IEEE 802.3 standard. Line speed is 1 Gbps. A Vnet/IP bus has a dual redundant configuration. On its bus-2, control communications and open-based communications with various Ethernet standard protocols are provided. At the bus-2 side, data access through an ExaOPC interface and TCP/IP protocol-based communications can be carried out. For equipment for network connections, including repeaters, cables, layer 2 switches, and the like, commercially available general-purpose products are used. For the IP address, IPv4 for Class C private space addressing is applied.
- Layer 2 Switch: This is a device to connect equipment within the Vnet/IP domain. The layer 2 switch, unlike a HUB, incorporates bridge functions to send data to the destination terminal equipment only; it can, therefore, reduce traffic within its domain. Commercially available equipment can be used for a layer 2 switch.

Besides the Vnet/IP Networks there is also a single Ethernet based Plant Information Network (PIN). This network is used for non-process related open communication between the several CI Portal/View stations

and EWS's as well as printing functions (if required). The CI Portal/View stations are connected as thin clients with the CI-Servers.

In addition, the PIN is used for communication with the higher-level systems e.g. Cyber Security and connection to the clients Ethernet and/or office network (LAN). The PIN will be connected to the client's office network via DMZ and existing HV-SCADA system (for OPC-UA interface purpose) through Firewalls.

On top of the previously described networks, there is also a Service Network. This network is multiprotocol proprietary by Company and its main purpose is to allow remote access to the platform and CPI/packages for monitoring and maintenance.

The connection to the shore is done through a 24-cores FO cable that enters in a splice box located in the transition piece. The cables connected to the splice box are shown in the following picture:

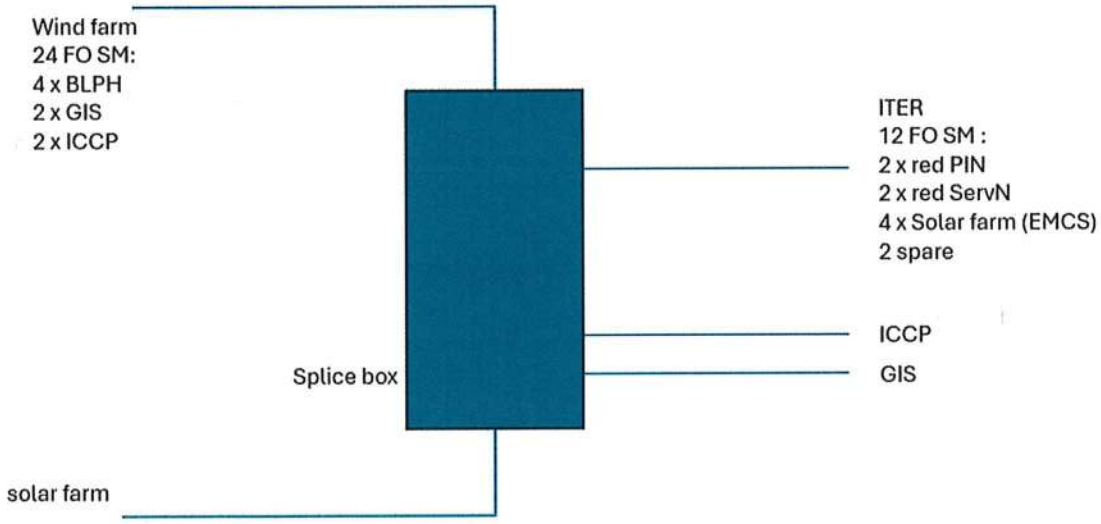


Figure 6 - Splice box and FO cables

The system functions will be formed mainly by the following equipment:

TAG ID	BRAND	MODEL	DESCRIPTION	CABINET
SERVFW-001	Fortinet	FG-80F	Service Firewall 001	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
SERVFW-002	Fortinet	FG-80F	Service Firewall 002	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
PINSWL2-003	Hirschmann	BRS40	PIN Switch 003	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
PINSWL2-004	Hirschmann	BRS40	PIN Switch 004	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01

TAG ID	BRAND	MODEL	DESCRIPTION	CABINET
FW-005	Fortinet	FG-100F	OER Firewall 005	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
FW-006	Fortinet	FG-100F	OER Firewall 006	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
DMZSWL2-001	Hirschmann	BRS40	DMZ switch 001	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
DMZSWL2-002	Hirschmann	BRS40	DMZ switch 002	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
PINSWL2-005	Hirschmann	BRS40	PIN switch 005	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
PINSWL2-006	Hirschmann	BRS40	PIN switch 006	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
FOPP-003	Tecnifiber	CE1-24ST(SM)	FO Patch Panel - 24ports (12core) single mode (SM)	HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01
SERVSWL2-002	Hirschmann	BRS40	Service switch 002	B400-NET-001
SERVSWL2-003	Hirschmann	BRS40	Service switch 003	B400-NET-001
PINSWL2-001	Hirschmann	BRS40	PIN switch 001	B400-NET-001
PINSWL2-002	Hirschmann	BRS40	PIN switch 002	B400-NET-001
SNSWL2-003	Hirschmann	GRS105	Safety network switch 003	B400-NET-001
SNSWL2-004	Hirschmann	GRS105	Safety network switch 004	B400-NET-001
CNSWL2-001	Hirschmann	GRS105	Control network switch 001	B400-NET-001
CNSWL2-002	Hirschmann	GRS105	Control network switch 002	B400-NET-001
FW-001	Fortinet	FG-40F	Vnet/IP firewall 001	B400-NET-001
FW-002	Fortinet	FG-40F	Vnet/IP firewall 002	B400-NET-001
FW-003	Fortinet	FG-80F	Comm. Firewall 003	B400-NET-001
FW-004	Fortinet	FG-80F	Comm. Firewall 004	B400-NET-001
COMSWL2-009	Hirschmann	BRS40	Comm. Switch 009	B400-NET-001
COMSWL2-010	Hirschmann	BRS40	Comm. Switch 010	B400-NET-001
COMSWL2-011	Hirschmann	BRS40	Comm. Switch 011	B400-NET-001
TMSWL2-001				

TAG ID	BRAND	MODEL	DESCRIPTION	CABINET
COMSWL2-0012	Hirschmann	BRS40	Comm. Switch 012	B400-NET-001
Modbus SW 1	Hirschmann	BRS40	Modbus switch	B400-NET-001
Profinet SW	Hirschmann	BRS40	Profinet switch	B400-NET-001
FOPP-001	Tecnifiber	CE1-24ST(SM)	FO Patch Panel - 24ports (12core) single mode (SM)	B400-NET-001
FOPP-002	Tecnifiber	CE1-24ST(MM)	FO Patch Panel - 24ports (12core) multi-mode (MM)	B400-NET-001

Table 1: *List of network equipment*

A dedicated document contains detailed IP addressing plan information (1724000594-IN-RE-000043 – Cyber Security Settings) and each host and system static IP assignments.

The greatest part of the tests will be carried out in the yard (WORKSITE), except for all the tests described for the offshore scenario. For example, the Fiber Optic network connection will be available only in offshore environment. Integration test with Company Proprietary network is possible only in offshore.

The full list of tests to be performed at WORKSITE is reported in paragraph 5.

The full list of tests to performed at SITE is reported in paragraph 6.

3.4 Safety Devices

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

3.5 HSE Management

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

- All personnel involved in this operational test shall be competent for the tasks they will be required to undertake
- Place safety / warning signs and segregate the entire area with barrier tapes (safety barriers) of a colour distinguished (blue and white) from those used for construction activities
- Restrict access into area only to authorized personnel
- Conduct "Toolbox Talk" with all personnel prior to starting test work
- Appropriate Personnel Protective Equipment (PPE) and safety equipment e.g. safety shoes, safety glasses, hand gloves, helmet, earplugs etc. are available and must be used in line with the site requirements

- All activities carried out on the project shall be performed in accordance with the "Permit to Work" system Doc. PRO-HSE-23
- Electrical and mechanical isolations are to be assured as per Doc. PRO-HSE-08 and "Commissioning and start-up operation" procedure.
- Observe and enforce all international codes and regulations to safeguard personnel, plant and environment.
- Ensure that the working area is clean, tidy, well illuminated and that access and escape routes are free from obstructions.

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

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

3.6 Acceptance Criteria

Cleaning & Device Integrity check

The aim of this check is to present equipment in a good status.

Phase 1 - Summary

- The B400-SRV-001 will be powered through power supply from AC 35KVA UPS (UP-200F3) 230V line A MCB Q08 and line B MCB Q09, Subsystem SS 84-10, the B400-SRV-001/B400-NET-001 will be powered through power supply from AC 15KVA UPS (UP-200F4) 230V line A MCB Q04 and line B MCB Q05, Subsystem SS 84-20 and Auxiliary Power supply from Distribution Board DP-200N1 230V MCB Q27 and Q28, Subsystem SS 83-20.
- The B400-PCS-001 will be powered through power supply from AC 35KVA UPS (UP-200F3) 230V line A MCB Q04 and line B MCB Q05, Subsystem SS 84-10 and Auxiliary Power supply from Distribution Board DP-200N1 230V MCB Q24, Subsystem SS 83-20.
- The B400-SIS-001 will be powered through power supply from AC 35KVA UPS (UP-200F3) 230V line A MCB Q02 and line B MCB Q03, Subsystem SS 84-10 and Auxiliary Power supply from Distribution Board DP-200N1 230V MCB Q23, Subsystem SS 83-20.
- The B400-FGS-001 will be powered through power supply from AC 15KVA UPS (UP-200F4) 230V line A MCB Q02 and line B MCB Q03, Subsystem SS 84-20 and Auxiliary Power supply from Distribution Board DP-200N1 230V MCB Q26, Subsystem SS 83-20.
- The B400-EMCS-001 will be powered through power supply from AC 35KVA UPS (UP-200F3) 230V line A MCB Q06 and line B MCB Q07, Subsystem SS 84-10 and Auxiliary Power supply from Distribution Board DP-200N1 230V MCB Q25, Subsystem SS 83-20.

Phase 1 will prove correct:

Verify all cabinets are energised with no alarms present.

Phase 2

The System SS 87-50 OER and CCR is set up temporarily in yard.

Phase 2 will validate the following:

Verify the communication between the systems listed in Phase 1 and the Systems SS 87-50 (OER and CCR).

Functional Tests

The aim of this group of tests is to verify that all requested features are correctly working as per customer specification.

4. DOCUMENTS REFERENCES AND ABBREVIATIONS

4.1 Reference Documents

4.1.1 Company Documents and Standards

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

Table 2: *Company Documents and Standards*

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

4.1.2 Project Documents

Document ID	Document Title
[1] 123A90-PML-PM-LIS-01001	Master Document Register
[2] 123A90-PML-COM-PL-03002	Mechanical Completion & Commissioning Execution Plan
[3] 123A90-PML-COM-LIS-03011	System/Sub-Systems List
[4] 123A90-PML-COM-LIS-03012	System/Sub-System Boundary Limit Diagrams
[5] 123A90-PML-COM-PRO-03007	Commissioning Strategy
[6] 123A90-PML-COM-PRO-03038	Leak Test Procedure
[7] 123A90-PML-COM-SP-03032	Pre-Commissioning Functional Test Sheet Template Collection (ITR-B)
[8] 123A90-PML-COM-SP-03014	Commissioning TDS - Temporary Equipment & Facilities
[9] 123A90-PML-COM-PRO-03019	OTP – Onshore Performance & Integrated Test Procedure
[10] 123A90-PML-COM-LIS-03034	Inhibit-Override Register
[11] 123A90-PML-COM-LIS-03035	PSV Calibration Register
[12] 123A90-PML-COM-PRO-03036	OTP - Black Start Procedure
[13] 123A90-PML-COM-LIS-03024	Commissioning Spare Parts and Consumables List
[14] 123A90-PML-COM-PRO-03022	Initial offshore START-UP procedures
[15] 123A90-PML-COM-RE-03001	Commissioning Final Dossier (ITR-B)
[16] 123A90-PML-QHSE-PRO-00116	Flushing and Cleaning Procedures
[17] 123A90-PML-QHSE-SP-00118	Mechanical Completion Check Sheet Template Collection (ITR-A)
[18] 123A90-PML-QHSE-RE-00115	Mechanical Completion Final Dossier (ITR-A)
[19] 123A90-PML-QHSE-PRO-00117	Punch list Management Procedure
[20] 123A90- 123A90-PML-COM-PRO-03041	OTP - Hydrogen Storage & Venting Systems
[21] 123A90- 123A90-PML-COM-PRO-03042	OTP - Sea Water Intake & Fresh Water Treatment Systems
[22] 123A90- 123A90-PML-COM-PRO-03043	OTP - Instrument Air System
[23] 123A90- 123A90-PML-COM-PRO-03055	OTP - Nitrogen Generation System
[24] 123A90- 123A90-PML-COM-PRO-03045	OTP - HV Switchgear & 66 kV Transformer Systems
[25] 123A90- 123A90-PML-COM-PRO-03046	OTP - 6.6 kV Switchgear & Transformer Systems

Document ID	Document Title
[26] 123A90- 123A90-PML-COM-PRO-03047	OTP - LV Switch Boards & LV Distribution Board Systems
[27] 123A90- 123A90-PML-COM-PRO-03048	OTP - Lighting & Small Power Systems
[28] 123A90- 123A90-PML-COM-PRO-03049	OTP - Electrical Heat Tracing Systems
[29] 123A90- 123A90-PML-COM-PRO-03050	OTP - DC UPS System 10KVA UP-200F1
[30] 123A90- 123A90-PML-COM-PRO-03051	OTP - Data Network Systems
[31] 123A90- 123A90-PML-COM-PRO-03053	OTP - Navaid System
[32] 123A90- 123A90-PML-COM-PRO-03054	OTP - F&G and ESD C&E Logics
[33] 123A90-PML-COM-SP-03057	Worksite WEF (Work Execution Flow Scheme)
[34] 123A90-PML-COM-SP-03058	Site WEF (Work Execution Flow Scheme)
[35] 123A90-PML-QHSE-PL-00001	Project HSE Plan
[36] 123A90-PML-QHSE-PRO-00120	Proverlis Management Procedure
[37] 123A90-PML-COM-PRO-03056	OTP – Document Template
[38] 123A90-PML-COM-PRO-03059	OTP - AC UPS System 35kVA UP-200F3
[39] 123A90-PML-COM-PRO-03060	OTP - AC UPS System 15kVA UP-200F4
[40] 123A90-PML-COM-PRO-03061	OTP – Electrolyser (CPI)
[41] 123A90-PML-COM-PRO-03062	OTP – Fuel Cell (CPI)
[42] 123A90-PML-COM-PRO-03063	OTP – BESS (CPI)

Table 3: *Project Documents*

4.1.3 Vendor Documents

Document ID	Document Title
[1] 1724000594-MD-LIS-00001	SUPPLIER MASTER INDEX REGISTER (SMIR)
[2] 1724000594-QC-ITP-00002	INSPECTION AND TEST PLAN
[3] 1724000594-IN-LIS-00003	Bill of Material
[4] 1724000594-IN-LIS-00007	Systems Cables List
[5] 1724000594-IN-DA-00011	Network and Server Cabinets in ITER ROOM General Arrangement Drawings and Internal Layout
[6] 1724000594-IN-DA-00012	Network and Server Cabinets in OER Room General Arrangement Drawings and Internal Layout

Document ID	Document Title
[7] 1724000594-PM-PL-00014	Project Execution Plan (PEP)
[8] 1724000594-IN-DD-00015	System Architecture
[9] 1724000594-IN-DG-00016	Network Connection Diagram
[10] 1724000594-IN-DG-00022	Network and Server Cabinets in ITER Room Wiring Diagrams and Terminal Strips
[11] 1724000594-IN-DG-00023	Network and Server Cabinets in OER Room Wiring Diagrams and Terminal Strips
[12] 1724000594-QC-PRO-00030	HW FACTORY ACCEPTANCE TEST (FAT) PROCEDURE
[13] 1724000594-QC-PRO-00031	SW FACTORY ACCEPTANCE TEST (FAT) PROCEDURE
[14] 1724000594-QC-PRO-00032	Site Acceptance Test (SAT) PROCEDURE
[15] 1724000594-QC-DB-00033	MANUFACTURERS RECORD BOOK (FINAL DOSSIER)
[16] 1724000594-QC-LIS-00034	MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX
[17] 1724000594-IN-RE-00035	Cyber Security Risk Assessment REPORT
[18] 1724000594-COM-LIS-00039	SPARE PART INDEX REGISTER (COMMISSIONING AND 2-YEARs OPERATION)
[19] 1724000594-IN-RE-00041	CYBERSECURITY WORKSHOP PREPARATION
[20] 1724000594-QC-PRO-00042	THIRD PARTY COMMUNICATION TEST PROCEDURE
[21] 1724000594-IN-RE-000043	Cyber Security Settings

Table 4: *Vendor Documents*

4.2 Acronyms and Abbreviations

Acronyms and Abbreviations	Description
BLPH	Base Load Power Hub
BESS	Battery Energy Storage System
C&E	Cause & Effects
CCR	Centra Control Room
CCS	Central Control System
CPI	Company Provided Item
DNS	Domain Name System
E&I	Electrical & Instrumentation
EMCS	Electrical Monitoring & Control System
ESD	Emergency Shut Down

Acronyms and Abbreviations	Description
F&G	Fire & Gas
FAT	Factory Acceptance Test
FOPP	Fiber Optic Patch Panel
HA	High Availability
HKN	Hollandse Kust Noord
HSE	Health, Safety, & Environment
HSSE	Health, Safety, Security & Environment
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
IP	Internet Protocol
ITR	Inspection & Test Record
LAN	Local Area Network
LOTO	Lock-Out / Tag-Out
LV	Low Voltage
MCB	Miniature Circuit Breaker
OER	Onshore Equipment Room
OTP	Operational Test Procedure (Commissioning)
PCS	Process Control System
RFC	Ready for Commissioning
SAT	Site Acceptance Test
SIMOP	Simultaneous Operations & Maintenance
SIS	Safety Instrumented System
SoF	Statement of Fitness
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
VooW	Van Oord Offshore Wind
WEF	Work Execution Flow Scheme

Table 5: *Acronyms and Abbreviations*

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5. OTP AT REQUIREMENTS - ONSHORE WORKSITE

This chapter refers to the activities to be performed at the Contractor WORKSITE (construction yard).

5.1 Planning and Manpower

5.1.1 Planned tasks with estimated manpower

Estimated manpower is as follows for the entire duration of the Test:

- 1 E&I qualified commissioning engineer from VENDOR.
- 1 E&I supervisor commissioning engineer from CONTRACTOR.
- 1 E&I engineer from CONTRACTOR.
- 1 Representative from COMPANY.

5.1.2 Test duration estimate

The test duration should be as follows:

- 2 Days approx PHASE 1
- 1 Days approx PHASE 2

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

5.1.3 Vendor assistance

VENDOR qualified personnel commissioning engineer are required to be on WORKSITE for the duration of Operational Tests.

5.1.4 Items postponed to C&E OTP

Not applicable

5.1.5 Internal System HARDWIRED Signals to be TESTED

Signal tag:	Signal description:
87-XA-061	NET Panel Ventilation Fan Fault ....Broken Sensor..... [X]
87-XA-062	NET Panel Power supply & Diodes failure ..... [V]
87-XA-063	NET Panel ~~Power supply & Diodes failure~~ CONTROL BREAKER FLT..... [V]

Signal tag:	Signal description:	
87-XA-064	NET Panel ~~Cumulative Breaker Fault~~ HIGH TEMP	[V]
87-XA-073	NET Panel ~~High Temperature Alarm~~ CUMUL BREAKER ALM	[ ]
~~87-XA-074~~	~~SERVER Panel High Temperature Alarm~~	[ ]
70-XA-051	FGS Panel Ventilation Fan Fault Broken Sensor	[V]
70-XA-052	FGS Panel Power supply & Diodes failure Inverted Soft	[V]
70-XA-053	FGS Panel Cumulative Breaker Fault Q4 Reversed Soft	[V]
70-XA-054	FGS Panel High Temperature Alarm	[V]
79-XA-051	SIS Panel Ventilation Fan Fault Sensor Failure	[V]
79-XA-052	SIS Panel Power supply & Diodes failure ~~Inverted~~	[V]
79-XA-053	SIS Panel Cumulative Breaker Fault	[V]
79-XA-054	SIS Panel High Temperature Alarm	[V]
87-XA-051	PCS Panel Ventilation Fan Fault Wrong description	[V]
87-XA-052	PCS Panel Power supply & Diodes failure Wrong description	[V]
87-XA-053	PCS Panel Cumulative Breaker Fault Wrong description	[V]
87-XA-054	PCS Panel High Temperature Alarm Wrong description	[V]
87-XA-082	OER SRV/NET Panel Power supply & Diodes failure Wrong spelling	[V]
87-XA-083	OER SRV/NET Panel Cumulative Breaker Fault	[V]
87-XA-084	OER SRV/NET Panel High Temperature Alarm	[V]
87-XA-091	EMCS Panel Ventilation Fan Fault Sensor Not Working	[ ]
87-XA-092	EMCS Panel Power supply & Diodes failure DI 2.7	[X]
87-XA-093	EMCS Panel Cumulative Breaker Fault DI 2.9	[V]
87-XA-094	EMCS Panel High Temperature Alarm DI 2.4	[V]

Table 6: *Items HARDWIRING to be Tested*

87-XA-055
70-XA-055
79-XA-055
79-XA-010
Not MAPPED
MAPPED WRONG

5.2 OTP TEST REQUIREMENTS – ONSHORE WORKSITE

5.2.1 Pre-Commissioning Achievement

Prior pre-commissioning and commissioning operations starts all the equipment must be installed, mechanically complete, and all cables and patch cords have been tested, pulled and connected to the respective equipment's.

Completion of relevant sub-systems pre-commissioning tasks as applicable and heading to the acceptance of related Ready for Commissioning (RFC) certificates is required in order to proceed with the following commissioning tasks.

5.2.2 Commissioning Achievement

Commissioning achievement will be to bring in an operational status the LAN System.

Before proceeding with the operational testing, completion of the task/check forms for LAN system is required.

5.2.3 Status of Required Associated Subsystems

PHASE 1:

Subsystems required RFC for Commissioning DATA NETWORKS:

- SS 83-20 Distribution Board DP-200N1 230V
- SS 84-10 AC 35KVA UPS (UP-200F3) 230V
- SS 84-20 AC 15KVA UPS (UP-200F4) 230V
- SS 88-00 Earthing System
- SS 86-00 Server/Network Cabinet
- SS 70-00 FGS System Cabinet
- SS 79-00 SIS System Cabinet
- SS 87-00 EMCS System Cabinet
- SS 87-10 PCS System Cabinet

PHASE 2:

- Subsystems required RFC for Commissioning DATA NETWORKS:
- SS 83-20 Distribution Board DP-200N1 230V
- SS 84-10 AC 35KVA UPS (UP-200F3) 230V
- SS 84-20 AC 15KVA UPS (UP-200F4) 230V
- SS 88-00 Earthing System
- SS 86-00 Server/Network Cabinet
- SS 70-00 FGS System Cabinet
- SS 79-00 SIS System Cabinet
- SS 87-00 EMCS System Cabinet
- SS 87-10 PCS System Cabinet
- SS 87-50 OER / CCR System

Safety Instrumented System (SIS) shall be required operative and able to send cut-off signal for shutting down LAN system.

For the testing at SITE, the full network connectivity between BLPH and Wind Farm is supposed to be already established.

5.2.4 Special Tools & Test Equipment

The following instruments and tools will be used for the tests:

- Continuity tester (Multimeter)
- Toolbox
- Network Cable Tester
- Test Laptop
- Portable radios (1 pcs + 1 per Technical Room)

TESTING & MEASUREMENT INSTRUMENT USED			
Type	Serial N.	Calibration certificate	Validity
FLUKE 175	AW1/018	7715/24	10-07-2025

5.2.5 Consumable List

Not applicable.

5.2.6 Commissioning Spare Parts

Commissioning spare parts shall be as per Vendor doc. 1724000594-COM-LIS-00039 Spare Part Index Register (Commissioning And 2-Years Operation).

5.2.7 Temporary Facilities

- Temporary power supplies for System 87-50 OER/CCR
- Temporary Lan connection between System 87-50 and System 86-00

5.3 OTP DESCRIPTION – ONSHORE WORKSITE

5.3.1 OTP Test Preparation

This phase identifies all the preparatory inspections and activities to be carried out prior to performing the OTP of LAN system.

Installation, earthing/bonding and electrical checks are carried out during Mechanical Completion, no other preliminary tests are necessary.

Step	Description	Result	Verified by	Date
1.	System Ready for Commissioning Certificate (RFC) is issued and approved.	OK		
2.	No Mechanical Completion or Pre-commissioning punch list 'A' items are outstanding against the system to be commissioned.	OK		
3.	Factory Acceptance Test Procedure has been carried out successfully (refer to Doc. 1724000594-QC-PRO-0030).	OK		
4.	All personnel involved in the implementation of this procedure are familiar with its content as well as with associated safety requirements (Toolbox Talk to be conducted before initiation of activities).	OK		30-05-2025
5.	A final walkdown of the system has been completed, to ensure that the system and the area are ready for commissioning.	OK		
6.	Check that areas are free for work and escape routes are clear of any obstructions.	OK		
7.	All safety barriers and warning signs have been installed.	OK		
8.	Ensure that proper communications have been established between parties involved in the implementation of the procedure.	OK		
9.	Verify availability of test equipment and consumables as per section 5.2.4.	OK		
10.	System(s) isolations as per LOTO procedure defined within HSSE Permits to Work and Commissioning procedures duly prepared and approved	OK		
11.	All yard personnel have been duly notified by dedicated LUN (Livening Up Notification) that the system(s) is ready for commissioning.	OK		

5.3.2 Electrical Preparation

12.	Verify and confirm the completion of the final connections between the UPS (UP-200F4) line A MCB Q02 and line B MCB Q03 and the Cabinet B400-FGS-001	OK		30-05-2025
13.	Verify and confirm the completion of the final connections between the Distribution Board DP-200N1 MCB Q26 and the Cabinet B400-FGS-001.	OK		30-05-2025

5.3.3 Mechanical Preparation

Step	Description	Result	Verified by	Date
1.	Confirm availability and normal working operation of HVAC System 77-40 specific to technical room B-400.	OK		30-05-2025

5.3.4 Instrument Preparation

Step	Description	Result	Verified by	Date
1.	Check related punch list 'B' items and confirm acceptability for start of commissioning activities.	OK		30-05-2025
2.	Verify that all relevant associated systems / subsystems are ready.	OK		
3.	Verify that relevant equipment/ components are available and in operation for start of commissioning activities.	OK		
4.	Verify availability of test equipment as per section 5.2.4.	OK		

5.3.5 Piping Preparation

- Not applicable.

5.3.6 Additional Discipline Preparation

- Not applicable.

The electric power distribution system (Low Voltage distribution) is supposed to be fully commissioned and energized.

Step	Description	Result	Verified by	Date
1.	Check related punch list 'B' items and confirm acceptability for start of commissioning activities.	OK		
2.	Verify that all relevant associated systems / subsystems are completed.	OK		
3.	Verify and confirm the completion of the final connections between the UPS (UP-200F3) line A MCB Q08 and line B MCB Q09 and the Cabinet B400-SRV-001.	OK		
4.	Verify and confirm the completion of the final connections between the UPS (UP-200F4) line A MCB Q04 and line B MCB Q05 and the B400-NET-001/B400-SRV-001.	OK		
5.	Verify and confirm the completion of the final connections between the Distribution Board DP-200N1 line A MCB Q27 and line B MCB Q28 and the Cabinet B400-NET-001/B400-SRV-001.	OK		
6.	Verify and confirm the completion of the final connections between the UPS (UP-200F3) line A MCB Q02 and line B MCB Q03 and the Cabinet B400-SIS-001.	OK		
7.	Verify and confirm the completion of the final connections between the Distribution Board DP-200N1 MCB Q23 and the Cabinet B400-SIS-001.	OK		
8.	Verify and confirm the completion of the final connections between the UPS (UP-200F3) line A MCB Q04 and line B MCB Q05 and the Cabinet B400-PCS-001.	OK		30-05-2025
9.	Verify and confirm the completion of the final connections between the Distribution Board DP-200N1 MCB Q24 and the Cabinet B400-PCS-001.	OK		
10.	Verify and confirm the completion of the final connections between the UPS (UP-200F3) line A MCB Q06 and line B MCB Q07 and the Cabinet B400-EMCS-001.	OK		
11.	Verify and confirm the completion of the final connections between the Distribution Board DP-200N1 MCB Q25 and the Cabinet B400-EMCS-001.	OK		

5.4 OTP TEST STEPS – ONSHORE WORKSITE (PHASE 1 & PHASE 2)

5.4.1 Test Preparation

Need to Verify:

- SS 83-20 Distribution Board DP-200N1 230V
- SS 84-10 AC 35KVA UPS (UP-200F3) 230V
- SS 84-20 AC 15KVA UPS (UP-200F4) 230V
- SS 88-00 Earthing System
- SS 86-00 Server/Network Cabinet
- SS 70-00 FGS System Cabinet
- SS 79-00 SIS System Cabinet
- SS 87-00 EMCS System Cabinet
- SS 87-10 PCS System Cabinet
- SS 87-50 OER / CCR System

All systems and subsystems involved in this procedure must be ready for commissioning and available.

The following table details the full list of tests to be performed at WORKSITE during Phase 1 (ITER)

Test N°	Test Name (Cabinets B400-NET-001/B400-SRV-001)
1.	Network Switch test
2.	Network Switch Backup Test
3.	Firewall Test
4.	Firewall HA Redundancy Test
5.	Firewall Backup Test
6.	LAN Connectivity Test
7.	Cabinet B400-NET-001 Alarm Test (ref. Section 5.1.5)
8.	Cabinet B400-SRV-001 Alarm Test (ref. Section 5.1.5)

The following are the tests to be performed at WORKSITE during Phase 2 (OER):

Test N°	Test Name
1.	Network switch test
2.	Network Switch Backup Test
3.	Firewall Test
4.	FIREWALL HA Redundancy Test

5.	Firewall Backup Test
6.	LAN Connectivity Test
7.	Cabinet OER-NET/SRV-001 Alarm Test (ref. Section 5.1.5)

Each test shown in the table is detailed in the following paragraphs.

5.4.2 Test Steps PHASE 1

The scope of this test is to energize the cabinet with all internal components, even if some equipment is not part of LAN Network system. The cabinet will be fully energized.

Step	Description	Result	Verified by	Date
Energization of Data Networks				
PHASE1: Energization of Subsystems				
Verify related ITR-B for System 86-00, System 70-00, System 79-00, System 87-00, System 87-10 and 87-50 are completed.				
1	Check and confirm that the following MCBs are ready power on from: UPS (UP-200F3) 230V • MCB ~~Q02~~ and MCB ~~Q03~~ QF37/QF38 • MCB ~~Q04~~ and MCB ~~Q05~~ QF43/QF44 • MCB ~~Q06~~ and MCB ~~Q07~~ QF45/QF46 • MCB ~~Q08~~ and MCB ~~Q09~~ QF47/QF48 UPS (UP-200F4) 230V • MCB ~~Q02~~ and MCB ~~Q03~~ QF31/QF32 • MCB ~~Q04~~ and MCB ~~Q05~~ QF36/QF37 Distribution Board DP-200N1 230V • MCB Q23 • MCB Q24 • MCB Q25 • MCB Q26 • MCB Q27 and MCB Q28	OK		30.05.2025
2	Verify System references with the vendor document: SS 86-00 1724000-IN-DG-00022 Sheets ~~6;7;8;~~15;16;17. 6,7,8 the following protection devices are open: MS1_S; MS2_S; Q1; MS1_N; MS2_N; Q50.	Already energized	ek	13-02

Step	Description	Result	Verified by	Date
3	Verify System references with the vendor document: SS 70-00 1724000594-IN-DG-00021 sheets 6;8;10 the following protection devices are open: MS1_F; MS2_F; Q1.	Already energized	ek	13-02
4	Verify System references with the vendor document: SS 79-00 1724000594-IN-DG-00021 sheets ~~36;37;38~~ 47,49,51 the following protection devices are open: MS1_S; MS2_S; Q50.	Already energized	ek	13-02
5	Verify System references with the vendor document: SS 87-00 1724000594-IN-DG-0024 Sheets 16;17;18. the following protection devices are open: MS1; MS2; Q1.	Already energized	ek	13-02
6	Verify System references with the vendor document: SS 87-10 1724000594-IN-DG-0020 sheets 6;8;10. the following protection devices are open: MS1; MS2; Q1. QF37 QF38	Already energized	ek	13-02
7	Close the MCB ~~Q08~~ and MCB ~~Q09~~ from UPS (UP-200F3), MCB ~~Q04~~ and MCB ~~Q05~~ from UPS (UP-200F4), with reference vendor doc. QF36 QF37 1724000-IN-DG-00022 sheets 6;7;15;16, verify that power supply 230V is present on the terminals: TB_PS1_S: 1-2 Voltage ~~234,8~~ 232,2 V. TB_PS2_S: 1-2 Voltage ~~232,1~~ 232,3 V. TB_PS1_N: 1-2 Voltage 231,8 V. TB_PS2_N: 1-2 Voltage 232,1 V.	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
8	Close the MCB Q28 and MCB Q28 from Distribution Board DP-200N1and with reference vendor doc. 1724000-IN-DG-00022 sheets 8;17 verify that power supply 230V is present on the terminals: TB_PS3_S: 1-2 Voltage 246,6 V. TB_PS3_N: 1-2 Voltage 246,0 V.	OK	DM	30/05/2025
9	Close the MCB Q02 and MCB Q03 from UPS (UP-200F4) and with reference vendor doc. 1724000594-IN-DG-00021 sheets 6;8 verify that power supply 230V is present on the terminals: TB_PS1_F: 1-2 Voltage 232,0 V. TB_PS2_F: 1-2 Voltage 231,9 V.	OK	DM	30/05/2025
10	Close the MCB Q26 from Distribution Board DP-200N1and with reference vendor doc. 1724000594-IN-DG-00021 sheet 10 verify that power supply 230V is present on the terminals: TB_PS3_F: 1-2 Voltage 245,9 V.	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
11	Close the MCB ~~Q02~~ QF43 and MCB ~~Q03~~ QF44 from UPS (UP-200F3) and with reference vendor doc. 1724000594-IN-DG-00021 sheets ~~36;37~~ 47 49 verify that power supply 230V is present on the terminals: TB_PS1_S: 1-2 Voltage ~~323~~ 232,6 V. TB_PS2_F: 1-2 Voltage 232,6 V.	OK	DM	30/05/2025
12	Close the MCB Q23 from Distribution Board DP-200N1and with reference vendor doc. 1724000594-IN-DG-00021 sheet ~~38~~ 51 verify that power supply 230V is present on the terminals: TB_PS3_S: 1-2 Voltage 245,1 V.	OK	DM	30/05/2025
13	Close the MCB ~~Q06~~ QF47 and MCB ~~Q07~~ QF48 from UPS (UP-200F3) and with reference vendor doc. 1724000594-IN-DG-00024 sheet 16;17 verify that power supply 230V is present on the terminals: TB_PS1: 1-2 Voltage 232,7 V. TB_PS2: 1-2 Voltage 232,7 V.	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
14	Close the MCB Q25 from Distribution Board DP-200N1and with reference vendor doc. 1724000594-IN-DG-00024 sheet 18 verify that power supply 230V is present on the terminals: TB_PS3: 1-2 Voltage 246,7 V.	OK	DM	30/05/2025
15	Close the MCB ~~Q04~~ QF45 and MCB ~~Q05~~ QF46 from UPS (UP-200F3) and with reference vendor doc. 1724000594-IN-DG-00020 sheets 6;8 verify that power supply 230V is present on the terminals: TB_PS2: 1-2 Voltage 232,7 V. TB_PS2: 1-2 Voltage 232,7 V.	OK	DM	30/05/2025
16	Close the MCB Q24 from Distribution Board DP-200N1and with reference vendor doc. 1724000594-IN-DG-00020 sheet 10 verify that power supply 230V is present on the terminals: TB_PS3: 1-2 Voltage 246,2 V.	OK	DM	30/05/2025
17	Confirmed the steps 7 to 16 let's proceed with energization the System Cabinets: • Systems Cabinet 86-00 • Systems Cabinet 70-00 • Systems Cabinet 79-00 • Systems Cabinet 87-00 • Systems Cabinet 87-10	Already energized	ek	13-02
18	System cabinet tag: B400-SRV-001			

Step	Description	Result	Verified by	Date
	If the voltages measured at step 7 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: *Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00022".* Energize Q1 (Auxiliary Line – Non-UPS) and Q2/Q3 and verify cabinet service light (H1_S) is switched on with cabinet doors open and service socket (SK1) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%) Voltage 245,9 V. Energize MS1_S and Q5 and verify that sockets SK2/~~KS3~~ SK are powered up. Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage 232,3 V. Energize MS2_S and Q7 and verify that sockets SK4/KS5 are powered up. Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage 232,3 V.	OK	DM	30/05/2025
19	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up.			

Step	Description	Result	Verified by	Date
	Switch off UPS-1 Line MS1_S. Verify that the equipment is still powered up. ..... [OK] Switch on UPS-1 Line MS1_S. ..... [OK] Switch off UPS-2 Line MS2_S. Verify that the equipment is still powered up. ..... [OK] Switch on UPS-2 Line MS2_S. ..... [OK] **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.	Net/sur Servers Are Mixed over the power supply 230V switch on the wrong power supply emons Fgs pcs sis	ek DM ok	13-2 30/05/2025 13-2
20	System cabinets tag: B400-NET-001 If the voltages measured at step7 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00022". Energize Q50 (Auxiliary Line – Non-UPS) and Q51/Q52 and verify cabinet service light	ok	ek	13-2

Step	Description	Result	Verified by	Date
	(H1_N) is switched on with cabinet doors open and service socket (SK4) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%) Voltage 245,5 V. Energize Q54 and verify that the cabinet fans are activated. Verify the presence of 230 V (+/- 10%) at the fan controller. By adjusting the fan controller knobs, verify that the fan is operating normally. Energize MS1_N (UPS-1 Line) and Q55 and verify that WEIDMULLER PRO EVO 24V Power Supply (G1_N) is switched on (LED is lit). Energize Q56 and verify that ~~sockets SK5/SK6~~ are powered up. Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage ~~NOT WORKING~~ 234.4 V. Energize MS2 (UPS-2 Line) and Q58 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2) is switched on (LED is lit). Energize Q59 and verify that sockets ~~SK7/SK8~~ are powered up. Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage 232,0 V.	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
21	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up. Switch off UPS-1 Line MS1_N. Verify that the equipment is still powered up. Switch on UPS-1 Line MS1_N. ~~.....~~ [OK] Switch off UPS-2 Line MS2_N. Verify that the equipment is still powered up. ..... [OK] Switch on UPS-2 Line MS2_N. **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.	OK	DM	30/05/2025
22	System cabinets tag: B400-SIS-001 If the voltages measured at step 9 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00021". Energize Q1 (Auxiliary Line – Non-UPS) and Q2/Q3 and verify cabinet service light (H1_F, ~~H2_F and H3_F)~~ is switched on with cabinet doors open and service socket (SK1_F) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%)	OK		

Step	Description	Result	Verified by	Date
	Voltage 231,7 V. Energize ~~Q5~~ Q54 and verify that the cabinet fans are activated. Verify the presence of 230 V (+/- 10%) at the fan controller. By adjusting the fan controller knobs, verify that the fan is operating normally. Energize MS2_~~F~~ 5 (UPS-1 Line) and ~~Q6~~ Q55 and verify that WEIDMULLER PRO EVO 24V Power Supply (G1_~~F~~ 5) is switched on (LED is lit). Energize ~~Q7/Q8/Q9/Q10/Q11/Q12~~ Q56/Q57/Q58/Q59 and verify that RACK ~~A/B/C/D/E/F~~ 01,02,03 are powered up. Energize MS2_~~F~~ 5 (UPS-2 Line) and ~~Q14~~ Q62 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2_~~F~~ 5) is switched on (LED is lit). Energize ~~Q15~~/Q61/Q62/Q63/~~Q20~~ and verify that RACK ~~A/B/C/D/E/F~~ 01,02,03 are powered up.	OK	DM	30/05/2025
23	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up. Switch off UPS-1 Line MS1_5. Verify that the equipment is still powered up. 243.1 ..... [OK] Switch on UPS-1 Line MS1_5. 243.0 ..... [OK] Switch off UPS-2 Line MS2_5. Verify that the equipment is still powered up. 243.1 ..... [OK]	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
	Switch on UPS-2 Line MS2_F. 243.1 ..... [OK] **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.	OK		
24	System cabinets tag: B400-FGS-001 If the voltages measured at step11 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00021". Energize Q50 (Auxiliary Line – Non-UPS) and Q51/Q52 and verify cabinet service light (H1_F) is switched on with cabinet doors open and service socket (SK1_F) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%) Voltage 244,9 V. Energize Q54 and verify that the cabinet fans are activated. Verify the presence of 230 V (+/- 10%) at the fan controller. By adjusting the fan controller knobs, verify that the fan is operating normally. Energize MS1_F (UPS-1 Line) and Q55 and verify that WEIDMULLER PRO EVO 24V Power Supply (G1_F) is switched on (LED is lit).	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
	Energize ~~Q56/Q57/Q58~~ Q7, Q8, Q9, Q10, Q11, Q12 and verify that RACK ~~A/B/C~~ are powered up. Energize MS2_~~$~~F (UPS-2 Line) and ~~Q60~~ Q01, Q02, Q03, Q04, Q05, Q06 14 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2_~~$~~F) is switched on (LED is lit). Energize ~~Q61/Q62/Q63~~ Q15, Q16, Q17, Q18, Q19, Q20 and verify that and verify that RACK ~~A/B/C~~ Q01, Q02, Q03, Q04, Q05, Q06 are powered up.	OK	DM	30/05/2025
25	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up. Switch off UPS-1 Line MS1_~~$~~F. Verify that the equipment is still powered up. 243.1 ..... [OK] Switch on UPS-1 Line MS1_~~$~~F. 243.1 ..... [OK] Switch off UPS-2 Line MS2_~~$~~F. Verify that the equipment is still powered up. 243.0 ..... [OK] Switch on UPS-2 Line MS2_~~$~~F. 243.1 ..... [OK] **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.	OK		

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Step	Description	Result	Verified by	Date
26	System cabinet tag: B400-EMCS-001 If the voltages measured at step13 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00024". Energize Q1 (Auxiliary Line – Non-UPS) and Q2/Q3 and verify cabinet service light (H1) is switched on with cabinet doors open and service socket (SK1) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%) Voltage 245.4 V. Energize Q5 and verify that the cabinet fans are activated. Verify the presence of 230 V (+/- 10%) at the fan controller. By adjusting the fan controller knobs, verify that the fan is operating normally. Energize MS1 (UPS-1 Line) and Q6 and verify that WEIDMULLER PRO EVO 24V Power Supply (G1) is switched on (LED is lit). Energize MS2 (UPS-2 Line) and Q8 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2) is switched on (LED is lit).	OK	DM	30/05/2025
27	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up. Switch off UPS-1 Line MS1. Verify that the equipment is still powered up. 243.1 [OK]			

Step	Description	Result	Verified by	Date
	Switch on UPS-1 Line MS1. 243.9 ..... [OK] Switch off UPS-2 Line MS2. Verify that the equipment is still powered up. 243.0 ..... [OK] Switch on UPS-2 Line MS2. 243.0 ..... [OK] **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.	OK	DM	30/05/2025
28	System cabinet tag: B400-PCS-001 If the voltages measured at step15 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00020". Energize Q1 (Auxiliary Line – Non-UPS) and Q2/Q3/~~Q4~~ and verify cabinet service light (H1/H2) is switched on with cabinet doors open and service socket (SK1) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%)	ok	DM	30/05/2025

H2 MISSING

Step	Description	Result	Verified by	Date
	Voltage 245,6 V. Energize Q5 and verify that the cabinet fans are activated. Verify the presence of 230 V (+/- 10%) at the fan controller. By adjusting the fan controller knobs, verify that the fan is operating normally. Energize MS1 (UPS-1 Line) and Q6/Q20 and verify that WEIDMULLER PRO EVO 24V Power Supply (G1/G3) is switched on (LED is lit). Energize Q7/Q8/Q9/Q10 and verify that and verify that RACK ~~A/B/C/D~~ 01,02,03,04 are powered up. Energize MS2 (UPS-2 Line) and Q12/Q21 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2/G4) is switched on (LED is lit). Energize Q13/Q14/Q15/Q116 and verify that and verify that RACK ~~A/B/C/D~~ 01,02,03,04 are powered up.	OK	DM	30/05/2025
29	With both UPS-1 and UPS-2 connected, verify that all active equipment is powered up. Switch off UPS-1 Line MS1. Verify that the equipment is still powered up. 243,0 ..... [OK] Switch on UPS-1 Line MS1. 243,1 ..... [OK] Switch off UPS-2 Line MS2. Verify that the equipment is still powered up. 243,1 ..... [OK]	OK	DM	30/05/2025

Step	Description	Result	Verified by	Date
	Switch on UPS-2 Line MS2. 2430 ..... [OK] **Note:** Under this test with dual PSUs, it is normal that one of the PSUs will not be operational when the connected UPS feed is switched off. The second PSU shall be however operational and supply power to the equipment.			

5.4.3 WORKSITE PHASE 1 Test no.1 – Network Switch test

Step ID	Actions	Acceptance Criteria	Result
1	Login to the switches with an engineering level account taken from the IP address and password list document.	Login is required to access through the console, and it is successful with the engineer account.	IP ADDRESS FROM ASSET INVENTORY DOC.
2	Verify that all the power supplies are correctly shown with no errors, and fans and temperatures are correct.	All the Power supply are "Good" status. The fans in normal operation and the temperature not in alarm.	OK
3	Verify that the devices are working properly and are correctly seen and connected.	All the network switches are correctly shown.	OK
4	The network communication is controlled by the system diagnostics and displayed on the engineering station.	The network communication is correctly displayed on the engineering station.	OK

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Tag ID	Brand/Model	Description	Test result
SERVSWL2-002	Hirschmann BRS40	Service switch 002	
SERVSWL2-003	Hirschmann BRS40	Service switch 003	
PINSWL2-001	Hirschmann BRS40	PIN switch 001	

Tag ID	Brand/Model	Description	Test result
PINSWL2-002	Hirschmann BRS40	PIN switch 002	
SNSWL2-003	Hirschmann GRS105	Safety network switch 003	
SNSWL2-004	Hirschmann GRS105	Safety network switch 004	
CNSWL2-001	Hirschmann GRS105	Control network switch 001	
CNSWL2-002	Hirschmann GRS105	Control network switch 002	
COMSWL2-0009	Hirschmann BRS40	Comm. Switch 009	
COMSWL2-0010	Hirschmann BRS40	Comm. Switch 010	
~~COMSWL2-0011~~	Hirschmann BRS40	Comm. Switch 011	
COMSWL2-0012	Hirschmann BRS40	Comm. Switch 012	
Modbus SW 1	Hirschmann BRS40	Modbus switch	
Profinet SW	Hirschmann BRS40	Profinet switch	

TMSWL2-001
IEC SW 1
IEC SW 2
~~FW 7~~
~~FW 8~~
MODBUS 2

1 SNSWL2-003
2 SNSWL2-004
3 CNSWL-001
4 CNSWL-002
5 TMSSWL2-001
6 PINSWL2-001
7 PINSWL2-002
8 PINSWL2-003
9 PINSWL2-004
10 PINSWL2-005
11 PINSWL2-006
12 MODSWL2-001
13 MODSWL2-002
14 PRFNSW2-001
15 IECSWL2-001
16 IECSWL2-002
17 COMSWL2-001
18 COMSWL2-002
19 SERVSWL2-001
20 SERVSWL2-002
21 SERVSWL2-003
22 SERVSWL2-004

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5.4.4 WORKSITE PHASE 1 Test no.2 – Network Switch Backup test

Step ID	Actions	Acceptance Criteria	Result
1	Connect with a temporary laptop with USB cable network switch console port.	Laptop is connected with a terminal software open connected to the matching COM port.	OK
2	Login to the switch with an engineering level account taken from the IP address and password list document.	Login is required to access through the console, and it is successful with the engineer account.	OK
3	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping gateway IP from the laptop.	Ping is successful.	PING UNET STATION OK
4	Execute the **# copy running-config ftp:** Specify the laptop IP address and give a filename.	File is successfully copied to the laptop TFTP software folder.	FTP DISABLED BY FIREWALL RULES
5	Verify that the USB storage cartridge connected to the drive is the FAT labelled. Copy the configuration file from the laptop to the USB drive.	File is copied to the FAT USB disk cartridge. Use the Get-FileHash Powershell command to write the file hash value into a dedicated text file.	NA

30-05-2025

Tag ID	Brand/Model	Description	Test result
SERVSWL2-002	Hirschmann BRS40	Service switch 002	OK
SERVSWL2-003	Hirschmann BRS40	Service switch 003	OK
PINSWL2-001	Hirschmann BRS40	PIN switch 001	OK
PINSWL2-002	Hirschmann BRS40	PIN switch 002	OK
SNSWL2-003	Hirschmann GRS105	Safety network switch 003	OK
SNSWL2-004	Hirschmann GRS105	Safety network switch 004	OK
CNSWL2-001	Hirschmann GRS105	Control network switch 001	OK
CNSWL2-002	Hirschmann GRS105	Control network switch 002	OK

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Test Notes and Remarks:

1) B400-SIS-001 : LAMP TAG IS MISSING

Tag ID	Brand/Model	Description	Test result
COMSWL2-0009	Hirschmann BRS40	Comm. Switch 009	
COMSWL2-0010	Hirschmann BRS40	Comm. Switch 010	
COMSWL2-0011	Hirschmann BRS40	Comm. Switch 011	
COMSWL2-0012	Hirschmann BRS40	Comm. Switch 012	
Modbus SW (1-2)	Hirschmann BRS40	Modbus switch	OK
Profinet SW	Hirschmann BRS40	Profinet switch	OK

Test Notes and Remarks:

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5.4.5 WORKSITE phase 1 test no.3 – Firewall test

Step ID	Actions	Acceptance Criteria	Result
1	Connect with a temporary laptop with USB cable to the network switch console port	Laptop is connected with a terminal software open connected to the matching COM port of the firewall	CONSOLE PORT IS ETHERNET
2	Login to the Firewall with an engineering level account taken from the IP address and password list document	Login is required to access through the console, and it is successful with the engineer account	OK (FROM NMS)
3	Issue the **# get system status** to verify that the firewall pair is correctly set.	Output will contain as a minimum the following: Version: FortiGate-* Serial-Number: FGT*** BIOS version: *** Operation Mode: NAT Current HA mode: A-P Primary	OK (FROM NMS) NO HA
4	Issue the **# get system ha status** to verify that the firewall pair is correctly set.	Output will contain: **HA Health Status: OK**	NA
5	Issue the **# execute ha manage 1** to connect to the firewall and repeat steps from 2 to 5. (Firewall number may vary. Check with the get system ha status)	Verify each steps output as shown from 2 to 5.	NA

30-05-2025

Tag ID	Brand/Model	Description	Test result
FW-001	Fortinet FG-40F	Vnet/IP firewall 001	OK
FW-002	Fortinet FG-40F	Vnet/IP firewall 002	OK
FW-003	Fortinet FG-80F	Comm. Firewall 003	OK
FW-004	Fortinet FG-80F	Comm. Firewall 004	OK

Test Notes and Remarks:

5.4.6 WORKSITE phase 1 test no.4 – Firewall HA Redundancy test

Step ID	Actions	Acceptance Criteria	Result
1	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping the firewall management IP from the laptop.	Ping is successful.	IMP OK (FROM NMS)
2	From the laptop open a browser session to the firewall admin page and login the firewall with an engineering level account taken from the IP address and account list document.	Login is successful.	HTTPS ON MANAGEMENT NETWORK
3	Verify which unit is the master of the HA cluster and power off the device. Verify that after few seconds it is still possible to access the login page of the Firewall, and the HA status shows only the secondary unit as active and listed in the HA status dashboard.	Login is still successful. System is still operational with the secondary Fortigate unit.	NA
4	Reboot again the switched off unit and verify that the system is still operational and both units become operational again from the HA status dashboard.	Both units get back listed in the system HA status dashboard.	NA
5	Repeat steps 3 and 4 with the other unit.	Login is still successful. System is still operational with the primary unit. Both units get back listed in the system HA status dashboard.	NA

30-05-2025

Tag ID	Brand/Model	Description	Test result
FW-001	Fortinet FG-40F	Vnet/IP firewall 001	OK
FW-002	Fortinet FG-40F	Vnet/IP firewall 002	OK
FW-003	Fortinet FG-80F	Comm. Firewall 003	OK
FW-004	Fortinet FG-80F	Comm. Firewall 004	OK

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Test Notes and Remarks:

5.4.7 WORKSITE phase 1 test no.5 – Firewall Backup test

Step ID	Actions	Acceptance Criteria	Result
1	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping the firewall management IP from the laptop.	Ping is successful.	OK (FROM NMS)
2	From the laptop open a browser session to the firewall admin page and login the firewall with an engineering level account taken from the IP address and account list document.	Login is successful.	OK (FROM NMS)
3	Click on the top right account name box and select Backup > Configuration. Choose Local PC and set and encryption password as noted in the IP address and password document. Save the configuration file to a temporary folder in the local PC	File is successfully saved in the destination folder.	OK (FROM NMS)
4	Verify that the USB storage cartridge connected to the drive is the FAT labelled. Copy the configuration file from the laptop to the USB drive.	File is copied to the SAT USB disk cartridge. Use the Get-FileHash Powershell command to write the file hash value into a dedicated text file.	NA

Tag ID	Brand/Model	Description	Test result
FW-001	Fortinet FG-40F	Vnet/IP firewall 001	OK
FW-002	Fortinet FG-40F	Vnet/IP firewall 002	OK
FW-003	Fortinet FG-80F	Comm. Firewall 003	OK
FW-004	Fortinet FG-80F	Comm. Firewall 004	OK

Test Notes and Remarks:

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5.4.8 WORKSITE phase 1 test no.6 – LAN Connectivity Test

Step ID	Actions	Acceptance Criteria	Result
1	(If applicable) Verify each Data Socket (RJ45) in every room can provide network connectivity to the network device connected on it. Note: if the Data Socket does not have any IP device connected, just connect a temporary Laptop to test the socket (ping test).	The IP device connected to the RJ45 Data Socket have network connectivity.	NA

30-05-2025

Equipment	Tag	IP Address	Result

N.A.

Test Notes and Remarks:

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5.4.9 Test Steps PHASE 2

The scope of this test is to energize the cabinet with all internal components, even if some equipment is not part of LAN Network system. The cabinet will be fully energized.

The entire test should only be performed the first time when the cabinet is energized. If the cabinet has already been powered up while performing OTP procedures for other Telecom System, there is no need to repeat this test again. In this case, the successful energization of the cabinet shall be reflected in the official documentation; write down in the "Test Notes and Remarks" section the code and name of OTP procedure where the energization of the cabinet has been successfully performed.

Step	Description	Result	Verified by	Date
Power on Cabinet OER-NET/SRV-001with temporary power supply and temporary communication.				
PHASE 2:				
Onshore Equipment Room and Central Control Room - System 87-50				
1.	Check and confirm all panels are involved as per section 5.4.1 are available.	OK		
2.	Verify the temporary communication from Data Networks to Cabinet ~~OER-NET/SRV-001~~ HKN-WP01_BLP_NET-01 is available.	OK		
3.	Close the MCBs from temporary power supply and with reference vendor doc. 1724000594-IN-DG-00023 sheets 6/7/8/9 verify that power supply 230V is present on the terminals: TB_PS1: 1-2 Voltage 232.7 V. TB_PS2: 1-2 Voltage 232.7 V. TB_PS3: 1-2 Voltage 232.7 V.	OK		30-05-2025

Step	Description	Result	Verified by	Date
4.	System cabinets tag: ~~OER-NET/SRV-001~~ HKN-WP01-BLP_NET-01 If the voltage measured at step 3 are in line with the expected values, switch on MCBs, one at a time, according to the sequence proposed below: *Note: For details about electric power scheme and related MCBs refers to wiring diagram doc no. "1724000594-IN-DG-00023".* Energize Q1 (Auxiliary Line – ~~Non~~-UPS) and Q2/Q3 and verify cabinet service lights (H1/H2) are switched on with cabinet doors open and service socket (SK1) is powered up. Verify that 230 V (+/- 10%) is present at the service socket and record the value: Service Power sockets 230 V (+/- 10%) Voltage 232.7 V. Energize MS1 (UPS-1 Line) and Q5 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G1) is switched on (LED is lit). Energize Q6 and verify that sockets SK2/SK3 are powered up. Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage 232.7 V. Energize MS2 (UPS-2 Line) and Q8 and verify that WEIDMULLER PRO EVO 24VDC Power Supply (G2) is switched on (LED is lit). Energize Q9 and verify that sockets SK4/SK5 are powered up.	OK		30-05-2025

Step	Description	Result	Verified by	Date
	Verify that 230 V (+/- 10%) is present at the sockets and record the value at one socket selected randomly: Power sockets 230 V (+/- 10%) Voltage 232.1 V.	OK		30-05-2025
5.	Verify that all active equipment is powered up. the power supply redundancy test is done with the MCBs inside the panel. Switch off MCB MS1. Verify that all the equipment is still powered up. .....232.1..... [OK] Switch on MCB MS1 .....232.1..... [OK] Switch off MCB MS2. Verify that all the equipment is still powered up. .....232.1..... [OK] Switch on MCB MS2. .....232.1..... [OK] **Note:** In this test with two power supplies, it is normal for one of the power supplies to be inoperative when the connected power is turned off. The second power supply,	OK		30-05-2025

Step	Description	Result	Verified by	Date
	however operational, must be to supply power to the equipment.	OK		30-05-2025

Test Notes and Remarks:

5.4.10 WORKSITE PHASE 2 Test no.1 – Network Switch test

Step ID	Actions	Acceptance Criteria	Result
1	Login to the switches with an engineering level account taken from the IP address and password list document.	Login is required to access through the console, and it is successful with the engineer account.	OK
2	Verify that all the power supplies are correctly shown with no errors, and fans and temperatures are correct.	All the Power supply are "Good" status. The fans in normal operation and the temperature not in alarm.	OK
3	Verify that the devices are working properly and are correctly seen and connected.	All the network switches are correctly shown.	OK

30-05-2025

Tag ID	Brand/Model	Description	Test result
PINSWL2-003	Hirschmann BRS40	PIN Switch 003	OK
PINSWL2-004	Hirschmann BRS40	PIN Switch 004	OK
~~DMZSWL2-001~~	~~Hirschmann BRS40~~	~~DMZ switch 001~~	
~~DMZSWL2-002~~	~~Hirschmann BRS40~~	~~DMZ switch 002~~	
PINSWL2-005	Hirschmann BRS40	PIN switch 005	OK
PINSWL2-006	Hirschmann BRS40	PIN switch 006	OK

Test Notes and Remarks:

5.4.11 WORKSITE PHASE 2 Test no.2 – Network Switch Backup test

Step ID	Actions	Acceptance Criteria	Result
1	Connect with a temporary laptop with USB cable network switch console port.	Laptop is connected with a terminal software open connected to the matching COM port.	OK
2	Login to the switch with an engineering level account taken from the IP address and password list document...	Login is required to access through the console, and it is successful with the engineer account.	OK
3	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping gateway IP from the laptop.	Ping is successful.	OK
4	Execute the **# copy running-config ftp:** Specify the laptop IP address and give a filename.	File is successfully copied to the laptop TFTP software folder.	FTP NOT ALLOWED
5	Verify that the USB storage cartridge connected to the drive is the FAT labelled. Copy the configuration file from the laptop to the USB drive.	File is copied to the FAT USB disk cartridge. Use the Get-FileHash Powershell command to write the file hash value into a dedicated text file.	NA

30-05-2025

Tag ID	Brand/Model	Description	Test result
PINSWL2-003	Hirschmann BRS40	PIN Switch 003	OK
PINSWL2-004	Hirschmann BRS40	PIN Switch 004	OK
~~DMZSWL2-001~~	~~Hirschmann BRS40~~	~~DMZ switch 001~~	/
~~DMZSWL2-002~~	~~Hirschmann BRS40~~	~~DMZ switch 002~~	/
PINSWL2-005	Hirschmann BRS40	PIN switch 005	OK
PINSWL2-006	Hirschmann BRS40	PIN switch 006	OK

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Test Notes and Remarks:

5.4.12 WORKSITE PHASE 2 Test no.3 – Firewall test

Step ID	Actions	Acceptance Criteria	Result
1	Connect with a temporary laptop with USB cable to the network switch console port	Laptop is connected with a terminal software open connected to the matching COM port of the firewall	ETHERNET PORT
2	Login to the Firewall with an engineering level account taken from the IP address and password list document	Login is required to access through the console, and it is successful with the engineer account	OK
3	Issue the **# get system status** to verify that the firewall pair is correctly set.	Output will contain as a minimum the following: Version: FortiGate-* Serial-Number: FGT*** BIOS version: *** Operation Mode: NAT Current HA mode: A-P Primary	OK
4	Issue the **# get system ha status** to verify that the firewall pair is correctly set.	Output will contain: **HA Health Status: OK**	NA FOR FW005/6
5	Issue the **# execute ha manage 1** to connect to the firewall and repeat steps from 2 to 5. (Firewall number may vary. Check with the get system ha status)	Verify each steps output as shown from 2 to 5.	NA FOR FW005/6

30-05-2025

Tag ID	Brand/Model	Description	Test result
SERVFW-001	Fortinet FG-80F	Service Firewall 001	OK
SERVFW-002	Fortinet FG-80F	Service Firewall 002	OK
FW-005	Fortinet FG-100F	OER Firewall 005	OK
FW-006	Fortinet FG-100F	OER Firewall 006	OK

Test Notes and Remarks:

5.4.13 WORKSITE PHASE 2 Test no.4 – Firewall HA Redundancy test

Step ID	Actions	Acceptance Criteria	Result
1	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping the firewall management IP from the laptop.	Ping is successful.	PING FROM NMS
2	From the laptop open a browser session to the firewall admin page and login the firewall with an engineering level account taken from the IP address and account list document.	Login is successful.	LOGIN FROM NMS
3	Verify which unit is the master of the HA cluster and power off the device. Verify that after few seconds it is still possible to access the login page of the Firewall and the HA status shows only the secondary unit as active and listed in the HA status dashboard.	Login is still successful. System is still operational with the secondary Fortigate unit.	NA FOR FWMS/6
4	Reboot again the switched off unit and verify that the system is still operational and both units become operational again from the HA status dashboard.	Both units get back listed in the system HA status dashboard.	FWMS/6 NOT IN HA
5	Repeat steps 3 and 4 with the other unit.	Login is still successful. System is still operational with the primary unit. Both units get back listed in the system HA status dashboard.	OK

30-05-2024

Tag ID	Brand/Model	Description	Test result
SERVFW-001	Fortinet FG-80F	Service Firewall 001	OK
SERVFW-002	Fortinet FG-80F	Service Firewall 002	OK

Tag ID	Brand/Model	Description	Test result
FW-005	Fortinet FG-100F	OER Firewall 005	OK
FW-006	Fortinet FG-100F	OER Firewall 006	OK

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Test Notes and Remarks:

5.4.14 WORKSITE PHASE 2 Test no.5 – Firewall Backup test

Step ID	Actions	Acceptance Criteria	Result
1	Configure (or use if already existing) a temporary switch port with the Vnet/IP Network assigned and connect it to the laptop Ethernet port with an assigned static IP, DNS and Gateway. Ping the firewall management IP from the laptop.	Ping is successful.	PING FROM NMS
2	From the laptop open a browser session to the firewall admin page and login the firewall with an engineering level account taken from the IP address and account list document.	Login is successful.	LOGIN FROM NMS
3	Click on the top right account name box and select Backup > Configuration. Choose Local PC and set and encryption password as noted in the IP address and password document. Save the configuration file to a temporary folder in the loca PC	File is successfully saved in the destination folder.	BACKUP ON NMS
4	Verify that the USB storage cartridge connected to the drive is the FAT labelled. Copy the configuration file from the laptop to the USB drive.	File is copied to the SAT USB disk cartridge. Use the Get-FileHash Powershell command to write the file hash value into a dedicated text file.	NA

30-05-2025

Tag ID	Brand/Model	Description	Test result
SERVFW-001	Fortinet FG-80F	Service Firewall 001	OK
SERVFW-002	Fortinet FG-80F	Service Firewall 002	OK
FW-005	Fortinet FG-100F	OER Firewall 005	OK
FW-006	Fortinet FG-100F	OER Firewall 006	OK

Test Notes and Remarks:

5.4.15 WORKSITE PHASE 2 Test no.6 – LAN Connectivity Test

Step ID	Actions	Acceptance Criteria	Result
1	(If applicable) Verify each Data Socket (RJ45) in every room can provide network connectivity to the network device connected on it. Note: if the Data Socket does not have any IP device connected, just connect a temporary Laptop to test the socket (ping test).	The IP device connected to the RJ45 Data Socket have network connectivity.	NA

30-05-2025

Equipment	Tag	IP Address	Result

Test Notes and Remarks:

5.4.16 OTP Worksite Tests – Notes and Remarks

Item N°	Note / Remark
1	
2	
3	
4	
5	
6	
7	
8	

5.4.17 OTP Worksite Tests - Tests Certifying Authority Table of Attendances

Name and Surname	Certifying Authority	Position	Signature

5.4.18 OTP Worksite Tests - Final Signatures and Company Acceptance

Name and Surname	Certifying Authority	Position	Signature
GIANDONATO DE MASSIS	R.M.	LEAD INSTR. ENG.	
ANTHONY IVERSON	R.M.	COMM. MGR.	
ALESSANDRO BERRA	YOKOGAWA	PROJECT LEADER	

5.5 POST TEST CONDITION

5.5.1 Post OTP Summary

The successful completion of functional tests shall prove and verify the correct functionality of the systems/ sub-system as per Project requirements and specification and acceptable for handover from onshore to offshore activities.

5.5.2 Data Recording

A data recorded during OTP shall be collected and attached to this procedure (see section 7). This also includes the mark-ups of supporting documents/drawings used for tests.

5.5.3 Final Sub-system status

Systems/subsystem final status will be discussed and agreed during kick off meeting that shall be held as post-test meeting with all involved parties. There shall be defined final status that it is required for the system/subsystem(s) and plan of preparation and preservation for the platform sail away.

5.6 REINSTATEMENT AND PRESERVATION TASKS

- Not applicable.

6. OTP AT OFFSHORE SITE

6.1 PLANNING AND MANPOWER

6.1.1 Offshore Site overview

It is expected that all precommissioning tests, systems energization and commissioning steps have been successfully performed during the Onshore WORKSITE Phases.

Consequently, during the offshore SITE phase, the respective systems will be inspected prior to re-energization. No additional test steps will be required on these items of equipment, correct operation and functioning will be verified.

6.1.2 Planned tasks with estimated manpower

Estimated manpower is as follows for the entire duration of the Test:

- 1 E&I supervisor commissioning engineer from CONTRACTOR.
- 1 E&I engineer from COMPANY.
- 1 Certifying Authority Representative.

6.1.3 Test duration estimate

The test duration is estimated to be

- approx. 0.5 day.

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

6.1.4 Vendor assistance

- Not applicable.

6.1.5 Items postponed to C&E OTP

- Not applicable.

6.2 OTP TEST REQUIREMENT – OFFSHORE SITE

6.2.1 Pre-Commissioning Achievement

- Not applicable.

6.2.2 Commissioning Achievement

Commissioning achievement will be to test the network connections through fiber optic link of the ITER (located in the platform) to the OER (onshore) through connections located in WTG-57 (HNA-5) and of the OER to the CCR through Company's proprietary network.

By doing this, the LAN System shall be fully working and operative.

Before proceeding with the operational testing, completion of the task/check forms for LAN system is required.

6.2.3 Status of Required Associated Subsystems

The systems involved has been already energized and commissioned in WORKSITE Phase

6.2.4 Special Tools & Test Equipment

The following instruments and tools will be used for the tests:

- Continuity tester (Multimeter)
- Toolbox
- Network Cable Tester
- Test Laptop
- Portable radios (1 pcs + 1 per Technical Room)

Type	Manuf./Model	Serial Number	Software	Calibration

6.2.5 Consumable List

Not applicable.

6.2.6 Commissioning Spare Parts

Commissioning spare parts shall be as per Vendor doc. 1724000594-COM-LIS-00039 Spare Part Index Register (Commissioning And 2-Years Operation).

6.2.7 Temporary Facilities

Not applicable.

6.3 OTP DESCRIPTION – OFFSHORE SITE

6.3.1 OTP Test Preparation

This phase identifies all the preparatory inspections and activities to be carried out prior to performing the OTP of LAN system.

Submarine fiber optic cable connecting BLPH offshore platform to WTG-57 has been successfully tested. Interconnection between HNA-5 and onshore CCR is established and working smoothly. All test results have been recorded.

Installation, earthing/bonding and electrical checks are carried out during Mechanical Completion, no other preliminary tests are necessary.

Step	Description	Result	Verified by	Date
1	System Ready for Operation (RFO), Certificate is issued and approved.			
2	No blocking punch list items are outstanding against the system to be commissioned.			
3	Verify and confirm that all steps performed at WORKSITE of this procedure are completed without any pending issues that would prevent from proceeding with the offshore SITE procedure,			
4	All personnel involved in the implementation of this procedure are familiar with this procedure as well as with associated safety requirements (Toolbox Talk to be conducted before initiation of activities).			
5	Verify that F.O. terminations, splicing, connections and all the activities related to the network connections between the parties are duly performed and successfully tested. The results of such tests shall be recorded.			
6	Check that areas are free for work and escape routes are clear of any obstructions.			
7	Ensure that proper communications have been established between parties involved in the implementation of the procedure.			
8	Verify availability of test equipment as per par. 6.2.4			

Step	Description	Result	Verified by	Date
9	All personnel have been duly notified during dedicated daily SIMOPS meetings that the system(s) is ready for commissioning.			

6.3.2 Electrical Preparation

Step	Description	Result	Verified by	Date
1	The connection to the onshore existing electric power distribution system (Low Voltage distribution) by Company is supposed to be fully commissioned and operative.			

6.3.3 Mechanical Preparation

- Not applicable.

6.3.4 Instrument Preparation

The following steps shall be verified:

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

6.3.5 Piping Preparation

Not applicable.

6.3.6 Additional Discipline Preparation

Not applicable.

6.4 OTP TEST STEPS – OFFSHORE SITE

6.4.1 Test Preparation

Need to Verify:

- SS 83-20 Distribution Board DP-200N1 230V
- SS 84-10 AC 35KVA UPS (UP-200F3) 230V
- SS 84-20 AC 15KVA UPS (UP-200F4) 230V
- SS 88-00 Earthing System
- SS 86-00 Server/Network Cabinet
- SS 70-00 FGS System Cabinet
- SS 79-00 SIS System Cabinet
- SS 87-00 EMCS System Cabinet
- SS 87-10 PCS System Cabinet
- SS 87-50 OER / CCR System
- SS 86-20 Fiber Optic Links

All systems and subsystems involved in this procedure must be ready and available.
The F.O. connections shall be successfully commissioned and ready for communication.

6.4.2 Test Steps

Step ID	Actions	Acceptance Criteria	Result
1	Check and confirm that the UPS (UP-200F3)230 V, UPS (UP-200F4) 230V and Distribution Board DP-200N1 230V are ready for power on.		
2	Check and confirm that the: • SS 86-00 Server/Network Cabinet • SS 70-00 FGS System Cabinet • SS 79-00 SIS System Cabinet • SS 87-00 EMCS System Cabinet • SS 87-10 PCS System Cabinet • SS 87-50 OER / CCR System are ready for power on.		
3	Confirmed the above we can proceed with energization.		
4	Login to the switches in B400-NET-001 with an engineering level account taken from the IP address and password list document.	Login is required to access through the console, and it is successful with the engineer account.	

Step ID	Actions	Acceptance Criteria	Result
5	Verify that the devices are working properly and are correctly seen and connected.	All the network switches are correctly shown.	
6	With reference to the information contained in the IP address and password list document, ping IP devices in HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01 from the laptop.	Ping is successful.	
7	Repeat steps above the other way round, i.e. connect to the switches in HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01 and ping devices in B400-NET-001	Ping is successful.	
8	From CCR, login to any of the EWS and ping devices in both B400-NET-001 and HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01	Ping is successful.	

Tag ID	Brand/Model	Description	Test result
FOPP-001	Tecnifiber CE1-24ST(SM)	FO Patch Panel - 24ports (12core) single mode (SM) (B400-NET-001)	
FOPP-002	Tecnifiber CE1-24ST(MM)	FO Patch Panel - 24ports (12core) multi-mode (MM) (B400-NET-001)	
FOPP-003	Tecnifiber CE1-24ST(SM)	FO Patch Panel - 24ports (12core) single mode (SM) (HKN-WPO1-BLPH-NET-01 / HKN-WPO1-BLPH-SRV-01)	

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Once printed shall be considered as "NOT CONTROLLED" copy.

Test Notes and Remarks:

6.4.3 OTP Site Tests Notes and Remarks

Item N°	Note / Remark
1	
2	
3	
4	
5	
6	
7	
8	

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6.4.4 OTP Site Tests – Certifying Authority Table of Attendance

Name and Surname	Certifying Authority	Position	Signature

6.4.5 OTP Site Tests – Final Signatures and Company Acceptance

Name and Surname	Certifying Authority	Position	Signature

6.5 POST TEST CONDITIONS

6.5.1 Post OTP Summary

The successful completion of functional tests shall prove and verify the correct functionality of the systems/ sub-system as per Project requirements and specification and acceptable for handover to COMPANY.

6.5.2 Data Recording

A data recorded during OTP shall be collected and attached to this procedure (see section 7). This also includes the mark-ups of supporting documents/drawings used for tests.

6.5.3 Final Sub-system status

Systems/subsystem final status will be discussed and agreed during kick off meeting that shall be held as post-test meeting with all involved parties.

6.6 REINSTATEMENT AND PRESERVATION TASKS

- Not applicable.

7. APPENDICES

7.1 Vendor SAT Procedure

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7.2 Proverlis Summary System Reports

This document undergoes an issuance cycle within EDMS "FusionLive". Its distribution is electronically controlled.
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7.3 Equipment Related Technical Queries

This document undergoes an issuance cycle within EDMS "FusionLive". Its distribution is electronically controlled.
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7.4 As Built Documentation

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7.5 Management of Change – Summary Table of Tasks and Details of Affected Related Documentation

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Base Load Power Hub (BLPH)

SITE ACCEPTANCE TEST (SAT) PROCEDURE

Document Number: 1724000594-QC-PRO-00032

Supplier Document Number: E366772C00-SAT

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	21/05/2025

Rev.	Date	Description	Prepared	Reviewed	Approved
01	15/04/2025	Accepted for Construction (AFC)	AG/MP	KS/AB	SC
00	07/02/2025	Issue for Review (IFR)	MP	KS/AB	SC

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Revision / Change Log

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

HOLDS LIST

No.	Description

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1 Introduction

1.1 General

The purpose of this document is to define the methods and documentation that will be used to carry out the Site Acceptance Test (SAT) on YOKOGAWA's PCS, SIS, FGS, EMCS and SCADA. The SAT is performed to ensure that the system is properly configured, assembled and functional in accordance with the intended design as specified in the approved documents.

The objective of SAT is to demonstrate to CROSSWIND that the system hardware and software is built in accordance to requirements as specified in the approved documents.

Crosswind and Rosetti Marino would witness to verify the test. Upon successful completion of the test, a SAT Test Certificate shall be signed for the acceptance of the test.

1.2 Scope and Objective

The Site Acceptance Test referred to as SAT applies to the PCS, SIS, FGS, EMCS and SCADA Hardware and Software supplied by Yokogawa.

The objective of the SAT is to ensure that the system is properly installed and functional in accordance to the intended design as stated in the approved documents.

The SAT is to demonstrate to CROSSWIND that the system hardware and software is built in accordance to requirements as specified in the approved documents.

The project scope of work for YOKOGAWA generally ends at the conclusion of SAT. YOKOGAWA involvement in other site activities such as loop check and commissioning considered as additional scope of work.

SAT Procedure outlines the following:

- Testing and inspection philosophy
- Steps and Activities involved in the SAT
- Criteria for checking and accepting the system

Prior to start SAT, all the PCS/SIS/FGS/SCADA/EMCS Hardware delivered shall be installed to proper location and system related cables, such as system cable, power cable, earthing, fiber optic cables, etc. shall be laid by ROSSETI MARINO.

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2 Reference Documents

2.1 Input Documents

The PCS, SIS, EMCS and F&G systems are configured using input documents such as IO Database, P&IDs, Cause & Effect Diagrams, F&G Layouts, Process Control Narratives, etc. These input documents shall be used as reference documents for SAT. These documents are listed.

2.1.1 Project Reference Documents

Doc. No.	Description
123A90-DDL-IN-DD-40019 Rev.00	Data Network Architecture Drawings
123A90-DDL-EL-DG-20041 Rev.00	Block Diagram (EMCS)
123A90-PML-PM-TQ-00050 Rev.01	Reactive power control requirement for BLPH
123A90-DDL-EL-DS-20040 Rev.00	TDS - Electrical Monitoring and Control System (EMCS)
123A90-PML-PM-TQ-00052 Rev.00	Interface with Electrolyzer
123A90-PML-PM-TQ-00053 Rev.00	Interface with BESS
123A90-PML-PM-TQ-00054 Rev.00	Interface with WINDFARM and WTG-57
123A90-PML-PM-TQ-00055 Rev.01	Interface with SOLAR FARM
123A90-PML-QHSE-PRO-00113 Rev.01	Vendor final document requirements and management
123A90-PML-PM-RE-00038 Rev.01	PROJECT CODES AND STANDARDS REPORT
123A90-DDL-TL-SP-45007 Rev.02	Telecom System Philosophy and Specifications
123A90-DDL-SAF-DL-30027 Rev.00	FandG detection Layout - lower and upper deck
123A90-DDL-SAF-DL-30028 Rev.00	FandG detection Layout - Below Lower deck
123A90-DDL-PR-UFD-80006 Rev.01	BLPH UTILITY FLOW DIAGRAM WATER TREATMENT PLANT
123A90-DDL-PR-UFD-80007 Rev.01	BLPH UTILITY FLOW DIAGRAM INSTRUMENT AIR AND NITROGEN SYSTEMS
123A90-DDL-PR-UFD-80008 Rev.01	BLPH UTILITY FLOW DIAGRAM VENT SYSTEMS
123A90-DDL-IN-SP-40018 Rev. 00	Data Network Design Specification

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Doc. No.	Description
123A90-DDL-IN-SP-40094 Rev. 00	Instrumentation for Package Unit Specification
123A90-DDL-IN-SP-40097 Rev.00	System Specification for Main Automation Contractor
123A90-DDL-IN-SP-40098 Rev.00	Control System (PCS) Specification
123A90-DDL-IN-SP-40100 Rev.00	Safety System (ESD, Fire and Gas) Specification
123A90-DDL-IN-RE-40023 Rev. 00	Cyber Security Design Philosophy
123A90-DDL-IN-RE-40093 Rev. 00	Control System Philosophy
123A90-DDL-IN-DL-40013 Rev.00	Earthing layouts drawings (Onshore CCR, Offshore ITER)
123A90-DDL-IN-DD-40096 Rev.00	Control System Architecture Detailed Drawings
123A90-DDL-IN-DD-40029 Rev.00	Automation Detailed Design and Construction Package
123A90-DDL-EL-SP-20039 Rev.00	Functional and Technical Design Specification, IDS and DDS for EMCS
123A90-DDL-PR-DG-80000 Rev.01	Process Safety Cause and Effect Block Diagram
123A90-DDL-IN-MR-40103 Rev.01	MR - Process Automation System
123A90-DDL-IN-CE-40000 Rev.03	Process Safety Cause and Effect Matrix
123A90-DDL-IN-CE-40002 Rev.02	Fire and Gas Cause and Effect Matrix
123A90-DDL-PR-PID-80009 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM GENERAL NOTES
123A90-DDL-PR-PID-80010 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM PIPING SYMBOLOGY
123A90-DDL-PR-PID-80011 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM ELECTROLYSER PACKAGE
123A90-DDL-PR-PID-80012 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM FUEL CELL PACKAGE
123A90-DDL-PR-PID-80013 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSELS HEADER (INLET)
123A90-DDL-PR-PID-80014 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSELS HEADER (OUTLET)
123A90-DDL-PR-PID-80015 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL A

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Doc. No.	Description
123A90-DDL-PR-PID-80016 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL B
123A90-DDL-PR-PID-80019 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL E
123A90-DDL-PR-PID-80017 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL C
123A90-DDL-PR-PID-80018 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL D
123A90-DDL-PR-PID-80020 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN STORAGE VESSEL F
123A90-DDL-PR-PID-80021 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM SEA-WATER INTAKE SYSTEM SHEET 1
123A90-DDL-PR-PID-80022 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM SEA-WATER INTAKE SYSTEM SHEET 2
123A90-DDL-PR-PID-80023 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM WATER TREATMENT PLANT SHEET 1
123A90-DDL-PR-PID-80024 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM WATER TREATMENT PLANT SHEET 2
123A90-DDL-PR-PID-80025 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM WATER DISPOSAL SHEET 1
123A90-DDL-PR-PID-80026 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM WATER DISPOSAL SHEET 2
123A90-DDL-PR-PID-80027 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM INSTRUMENT AIR PACKAGE
123A90-DDL-PR-PID-80029 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN VENT DRUM
123A90-DDL-PR-PID-80028 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM HYDROGEN VENT HEADER
123A90-DDL-PR-PID-80041 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM Instrument air distribution header
123A90-DDL-PR-PID-80042 Rev.02	BLPH PIPING AND INSTRUMENTATION DIAGRAM instrumentation SYMBOLOGY
123A90-DDL-PR-PID-80043 Rev.00	BLPH PIPING AND INSTRUMENTATION DIAGRAM - OPEN DRAIN SYSTEM
123A90-MOM-RM-OOE-CW-002 Rev.00	Solar Package – BLPH Network Redundancy discussion
CWHKN-INN-INP-SPC-00005 Rev.01	SCADA Functional Design Specification

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Doc. No.	Description
Crosswind - System Security Requirements v1.0	SYSTEM SECURITY REQUIREMENTS
123A90-DDL-IN-LIS-40027 Rev.01	Master Alarm Database
123A90-DDL-IN-RE-40026 Rev.00	Alarm Management Workshop Report
123A90-DDL-IN-RE-40095 Rev.01	Process Control Logics Description
123A90-DDL-IN-PRO-40010 Rev.01	Override Procedures for Process Safeguarding Systems
123A90-DDL-IN-RE-40025 Rev.01	Alarm Management Workshop Terms of Reference
123A90-DDL-IN-SP-40024_Rev.00	Alarm System Requirements Specification
123A90-DDL-PR-RE-80031 Rev.02	Process Control, Operation, Start-up and Shutdown Philosophy
123A90-DDL-EL-DG-20014 Rev 01	Electrical Control, Protection and Metering Diagrams
123A90-DDL-EL-DG-20158 Rev.02	Overall-Key Single Line Diagram
123A90-DDL-EL-RE-20170 Rev.01	Electrical System Study Report - Load Flow
123A90-DDL-EL-RE-20171 REV.01	Electrical System Study Report - Short Circuit
123A90-DDL-EL-RE-20175 Rev.01	Electrical System Study Report - Power Factor Compensation
123A90-DDL-EL-RE-20176 Rev.01	Electrical System Study Report - Transient In-Rush
123A90-DDL-EL-SP-20141 Rev.01	Electrical System Description and Design Philosophy
1723001595-EL-DG-00012 Rev.02	Functional logic diagram
1723001595-EL-DG-00013 Rev.03	BASE LOAD POWER HUB (BLPH) - 66kV Switchgear (GIS) - Single line diagram
1723001595-EL-DG-00017 Rev.01	Inter-panel logic diagram
1723001697-EL-DG-00010 Rev.03	TR-100AD1 Termination and Wiring Diagram
1723002197-EL-DG-00010 Rev. 04	SG-100D1 HV SWBD 6,6kV - ELECTRICAL SINGLE LINE DIAGRAM
1723002197-EL-DG-00011 Rev.04	SG-200N1 LV SWBD 400-230V ELECTRICAL SINGLE LINE DIAGRAM

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Doc. No.	Description
1723002197-EL-DG-00012 Rev.04	SG-200D2-LV SWBD 800V-ELECTRICAL SINGLE LINE DIAGRAM
1723002197-EL-DG-00015 Rev.01	SG-100D1 MV SWBD 6,6kV - FUNCTIONAL DIAGRAM - INCOMING FEEDER
1723002197-EL-DG-00016 Rev.01	SG-100D1 MV SWBD 6,6kV - FUNCTIONAL DIAGRAM - BUS BAR METERING
1723002197-EL-DG-00017 Rev.01	SG-100D1 MV SWBD 6,6kV - FUNCTIONAL DIAGRAM BESS FEEDER A-8500
1723002197-EL-DG-00018 Rev.01	SG-100D1 MV SWBD 6,6kV - FUNCTIONAL DIAGRAM - ELECTROLYSER FEEDER A20000
1723002197-EL-DG-00019 Rev.03	SG-100D1 HV SWBD 6,6kV- FUNCTIONAL DIAGRAM - FUEL CELL FEEDER A-80000
1723002197-EL-DG-00020 Rev.03	SG-100D1 HV SWBD 6,6kV - FUNCTIONAL DIAGRAM - TRANSFORMER FEEDER TR200ED1
1723002197-EL-DG-00021 Rev.01	SG-100D1 MV SWBD 6,6kV - FUNCTIONAL DIAGRAM - TRANSFORMER FEEDER TR200DE1
1723002197-EL-DG-00022 Rev.01	SG-100D1 MV SWBD 6,6kV INTERCONNECTING
1723002197-EL-DG-00023 Rev.01	SG-100D1 MV SWBD 6,6kV-LOGIC DIAGRAM-INCOMING FEEDER TR-100AD1
1723002197-EL-DG-00025 Rev.01	SG-100D1 MV SWBD 6,6kV - LOGIC DIAGRAM - BESS FEEDER A-85000
1723002197-EL-DG-00026 Rev.01	SG-100D1 MV SWBD 6,6kV - LOGIC DIAGRAM - ELECTROLYSER FEEDER A20000
1723002197-EL-DG-00027 Rev.03	SG-100D1 HV SWBD 6,6kV - LOGIC DIAGRAM -FUEL CELL FEEDER A-80000
1723002197-EL-DG-00028 Rev.03	SG-100D1 HV SWBD 6,6kV - LOGIC DIAGRAM - TRANSFORMER FEEDER TR200ED1
1723002197-EL-DG-00029 Rev.03	SG-100D1 HV SWBD 6,6kV - LOGIC DIAGRAM - TRANSFORMER FEEDER TR200DE1
1723002197-EL-DG-00030 Rev.02	SG-200N1 LV SWBD 400-230V FUNCTIONAL DIAGRAMS - INCOMINGS AND INTERCONNECTING AND AUX DISTRIBUTION
1723002197-EL-DG-00031 Rev.02	SG-200N1 LV SWBD 400-230V - FUNCTIONAL DIAGRAMS - TYPICAL FEEDERS
1723002197-EL-DG-00032 Rev.01	SG-200D2 LV SWBD - ELECTRICAL FUNCTIONAL DIAGRAM
1724000428-IN-LIS-00016 Rev.03	IO LIST - INSTRUMENT AIR PACKAGE

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Doc. No.	Description
1724000437-IN-LIS-00015 Rev.03	IO LIST - NITROGEN GENERATION PACKAGE U-64000
1724000372-EL-LIS-00014 Rev.02	IO LIST
1723002197-EL-LIS-00041 Rev.02	SG-100D1 IO LIST- Hv Switchgear
1723002197-EL-LIS-00042 Rev.02	SG-200N1 IO LIST - Lv Switchgear
1723002197-EL-LIS-00043 Rev.01	SG-200D2 IO LIST (HARDWARE -SOFTWARE)
1723001595-EL-LIS-00011 Rev.02	Switchgear IO list
1724000448-IN-LIS-00019 Rev.01	INPUT-OUTPUT LIST
123A90-DDL-EL-DG-20185 Rev.01	Electrical Single Line Diagram HV Systems
1724000372-EL-DG-00006 Rev.02	DC UPS - SINGLE LINE DIAGRAM and INTERCONNECTING DIAGRAM
1724000372-EL-DG-00007 Rev.02	AC UPS - SINGLE LINE DIAGRAM and INTERCONNECTING DIAGRAM
123A90-DDL-IN-LIS-40089 Rev.03	Instrument I-O List
123A90-DDL-EL-DL-20100 Rev 01	Base Load Power Hub - Electrical Equipment Layout - Top Deck
123A90-DDL-EL-DL-20101 Rev 01	BASE LOAD POWER HUB (BLPH) - Electrical Equipment Layout - Lower Deck
123A90-DDL-EL-DL-20104 Rev.02	Base Load Power Hub (BLPH) - Electrical Equipment Layout - HV Switch room
123A90-DDL-EL-DL-20105 Rev.02	Electrical Equipment Layout - LV Switch room
123A90-DDL-EL-DL-20106 Rev.01	Base Load Power Hub (BLPH) - Electrical Equipment Layout - UPSs & Batteries Switch room
123A90-DDL-IN-DL-40012_Rev.03	BASE LOAD POWER HUB - OFFSHORE ITER - EQUIPMENT LAYOUT
1724000049-HV-PID-00039.Rev.00	B-100 PID - E&I SHELTERS
1724000049-HV-PID-00040.Rev.00	B-200 PID - E&I SHELTERS
1724000049-HV-PID-00041.Rev.00	B-300 PID - E&I SHELTERS
1724000049-HV-PID-00042.Rev.00	B-400 PID - E&I SHELTERS

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Doc. No.	Description
1724000428-PR-PID-00019 Rev.02	PACKAGE PID - INSTRUMENT AIR PACKAGE
1724000437-PR-PID-00018 Rev.02	PACKAGE PID - NITROGEN GENERATION PACKAGE
1724000448-PR-PID-00013_Rev.01	WATER TREATMENT PACKAGE-PID DIAGRAM
HKN1-04-DWG-312 RevD	HKN1-04-DWG-312 Power Export System Single Line Diagram
C63-PID-001_Rev.07	ELOGEN BLPH Project - Process and Instrumentation Diagrams
123A90-DDL-IN-CE-40000 Rev.03	Process Safety Cause and Effect Matrix
123A90-DDL-IN-CE-40002 Rev.02	Fire and Gas Cause and Effect Matrix

2.1.2 Yokogawa Project Document

Doc. No.	Description
1724000594-IN-RE-00041 Rev00	Cybersecurity Workshop Preparation
1724000594-QC-ITP-00002 Rev01	INSPECTION AND TEST PLAN
1724000594-QC-PRO-00031 Rev00	SW FACTORY ACCEPTANCE TEST (FAT) PROCEDURE
1724000594-IN-SP-00018 Rev02	PCS and SAFETY SYSTEMS Software Functional Design Specification (FDS-SW)
1724000594-QC-DB-00033 Rev00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER)
1724000594-IN-LIS-00040 Rev00	VENDOR ASSET AND TAG REGISTER
1724000594-IN-DG-00023 Rev01	NETWORK AND SERVER CABINETS IN OER ROOM WIRING DIAGRAMS AND TERMINAL STRIPS
1724000594-MD-LIS-00001 Rev03	SUPPLIER MASTER INDEX REGISTER (SMIR)

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1724000594-IN-MAN-00038 Rev00	Instructions for Operation and Maintenance for ProSafe-RS
1724000594-IN-DA-00009 Rev01	PCS CABINETS GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
1724000594-QC-PRO-00030 Rev01	HW FACTORY ACCEPTANCE TEST (FAT) PROCEDURE
1724000594-IN-RE-00008 Rev01	Safety Controller loading estimation
1724000594-IN-DD-00028 Rev01	HMI screens print out
1724000594-COM-LIS-00039 Rev01	SPARE PART INDEX REGISTER (COMMISSIONING AND 2-YEARs OPERATION)
1724000594-IN-PL-00029 Rev00	Safety Validation Plan (SVP)
1724000594-IN-CA-00006 Rev01	Power Consumption and Heat Dissipation
1724000594-IN-LIS-00005 Rev00	EMCS IO List (HW and SW)
1724000594-IN-RE-00035 Rev01	Cyber Security Risk Assessment REPORT
1724000594-IN-RE-00043 Rev00	CYBER SECURITY SETTINGS
1724000594-IN-DG-00021 Rev01	SAFETY SYSTEMS CABINETS (SIS AND FGS) WIRING DIAGRAMS AND TERMINAL STRIPS
1724000594-IN-DA-00010 Rev01	SAFETY SYSTEMS CABINETS (SIS AND FGS) GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
1724000594-IN-LIS-00036 Rev01	ATEX REGISTER
1724000594-IN-DA-00011 Rev02	NETWORK AND SERVER CABINETS IN ITER ROOM GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
1724000594-IN-SP-00019 Rev02	EMCS Software Functional Design Specification (FDS-SW)
1724000594-QC-LIS-00034 Rev00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX
1724000594-IN-DA-00012 Rev01	NETWORK AND SERVER CABINETS IN OER ROOM GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT

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1724000594-QC-PRO-00042 Rev00	THIRD PARTY COMMUNICATION TEST PROCEDURE
1724000594-IN-DD-00015 Rev03	System Architecture
1724000594-IN-LIS-00004 Rev03	PCS and Safety System IO List (HW and SW)
1724000594-IN-DG-00022 Rev01	NETWORK AND SERVER CABINETS IN ITER ROOM WIRING DIAGRAMS AND TERMINAL STRIPS
1724000594-IN-DG-00016 Rev01	Network Connection Diagram
1724000594-IN-LIS-00007 Rev01	Systems Cables List
1724000594-IN-SP-00017 Rev01	PAS Hardware Functional Design Specification (FDS-HW)
1724000594-IN-DG-00024 Rev01	EMCS CABINETS WIRING DIAGRAMS AND TERMINAL STRIPS
1724000594-IN-DA-00013 Rev01	EMCS CABINETS GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT

2.2 Codes, Standards and References

[1] IEC 60529: Specification for Degrees of protection provided by enclosures (IP Code)

[2] IEC 61000: Electromagnetic Compatibility of Industrial - Process Measurement and Control Equipment

[3] IEEE 802.3: Information Processing Systems – Local Area Networks

[4] IEC 61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety – Related Systems

[5] IEC 61511 Functional Safety- Safety instrumented systems for the process industry sector

2.3 Approved Document List (Detail Design Specification)

The Detail Design Specification used for construction shall be listed in this approved document list, and shall be used as reference in the SAT. In principle, the Detail Design Specification documents

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as included in this list shall form the basis for checking the PCS, SIS, FGS and SCADA system. The approved Detail Design Specification document list used for construction is listed in 2.1.2.

3 Definitions and Abbreviations

PROJECT:	HOLLANDSE KUST NOORD WIND PARK PROJECT
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
COMPANY or Client (CPY):	CROSSWIND
VENDOR	YOKOGAWA ITALIA S.R.L.

Doc. No.	Description
ALARP	As Low as Reasonably Possible
AMS	Alarm Management System
ATEX	Appareils destinés à être utilisés en ATmosphères Explosibles (Equipment intended for use in explosive atmospheres)
BESS	Battery Energy Storage System
BLPH	Base Load Power Hub
CAP	Critical Action Panel
CAPEX	Capital Expenditure
CAT	Category
CCN	Central Control Network
CCR	Central Control Room
CCS	Central Control System
CCTV	Closed Circuit Television
COMPANY	Crosswind
CONTRACTOR (CTR)	ROSETTI MARINO S.p.A.
CTV	Crew Transfer Vessel
DEM	Design Engineering Manual
DEP	Design and Engineering Practice
DMZ	Demilitarised-Zone
DOCUMENT NAME	Document Title

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ELM	Earth Leakage Monitor
EMC	Electromagnetic Compatibility
EMCS	Electrical Monitoring and Control System
EN	Engineering Notice
EPC	Engineering Procurement Construction
EPIRB	Emergency Position Indicating Radio Beacon
EWS	Engineering Workstation
Ex	Explosion Proof
FC	Fuel Cell
FCS	Field Control Station
FEED	Front End Engineering Design
FEED CONTRACTOR	Organisation contracted directly by COMPANY to provide engineering, design, or other services.
FGS	Fire & Gas System
FIO	Field Input/Output
FNU	Field Node Unit
FO	Fibre Optic
FOPP	Fibre Optic Patch Panel
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positional Satellite
HART	Highway Addressable Remote Transducer
HAZOP	Hazardous Operability Study
HKN	Hollandse Kust Noord
HMI	Human Machine Interface
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
HV-SCADA	The given name for the COMPANY's control system of the wind farm infrastructure. BLPH's control system shall operate autonomously but will interface with HV-SCADA.
IACS	Industrial Automation and Control Systems
IAMS	Instrument Asset Management System
ICSS	Integrated Control and Safety System

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IDCS	Intrusion Detection Control System
IEC	International Electrotechnical Commission
IP	Ingress Protection
IP	Internet Protocol
IS	Intrinsically Safe
ISO	International Organization for Standardization
ITER	Instrument & Telecoms Equipment Room
LACS	Local Access Control System
LAN	Local Area Network
LOPA	Layers of Protection Analysis
LHVS	Low and High Voltage Station
LV	Low Voltage
MAC	Main Automation Contractor
MCC	Motor Control Centre
MDF	Marshalling Cabinet (Distribution to Field)
NAMUR	Interessengemeinschaft Automatisierungstechnik der Prozessindustrie (User Association of Automation Technology in Process Industries)
NIS	Non-Intrinsically Safe
NU	Node Unit
OHVS	Offshore High Voltage Station
OPC	Open Platform Communications
OWS	Operator Workstation
PAGA	Public Address and General Alarm
P&ID	Piping and Instrument Diagram
PACO	Process, Automation, Control and Optimisation (PACO) is the term used to describe all functionality required for the monitoring and controlling of all process, safety and fire and gas systems selected for the project.
PCN	Process Control Network
PROJECT	HOLLANDSE KUST NOORD WIND PARK Project
PV	Photo Voltaic

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PURCHASER	The organisation placed a purchase order for the supply of equipment or services for the Project. The Purchaser could be the Company or the Contractor or some other party appointed by the COMPANY or Contractor.
RVO	Rijksdienst voor ondernemend Nederland - The Netherlands Enterprise Agency
SART	Search and Rescue Transponder
SCADA	Supervisory Control and Data Acquisition
SCS	Safety Control Station
SGSI	Shell Global Solutions International
SHALL	An absolute requirement.
SHOULD	This word indicates a recommendation that whilst preferred may not be implemented provided some equivalent is proposed and agreed by COMPANY. The full implications must be understood and carefully weighed before choosing a different course.
SIF	Safety Instrumented Function
SIL	Safety Instrumented Level
SIS	Safety Instrumented System
SNU	Safety Node Unit
SOLAS	Safety of Life at Sea
TB	Terminal Board
TETRA	Terrestrial Trunked Radio
TSO	Transmission System Operator
TQ	Technical Query
UCP	Unit Control Panel
UHF	Ultra-High Frequency
UPS	Uninterruptible Power Supply
VENDOR	Manufacturer/Supplier of equipment and services to perform the duties specified by the Purchaser.
VHF	Very High Frequency
VLAN	Virtual Local Area Network
VNET	Virtual Network
WAN	Wide Area Network

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WTG	Wind Turbine Generator

Table 1 – Definitions and Abbreviations

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4 Responsibility

Responsibilities for each party involved in the SAT are defined here-under to ensure that the SAT is carried out in accordance with the agreed procedure. It also ensures that there shall be authorized personnel(s) from Rosetti Marino, CROSSWIND and YOKOGAWA to facilitate any decisions and schedule changes that have resulted from the SAT.

4.1 CUSTOMER

The participation of CROSSWIND in the SAT is essential. CROSSWIND shall appoint an inspector to witness and participate in the SAT and observe the results on a daily basis.

4.2 CONTRACTOR

Rosetti Marino shall appoint a SAT Manager for the SAT. Rosetti Marino SAT manager shall co-ordinate with CROSSWIND and YOKOGAWA SAT Managers to facilitate the smooth execution of the SAT activities and schedule. The role of the SAT Manager is also to resolve SAT issues on a regular basis.

Rosetti Marino shall appoint a Project Engineer who is responsible for the Electrical & Instrumentation part of the construction work that is required for execution of SAT.

4.3 MAC

YOKOGAWA as MAC shall appoint a Test Conductor to organize and manage all aspects of SAT. YOKOGAWA shall be responsible for carrying out the testing and recording the test results on a daily basis together with Rosetti Marino representative and CROSSWIND Inspector.

The Site Manager representing YOKOGAWA shall be the SAT Manager and co-ordinate with Rosetti Marino SAT Manager and adjusts the test schedule whenever necessary to ensure the smooth running of the SAT. The SAT Manager shall also ensure that all tests are conducted in accordance with the SAT documents. If changes / modifications are required, the SAT Managers from YOKOGAWA and Rosetti Marino shall discuss and determine the action plan.

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5 General Administration

5.1 SAT Venue

All the SIS equipment will be installed by Site Construction Contractor selected by Rosetti Marino. The tests shall be conducted on-site.

5.2 SAT Organization Chart

A detailed Organization Chart shall be issued for SAT, with all positions and names filled in. In addition, a SAT roster of the participants shall be issued, with following details for each person: full name, company, responsibility, samples of the signature and initials, actual start and finish date of participation in the SAT. Rosetti Marino shall be responsible for maintaining the roster and keeping it updated.

Refer to Appendix-19.1 for SAT organization chart and SAT roster.

5.3 Kick-off Meeting

An initial kick-off Meeting will be held prior to starting the SAT to brief the participants, confirm the organization and responsibilities, and review the SAT schedule refer Appendix-19.2. At the same time, HSE briefing for all participants will be provided by Rosetti Marino/CROSSWIND. YOKOGAWA SAT Manager will prepare the presentation and explain the organization and work practices.

All SAT documentation prepared by Rosetti Marino/YOKOGAWA prior to SAT will be inspected for completeness.

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5.4 Daily Working Schedule

The SAT will be conducted in Project Site premises from Monday to Friday (working days).The following timing is recommended for the testing:

0900 to 1200 hrs	Inspection and test
1200 to 1300 hrs	Lunch
1300 to 1700 hrs	Inspection and test
1700 to 1730 hrs	Daily review meeting including next day's schedule planning

Table 2 – Daily Working Time

RM commission team shall communicate the SAT schedule based on packages ready for SAT.

5.5 Integrated Test

Upon completion of Hardware SAT, if any 3rd party package communication is not tested during FAT/SAT testing moves to the next stage, the Integrated Factory Acceptance Test that will be part of Software SAT. At this stage, integrity of infrastructures or interfaces that are shared by multiple systems, components and/or applications within the scope of Yokogawa will be demonstrated. Rosetti Marino shall facilitate the 3rd party sub-systems I/O mapping check with 3rd party Systems based on Software system/Tools capabilities or Field for HMI and control functions testing.

5.6 SAT Wrap-up Meeting

At the completion of the SAT, a final wrap-up meeting will be held. The overall status of the SAT shall be reported. Upon all parties' agreement that the SAT is completed satisfactorily, Rosetti Marino/CROSSWIND shall sign off SAT Completion Certificate and System Acceptance Certificate.

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6 Inspection / Testing

6.1 Overview

This section provides a brief overview of the various testing and inspection activities performed on the SIS system. Pre-FAT at YOKOGAWA (Internal Test)

- Factory Acceptance Test (FAT)
- Integrated Factory Acceptance Test (IFAT) i.e. integration test with Vendor package part of SAT.
- Site Acceptance Test (SAT) – Refer to this document.

Commissioning Support such as loop check, Site Integration Test will follow the SAT.

6.2 System Boundary for Testing

For the SAT, the testing boundaries have been classified as below:

The boundaries of the PCS/SIS/FGS/EMCS under test are classified as the hardware boundary and the software boundary. The hardware boundary of the SIS under test shall be from the MDF to the system cabinets including Network/Server cabinets. The fiber optic links which connect the networks across various buildings are considered as tested and accepted by Rosetti Marino before they are made available to YOKOGAWA for the interconnectivity as required by the PCS/SIS/FGS/EMCS System Architecture.

The third-party sub-systems which are supplied by others shall be verified and accepted by Rosetti Marino and CROSSWIND before commencement of SAT. The non-YOKOGAWA supplied items mounted on the consoles have to be tested by others.

The software boundary of the PCS/SIS/FGS/EMCS under test includes the PCS/SIS/FGS/EMCS application program. The full I/O test is not part of SAT, since 100% I/O check was performed during Factory Hardware Test/Pre-FAT. Only random I/O checks will be performed during SAT. PCS/SIS/FGS/EMCS Application software and Hardware integrated test(random) shall be done during SAT.

7 SAT Overview

The SIS/FGS SAT shall be a subset of the SAT. PCS/EMCS/SCADA/Cyber security solutions are part of SAT. This SAT procedure describes the activities and the requirements that are necessary to confirm that the PCS/SIS/FGS/EMCS installed on-site meets the project standards and functions as per the approved design engineering / construction drawings. The main objectives of performing the SAT are to facilitate Rosetti Marino/CROSSWIND to check and verify the following.

There are no physical (visible) damages (during shipping and installation) to the system that was inspected during FAT and IFAT.

All manufacturing and assembly that were inspected during the FAT and IFAT remain so and are not affected during the shipment.

The DCS/SIS/EMCS/Network and its components that were inspected during FAT and IFAT do function properly and are not affected during the shipment.

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To ensure that all carried over punch items identified as per FAT and IFAT report are addressed.

The Software with proper revisions has been loaded on the respective systems.

All equipment and system cables that have been disconnected for shipment are properly reconnected and is working as expected.

The Site Acceptance Test (SAT) shall be conducted in accordance with the test procedures detailed in this document. The test results shall be recorded in the Check sheet. Each Check sheet shall be given a unique reference number.

7.1 SAT Documentation

YOKOGAWA shall prepare all SAT documentation prior to the start of SAT of a particular plant or area. All forms, Check-sheets, sign off sheets, drawings, etc. as listed in this procedure shall be organized in indexed binders. A master index for the area will be provided and maintained by the individual site team(s).

The documentation for hardware checks shall include all relevant documents for each individual cabinet in a separate indexed binder or a binder section.

All SAT reference documents (latest issue) as listed in this procedure originated by other parties, which were issued formally to YOKOGAWA, will form a part of the SAT documentation and shall be printed out, and organized in indexed binders by YOKOGAWA.

All SAT reference documents as mentioned above shall be stamped "SAT MASTER" on every page/sheet (or printed with a watermark). Any additional documents as may be necessary and generated later during SAT shall also be stamped, and indexes amended accordingly.

7.2 Method of Testing

Detailed test procedure for each test item is described in this document. Check-sheet shall be provided, listing the equipment to be tested. All test results shall be recorded in the Check-sheets. The following color codes shall be used in the testing:

a) Yellow marker – Items that were checked and cleared

b) Pink marker – Items that were having issues

c) Green marker – Items that were checked after completion of recovery/resolution of issue

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7.3 SAT Topics

The topics covered in SAT shall be a subset of those covered under FAT. The reference documents to be used for the SAT are also shown in Par.2.

Table 3 – Daily Working Time

Title	Description	Reference Document
Document Review	Review of the respective plant FAT to ensure that all outstanding punch items are resolved and closed out	FAT Test Report
Physical Inspection	- Installation Condition Check - Dew Condensation Check - Visual inspection of Network Architecture	- Control room layout drawings - Installation condition check sheet - Dew condensation check sheet - System Architecture drawings
Pre power-up Inspection	- SIS/FGS/PCS/EMCS Safety and Instrument reference grounding - Site UPS power - Site Normal power - Inspection of Power Cables - Inspection of System Cables (FIO) - Cabinet Alarm wiring (inter-panel connections)	- SIS/FGS/PCS/EMCS Cabinet Drawings - ICSS Earthing Scheme - Control Room Grounding Plan - Power Block Diagram UPS Power Panel Schedule - Normal Power Panel Schedule - SIS/FGS/PCS/EMCS System Cable Schedule - SIS/FGS/PCS/EMCS Cabinets Alarm Wiring Cable schedule
Power-up Inspection	- Inspection of System Cabinets - Inspection of MDF Cabinets (AIO, DIO, Prox./I.S.) - Inspection of Server Cabinets - Inspection of Network Cabinets	- PDP Cabinet Drawings - System Cabinet Drawings - MDF Cabinet Drawings - Server/Network Cabinet Drawings - System Architecture Drawings
Application revision check	- Inspection and record of Safety controller application revision	- SIS FAT /IFAT Test Report
SIS/FGS Standard System	- Inspection of SCS0110/SCS0120 Power Supply Redundancy - Inspection of SCS0110/SCS0120 Processor Redundancy	This test is not required to be performed for SAT.

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Title	Description	Reference Document
Function Inspection	- Random Inspection Vnet/IP bus Redundancy	If random inspection is required, then use FAT Reports
	- Random Inspection of ESB bus Redundancy	
	- Random Inspection of Node Unit Power Supply Redundancy	
SIS/FGS Performance	- Inspection of SCS0110/SCS0120 Resource Capacity	- FAT Reports
	- Inspection of SCS0110/SCS0120 CPU Loading	
	- Inspection of SCS0110/SCS0120 Online / Offline Loading Test	
	- Inspection of Back-up / Restore Function Test	
PCS Standard System Function Inspection	- Inspection of FCS0101 Power Supply Redundancy	This test is not required to be performed for SAT. If random inspection is required, then use FAT Reports
	- Inspection of FCS0101 Processor Redundancy	
	- Random Inspection Vnet/IP bus Redundancy	
	- Random Inspection of ESB bus Redundancy	
	- Random Inspection of Node Unit Power Supply Redundancy	
PCS Performance	- Inspection of FCS0101 Resource Capacity	FAT Reports
	- Inspection of FCS0101 CPU Loading	
	- Inspection of FCS0101 Online / Offline Loading Test	
	- Inspection of Back-up / Restore Function Test	
System Integration	- CI Server	Refer to FAT reports for CI Server & Time Synchronization test records Refer to Appendix-19.10 for subsystem communication check sheet
	IAMS	
	- Time Synchronization	
	- Sub-System Communication (if applicable, including redundancy)	

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Title	Description	Reference Document
EMCS	Standard System Function Inspection and Performance Check	Refer to Sl. No.16
SAT Completion Inspection	- Final inspection of the SIS to remove any temporary labels, tags, etc. added for SAT purpose.	

Note: The topics are listed as per the expected sequence of testing.

7.4 Sequence of Testing in SAT

Sl No	Description
1	SIS Hardware Certificates Review
2	Appearance & construction
3	System Configuration
4	Node / I/O Module loading
5	Wiring Check
6	Grounding Check
7	Startup System Cabinets.
8	Startup Marshalling Cabinets.
9	SIS/FGS/PCS/SCADA/EMCS Software Loading & License review
10	Loop Checking
11	Cabinet Alarm Check
12	Spare Check
13	Online / Offline loading of Application
14	Application inspection for Safety control station
15	Scan Time Check
16	CPU Load check

7.5 Random Selection philosophy

The following shall dictate the philosophy of random selection

- If necessary, for functional inspection of Node Unit Power Supply Modules, one set of dual redundant Power Supply Modules per SCS/FCS shall be selected for inspection.
- Connectivity inspection of AI /AO Modules of FIO shall be performed with the signal of 50% of full scale. One AI /AO point shall be selected per IOM / terminal panel for testing. For FTA, that has connection from two different I/O modules, one point per module shall be tested. If no failures are found, the test is considered acceptable. If any failures are found, the AI / AO module

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is replaced and another point shall be selected and tested. For I/O modules that are in redundant configuration, test for redundancy function shall be performed by selecting random redundant pair, preferably one pair per SCS/FCS.

- For functional inspection of DI and DO Modules of FIO, one point shall be selected per I/O module / interface board for testing. If no failures are found, the test is considered acceptable. If any failures are found, the DI or DO module is replaced and another point shall be selected and tested.
- For EMCS test details refer to SI No. 20 EMCS SAT

7.6 SAT Plan

The SAT shall be conducted in the following sequence.

1. Document Review
2. Physical Inspection
3. Pre Power-up Inspection
4. Power-up Inspection
5. IOM Functional Inspection
6. SIS/FGS/PCS/EMCS Standard System Function Inspection (if necessary)
7. SIS/FGS/PCS/EMCS Performance
8. System Integration
9. SAT Completion Inspection

7.7 Punch Record

Any deficiency found during the test shall be noted in the SAT Punch Record (Attached as Appendix-19.9A, 19.9C). Each punch Record shall cover one punch item/fault. A Punch Record Ledger (Attached as Appendix-19.9B, 19.9D) shall be used to summarize all the punch records. Punch record items shall be classified as follows:

M = Modification, item is to be modified, deleted, added due to design input changes.

C = Correction, item is to be corrected by YOKOGAWA.

If the recovery work involves change/modification, it is to be recorded on the punch record and the recovery shall be carried out after the agreement of both the SAT managers. YOKOGAWA shall clear all correction items (**Code C**) as per the identified resolutions. For recovery work that involves modification (**Code M**), the item will be jointly reviewed by all parties on a daily basis and determined whether to be implemented during SAT or later, depending on complexity and potential schedule and/or cost impact. After verification, all concerned parties in the punch record will sign off the same.

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Each Punch Record Shall include the expected completion Date within which the punch shall be implemented and ready for re-testing.

-Each "Code-M" punch requiring a minor or negligible effort to be cleared and shall be considered as included in lump-sum.

-Each" Code-M" punch deemed not included in lump-sum Yokogawa scope shall be subject to preliminary agreement between the parties before proceeding for implementation.

-Such Classification of "Code-M" punches shall be reflected either in SAT punch record sheets or in SAT punch ledger/SIS Punch Record Summary.

7.8 SAT Completion Certificate & System Acceptance Certificate

Upon completion of the SAT, a SAT Completion Certificate and System Acceptance Certificate will be signed by CROSSWIND, Rosetti Marino and YOKOGAWA. The purpose of these two documents is to certify that the SAT has been completed and accepted by Rosetti Marino /CROSSWIND. Both Rosetti Marino/CROSSWIND and YOKOGAWA agree that the system is in order and can be released for the next stage of site activities. However, if the tested system is to be accepted in partial for whatever reasons, Rosetti Marino/CROSSWIND shall advise and issue the SAT documents accordingly. A Sample of the SAT Completion Certificate is attached in Appendix-19.12 and System Acceptance Certificate in Appendix-19.11.

7.9 Safety at work

CROSSWIND site safety procedures shall form the basis for YOKOGAWA to conduct the SAT. Rosetti Marino/CROSSWIND shall provide necessary safety orientation to YOKOGAWA site team so that YOKOGAWA site engineers can follow the safety rules while working on-site.

RM shall give indication about the safety equipment (PPE) to be used at site; Yokogawa will be responsible of procuring such equipment to its personnel.

7.10 Test Equipment

Rosetti Marino/CROSSWIND will provide all test equipment (e.g. Digital Multimeter, Calibrator, Signal Generators, etc.) for the SAT. The details of the test equipment for SAT with certification shall be provided using format attached in Appendix-19.4.

8 Punch List Document Review

This section outlines the steps for ensuring that all problems identified during FAT or IFAT are resolved and closed out.

Steps

1. Review the respective plant FAT and IFAT report.

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2. Check that all problems indicated in the Punch List Logs that were identified as "to be corrected" before shipment to site have been resolved and implemented prior to shipment of the SIS/FGS/PCS/SCADA/EMCS.
3. Check the items that are to "be completed before SAT" have been implemented.

Acceptance Criteria

1. All problems indicated in the Punch Registry that was to be implemented before shipment have been resolved / implemented prior to shipment of the SIS/FGS/PCS/SCADA/EMCS.
2. The respective Punch Lists and Punch Registers have been updated.

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9 Physical Inspection

9.1 Installation Condition Check (Pre-Power up)

Outline	The SIS/FGS/PCS cabinets are installed as per the layout shown in the approved control room layout drawings. Installation conditions of the SIS/FGS/PCS equipment shall be checked and verified prior to powering up the cabinets. For External panels/JBs, installation condition, location shall be checked and verified as per installation guide and plot plan.
Objective	To verify that the installation conditions of all installed SIS/FGS/PCS equipment are as per Yokogawa Installation guidance and approved control room layout drawings and /or plot plan (for external equipment)
Reference	- Functional Specifications like; - 1724000594-IN-SP-00018- PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004- PCS and Safety System IO List (HW and SW) - ProSafe-RS Installation Guidance - CentumVP Installation Guide - CI Server Installation Guide - IAMS Installation guide - Control Room Layout Drawings - Plot Plan (for external equipment)
Procedure	Visually check that the SIS/FGS/PCS cabinets/panels/JBs are installed as per the approved control room layout drawings and/or plot plan. Check items as follows: 1. Perform random inspection of the installation conditions as per the Installation guidance document to observe any non-conformance. 2. Check and complete the installation check sheet for the particular area / installation environment under test.
Criteria	1. The authorized installation inspection teams should complete the installation checks and sign the installation condition check sheet. 2. Also random inspection of the installation condition should meet the installation specification requirements.
Test Record Reference	- Appendix-19.5

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Camilli	**Date:**	27/05/25
Rosetti Marino Representative	: G. DeMisser	**Date:**	27/05/2025
Crosswind Representative	:	**Date:**	

Note: Prerequisite construction conditions for installation are listed below. These condition must be checked by construction contractor before system installation.

- Cutoff of air outside (Seal on control room doors/windows)
- No piping of water/steam on the ceiling
- No direct Sun light (For External Equipment)
- Air quality in control room
- HVAC condition
- HVAC Air ducts - Ensure no direct air flow on the cabinet installation area
- Vibration
- Lighting
- Impacts from other construction
- Sealing at the cable duct entrance (For External Equipment)

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9.2 Dew Condensation Check

Outline	The dew condensation can be formed in the SIS/FGS/PCS equipment due to combination of air saturation inside the cabinet and drop in temperature.
Objective	To verify that all the installed SIS/FGS/PCS equipment are free from any dew condensation
Reference	- Functional Specifications like; - 1724000594-IN-SP-00018- PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004- PCS and Safety System IO List (HW and SW) - ProSafe-RS Installation Guidance - CentumVP Installation Guide
Procedure	Visually check that the Installation Conditions are as per the project requirements. Check items as follows: 1. Check and complete the dew condensation check sheet for the particular area / installation environment under test. 2. Perform random inspection of the SIS/FGS/PCS equipment to confirm that there is no condensation on the SIS/FGS/PCS equipment. 3. The body of cabinets at random shall be checked for dew, dew trace, color change and rust, and verified by filling each item on the check sheet. 4. The installed cards at random shall be checked for dew, dew trace, color change and rust, and verified by filling each item on the attached check sheet. 5. If the dew, dew trace, color change or rust has been recognized, the conditions must be record by taking picture and a non-conformity report shall be created.
Criteria	The authorized installation inspection teams should complete the dew condensation checks and sign off the dew condensation check sheet.
Test Record Reference	- Appendix-19.5 Dew Condition

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Cannistrà	Date:	27/05/25
Rosetti Marino Representative	: G. De Mission	Date:	28/05/2025
Crosswind Representative	:	Date:	

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9.3 System Architecture and BOM Check

Outline	The SIS/FGS/PCS system is configured as per SIS/FGS/PCS system architecture Drawing. The BOM for SIS/FGS/SIS equipment are verified during the FAT. During SAT, only the major components like SIS/FGS/PCS cabinets, console stations, network cables and system cables (between cabinets) are verified.
Objective	Verify major SIS/FGS/PCS equipment installed for SAT is per the System Architecture Drawing.
Reference	- Functional Specifications like; - 1724000594-IN-DD-00015- System Architecture Drawing - 1724000594-IN-SP-00018- PCS and SAFETY SYSTEMS Software FDS-SW - CENTUMVP system view - 123A90-DDL-IN-SP-40097 Rev.00 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Rev.00 Control System (PCS) Specification - 123A90-DDL-IN-RE-40093 Rev. 00 Control System Philosophy - 123A90-DDL-IN-DD-40096 Rev.00 Control System Architecture Detailed Drawings - K559-2254-IC-SPE-001 Rev.00 SYSTEM SPECIFICATION FOR MAIN AUTOMATION CONTRACTOR - K559-2254-PR-BLD-001 Rev.01 BLOCK FLOW DIAGRAM SYSTEM OVERVIEW - K559-2254-EL-LST-001 Rev.00 CONTROL ALARM AND MONITORING TABLE - 123A90-DDL-IN-SP-40024_Rev.00 Alarm System Requirements Specification - 123A90-DDL-IN-DD-40019 Rev.00 Data Network Architecture Drawings - System Architecture Drawing - BOM
Procedure	Visually check that all SIS/FGS/PCS cabinets and consoles are staged as per the System Architecture. Also verify that the network communication cables (both of copper cables and fiber optic cables) are connected per the corresponding cable schedule. Verify the BOM for SIS/FGS/PCS equipment both of Hardware and Software. Check items as follows:

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	1. Verify Hardware BOM related to System cabinets - Run reports on an engineering workstation to extract hardware configuration, domain/station settings etc. 2. Verify Software BOM and correct station, Domain numbers setting.
Criteria	The quantity of SIS/FGS/PCS cabinets, consoles, and network cables should match the system architecture.
Test Record Reference	- Marked system architecture drawing 1724000594-IN-DD-00015 and BOM 1724000594-IN-LIS-00003

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Camilli	Date:	27/05/25
Rosetti Marino Representative	: G. De Mesi	Date:	27/05/2025
Crosswind Representative	:	Date:	

NOTE: CABINETS HKN-WP01-BLPH-SWR-01, HKN-WP01-BLPH-NGT-01 THAT SHALL BE INSTALLED ONSHORE ARE ~~[illegible]~~ INSTALLED IN TEMPORARY LOCATION DURING TEST PHASE. THIS SHALL BE CONSIDERED FOR ALL SUBSIQUENT TEST CASES (CABLE CHECK ETC.)

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10 Pre Power-up Inspection

10.1 Grounding Check

Outline	All the SIS/FGS/PCS associated cabinets and active components powered by AC power inside the cabinets are connected to protective earth. The system components and the signal shield bars and connected to functional earth (insulated Bar).
Objective	To verify that the SIS/FGS/PCS equipment are connected to the respective ground bars as shown in the cabinet drawings and grounding plan block diagram.
Reference	- Earthing layouts drawings (Onshore CCR, Offshore ITER) 123A90-DDL-IN-DL-40013 - Grounding Plan - SIS/FGS/PCS Cabinet Grounding Scheme
Procedure	1. Visually check that all the SIS/FGS/PCS associated cabinets have been connected to the proper grounding system as per the grounding drawings Perform random checks on the SIS associated cabinets ***Note: The Installation Check Sheets for Earthing Connection should be verified and signed by the Installation teams prior to SAT***
Criteria	1. All of the SIS/FGS/PCS associated cabinets safety and instrument reference grounding are connected properly with correct wire size and according to the grounding plan/drawings. 2. All punch items from the Installation check sheets should be resolved
Test Record Reference	- Appendix-19.5 Earth Connection

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Carnesi	**Date:**	27/05/25
Rosetti Marino Representative	: G. De Missier	**Date:**	27/05/2025
Crosswind Representative	:	**Date:**	

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10.2 System Cables Check (FIO System)

Outline	When the SIS/FGS/PCS system nodes and terminal boards (FTAs) are installed in different cabinets, the system cables have to be laid between cabinets and terminated at site after cabinet installation. These system cables have to be checked and verified for proper interconnections.
Objective	To verify that all the system cables are connected properly as per the SIS/FGS/PCS system cable schedule. The system cables are routed per the cable routing plan
Reference	- 123A90-DDL-EL-DL-20100 Base Load Power Hub - Electrical Equipment Layout - Top Deck - 123A90-DDL-EL-DL-20101 BASE LOAD POWER HUB (BLPH) - Electrical Equipment Layout - Lower Deck - 1724000594-IN-LIS-00007 Systems Cables List - 1724000594-IN-DG-00016 Network Connection Diagram
Procedure	1. Cable laying and connection should have been completed by the construction contractor under supervision of Rosetti Marino. 2. Randomly, verify that system cables have been properly terminated and the cables have correct cable labels.
Criteria	1. All system cables should be terminated per the system cable schedule. 2. All system cables should have proper cable labels for easy identification. 3. All system cables should be laid per the system cable routing plan
Test Record Reference	- Marked System Cable List 1724000594-IN-LIS-00007 The Cable model, length and markers shall be as per the System Cable Schedule.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	: M. Camus	Date:	27/05/25
Rosetti Marino Representative	: C. De Mosio	Date:	27/05/2025
Crosswind Representative	:	Date:	

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10.3 Power Cables Check

Outline	Power feed to SIS/FGS/PCS cabinets/panels/JBs are from Power Distribution Panels for which the source is UPS and Normal power distribution panel. All the SIS Power cables are installed and connected per the power cable schedules
Objective	- Verify that all the SIS SIS/FGS/PCS system power cables are connected properly as per the approved UPS and Normal Power cable schedules. - Verify that all power cables are correctly labeled and that the label is clearly visible.
Reference	- 123A90-DDL-EL-DL-20100 Base Load Power Hub - Electrical Equipment Layout - Top Deck - 123A90-DDL-EL-DL-20101 BASE LOAD POWER HUB (BLPH) - Electrical Equipment Layout - Lower Deck - Power Cable Schedule - Cable laying check sheet by Rosetti Marino
Procedure	1. Cable laying and connection should have been completed by the construction contractor under supervision of Rosetti Marino. 2. Randomly, verify that power cables have been properly laid per the cable schedule, terminated and the cables have correct cable labels.
Criteria	1. All Power cables should be terminated per the power cable schedule. 2. All Power cables should have proper cable labels for easy identification. 3. All Power cables should be laid per the power cable routing plan.
Test Record Reference	- Marked Power Cable schedule(By RM) The Cable model, length and markers shall be as per the Power Cable Schedule.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Comstock	Date:	27/05/25
Rosetti Marino Representative	: G. De Masier	Date:	27/05/2025
Crosswind Representative	:	Date:	

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11 Power-up Inspection

11.1 System Start-up Test (FCS and EWS/OWS)

Outline	Field Control Stations (FCS) and Operator Work Stations (OWS) go to the operating state automatically upon powering up, provided that all application software and image are properly loaded in the system.
Objective	- Verify that the above components automatically boot up when going from 'stop' state to 'operating' state.
Reference	- Functional Specifications like; - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-DD-00015 System Architecture Drawing - IM 33J01C10-01EN CENTUM VP Instruction Manual
Procedure	1. Power down components individually or for the whole system. 2. Power up each component individually and observe its boot up sequence. 3. Check station status from EWS0164 System Maintenance panel when each station boots up. **Note: For each FCS, verify the random IO state and tuning data prior to power down. After power up, verify that the FCS initializes the application program as desired and retains the tuning data.**
Criteria	1. Each component must boot up automatically.* 2. Station status indication on HIS(EWS0164) System Maintenance panel should change from red to green.
Test Record Reference	- Refer Appendix 19.5 – SAT Check sheet

* CONFIGURATION OF SERVERS IS "RESTORE LAST STATE" AT BOOT UP

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The above checks are conducted on random basis for selected FCS/HIS(EWS0164) and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative : M. Carnevali Date: 28/05/25

ROSETTI MARINO Representative : FABIO SUELGAN Date: 28/05/2025

CROSSWIND Representative : Date:

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11.2 Inspection of Safety Control Station (System) Cabinets

Outline	The Safety Control Station (SCS) is powered up using primary and secondary power feeders from PDP. The primary feeder feeds power to one of the system power supplies and the secondary power feeder feeds power to other system power supply. All the Safety Control Station cabinets are to be checked and verified after power-up.
Objective	To verify that all the Safety Control Station cabinets power-up normally without any hardware failures **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Reference	- Functional Specifications like; - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-DA-00010 SAFETY SYSTEMS CABINETS (SIS AND FGS) GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT - 1724000594-IN-DG-00021 SAFETY SYSTEMS CABINETS (SIS AND FGS) WIRING DIAGRAMS AND TERMINAL STRIPS
Procedure	**A. Physical Check** 1. Visually check that all the Safety Control Station cabinets are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 and Appendix-19.7 SCS. **B. Power-up** 1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate all devices inside the cabinet from any incoming power. 2. Switch on the relevant circuit breaker (primary power source) in the PDP powering the SIS cabinet under test. 3. Verify the supply voltage at the main circuit breaker/isolating switch in that SCS cabinet. 4. Apply power to the one of the SCS Power Supply Unit (s) by switching ON the respective isolating switch. 5. Verify that the SCS Power Supply modules power up. Green LED display lights up on the respective SCS PSU(s).

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	6. Switch "OFF" the Circuit Breaker/Isolating Switch providing the Primary Source of Power. 7. Repeat the Test for secondary source powering the SCS. 8. Repeat the test by powering up both the primary and secondary power sources. 9. Confirm that all the fans in the cabinet are running. 10. Repeat the test for all SCS cabinets. 11. Complete the test measurements as per the attached check sheet in Appendix-19.5 and Appendix-19.7 SCS. 12. Record the observations and sign off the related acceptance form in the SAT Test Records. 13. Cabinet Alarm Check 14. Bulk Power Supply Redundancy check
Criteria	1. The quantity, type and location of the panel components inside each of the SCS cabinets should match the GA/IA documents. 2. SCS power supply units should function normally on power up.
Test Record Reference	- Appendix-19.5 and Appendix-19.7 SCS

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	: M. Cannistraci	Date: 27/05/25
Rosetti Marino Representative	: G. De Meister	Date: 27/05/2025
Crosswind Representative	:	Date:

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11.3 Inspection of PCS Control Station (System) Cabinets

Outline	The Process Control Station (PCS) is powered up using primary and secondary power feeders from PDP. The primary feeder feeds power to one of the system power supplies and the secondary power feeder feeds power to other system power supply. All the Process Control Station cabinets are to be checked and verified after power-up.
Objective	To verify that all the Process Control Station cabinets power-up normally without any hardware failures **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Reference	- Functional Specifications like; - 1724000594-IN-SP-00019 EMCS Software Functional Design Specification (FDS-SW) - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-DA-00009 PCS CABINETS GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
Procedure	**A. Physical Check** 1. Visually check that all the PCS Control Station cabinets are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 and Appendix-19.7 PCS. **B. Power-up** 1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate all devices inside the cabinet from any incoming power. 2. Switch on the relevant circuit breaker (primary power source) in the PDP powering the PCS cabinet under test. 3. Verify the supply voltage at the main circuit breaker/isolating switch in that PCS cabinet. 4. Apply power to the one of the PCS Power Supply Unit (s) by switching ON the respective isolating switch. 5. Verify that the PCS Power Supply modules power up. Green LED display lights up on the respective PCS PSU(s). 6. Switch "OFF" the Circuit Breaker/Isolating Switch providing the Primary Source of Power.

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	7. Repeat the Test for secondary source powering the PCS. 8. Repeat the test by powering up both the primary and secondary power sources. 9. Confirm that all the fans in the cabinet are running. 10. Repeat the test for all PCS cabinets. 11. Complete the test measurements as per the attached check sheet in Appendix-19.5 and Appendix-19.7 PCS 12. Record the observations and sign off the related acceptance form in the SAT Test Records. 13. Cabinet Alarm Check 14. Bulk Power Supply Redundancy check
Criteria	1. The quantity, type and location of the panel components inside each of the PCS cabinets should match the GA/IA documents. 2. PCS power supply units should function normally on power up.
Test Record Reference	- Appendix-19.5 and Appendix-19.7 PCS

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	: M. Carmotte	**Date:**	27/05/25
Rosetti Marino Representative	: G. De Missier	**Date:**	27/05/2025
Crosswind Representative	:	**Date:**	

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11.4MDF Function Check

11.4.1 MDF for Analog Input / Output

Outline	MDF for Analog Input / Output provides interface between the SIS/FGS/PCS and the field devices. **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Objective	To verify that the installation conditions of all installed SIS/FGS/PCS AIO MDF cabinets are as per Yokogawa Installation guidance and approved control room layout drawings.
Reference	- Functional Specifications like; - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-DA-00010 MDF GA/IA Drawing 1724000594-IN-DA-00009
Procedure	**Physical Check** 1. Visually check that all the SIS/FGS/PCS AIO MDF cabinets are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 and Appendix-19.7 MDF Analog. 3. Perform following random checks on the Installation. • Cable handling – routing, trays/duct, clamp rails and termination. • System cable – KS1 • Field cables from junction boxes (if completed) 4. Repeat the test for all AIO MDF cabinets. 5. Check that all field knife edge terminals are in open position. Note: There are no power supply units / fans mounted inside the AI/AO MDF's.
Criteria	1. AIO MDF cabinets should be installed per the Control room layout drawings. 2. The quantity, type and labels of the system cables should be as per the system cable schedule.
Test Record Reference	- GA / IA Drawings & System cable schedule - Appendix-19.5 and Appendix-19.7 SCS

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	: M. Carnevali	Date:	27/05/25
Rosetti Marino Representative	: G. Der Mussian	Date:	27/05/2025
Crosswind Representative	:	Date:	

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11.4.2 MDF for Digital Input / Output

Outline	MDF for DI/DO provides SIS/FGS/PCS interface to the digital devices in the field.
Objective	1. To verify that all the installed SIS/FGS/PCS DI/DO MDF cabinets are installed per the installation guidance and control room layout drawings. 2. To verify that the components inside the SIS/FGS/PCS DI/DO MDF cabinets function normally on power up. 3. To verify functionality of cabinet high temperature and power supply unit fail alarms. 4. To verify proper functioning of the redundant power supply units. This test ensures that there will be no disruption in power to field devices whenever one of the power supply unit fails. **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Reference	- Functional Specifications like; - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-DA-00009, 1724000594-IN-DA-00010 MDF GA/IA Drawing - 1724000594-IN-LIS-00007 Systems Cables List
Procedure	**A. Physical Check** 1. Visually check that all the SIS/FGS/PCS DIO MDF are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 an Appendix-19.7 MDF DIO. 3. Perform following random checks on the Installation. • Cable handling – routing, trays/duct, clamp rails and termination. • System cable – AKB System Cables • Field cables from junction boxes (if completed) 4. Confirm that the wiring for cabinet temperature, power supply unit fail alarms and FTA board failure wherever applicable is completed and is as per the Cabinet alarm wiring schedule. 5. Ensure that the Field Power supply to field is isolated by removing the fuses on the DIO FTA boards. 6. Check that all field knife edge terminals are in open position.

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NOT APPLICABLE

Note: Preferred practice is to remove the individual channel fuses on the DIO FTA boards after FAT (before shipping)

B. Power Up

1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate power to all devices inside the cabinet.
2. Switch on the relevant circuit breaker (primary power source) in the PDP powering the MDF cabinet under test.
3. Verify the supply voltage at the main isolating switch/circuit breaker of each MDF.
4. Apply power to the one of the Power Supply Unit (PSU-01) by switching on the respective isolating switch/fuse powering it.
5. Verify that the Power Supply Unit power up by checking the Green LED on the PSU. Measure the DC voltage at the terminals.
6. Measure the voltage at the power terminals of DIO FTA boards.
7. Switch "off" the Primary source of power to the Power Supply Unit (PSU-01).
8. Perform the test for the Redundant Power Supply Unit (PSU-02) connected to the Secondary source of Power and repeat steps 5 & 6.
9. Repeat steps 5 & 6 by Powering up both PSU-01 & PSU-02.
10. Turn ON the fuse to run the fans in the cabinet.

C. Cabinet Temperature Alarm

1. Note Thermostat setting in the cabinet. Check that the contact at the terminal is closed circuit.
2. Set the Temperature setting of thermostat to a lower setting (e.g. 18°C).
3. Check that the contact is now open. Verify alarm in SCADA HMI.
4. Recover the alarm by setting the temperature setting back to above room temperature.
5. Check that the contact is now closed. Verify alarm recovery in SCADA HMI.

D. Field Power Supply Alarm

1. Simulate field PSU fail by removing incoming power to PSU-01.
2. Measure contact at alarm terminal, contact should be open. Verify alarm in SIS/SCADA HMI.
3. Apply power to PSU-01. Contact status should return to closed. Verify alarm recovery in SCADA HMI.
4. Repeat the test for PSU-02.

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	5. Complete the test measurements as per the attached check sheet in Appendix-19.5 and Appendix-19.7 MDF DIO. 6. Repeat the test for all SIS/FGS/PCS DIO MDF cabinets.
Criteria	1. SIS/FGS/PCS DIO MDF cabinets should be installed per installation guidance and control room layout. 2. The quantity, type and labels of the system cables should be as per the system cable schedule. 3. The components inside SIS/FGS/PCS DIO MDF cabinets should function normally on power up. 4. Wiring of SIS/FGS/PCS DIO MDF PSU fail and Cabinet temperature high alarms should be according to the cabinet alarm wiring schedule and the alarm in SIS/FGS/PCS should function as desired.
Test Record Reference	- Appendix-19.5 and Appendix-19.7 MDF DIO

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Carmeli	**Date:**	28/05/25
Rosetti Marino Representative	: G. Da Mosto	**Date:**	28/05/2025
Crosswind Representative	:	**Date:**	

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11.5 Other Cabinet

11.5.1 Server Cabinet

Outline	The server cabinet houses rack mounted rack server computers.
Objective	1. To verify that all the installed server cabinets are installed per the installation guidance and control room layout drawings. 2. To verify that the server PCs, and other components inside the cabinet function normally on power-up. 3. To verify that selection of Server PC to the monitor can be done using the KVM console. 4. To verify functionality of cabinet high temperature alarm. **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Reference	- Functional Specifications like; - 1724000594-IN-DD-00015 System Architecture Drawing - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-RE-40093 Control System Philosophy - 123A90-DDL-IN-DD-40096 Control System Architecture Detailed Drawings - K559-2254-IC-SPE-001 SYSTEM SPECIFICATION FOR MAIN AUTOMATION CONTRACTOR - 1724000594-IN-DA-00011, 1724000594-IN-DA-00012Server Cabinet GA/IA Drawing- Cabinet Alarm wiring - 1724000594-IN-LIS-00004 Instrument IO List
Procedure	**A. Physical Check** 1. Visually check that the server cabinets are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 Server Cabinet. 3. Perform following random checks on the Installation. • Cable handling – routing, trays/duct, clamp rails and termination.

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	• Network cables 4. Confirm that the wiring for cabinet temperature alarms is completed and is as per the cabinet alarm wiring schedule. **B. Power-up** 1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate all devices inside the cabinet from any incoming power. 2. Switch ON the relevant circuit breaker (primary power source) in the PDP powering the server cabinet under test. 3. Verify the supply voltage at the main circuit breaker/isolating switch in that server cabinet. 4. Apply power to the primary power feed of the server cabinet by switching ON the primary feed Circuit Breaker/isolating switch. Turn ON the Power to Server PC one by one from the server front panel. 5. Verify that primary PSU of Server PCs is powered ON. Confirm that the Server PCs start-up properly without any errors. 6. Switch ON the secondary power source for server cabinet in the PDP. 7. Verify that secondary PSU of Server PCs are powered ON. Confirm that the Server PCs start-up properly without any errors. 8. Verify other components like KVM switch and monitor power up and function normally. Confirm the operation of KVM switch/keyboard by changing the Server PC selection. 9. Confirm that the fans in the cabinet are running. **C. Cabinet Temperature Alarm** NOT APPLICABLE 1. Note Thermostat setting in the cabinet. Check that the contact at the terminal is closed circuit. 2. Set the Temperature setting of thermostat to a lower setting (e.g. 18°C). 3. Check that the contact is now open. Verify alarm in SCADA alarm list. 4. Recover the alarm by setting the temperature setting back to above room temperature. 5. Check that the contact is now closed. Verify alarm recovery in SCADA alarm list.
Criteria	1. Server cabinets should be installed per installation guidance and control room layout drawings. 2. The quantity, type and labels of the network cables should be as per the network cable schedule.

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	3. The components inside server cabinets should function normally on power up. 4. Wiring of server cabinet temperature high alarms should be correct and the alarm in SIS/FGS/PCS should function as desired.
Test Record Reference	- Appendix-19.5 Server Cabinet

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Cannizzaro	Date:	28/05/25
Rosetti Marino Representative	: G. De Missier	Date:	28/05/2025
Crosswind Representative	:	Date:	

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11.5.2 Network Cabinet

Outline	The network cabinet houses rack mounted network switches and fiber optic patch panels
Objective	1. To verify that all the installed network cabinets are installed per the installation guidance and control room layout drawings. 2. To verify that the network switches and other components inside the cabinet function normally on power-up. 3. To verify functionality of cabinet high temperature alarm. **Note: Once Powered Up "LIVE" tag shall be placed on the cabinet.**
Reference	- Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-RE-40093 Control System Philosophy - 123A90-DDL-IN-DD-40096 Control System Architecture Detailed Drawings - K559-2254-IC-SPE-001 SYSTEM SPECIFICATION FOR MAIN AUTOMATION CONTRACTOR - 1724000594-IN-DD-00015 System Architecture Drawing - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-DA-00011, 1724000594-IN-DA-00012 Server Cabinet GA/IA Drawing - Cabinet Alarm wiring in Instrument IO List 1724000594-IN-LIS-00004
Procedure	**A. Physical Check** 1. Visually check that the network cabinets are as per the GA/IA drawings. 2. Confirm that the Installation teams have completed the Installation Check Sheets as per Appendix-19.5 Network Cabinet. 3. Perform following random checks on the Installation. • Cable handling – routing, trays/duct, clamp rails and termination. • Network cables 4. Confirm that the wiring for cabinet temperature alarms is completed and is as per the cabinet alarm wiring schedule. **B. Power-up**

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	1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate all devices inside the cabinet from any incoming power. 2. Switch ON the relevant circuit breaker (primary power source) in the PDP powering the Server/Network cabinet under test 3. Verify the supply voltage at the main circuit breaker/isolating switch in that network cabinet. 4. Apply power to the primary power feed of the network cabinet by switching ON the primary feed Circuit Breaker/isolating switch. Turn ON the Power to network switches one by one. 5. Verify that primary PSU of Vnet/IP Bus 1 L2SW/L3SW (and if applicable Ethernet switch) is powered ON. Confirm that the Vnet/IP Bus1 L2SW/L3SW (and if applicable Ethernet switch) start-up properly without any errors. Verify Vnet/IP Bus 1 recovery on HIS. 6. Switch ON the secondary power source for server cabinet in the PDP. 7. Verify that secondary PSU of Vnet/IP Bus 2 L2SW/L3SW (and if applicable Ethernet switch) is powered ON. Confirm that the Vnet/IP Bus2 L2SW/L3SW (and if applicable Ethernet switch) start-up properly without any errors. Verify Vnet/IP Bus 2 recovery on HIS. 8. If applicable, verify fiber optic link on the L2SW/L3SW by checking network communication using fiber network. 9. Confirm that the fans in the cabinet are running. **C. Cabinet Temperature Alarm** 1. Note Thermostat setting in the cabinet. Check that the contact at the terminal is closed circuit. 2. Set the Temperature setting of thermostat to a lower setting (e.g. 18°C). 3. Check that the contact is now open. Verify alarm in SCADA alarm list. 4. Recover the alarm by setting the temperature setting back to above room temperature. 5. Check that the contact is now closed. Verify alarm recovery in SCADA alarm list.
Criteria	1. Network cabinets should be installed per installation guidance and control room layout drawings. 2. The quantity, type and labels of the network cables should be as per the network cable schedule. 3. The components inside Server/Network cabinets should function normally on power up.

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	4. Wiring of network cabinet temperature high alarms should be correct and the alarm in SIS should function as desired.
Test Record Reference	- Appendix-19.5 Network Cabinet

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Cammelli	Date:	28/05/25
Rosetti Marino Representative	: G. De Nesier	Date:	28/05/2025
Crosswind Representative	:	Date:	

NOTES

1) CABLES : MODSWL2-002 : P9, ~~[illegible]~~ IS NOT CONNECTED BECAUSE OF TEST PURPOSE

2) SOME ETHERNET CABLES ARE TEMPORARY CONNECTED DURING TEST. REMOVE BEFORE SHIPPING

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11.6 SENG / SOE (EWS0164)

Outline	The SENG/SOE (EWS0164) Servers shall be checked and verified for the proper functioning on power-up.
Objective	To verify that all the installed SENG/SOE Server boot up and applications started up automatically on power-up **Note: Once Powered Up "LIVE" tag shall be placed on the stations.**
Reference	- Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40100 Safety System (ESD, Fire and Gas) Specification - 123A90-DDL-IN-DD-40096 Control System Architecture Detailed Drawings - K559-2254-IC-SPE-001 SYSTEM SPECIFICATION FOR MAIN AUTOMATION CONTRACTOR - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-DD-40019 Data Network Architecture Drawings - 1724000594-IN-SP-00018- PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-DD-00015 System Architecture Drawing
Procedure	**A. Physical Check** 1. Visually check that all the SENG (EWS0164) is installed as per the design layout/console arrangement drawing **B. Functional Check** 1. Ensure that all the isolating switches, circuit breakers and fuse terminals are switched "off" to isolate power to all the devices inside the console. **Following steps are applicable if the console is equipped with Redundant Power Supply Switch/units** 2. Switch on the relevant circuit breaker (primary power source) in the PDP powering the console under test. 3. Verify that the Redundant Power Switch (RPS) Unit power up and measure the AC voltage at the terminals. Green LED display lights up.

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	4. Power-up the respective machine. The PC should boot up properly and the application program should start up automatically. 5. Switch "off" the Primary source of power (within the MDF) to the Redundant Power Supply ~~Switch~~ (RPS). 6. Perform the test by powering "on" the secondary source of power and repeat the test to ensure the similar results. 7. Power "off" both sources of power. Repeat the test by powering up both Power feeds to RPS. 8. If the machine has built-in redundant power supplies*, i.e., connected through a direct feeds (and not through RPS) using the isolating switch, then, isolate the power feeds one at a time and perform the test.
Criteria	SENG/SOE Servers & monitor should power-up normally and the SIS application program should start up.
Test Record Reference	- Appendix-19.7 Power Up

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Cannizzaro	Date:	28/05/25
Rosetti Marino Representative	: FABIO SURIGA	Date:	28/05/2025
Crosswind Representative	:	Date:	

* ALL PC/SERVERS HAVE REDUNDANT POWER SUPPLY. NO REDUNDANT POWER SWITCH IS PRESENT

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12 Application Check

12.1 Application Revision Check

Outline	Check the revision of the safety application.
Objective	To ensure the correct application revision is loaded to each safety controller.
Reference	- Functional Specifications like; - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 123A90-DDL-IN-LIS-40089 Instrument I/O List - P&IDs - FAT Test Report
Procedure	1. In the workbench open the revision control sheet of the controller. 2. Check the revision record against the FAT Test Report. 3. Record the application revision in Appendix-19.13 Revision Record.
Criteria	Revision should be equal to FAT version in case of SIS/FGS OR Revision should be higher than FAT version and list of post-FAT implemented punch items present in case of SIS/FGS. In case PCS this test is not applicable.
Test Record Reference	- Appendix-19.13 Revision Record for SIS/FGS

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Cannoli	Date:	28/05/25
Rosetti Marino Representative	: FABIO SURIGA	Date:	28/05/2025
Crosswind Representative	:	Date:	

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12.2 Project Overall Function

12.2.1 Project Common Setting Check

Outline	Application inspection of project overall function include verifying project common configuration like plant hierarchy, alarm table, operation mark, and FCS properties/constants.
Objective	Verify that the project overall function of CENTUM VP project is defined according to the FDS requirements.
Reference	Functional Specifications like; - 1724000594-IN-DD-00015 System Architecture Drawing - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - CENTUMVP system view - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-RE-40093 Control System Philosophy - 123A90-DDL-IN-DD-40096 Control System Architecture Detailed Drawings - K559-2254-IC-SPE-001 SYSTEM SPECIFICATION FOR MAIN AUTOMATION CONTRACTOR - K559-2254-PR-BLD-001 BLOCK FLOW DIAGRAM SYSTEM OVERVIEW - K559-2254-EL-LST-001 CONTROL ALARM AND MONITORING TABLE - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-DD-40019 Data Network Architecture Drawings
Procedure	Verify following CENTUM VP configuration files as a part of paper check during pre-SAT; Plant hierarchy Alarm table Operation mark FCS properties/constants

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Criteria	Plant hierarchy, alarm table, operation mark, and FCS properties/constants are configured according to the FDS.

The above checks are conducted and witnessed by following representatives.

TEST RESULT: PASS / FAIL

THIS TEST IS PART OF COMMISSIONING, HENCE NOT APPLICABLE AT SAT (DONE DURING FUNCTIONAL CHECK OF LOGICS)

YOKOGAWA Representative	:	**Date:**	
RM Representative	:	**Date:**	29/7/25
Crosswind Representative	:	**Date:**	29/07/25

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12.3 FCS Function

12.3.1 Application Software Test for Complex Loops

Outline	PCS application test involves functionality check for all complex loops that is described in the functional specification, control narratives and P&IDs.
Objective	Verify that the complex control configuration functions as defined in the approved functional specifications.
Reference	Functional Specifications like; - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) Refer to Documents - 123A90-DDL-IN-LIS-40089 Instrument IO List - P&IDs of Process and third-party communication packages (WTP, HVAC, LV SWGR, UPS) - 123A90-DDL-IN-RE-40095 Process Control Logic Description - 123A90-DDL-IN-CE-40000 ESD/PSD Cause and Effect Diagram - 123A90-DDL-IN-LIS-40027 Master Alarm Database
Procedure	simulate process input signals to check control loop functions. Check following applicable control functions for each complex loop. Control Action Bumpless transfer Tracking functions Ratio/Calculations Annunciator message output Data quality Propagation ESD/PSD Interlock Shutdown Controller action Operational Interlock Controller action Initial functional status of loops on FCS startup Operator Graphical Interface Alarm & Trip settings

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	Other specific functional requirements according to complex loop description
Criteria	Complex loops in control drawing should be configured in accordance to the functional specifications, control narrative, P&IDs, C&E and PCS I/O Database.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

THIS TEST IS PART OF COMMISSIONING, HENCE NOT APPLICABLE AT SAT (IT WILL BE DONE DURING FUNCTIONAL CHECK OF LOGICS)

YOKOGAWA

Representative : _____ Date: _____

Rosetti Marino

Representative : ~~FFARIGH~~ Date: 29/7/25

Crosswind

Representative : pp Date: 29/07/25

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12.3.2 Application Software Test for Sequence and Logic

Outline	FCS sequence control functions include sequence table, logic chart or SEBOL (Sequence and Batch Oriented Language) configuration. These are configured in accordance with plant logic requirements as described in the FDS, control narrative and any sequence/logic diagrams. Sequence control functions are checked by simulating field inputs and confirming the corresponding expected outputs.
Objective	Verify that the specified functions perform control as defined in the approved functional specifications.
Reference	Functional Specifications like; - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) Refer to Documents Refer to Documents - 123A90-DDL-IN-LIS-40089Instrument IO List - P&IDs of Process and third-party communication packages (WTP, HVAC, LV SWGR, UPS) - 123A90-DDL-IN-RE-40095 Process Control Logic Description - 123A90-DDL-IN-CE-40000 ESD/PSD Cause and Effect Diagram
Procedure	- simulate process input signals to check logic/sequence configuration. - Check that the sequence/logic performs correctly, and the correct digital outputs are set. - Check valves open/shut, pumps start/stop, appropriate alarm message display etc. - Check the initial functional status of sequence logics on FCS start-up. - For each sequence/logic, check operator interface Graphic functions. - Detail checklists are described on the Check sheet.
Criteria	Sequence and logic should be configured in accordance to the functional specifications, Control/Logic narrative, P&IDs, SLDs, C&E and PCS I/O Database and any sequence or logic diagram.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

THIS TEST IS PART OF COMMISSIONING, HENCE NOT APPLICABLE AT SAT
(IT WILL BE DONE DURING FUNCTIONAL CHECK OF LOGICS)

YOKOGAWA Representative : ALESSANDRO BERRA Date: 16/7/25

Rosetti Marino Representative : FABIO SURIGA Date: 16/07/2025

Crosswind Representative : Date: 16/7/25

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12.3.3 Alarm and Trip Set points

Outline	This application inspection includes non-typical loops such as control loops, etc. that are generated.
Objective	Verify that alarm and set points are as per Alarm/Trip Set points.
Reference	Functional Specifications like; - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - K559-2254-EL-LST-001 Control Alarm and Monitoring Table Refer to Documents - 123A90-DDL-IN-LIS-40089 Instrument IO List - P&IDs of Process and third-party communication packages (WTP, HVAC, LV SWGR, UPS) - 123A90-DDL-IN-RE-40095 Process Control Logic Description
Procedure	Identify each Alarm/trip for each required Tag. Simulate the value to create alarm Verify the alarm/trip set points on the check sheet. Detail checklists are described on the check sheet.
Criteria	Each loop in control drawing should be configured in accordance to the functional specifications, control narrative, P&IDs, and PCS I/O Database.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL — THIS TEST IS PART OF COMMISSIONING, HENCE NOT APPLICABLE AT SAT (SPOT CHECK WILL BE DONE DURING FUNCTIONAL CHECK OF LOGICS ; LOOP CHECK ALREADY DONE INCLUDED CHECK OF ALARMS)

YOKOGAWA Representative : ALESSANDRO BERRA Date: 16/7/25

Rosetti Marino Representative Crosswind : FABIO SURIGA Date: 16/07/2025

Representative : Date: 16/7/25

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12.4 Hart I/O Module (CENTUM VP/Prosafe RS) Communication Test

Outline	The Instrument Asset Management System i.e. Plant Resource Manager (PRM) Server System is used to configure and maintain the database of various HART instruments via HART I/O module (Centum VP / Prosafe RS). This test will be conducted for Centum VP / Prosafe RS Hart I/O modules.
Objective	The purpose of this test is to verify that all the HART I/O module (Centum VP / Prosafe RS) and PRM supplied are properly configured.
Reference	- Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40100 Safety System (ESD, Fire and Gas) Specification - 1724000594-IN-LIS-00004 PCS I/O Database - for Device files 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW
Procedure	- Configuring Device Path: From the device path configuration tool confirm the device path is configured by providing the communication type, domain no., station no., IOM type, Slot No., Preamble and Polling address.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

~~THIS TEST IS PART OF COMMISSIONING,~~
~~HENCE NOT APPLICABLE AT SAT~~
TAGS TO BE SET IN HART DEVICES BY COMMISSIONING TEAM

YOKOGAWA
Representative : M. Camuti Date: 28/05/25

Rosetti Marino
Representative : FABIO SIRIGU Date: 28/05/2025

Crosswind
Representative : pp Date: 29/07/25

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12.5 Subsystems ALE111/A2LP131 MODULE Communication check

Outline	The subsystem communication in DCS provide interface to various subsystem using appropriate communication driver software from the vendor system (FCS0101). Based on Package Vendor communication protocol and redundancy available Redundant ALE111/A2LP131 Modules in the DCS system are provided. In case of Redundant ALE111 module during operation, one of them will be active while the other will remain as a standby. The standby I/O Modules is constantly updated.
Objective	The purpose of this test is to verify IO mapping in DCS for each subsystem interface by visually checking communication points from end to end on the actual system for all packages
Reference	Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS I/O Database - 1724000428-IN-LIS-00016 INSTRUMENT AIR PACKAGE - 1724000428-IN-LIS-00015 NITROGEN GENERATION PACKAGE U-64000 - 1723002197-EL-LIS-00042 SG-200N1 I/O LIST - 1724000372-EL-LIS-00014 I/O LIST - B-100 HVAC I/O LIST - E&I SHELTERS - B-200 HVAC I/O LIST - E&I SHELTERS - B-300 HVAC I/O LIST - E&I SHELTERS - B-400 HVAC I/O LIST - E&I SHELTERS
Procedure	Analog input point check Call up an analog input serial communication tag on the DCS HIS and confirm the tag comment, Scale High and Scale Low is correct as per the reference document.

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	Simulate following input signals at the subsystem end and confirm the readings on DCS serial tag matches the simulated input signal. Signal 1 = 0% of the range Signal 2 = 50% of the range Signal 3 = 100% of the range Record the result and repeat the tests for all analog input points. Analog output point check Call up an analog output serial communication tag on the DCS HIS and confirm the tag comment, Scale High and Scale Low is correct as per the reference document. Pull up the communication register at the subsystem end to observe the analog valve from the DCS HIS. Simulate following output signals at the DCS HIS and confirm the readings on the subsystem register matches the simulated signals: Signal 1 = 0% of the range Signal 2 = 50% of the range Signal 3 = 100% of the range Record the result and repeat the tests for all analog output points. Digital input point check Call up a Digital input serial communication tag on the DCS HIS and confirm the tag comment, and switch position level is correct as per the reference document. Simulate following input signals at the subsystem end and confirm the status on DCS serial tag matches the simulated input signal. Signal 1 = 0 or open contact input signal Signal 1 = 1 or close contact input signal Record the result and repeat the tests for all digital input points. Digital output point check

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	Call up a Digital output serial communication tag on the DCS HIS and confirm the tag comment, and switch position level is correct as per the reference document. Pull up the communication register at the subsystem end to observe the digital status from the DCS HIS Simulate following input signals at the DCS HIS and confirm the status on the subsystem register matches the simulated signal. Signal 1 = 0 or open contact input signal Signal 1 = 1 or close contact input signal Record the result and repeat the tests for all digital Output points.
Criteria	To ensure that IO mapping List is verified for each subsystem interface by visually checking communication points from end to end on the actual system.
Test Record Reference	1724000594-IN-LIS-00004 PCS I/O Database Printouts

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL GOOD CHECK (CHECK SHEETS AVAILABLE IN PROVERUS) BY COMMISSIONING TEAM

YOKOGAWA Representative : M. Candela Date: 28/05/25

Rosetti Marino Representative : FABIO SURIGA Date: 28/05/2025

Crosswind Representative : Date: 24/07/25

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13 IOM Functional Inspection

13.1 PCS I/O Module Inspection (FIO System with CPU)

Outline	All I/O modules installed in System Cabinets are certified functional by YOKOGAWA and were subjected to inspection by Rosetti Marino/Crosswind during FAT. Random I/O check is performed to verify system cables installation between panels (for FIO System) and to verify that the I/O Modules correctly function.
Objective	To verify that the system cables between the I/O modules and the FTA boards have been installed and terminated properly. (for FIO System) To verify I/O module functionality by simulating signals for random I/O points.
Reference	Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-LIS-00004 I/O Assignment Documents - System Cable List 1724000594-IN-LIS-00007
Procedure	- Selected input signals to be simulated from terminals at MDF cabinet. - Selected output measurements to be taken from terminals at MDF cabinet. - Refer to the section 7.5 and the procedure below.
Criteria	- System cables should be properly terminated to the respective I/O modules and should be as per the system cable schedule. (for FIO System) - The simulated signals on random I/O points should function and display properly in CI View OWS.
Test Record Reference	- SAT Test Records – I/O Check Sheets (Analog & Digital) - IOM Check sheet Appendix-19.6 FIO

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➢ **Analog input:**

Simulate appropriate analog input signals to the PCS using the portable calibrator and record corresponding PCS reading displayed in the SENG(EWS0164) IO lock window or corresponding faceplate at the CI View OWS.

For Analog Input points, input signals shall be simulated:

- Signal 1 = 4.00mA, corresponding to 0% at SENG IO lock window.
- Signal 2 = 12.00mA, corresponding to 50% at SENG IO lock window.
- Signal 3 = 20.00mA, corresponding to100% at SENG IO lock window.
- Out of range IOP+
- Out of range IOP-

The result to be recorded in IOM Check sheet Appendix-19.6.

➢ **Analog output:**

From the corresponding application logics at the SENG or faceplate at the HIS, force the output (MV) of the tag and measure the corresponding signal output at the output terminals using an ammeter. For Analog Output points, following output signals shall be set:

- Signal 1 = 0.1%, corresponding to 4mA at output terminals.
- Signal 2 = 50%, corresponding to 12mA at output terminals.
- Signal 3 = 99.9%, corresponding to 20mA at output terminals.

The result to be recorded in IOM Check sheet Appendix-19.6.

➢ **Digital input:**

Open or close the input point at the input terminals and record the status indication in the SENG (EWS0164) IO lock window or the corresponding tag faceplate at the HIS. For Digital Input points, 2 input states shall be simulated:

- Signal 1 = 0 or open contact input signal.
- Signal 2 = 1 or close contact input signal.
- Signal Fault : Wire break and / or short circuit as applicable for line monitored inputs

The result to be recorded in IOM Check sheet Appendix-19.6.

➢ **Digital output:**

Force the SIS output point through the SENG (EWS0164) IO lock window or corresponding faceplate at the HIS and see the status of the output point on the I/O Module if it is with status indication. For Digital Output points, 2 output states shall be set:

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- Signal 1 = 0 or open contact output signal.
- Signal 2 = 1 or close contact output signal.
- Signal Fault: Wire break / short circuit in the case of line monitored outputs, are to be tested.

The result to be recorded in IOM Check sheet Appendix-19.6.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Carmodi.	Date:	28/05/25
Rosetti Marino Representative	: FABIO SURGO	Date:	28/05/2025
Crosswind Representative	:	Date:	

~~NOTE: SPOT CHECK AT SAT~~

ITRS AVAILABLE IN PROVERLIS, LOOP CHECKED BY COMMISSIONING TEAM

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13.2 SIS/FGS I/O Module Inspection (FIO System with CPU)

Outline	All I/O modules installed in System Cabinets are certified functional by YOKOGAWA and were subjected to inspection by Rosetti Marino/Crosswind during FAT. Random I/O check is performed to verify system cables installation between panels (for FIO System) and to verify that the I/O Modules correctly function.
Objective	To verify that the system cables between the I/O modules and the FTA boards have been installed and terminated properly. (for FIO System) To verify I/O module functionality by simulating signals for random I/O points.
Reference	- Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 1724000594-IN-SP-00017 PAS Hardware Functional Design Specification (FDS-HW) - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - 1724000594-IN-LIS-00004 I/O Assignment Documents - 1724000594-IN-LIS-00007 System Cable List
Procedure	- Selected input signals to be simulated from terminals at MDF cabinet. - Selected output measurements to be taken from terminals at MDF cabinet. - Refer to the section 7.5 and the procedure below.
Criteria	- System cables should be properly terminated to the respective I/O modules and should be as per the SIS system cable schedule. (for FIO System) - The simulated signals on random I/O points should function and display properly in HIS.
Test Record Reference	- FAT Test Records – I/O Check Sheets (Analog & Digital) - IOM Check sheet Appendix-19.7 FIO

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➢ **Analog input:**

Simulate appropriate analog input signals to the SIS using the portable calibrator and record corresponding SIS reading displayed in the SENG(EWS0164) IO lock window or corresponding faceplate at the HIS.

For Analog Input points, input signals shall be simulated:

- Signal 1 = 4.00mA, corresponding to 0% at SENG IO lock window.
- Signal 2 = 12.00mA, corresponding to 50% at SENG IO lock window.
- Signal 3 = 20.00mA, corresponding to100% at SENG IO lock window.
- Out of range IOP+
- Out of range IOP-

The result to be recorded in IOM Check sheet Appendix-19.7.

➢ **Analog output:**

From the corresponding application logics at the SENG or faceplate at the HIS, force the output (MV) of the tag and measure the corresponding signal output at the output terminals using an ammeter. For Analog Output points, following output signals shall be set:

- Signal 1 = 0.1%, corresponding to 4mA at output terminals.
- Signal 2 = 50%, corresponding to 12mA at output terminals.
- Signal 3 = 99.9%, corresponding to 20mA at output terminals.

The result to be recorded in IOM Check sheet Appendix-19.7.

➢ **Digital input:**

Open or close the input point at the input terminals and record the status indication in the SENG (EWS0164) IO lock window or the corresponding tag faceplate at the HIS. For Digital Input points, 2 input states shall be simulated:

- Signal 1 = 0 or open contact input signal.
- Signal 2 = 1 or close contact input signal.
- Signal Fault : Wire break and / or short circuit as applicable for line monitored inputs

The result to be recorded in IOM Check sheet Appendix-19.7.

➢ **Digital output:**

Force the SIS output point through the SENG (EWS0164) IO lock window or corresponding faceplate at the HIS and see the status of the output point on the I/O Module if it is with status indication. For Digital Output points, 2 output states shall be set:

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- Signal 1 = 0 or open contact output signal.
- Signal 2 = 1 or close contact output signal.
- Signal Fault: Wire break / short circuit in the case of line monitored outputs, are to be tested.

The result to be recorded in IOM Check sheet Appendix-19.7.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Carnabl	Date:	28/05/25
Rosetti Marino Representative	: FABIO SIRIGU	Date:	28/05/2025
Crosswind Representative	:	Date:	

~~NOTE: SPOT CHECK AT SAT.~~
ITRs AVAILABLE IN PROVERCIS, LOOP CHECKED BY COMMISSIONING TEAM

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14 Inter-SCS and between SCS and ~~FCS~~ SCS Communication

Outline	For some applications, the Safety Instrumented Function may include I/Os from different SCS and the logic may extend from one SCS to another SCS. In such cases, safety data need to be exchanged between different SCSs while maintaining the SIL as part of the Safety Loop. Such safety communication is TÜV certified up to SIL3. For other applications, non-safety related data may be required to be exchanged between SCS and FCS. In this case, the SCS Global Switch Communication can be used.
Objective	To verify that both the Inter-SCS Safety Communication function properly and the associated logic is executed as desired.
Reference	- Functional Specifications like; - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software FDS-SW - 1724000594-IN-LIS-00004 PCS and Safety System IO List (HW and SW) - ProSafe-RS Instruction Manual (Safety Manual, Safety Control Station and Engineering Reference) - 123A90-DDL-IN-CE-40000 Process Safety Cause and Effect Matrix - 123A90-DDL-IN-CE-40002 Fire and Gas Cause and Effect Matrix - 1724000594-IN-DG-00026 ProSafe-RS system print out
Procedure	1. Monitor the logic status between the sending and receiving controller of the Safety on the SENG / HIS. Set signal on the producer to 'NORMAL' state either through direct IO injection or forcing. ✓ 2. Trigger the logic / value changes on the Sender to simulate a 'Trip' condition. ✓ 3. Monitor the logic status in the Receiver controller of the Safety / Interference-Free Communication on the SENG / HIS while in 'TRIP' state. ✓ 4. Introduce a fail to both of the Redundant Vnet/IP Buses and test the Safety Communication Timeout/Delay and Failsafe Value settings to examine safe state is achieved. not tested (it would trip all ICSS)
Criteria	The Inter-SCS Safety Communication functions are configured per application requirement and executed as desired
Test Record Reference	

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL partial

YOKOGAWA Representative	: M. Camerli	Date:	29/05/25
Rosetti Marino Representative	: FABIO SUPERSI	Date:	29/05/2025
Crosswind Representative	:	Date:	

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15 SIS/FGS/PCS Performance Test

SIS/FGS/PCS Standard System function tests are not required to be performed at SAT, since these tests are done and verified during FAT.

15.1 SCS/FCS Resource Capacity Check

SCS/FCS Resource Capacity check is not required to be performed at SAT, since the tests have been carried out during FAT. If required by a project, the SCS/FCS resource printouts that were taken during FAT can be used as reference during SAT to re-verify the available SCS/FCS resource. If the resource data is different from the data recorded during FAT, then new print out of SCS/FCS resource data shall be taken and filed in SAT binder.

15.2 SCS/FCS CPU Loading Check

It is necessary to perform SCS/FCS CPU load check when all the systems are integrated. Hence the SCS/FCS Load check should be performed again at SAT, even though it was carried out during FAT. The SCS/FCS load check procedure and recorded data during the FAT shall be re-used to verify the SCS/FCS load at SAT. The new CPU load data shall be recorded by printing out the status display (that shows CPU idle time and Communication load) of all SCSs/FCSs. The print outs shall be filed in the SAT binder.

Note: SCS/FCS CPU Loading check and Vnet/IP network loading check shall be performed again after completion of commissioning activities to ensure that the system operational is stable and enough CPU and network resource is available for online maintenance and if applicable, for future expansion.

15.3 SCS/FCS Online/Offline Loading Test

SCS/FCS Online/Offline Loading tests are not required to be performed at SAT, since these tests are done and verified during FAT. If a project requires these tests to be performed again at SAT, then the FAT procedure and related check sheets can be used as reference for re-testing during SAT.

15.4 Backup/Restore Function Test

Backup/Restore Function tests are not required to be performed at SAT, since these tests are done and verified during FAT. If a project requires these tests to be performed again at SAT, then the FAT procedure and related check sheets can be used as reference for re-testing during SAT.

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16 EMCS

16.1 System Start Up

Outline	Test the startup and initialization of the EMCS controller.
Objective	Verify that after the system starts up, the EMCS logic will move the system in ~~mode8.~~ MANUAL, RESEARCH MODE 7
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - 1723001595-EL-LIS-00011 (GIS) - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Start the EMCS Controller computer and wait for the completion of boot procedure.
Criteria	Through the SCADA CI, or the EMCS controller debug interface, verify that the EMCS is stable in Research Mode.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT (PASS) / FAIL

YOKOGAWA Representative	:	Date:	26/05/2025
Rosetti Marino Representative	: FABIO SURIANO	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.2 Test for MODE 0 = IDLE (Power Import Only)

Outline	The configuration test of the MODE 0 = IDLE (Power Import Only)
Objective	- Verify the configuration test of the MODE 0 = IDLE, BLPH shall enter in the IDLE MODE if: • It is Grid Tied • Supply Guarantee is Active • HNA5_Fault = True
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) – EMCS FDS - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906

Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
	The variables to change are the ones related to the preconditions of the Mode:
	• It is Grid Tied
	• Supply Guarantee is Active
	• HNA5_Fault = True
	If all the conditions above are satisfied than the EMCS move to IDLE mode.
	The Variables inside del logic are defines as follows:
	`EMCS_Internal.GridTied :=`
	`(HNA6_QA1CB_Status = dbpos_on) AND`

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	(SG100D1_A6_TR_100AD1_Closed AND NOT G100D1_A6_TR_100AD1_Open); **EMCS_Internal.PlatformSupplyGuarantee** := (EMCS_INTERNAL.OperatorSupplyGuarantee = EMCS_SUPPLY_GUARANTEE.AUTOMATIC AND (HNA5_SupplyGuarantee AND HV_SCADA_Connected)) OR EMCS_INTERNAL.OperatorSupplyGuarantee = EMCS_SUPPLY_GUARANTEE.MANUAL_ACTIVE; **EMCS_Internal.HNA5_Fault** := HNA5_StatusCode = HNA5_STATUS_CODE_ENUM.Stopped_GridError OR HNA5_StatusCode = HNA5_STATUS_CODE_ENUM.Stopped_ErrorWithAutoReset OR HNA5_StatusCode = HNA5_STATUS_CODE_ENUM.Stopped_ManualAlarmResetRequired OR HNA5_StatusCode = HNA5_STATUS_CODE_ENUM.SafetyStop OR HNA5_StatusCode = HNA5_STATUS_CODE_ENUM.RemoteStop OR HNA5_QA1CB_Status = CB_STATUS_ENUM.Opened;
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative : Cornels Jonker Date: 26/05/2025

Rosetti Marino Representative : FABIO SARIGU Date: 26/05/2025

Crosswind Representative : Date:

tested simulation HNA5 code = 7 → EMCS engages IDLE MODE &

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16.3 Test for MODE 1 = IMPORT

Outline	The configuration test of the BLPH MODE 1 = IMPORT
Objective	- Verify the configuration test of the MODE 1 = IMPORT, BLPH shall enter in the IMPORT MODE if: • It is Grid Tied • Supply Guarantee is Active • HNA5 produces more than 1 MW for one minute • Check the BESS is NOT fully charged or NOT PCS:ProcessFullyCharge (H2 vessels not full)
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: Leandro Flores	Date:	26/05/2025
Rosetti Marino Representative	: Giuseppe De Nissien	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.4 Test for MODE 1A = IMPORT (Charging)

Outline	The configuration test of MODE 1A = IMPORT (Charging)
Objective	- Verify the configuration test of MODE 1A = IMPORT (Charging), BLPH shall enter in the IMPORT MODE 1A if: - HNA5.P > 2 MW for one minute (Power Surplus)
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	:	Date: 26/05/2025
Rosetti Marino Representative	:	Date: 26/05/2025
Crosswind Representative	:	Date:

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16.5 Test for MODE 1B = IMPORT (Not Able to Charge)

Outline	The configuration test of MODE 1B = IMPORT (Not Able to Charge)
Objective	- Verify the configuration test of the MODE 1B = IMPORT (Not Able to Charge), BLPH shall enter in the IMPORT MODE 1B if: - HNA5.P <= 2 MW for one minute (Power Deficit).
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	:	Date:	26/05/2025
Rosetti Marino Representative	:	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.6 Test for MODE 2 = HOT STANDBY (Ready to Export)

Outline	The configuration test of the MODE 2 = HOT STANDBY (Ready to Export)
Objective	- Verify the configuration test of the MODE 2 = HOT STANDBY (Ready to Export), BLPH shall enter in the HOT STANDBY MODE if: • It is Grid Tied • Supply Guarantee is Active • HNA5 produces more than 1 MW for one minute • Check the BESS is full charged AND PCS:ProcessFullyCharge (H2 storages full)
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative : Lorenzo Fiorucci Date: 26/05/2025

Rosetti Marino Representative : FABIO SURIGA Date: 26/05/2025

Crosswind Representative observed by: : Thijs Philippe Date: 26/05/2025

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16.7 Test for MODE 3 = EXPORT MODE (Discharging)

Outline	The configuration test of the MODE 3 = Export Mode (Discharging)
Objective	- Verify the configuration test of the MODE 3 = EXPORT, BLPH shall enter in the EXPORT MODE if: • It is Grid Tied • Supply Guarantee is Active • HNA5 is produce less than 1 MW. • BESS is Healthy
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative : [signature] Date: 26/05/2025

Rosetti Marino Representative : FABIO SURIGA [signature] Date: 26/05/2025

Crosswind Representative : observed by. Thijs Philippo [signature] Date: 26/05/2025

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16.8 Test for MODE 4 = COLD STANDBY (Not Able to Export)

Outline	The configuration test of the MODE 4 = COLD STANDBY (Not Able to Export)
Objective	- Verify the configuration test of the MODE 4 = COLD STANDBY, BLPH shall enter in the COLD STANDBY MODE if: • It is Grid Tied • Supply Guarantee is Active • HNA5 is produce less than 1 MW. • BLPH is NOT able to operate in Export (BESS Fault)
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

The above checks are conducted and witnessed by the following representatives.

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TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	:	Date:	26/05/2025
Rosetti Marino Representative	: FABIO SERIGH	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.9 Test for MODE 4A = EMERGENCY (ISLAND)

Outline	The configuration test of the MODE 4A = EMERGENCY (ISLAND)
Objective	- Verify the configuration test of the MODE 4A = EMERGENCY, BLPH shall enter in the EMERGENCY MODE if: - It is Islanded (off-gid) OR Supply Guarantee = INACTIVE - BESS is Healthy (NO Fault) - The BESS charge level is above the BESS-MINIMUM-OPERATING-RESERVE threshold.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT (PASS) / FAIL

YOKOGAWA Representative	: Lorenzo Flores	Date:	26/05/2025
Rosetti Marino Representative	: FABIO SURIAN	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.10 Test for MODE 5 = POWER OUT (Black Out)

Outline	The configuration test of the BLPH MODE 5 = POWER OUT (Black Out)
Objective	- Verify the configuration test of the MODE 5 = POWER OUT, BLPH shall enter in the POWER OUT MODE if: - ESD-1D ACTIVE WITH EMCS MODE RESEARCH ~~ACTIVE~~ OR (- (It is Islanded (Off grid) **OR** Supply Guarantee = INACTIVE) ~~**OR** EMCS is informed of ESD-1D activation (reference doc. "Process Safety Cause & Effect Matrix")~~ AND - (BESS is NOT Healthy **OR** BESS charge level is below the BESS-MINIMUM-OPERATING-RESERVE threshold (BESS FAULT) **OR** the SG-100D1 voltage measure on the BLPH 6,6kV distribution bus is absent. OR BESS HAS NOT VOLTAGE))
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	:	Date:	26/05/2025
Rosetti Marino Representative	: FABIO SURIGA	Date:	26/05/2025
Crosswind Representative	:	Date:	

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16.11 Test for MODE 6 = MAINTENANCE

Outline	The configuration test of the MODE 6 = MAINTENANCE
Objective	- Verify the configuration test of the MODE 6 = MAINTENANCE, BLPH shall enter and remain in this MODE if receives the request to enter from CCS SCADA. The BLPH shall exit from the MAINTENANCE MODE if, and only if, the EMCS receives the request to return in automatic identification of the MODE from the data interface of the CCS SCADA through a software exit button. In MAINTENANCE MODE the EMCS shall not dispatch any command required by any automatic logic in the EMCS, including any open/close command, load shedding command, change in power setpoint. - Transition Conditions: Entrance on a command to get in the MANTENANCE MODE, Exit on a command to return in automation identification of the MODE - Verify and test that in Maintenance Mode the SCADA can send all the commands and signals through OPC-UA interface as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-020' - Verify the configuration test that at entrance in the Maintenance Mode a following procedure shall be followed: • EMCS shall stop and hold stop (prevent start command) the Electrolyzer. ✓ • EMCS shall stop and hold stop (prevent start command) the Fuel Cell. ✓ • EMCS shall stop the BESS. • EMCS – PCS coordination shall remain in place for package permissions. ✓ • EMCS sent to the PCS the command PCS.EnterMode(Manual)
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear

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	- 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	:	Date:	26/05/2025
Rosetti Marino Representative	: FABIO SARIGU	Date:	
Crosswind Representative	:	Date:	

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16.12 Test for MODE 7 = RESEARCH

Outline	The configuration test of the MODE 7 = RESEARCH
Objective	- Verify the configuration test of the MODE 7 = RESEARCH, BLPH shall enter and remain in the RESEARCH MODE, if the EMCS receives the request to enter in this MODE from the data interface of the CCS SCADA (protected under password). BLPH will ignore the power output of the HNA5 wind turbine. ✓ - Verify and test BLPH shall exit from the RESEARCH MODE if, and only if, the EMCS receives the request to return in automatic identification of the MODE from the data interface of the CCS SCADA through an exit button. ✓ - Verify and test that in Research Mode the SCADA can send all the commands and signals through OPC-UA interface as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-020'
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: Corrado Bonora	Date: 26/05/2025
Rosetti Marino Representative	: FABIO SERGIO	Date: 26/05/2025
Crosswind Representative	:	Date:

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16.13 Test for OPC-UA Communication Loss Between HV-SCADA & EMCS

Outline	The configuration test for the loss of OPC-UA communication between HV-SCADA & EMCS
Objective	- Verify the configuration test of the EMCS, in case of OPC-UA communication between the HV-SCADA and EMCS is lost, the EMCS does not take any automatic action on 66kV GIS. In conjunction with this communication loss, the EMCS will immediately command the platform in IDLE MODE without waiting for any permissive from PCS. The EMCS notifies the PCS the mode change.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS or directly interrupting an OPC-UA client communication, change the parameters of the EMCS. The parameter change directly affects the control logic and transit to IDLE.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative : Lorenzo Florindo Date: 27/05/2025

Rosetti Marino Representative : FABIO SIRIGU Date: 27/05/2025

Crosswind Representative : observed by Tijs Philippu Date: 27/05/2025

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16.14 Test for Configuration of 66kV GIS

Outline	The configuration test for the status of signals & electrical sequence to manage the closing of GIS on BLPH
Objective	- Verify the configuration test of the EMCS, to manage the open and closing of GIS on BLPH.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1724000372-EL-LIS-00014 - I/O LIST - 1723001595-EL-LIS-00011 (GIS)
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface. Test the following sequence: - Q0(QA1) "CB Open" command - Wait Q0(QA1) "Ready to close" permissive from HV-SCADA - Q0(QA1) "CB Close" command
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) FAIL

YOKOGAWA Representative	: Lorenzo Fiorentini	Date: 27/05/2025
Rosetti Marino Representative	: FABIO SURIGU	Date: 27/05/2025
Crosswind Representative	observed by : Thijs Philippo	Date: 27/05/2025

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16.15 Test for Configuration of Transformer OLTV/AVR

Outline	The configuration test for the AVR the set-point voltage reference for the secondary winding (the 6.6 kV side)
Objective	- Verify the configuration test as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-033', If EMCS is in Automatic or Maintenance, the AVR Controller logic will be forced in automatic mode and follows the set point requested by the Operator from the SCADA (password protected). There are two set points: • One is used in Automatic and Maintenance (password protected) • The other is used by the Operator in Research mode
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: Leonardo Flores	Date: 27/05/2025
Rosetti Marino Representative	: FABIO SURIGA	Date: 27/05/2025
Crosswind Representative	: Observed by Thijs Philippo	Date: 27/05/2025

CHECK VOLTAGE REGULATION IS MADE IN HV SIDE WITH SET POINT ON LV SIDE (6.6 kV)

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16.16 Configuration Test for Coordination Between PCS & EMCS

Outline	The configuration to test the Coordination between PCS & EMCS as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-048'.
Objective	- Verify the configuration test of the EMCS, as follows: - PCS communicates with EMCS through serial internal communication and the necessary signals (commands, statuses and permissive) will be exchanged between two systems - EMCS requires PCS to enter in IMPORT MODE with "PCS.EnterMode(IMPORT)". ✓ - EMCS requires PCS to enter in HOT STANDBY MODE with "PCS.EnterMode(HOT STANDBY)". ✓ - EMCS requires PCS to enter in EXPORT MODE with "PCS.EnterMode(EXPORT)". ✓ - EMCS requires PCS to enter in COLD STANDBY MODE with "PCS.EnterMode(STANDBY)". ✓ - EMCS requires PCS to enter in EMERGENCY MODE with "PCS.EnterMode(EMERGENCY)". ✓ - EMCS requires PCS to enter in RESEARCH MODE with "PCS.EnterMode(RESEARCH)". ✓ - The EMCS shall not run (i.e. not starting and stop if running) the BESS without a positive permissive signal from the PCS. (BESS FAULT) ✓ - EMCS informs PCS for "Start Request" for Electrolyzer Package with "PermToStartEL" ✓ - EMCS requires PCS the "Permissive to start" for Fuel Cell Package with "PermToStartFC" ✓ - EMCS sends to PCS the "Command to Load shedding 1" - "Cmd.To.LoadShed" + LOAD SHEDDING 2 ✓ - PCS sends to EMCS the ESD1-D to go in POWEROUT ✓ All the above control signals (status & commands) will be exchanged with BLPH control system (PCS) through a Modbus TCP communication
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out

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	- 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative	:	Date: 28/05/2025
Rosetti Marino Representative	: FABIO SURIGA	Date: 28/05/2025
Crosswind Representative	:	Date: 29/04/25

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16.17 Test for Communication with Fuel Cell Package

Outline	The communication test of Fuel Cell Package.
Objective	- Verify the communication test of Fuel Cell Package, identifying that State Machine is configured as per transitions of the Fuel Cell control policy without constraints to rising the set point using steps, also the Fuel Cell interval power regulator overshoot as per the SW- FAT Punch list record 'BPLH-EMCS-SW-038'. - Verify and test Conversion Efficiency of Fuel Cell: 33.33 kWh/kg as per the SW- FAT Punch list record 'BPLH-EMCS-SW-016'.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL (VENDOR REQUIRED)

YOKOGAWA Representative	:	Date:	
Rosetti Marino Representative	:	Date:	29/7/25
Crosswind Representative	:	Date:	29/07/25

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16.18 Test for Communication with Electrolyzer Package

Outline	The communication test of Electrolyzer Package.
Objective	- Verify the configuration test of the Electrolyzer Package identifying that State Machine is configured as per transitions between these states based on conditions like running duration and PCS permission.(For Example: the system will transition to Stop state if PCS permission is revoked (i.e., Tanks are full). Furthermore, verify and test the availability of the signal MIN_RUNNING_TIME as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-043'. - Verify the signal ActivePowerConsumption of the Electrolyzer is mapped to the SG-100D1_A1_ELECTROLYZER_RealPower as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-053'. - Verify that the Electrolyzer requires the set point when it is run, as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-054'.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL (VENDOR REQUIRED)

YOKOGAWA Representative	:	Date:	
Rosetti Marino Representative	:	Date:	29/7/25
Crosswind Representative	:	Date:	29/07/25

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16.19 Test for Communication with BESS Package

Outline	The communication test of BESS Package.
Objective	- Verify the configuration test of the BESS Package, identifying that State Machine is configured as per transitions between these States include Charging, Discharging, and Idle, influenced by the State of Charge (SoC) and PCS permissions via EMCS. - Verify and test the Healthy status formula of the BESS as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-059'.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL (VENDOR REQUIRED)

YOKOGAWA Representative	:	Date:	
Rosetti Marino Representative	:	Date:	29/7/25
Crosswind Representative	:	Date:	29/07/25

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16.20 Test for Communication with Solar Farm Package

Outline	The communication test of Solar Farm Package.
Objective	- Verify the configuration test of the Solar Farm Package, identifying that State Machine is configured as per transitions between these States include transitions between "Started" and "Stopped" states within the broader context of "Operating." - Verify and test the mapping of the signal related to the healthy of the Solar Farm as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-058'.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

The above checks are conducted and witnessed by the following representatives.

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TEST RESULT: PASS / FAIL (OFFSHORE)

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

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16.21 Test for Operator Control on Supply Guarantee

Outline	The test for the operator control on Supply Guarantee
Objective	- Verify and test the configuration test of the Operator Control on the Supply Guarantee, If Automatic, the supply guarantee coming from the HV-SCADA is used, If Manual it could be Active or Inactive (Password Protected) as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-043'
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: Edoardo Fiorucci	Date: 27/05/2025
Rosetti Marino Representative	: FABIO SURIGA	Date: 27/05/2025
Crosswind Representative	: Observed by Thijs Philippo	Date: 27/05/2025

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16.22 Test All Signals From HV-SCADA

Outline	The test for all signals from HV-SCADA
Objective	- Verify and test all the signals coming from HV-SCADA (Wind Turbine Power) and relative logic as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-039'
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL SIGNALS SIMULATED THROUGH OPC & LOGIC OK, COMPLETE TESTING ONCE CONNECTED TO WIND FARM

YOKOGAWA Representative : Cosmas Florida Date: 27/05/2025

Rosetti Marino Representative : FABIO SURIGAN Date: 27/05/2025

Crosswind Representative : Observed by Thijs Philippo Date: 27/05/2025

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16.23 Test for Configuration on the Energy Management Policy

Outline	The test for the configuration on the Energy Management Policy

Objective	- Verify the exposure of EMCS to CCS SCADA the following parameters:
	  - WINDFARM_SURPLUS_MIN_POWER
	  - WINDFARM_SURPLUS_MIN_POWER_ABLE_TO_CHARGE
	  - WINDFARM_SURPLUS_~~MIN_TIME_ENTRANCE_INERTIA~~_COMPARE_HOLD_TIME *
	- Validate the user input in changing the parameters regarding power and time energy surplus as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-049'

Reference	Functional Specifications:
	  - 1724000594-IN-SP-00019_R03 (Revision 3)
	  - 1724000594-IN-LIS-00005_R02- EMCS_IO_List
	  - 123A90-DDL-IN-RE-40095 Process Control Logics Description
	  - 1724000594-IN-DD-00028 HMI screen print out
	  - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear
	  - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3
	  - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear
	  - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear
	  - 1724000372-EL-LIS-00014 - I/O LIST
	  - C63-AUT-002_03_Communication table
	  - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark
	  - BAL_8249889_001_00_1_EN
	  - EMCS-HNA5-SignalList-20240906

Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

* DEFAULT VALUE IS 60 SECS, FOR TESTING PURPOSE IT HAS BEEN SET = 10 SECS

The above checks are conducted and witnessed by the following representatives.

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TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: Cornelio Moreira	Date: 27/05/2025
Rosetti Marino Representative	: FABIO SURIGAN	Date: 27/05/2025
Crosswind Representative	: observed by Thijs Philippo	Date: 27/05/2025

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16.24 Test for Power Distribution Management

Outline	The test for Power Distribution Management
Objective	- Verify logic to detect discrepancy between the CB status (open) and the automatic logic of EMCS for close command and generate alarm. For example if the open command is sent to the SG-100D1-TR_200ED1 CB and the feedback remain to close status, after a timeout (1 sec)*, generate a discrepancy alarm (it could be implemented using a flag for each CB and a timer) as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-050'.
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

* PARAMETRIC, FOR TESTING PURPOSES IT HAS BEEN SET CIRCUITBREAKERALARMDELAY = 5 secs

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative : _____ Date: 27/05/2025

Rosetti Marino Representative : FABIO SURIGA _____ Date: 27/05/2025

Crosswind Representative : observed by Thijs Philippo _____ Date: 27/05/2025

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16.25 Test for Electrical Distribution Equipment

Outline	The test for the configuration on the Electrical Distribution Equipment
Objective	- Verify EMCS will supervise and command the equipment of the electrical distribution of the BLPH, including switchgears on the 6.6kV and 800V SG-200D2 directly, as per the SW- FAT Punchlist record 'BPLH-EMCS-SW-047'
Reference	Functional Specifications: - 1724000594-IN-SP-00019_R03 (Revision 3) - 1724000594-IN-LIS-00005_R02- EMCS_IO_List - 123A90-DDL-IN-RE-40095 Process Control Logics Description - 1724000594-IN-DD-00028 HMI screen print out - 1723002197-EL-LIS-00043 - SG-200D2 I/O List Lv Switchgear - 23A2007_240628_PROFINET_Register BESS_V1_0_0_3 - 1723002197-EL-LIS-00041 - SG-100D1 I/O LIST HV Switchgear - 1723002197-EL-LIS-00042 - SG-200N1 I/O LIST Lv Switchgear - 1724000372-EL-LIS-00014 - I/O LIST - C63-AUT-002_03_Communication table - Crosswind Modbus Table - Main PLC - External Cut v3_comTest_Denmark - BAL_8249889_001_00_1_EN - EMCS-HNA5-SignalList-20240906
Procedure	Change the input variables of the EMCS, acting on the physical devices signals or simulating the variables value through the EMCS controller debug interface.
Criteria	Verify that the changed input signals will affect the control logic according to the EMCS FDS reference.

- IEC 61850 COMMUNICATION TO SG-100D1 & SG-200N1 IS ALREADY BEEN CHECKED (SEE RELEVANT CHECK SHEET)
- MODBUS COMMUNICATION TO SG-200D2 (SOLAR FARM) TO BE FINALIZED

FABIO BIGLIA
27/05/2025

Copyright © Yokogawa Electric Corporation

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

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17 CI Server Configuration

17.1 Audit trail

Outline	The generated events are recorded and can be traced
Objective	To verify the event generated by the operator can be traced
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design Specification (FDS-SW) Section 14.8, 28.5.7 Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database
Procedure	Generate some events which have to be recorded in the audit trail window in the operator interface. Random check of events generated and recorded shall be verified.
Criteria	The generated events are logged in the respective display.
Test Record Reference	Audit Trail Window printout

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Comotti	Date:	28/05/25
Rosetti Marino Representative	: FABIO SIRIGU	Date:	28/05/2025
Crosswind Representative	:	Date:	

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17.2 Historization

Outline	History data is acquired for applications like reporting, alarm pages and trending and therefore the correct configuration is very important to trace significant events in the past.
Objective	To verify the history configuration meets the customer requirements.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 of Reference PCS and SAFETY SYSTEMS Software Functional Design Section 28.5.1 - History Storage calculation sheet Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database
Procedure	- Verify the history storage path - Check the lifetime for the following history groups: - Item storage groups: SCAN/ITEM EVENT/EVENT EVENT/ITEM Generate randomly events for items in each storage groups to verify the timestamp of the generated events.
Criteria	The storage drive has enough space to match the size of the total history lifetime. This could be verified by using a history calculation sheet. The lifetime of the history groups is correctly implemented. Generated events could be observed using reports or trend displays.
Test Record Reference	Trend Display printout and generated csv report file

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

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YOKOGAWA Representative : M. Camosi Date: 28/05/25

Rosetti Marino Representative : FABIO SERIGNI Date: 28/05/2025

Crosswind Representative : Date:

17.3 Authorization

Outline	The level of authorization for the typical is verified in typical FAT prior to the FAT. E.g., the operator can modify a setpoint but is not able to set the tag in calibration mode. In this test case the general CI Server configuration part will be tested which is the framework for the application typical. Random check shall be done during SAT.
Objective	Random check to verify if all authorization groups and users are configured according to the design documentation
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design Section 28.8 Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database
Procedure	Random check - Authorization groups are configured correctly. - All the required users are added in CI Server with the proper authorization groups. - Users are authorized to modify items within their process area (e.g., acknowledge, value) - Users are authorized to open displays within their process area
Criteria	All Authorization levels are configured properly. All required users are configured properly. Users have (only) access to their process area
Test Record Reference	NA

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL not applicable

28/05/2025

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

USERS SET CURRENTLY FOR TESTING PURPOSE ARE DIFFERENT FROM FINAL USERS. FINAL USERS WILL BE SET AFTER COMMISSIONING.

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17.4 General layout and navigation

Outline	CI Server graphics are used as the Human-Machine Interface for operating the plant. The live status of the plant can be observed on the graphics and these data are obtained from the Centum VP and SIS controller.
Objective	The purpose of this test is to confirm that the frames of the general layout are configured according to the design specification.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design Section 30 Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database
Procedure	Verify the general layout of the display area: - Windows heading - Menu area - Toolbar area - Display area - Display Navigation Random check to Verify the display navigation is in accordance with the design document.
Criteria	Graphics layout, display navigation are according to what was approved and correctly displayed as specified in the reference document.
Test Record Reference	Graphic printouts.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

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YOKOGAWA Representative : M. Carnelli Date: 28/05/2025

Rosetti Marino Representative : FABIO SURIGAN Date: 28/05/2025

Crosswind Representative : Date: 29/07/25

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17.5 PROCESS DISPLAYS

Outline	CI Server graphics are used as the Human-Machine Interface for operating the plant. The live status of the plant can be observed on the graphics and these data are obtained from the CENTUM VP and SIS controller. All dynamic process data and alarms shall be simulated from the marshaling cabinet.
Objective	The purpose of this test is to confirm that: - Correct process flow is shown on the process displays and popups. - Correct process data is shown on the process displays and popups.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design Section Appendix-5 - Reference Instrument IO List 1724000594-IN-LIS-00004_R02 - Reference HMI screens print out 1724000594-QC-PRO-00032 Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database - P&IDs & SLDs.
Procedure	The test environment shall include online FCS and SCS with project configuration to provide data to the tags on one of the applicable displays for sample data points. Check the following for the process display: - Correct representation of the process flow - Correct representation of the process data points. - Dynamic data and element modifiers by simulating process data.
Criteria	All process displays and popups are according to what was approved and correctly implemented as specified in the reference document(s).
Test Record Reference	Graphic printouts.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

HMI GRAPHIC PAGES TO BE CHECKED DURING COMMISSIONING

YOKOGAWA Representative	: M. Cannelli	Date:	28/05/25
Rosetti Marino Representative	: FABIO SARUGIA	Date:	28/05/2025
Crosswind Representative	:	Date:	29/04/25

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17.6 Alarms pages

Outline	CI Server graphics are used as the Human-Machine Interface for operating the plant. The related graphics shall show the generated alarm, time-stamp, Alarm text and Priority upon forcing the values from test panels.
Objective	The purpose of this test is to confirm that: - The layout and function of the alarm pages is according to specifications.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design. Section 28.6 - 1724000594-IN-LIS-00004 Reference Instrument IO List Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database - P&IDs & PFS.
Procedure	Check the following for the process display: - Layout - Colours and priorities - Alarm sorting - Available columns - Column width - Alarm time format - Available filters (fixed or changeable) - Alarm line layout (for different state transitions) - Alarm Description
Criteria	The alarm overview displays are according to what was approved and correctly implemented as specified in the reference document(s).
Test Record Reference	Graphic printouts.

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

ALARM REPRESENTATION TO BE CHECKED DURING COMMISSIONING

YOKOGAWA Representative	: M. Camus	Date:	28/05/25
Rosetti Marino Representative	: FABIO SURIGA	Date:	28/05/2025
Crosswind Representative	:	Date:	29/07/25

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17.7 Alarm Function

Outline	All the alarm functions within CI Server and the related project specific configuration are implemented.
Objective	To verify all the alarm requirements are functional in OWS post power up at site.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design. Section 28.6 Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database - P&IDs & PFS.
Procedure	Verify the following is functional in OWS: - Acknowledgement types - Alarm collection behaviour - First-out group behaviour - Alarm group behaviour - Alarm Selection area - Areas of interest - Alarm priority - Alarm destinations e.g., audible alarm annunciation, alarm notification SMTP, alarm pages, alarm printers, … - Historical alarm lifetime (LIFETIME TEMPORARILY SET TO 365 DAYS, TO BE SET AFTER COMMISSIONING)
Criteria	The alarm portion within CI Server is configured in accordance with the reference document
Test Record Reference	Graphic printouts.

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

ALARM FUNCTIONS TO BE CHECKED DURING COMMISSIONING

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YOKOGAWA Representative	:	Date:	28/05/25
Rosetti Marino Representative	: FABIO SARIGU	Date:	28/05/2025
Crosswind Representative	:	Date:	24/07/25

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17.8 Trend Function

Outline	All the trend functions within CI Server and the related project specific configuration are functional in OWS.
Objective	To verify all the Trend Group requirements are correctly implemented. - Group - Label - Description - Sampling Time - Duration - Pen assignment
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design. Section 30.2.5 - 1724000594-IN-LIS-00004 Reference Instrument IO List Input documents - 123A90-DDL-IN-SP-40097 System Specification for Main Automation Contractor - 123A90-DDL-IN-SP-40098 Control System (PCS) Specification - 123A90-DDL-IN-SP-40024 Alarm System Requirements Specification - 123A90-DDL-IN-LIS-40027 Master Alarm Database -
Procedure	Verify the following is functional in OWS as per the "Trend Group" in latest Project database Tag List Reference Document. The trend group displays - Trend generation for over a period by selecting the date and time range.
Criteria	The trend groups within CI Server are functional in OWS post power up at site.
Test Record Reference	Graphic Printout

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

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YOKOGAWA Representative : M. Comelli Date: 28/05/25

Rosetti Marino Representative : FABIO SURIGAN Date: 28/05/2025

Crosswind Representative : Date: 29/05/25

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18 CI Server Functionality Check

18.1 Licenses and Key codes

Outline	Each component in the system has a set of licenses installed on them. This includes CI Server licenses and third-party licenses.
Objective	Confirm that the required licenses are installed on each component, and each are at the correct version level.
Reference	Bill of Material
Procedure	The following categories of licenses are installed on the system and are to be checked. • Yokogawa CI Server: With reference to section 9.3 confirm the types and quantities of licenses are correct for each station. Print out the station report (which includes revision level of the station) and attach it to this report. • Microsoft Windows Server: - Windows licenses are full product licenses - Confirm Windows has been activated with Microsoft • Microsoft Office - Confirm Microsoft Office Standard (Excel only) is installed on CI-Portal and-Core • Anti-virus application - Confirm the File Server has Trellix Endpoint Protection software installed.
Expected Results	All licenses are loaded and are at the correct revision level as listed in the software licenses list.
Record	NA

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

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18.2 Server Switchover: SERVER - SERVER

Outline	Redundant CI Servers are monitored by a watchdog mechanism to switch over to the standby Server in case of failure of the active Server. Further a mirroring process is active to update the standby Server with the latest updates
Objective	To verify the switch over mechanism is working in accordance with the design documentation and mirroring process is synchronizing the standby Server.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design. Section 28.1.3
Procedure	The following circumstances should be verified for all Servers within the redundancy configuration: Manual switchover Automatic switchover in case of: - Process failure - Island situation - DUR queue overload (optional) - High CPU consumption (optional) - Non-responsive processes (optional) The standby Server will be synchronized with the most important updates from the active Server. Repeat this test for all Servers which are part of the redundancy configuration. Test the live data on HMI, trending, historian, alarm list during switch over.
Criteria	A switchover is initiated automatically in case of a failure. Manual switchover is possible. Active Server is synchronizing the standby Server
Test Record Reference	NA

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

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YOKOGAWA Representative	:	ALESSANDRO BERRA	Date:	23/6/2025
Rosetti Marino Representative	:	FABIO SVERGA	Date:	23/06/2025
Crosswind Representative	:		Date:	23.06.25

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18.3 Server Switchover: SERVER – NODE

Outline	CI Server is handling the path selection when multiple network paths are available, and the active path fails to operate. This test case is not applicable for zero deployment clients.
Objective	To verify the redundant path mechanism is configured correctly.
Reference	Functional Specifications: 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design
Procedure	Open the performance monitor. Observe the amount of available communication paths and which one is the active path to the node. This can be verified using Performance monitor->Nodes. Disconnect the active path to the Node by disabling the network connection. Repeat the test for all available communication paths
Criteria	The standby path will take over the communication in case the active path is disturbed.
Test Record Reference	NA

The above checks are conducted and witnessed by the following representatives.

TEST RESULT (PASS) FAIL

YOKOGAWA Representative : ALESSANDRO BERRA Date: 23/6/2025

Rosetti Marino Representative : FABIO SURIGA Date: 23/06/2025

Crosswind Representative : Date: 23.06.25

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18.4CI Server Capacity Check

Outline	CI Server resources refer to the number of consumed tags. This project requires that there is at least 10% spare capacity.
Objective	To verify that there are available licensed CI Server tags in accordance with project spare capacity requirements.
Reference	None
Procedure	- Verify the number of consumed tags by using the CI Server "Performance Monitor"
Criteria	The available number of tags is within the project space capacity requirements (Maximum 90% of licensed). 23624 used out of 32000+
Test Record Reference	Printout of the Performance Monitor

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: ~~PASS~~ / FAIL

YOKOGAWA Representative : M. Cannarsa Date: 28/05/25

Rosetti Marino Representative : FABIO SIRIGU Date: 28/05/2025

Crosswind Representative : _____ Date: _____

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18.5 Backup management

Outline	Backup of the critical machines are made on a frequent basis and can be restored.
Objective	To verify that creation of backups will not affect the system performance, and all scheduled backups are stored on the local and network paths.
Reference	Functional Specifications: - 1724000594-IN-SP-00018 PCS and SAFETY SYSTEMS Software Functional Design Section 28.10
Procedure	Verify the backup software is installed on Yokogawa machines according to design document. Observe the schedule backups for each Yokogawa machine and verify it with design. Document and observe the local and remote path for the backups. File Backup and restore: - Create for each type of Yokogawa machine (Server, Client workstation) a manually triggered backup of the tls directory. - After creation is completed, add some dummy tags. - Stop CI Server - Restore the backup. Image Backup and restore: - Create for each type of Yokogawa machine (Server, Client workstation) a manually triggered image. - After creation is completed, add some dummy tags. - Restore the image. - Reboot the Yokogawa machine to verify the Operating system is functioning properly with the new image
Criteria	- Backup software is installed on proper Yokogawa machines. - Backup schedule is in accordance with the design document. - During File and image backup the system was functioning properly. This can be verified by using the CI Server "Message-Log" and "Performance monitor". - Backup for files and images is stored on local and remote location. - The file and image backup can be successfully restored.
Test Record Reference	NA

BACKUP SCHEDULED DAILY AT 12:00 AM

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The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL BACKUP SCHEDULED, NOT POSSIBLE TO CHECK AS PER PROCEDURE DUE TO CONCURRING ACTIVITIES
29/07 BACKUP FUNCT CHECKED DURING CYBER SECURITY AT FSURIGM

YOKOGAWA Representative	:	Date:	
Rosetti Marino Representative	:	Date:	
Crosswind Representative	:	Date:	

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18.6 CI Server Node (Core) Time Synchronization

Outline	CI server is time synchronized with the (S)NTP time server
Objective	To verify the proper time synchronization of the CI servers
Reference	Functional Specifications: - 1724000594-IN-RE-00043 Section 3.4.7 of Cyber Security Settings
Procedure	~~Adjust the time on CI server ((S)NTP client)~~ ~~not applicable~~
Criteria	Time is synchronized and the steps of adjustment are in accordance with design documentation. Note: adjusting the time backwards in a big step could result in corrupted history
Test Record Reference	~~NA~~ PRINTOUT OF CONFIGURATION

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative : M. Cannone Date: 28/05/25

Rosetti Marino Representative : FABIO SURIGA Date: 28/05/2025

Crosswind Representative : [signature] Date: 28/05/25

NOTE : WE CHANGED TIME IN GWS0164 STATION (TIME MASTER).
WE CHECKED THAT TIME IS RESTORED TO SNTP TIME REFERENCE WITHIN 1 SECOND.

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18.7 CI Server Node (Portal) Time Synchronization

Outline	CI clients are time synchronized using one of the following options: ▪ Internal "DURUTL" process. In this case the CI Server time is updating the client. Note that DURUTL cannot be used for zero deployment clients.
Objective	To verify the proper time synchronization of the CI Portal clients
Reference	Functional Specifications: - 1724000594-IN-RE-00043 Section 3.4.7 of Cyber Security Settings
Procedure	~~Adjust the time on CI server (SNTP client)~~ ~~not applicable~~
Criteria	Time is synchronized and the steps of adjustment are in accordance with design documentation.
Test Record Reference	NA

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: (PASS) / FAIL

YOKOGAWA Representative	: M. Camozzi	Date:	28/05/25
Rosetti Marino Representative	: FABIO SMUGLI	Date:	28/05/2025
Crosswind Representative	:	Date:	

NOTE: WE CHANGED TIME IN EWS01GG STATION (TIME MASTER). WE CHECKED THAT TIME IS RESTORED TO SNTP TIME REFERENCE WITHIN 1 SECOND

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18.8 Time Synchronization Tests for Other Systems/Applications

This test applies to those systems/applications that do not have proprietary time synchronization function within the system but perform time synchronization to the external time source (e.g., NTP server, domain controller(s) etc.) with the help of Windows time service.

Outline	The system clocks of various applications are synchronized to the designated time source as specified in the respective design document.
Objective	The purpose of this test is to visually check and verify functionality of the time synchronization of other applications in the non-PIN network. Time Zone setting including the daylight saving on these systems is set depending on the plant location.
Reference	Functional Specifications: - Section 3.4.7 of Cyber Security Settings 1724000594-IN-RE-00043
Procedure	Open the Windows Date and Time Properties on a selected system/application and confirm the system clock of the application matches that of the time source specified in the reference document. Manually change the system clock of the application and confirm that within 5 minutes the clock is synchronized with the time source. If applicable, repeat the above test for other systems/applications
Criteria	Time on other systems/applications match the time on the GPS receiver or NTP server and Vnet/IP time
Test Record Reference	

The above checks are conducted and witnessed by the following representatives.

TEST RESULT: PASS / FAIL

NTP CONFIGURATION WILL BE COMPLETED DURING COMMISSIONING.
CURRENTLY (28/05/2025), THE FOLLOWING ARE COMPLETED:
- GIS (PTP)
- SG-100D1
- NITROGEN GENERATION
- INSTRUMENT AIR

PENDING:
- UPS
- HVAC
- WTP
- SG-B00 N1
- SG-200 D2

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YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: 29/7/2025

Crosswind Representative : _____ Date: _____

19 Appendices

19.1 SAT Organization Chart

19.2 SAT Schedule

19.3 SAT Signature Identification Sheet

19.4 SAT Test Equipment Records

19.5 SAT Check sheet for Hardware

19.6 FCS I/O Loop Check sheet

19.7 SAT Check sheet for SIS & FGS Hardware

19.8 SCS I/O Loop Check sheet

19.9 SAT Punch Record Ledger & Punch Record Form

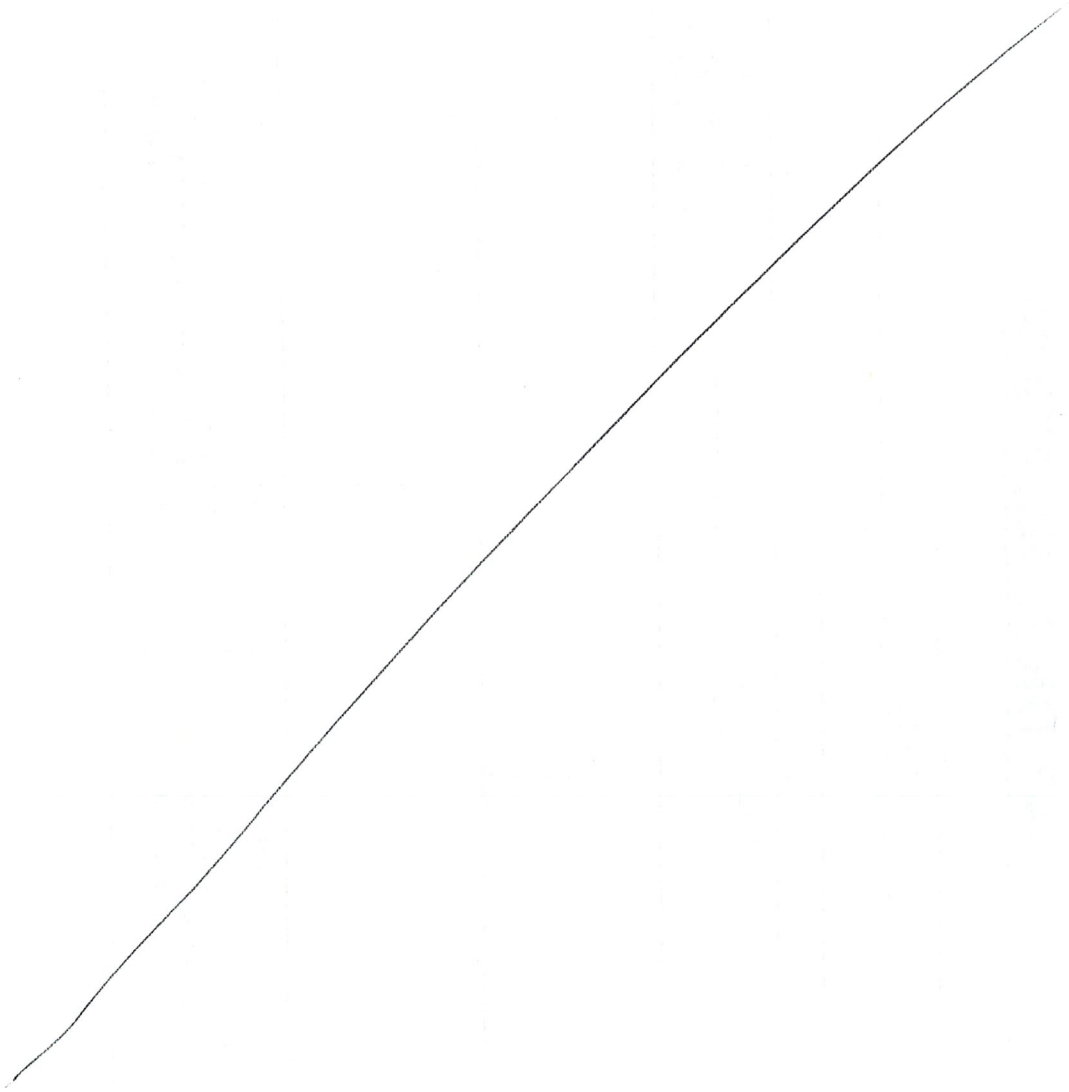
19.10 Sub-System Communication Check Sheets

19.11 System Acceptance Certificate

19.12 SAT Completion Certificate

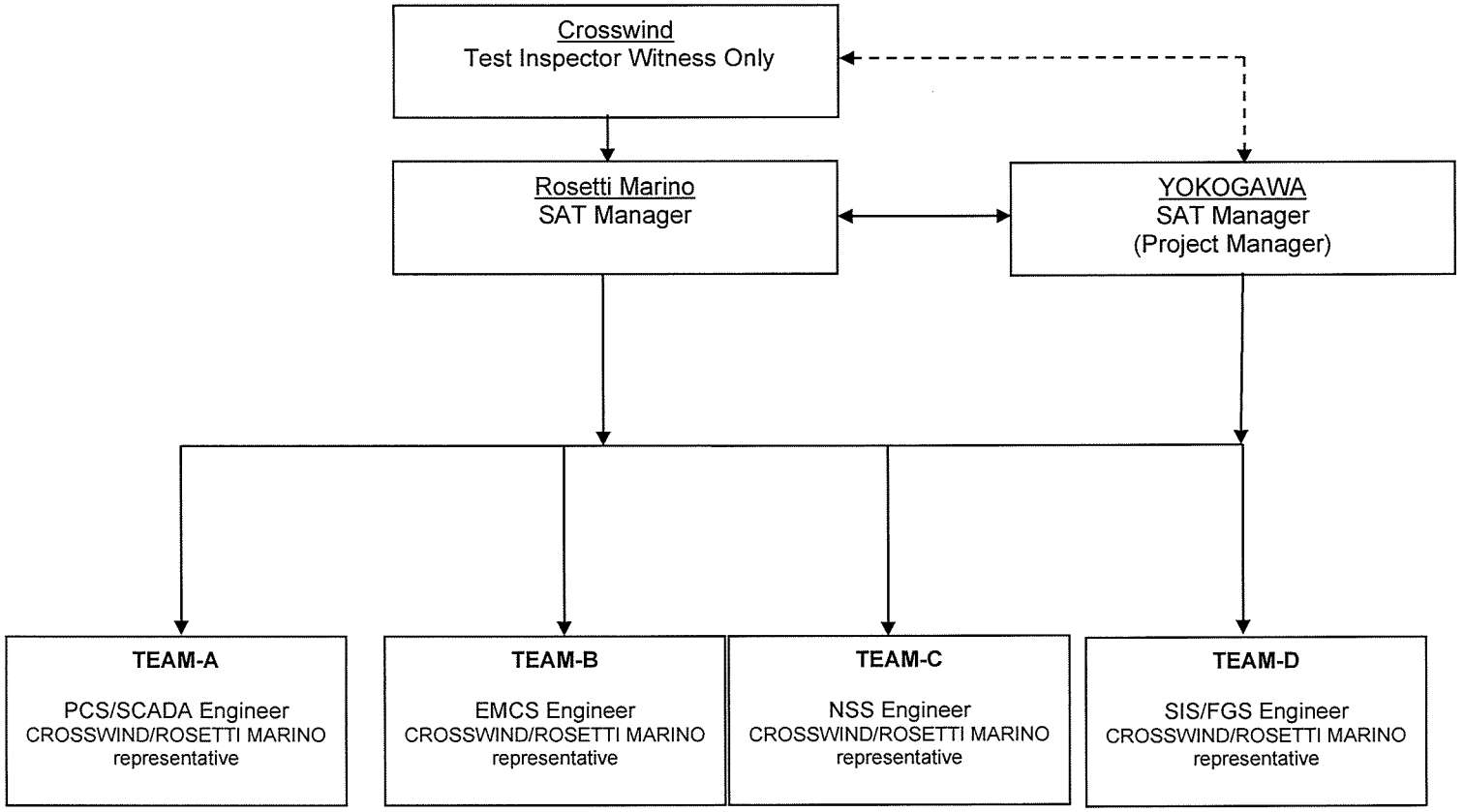
19.13 Application Revision Record

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SAT ORGANIZATION



Note: Team A,B,C and D shall conduct SAT

PSC, SIS/FGS and EMCS FAT Schedule

Task Name	Duration	Start	Finish
SAT HW	Note-1	Note-1	Note-1
INTEGRATED FAT for PACKAGES	Note-1	Note-1	Note-1
SAT SW	Note-1	Note-1	Note-1

Note-1: According Site comissioning and package availability for testing

APPENDIX- 19.3 SAT SIGNATURE IDENTIFICATION SHEET

The signature identification sheets needs to be signed by all parties involved in SAT. This sheet will be used to identify the personnel who demonstrated / witnessed the test.

Sl No	Name	Company	Signatures	Initial
1	FABIO SIRIGU	ROSETTI MARINO		FSIR
2	MASSIMO CARNOVALI	YOKOGAWA	M. Carnovali	MC
3				

Test Equipment Record

No	Test Equipment Description	Manufacturer And Model	Serial No.	Test Cert. No.	Expiry Date
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

COMMENTS:

Verified By: _____ Date: _____
Crosswind / Rosetti Marino

Reference No: 01

Installation Condition Check

Cabinet Number :

	Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
1	Quantity and specification of delivered products		✓		
2	Installation position of delivered products		✓		
3	No scratches, color change and dirt on the delivered products		✓		
4	Components are tightly secured		✓		
5	Cabinets secured tightly to the floor		✓		
6	Cabinets secured tightly to each other		✓		
7	Service area	✓			
8	Completion of construction (Power Supply and grounding)		✓		
9	Cable routing separation between power supply cable and system cables		✓		
10	Completion of sealing at the cable duct entrance		✓		BG03-NET-001 SOME CABLES ARE TEMPORARY
11	Cables are secured		✓		

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CAPUANO	27/05/25	M. Capuano
ROSETTI MARINO	G. DER HAGOPIAN	27/05/2025	
CROSSWIND			

Reference No: 02

Dew Condition Check

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Cabinet				
1.1 Dew trace on exterior & interior of cabinets		✓		
1.2 Color change and rust on exterior/interior of cabinets		✓		
1.3 Dust inside/outside of cabinets and consoles		✓		
1.4 Dew trace at the terminals inside the cabinets		✓		
1.5 Dew trace on paints		✓		
2 Modules				
2.1 Dew trace on modules		✓		
2.2 Color change and rust on modules		✓		
2.3 Dust on surface of modules		✓		
2.4 Dew trace on paints		✓		

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	G. Da Rosa	27/05/2025	
CROSSWIND			

Reference No: 03

Earth Connection Check

Cabinet Number :

	Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
1	Single Grounding Point		✓		
2	Independent Grounding		✓		
3	Grounding Junction Box	✓			
4	Earth Electrode	✓			
5	Ground wire size		✓		
6	Termination contact		✓		
7	Ground cable routing	✓			
8	PE: Protective Earth (Safety Earth)		✓		
9	FE: Functional Earth		✓		
10	PE and FE Isolation (megger check)	✓			

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	G. De Meglio	27/05/2025	
CROSSWIND			

Reference No: SCS0110
SCS0120

SCS Hardware/Performance Check

Cabinet Number :

Description	NA	Checked Front	Checked Rear	Remarks / Punch No.
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 System cables entry position is properly sealed		✓		
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 System cables are terminated properly according to the system cable schedule and Instruction manual		✓		
				SCS0110
2 Performance Check				
2.1 SCS Resource Capacity		✓		< 10 %
2.2 SCS CPU Loading		✓		46s ON 60s (23%)
2.3 Vnet/IP Network Loading		✓		< 10%
				SCS0120
RESOURCE				< 35 %
CPU LOAD				39s ON 60s (35%)
VNET/IP LOAD				< 10 %

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	G. Dez Massier	27/05/2025	
CROSSWIND			

SCS 0110
SCS 0120

Safety Control Station

Cabinet Number :

Description			NA	Checked Front	Checked Rear	Remarks / Punch No.
6 SCS Power Supply Module Redundancy Test						
6.1 SCU Power Supply				✓		
- PW302 Left						
- PW302 Right				✓		
6.2 Node Power Supply						
- Node 1				✓		
- Node 2				✓		
- Node 3				✓		
- ~~Node 4~~						
- ~~Node 5~~						
- ~~Node 6~~						
7 V-net / Vnet/IP Bus Redundancy Test						
V-net / Vnet/IP Bus1				✓		
V-net / Vnet/IP Bus2				✓		
8 SCS Resource Capacity Test						
SCS Front	Capacity :	%				SEE PAGE 4/12, POINT 2
SCS Rear	Capacity :	%				
9 SCS CPU Loading Tests						
SCS Front	Capacity :	%				
SCS Rear	Capacity :	%				
10 V-net / Vnet/IP Loading Test						
V-net / Vnet/IP Bus1	Loading :	%				
V-net / Vnet/IP Bus2	Loading :	%				
11 Online / Offline Loading Test						

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	Guido Mascia	27/05/2025	
CROSSWIND			

Reference No: FCS 0101

FCS Hardware/Performance Check

Cabinet Number :

Description	NA	Checked Front	Checked Rear	Remarks / Punch No.
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 System cables entry position is properly sealed		✓		
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 System cables are terminated properly according to the system cable schedule and Instruction manual		✓		
2 Performance Check				
2.1 FCS Resource Capacity		✓		< 35%
2.2 FCS CPU Loading		✓		48s ON 60s (20%)
2.3 Vnet/IP Network Loading		✓		< 10%

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	G. DER MISSIER	27/05/2025	
CROSSWIND			

Safety Control Station

Cabinet Number :

Description			NA	Checked Front	Checked Rear	Remarks / Punch No.
6 FCS Power Supply Module Redundancy Test						
6.1 FCU Power Supply						
- Left						
- Right						
6.2 Node Power Supply						
- Node 1						
- Node 2						
- Node 3						
- Node 4						
- Node 5						
- Node 6						
7 V-net / Vnet/IP Bus Redundancy Test						
V-net / Vnet/IP Bus1						
V-net / Vnet/IP Bus2						
8 SCS Resource Capacity Test						
FCS Front	Capacity :	%				
FCS Rear	Capacity :	%				
9 SCS CPU Loading Tests						
FCS Front	Capacity :	%				
FCS Rear	Capacity :	%				
10 V-net / Vnet/IP Loading Test						
V-net / Vnet/IP Bus1	Loading :	%				
V-net / Vnet/IP Bus2	Loading :	%				
11 Online / Offline Loading Test						

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

HIS/EWS/PC/Server Power-up Check Sheet

Component Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Physical check				
Visual check for any physical damage				
Multiple Monitor connection				
Labels				
2 Functional check				
Monitor Power-up / Power down				
PC Power-up / Power down				
RPS Functioning (if applicable)				
Installed Software revisions				
IP addressing				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: 06

MDF for Analog Input / Output

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 System cables entry position is properly sealed		✓		
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 System cables are terminated properly according to the system cable schedule and Instruction manual		✓		
1.10 Wires and cables are labeled per drawings and specifications		✓		
1.11 Cable terminations are tight and terminated per wiring drawings		✓		
2 Cabinet Temperature				
- Thermostat setting		✓		
- Alarm Contact		✓		

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNOVALI	27/05/25	M. Carnovali
ROSETTI MARINO	G. DEL MISSIER	27/05/2025	
CROSSWIND			

Reference No: 05

MDF for Digital Input / Output

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 System cables entry position is properly sealed		✓		
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 System cables are terminated properly according to the system cable schedule and Instruction manual		✓		
1.10 Wires and cables are labeled per drawings and specifications		✓		
1.11 Cable terminations are tight and terminated per wiring drawings		✓		
2 Cabinet Temperature				
- Thermostat setting		✓		
- Alarm Contact		✓		
3 Field Power Supply & ELM				
- PSU 1 Alarm Contact		✓		
- PSU 2 Alarm Contact		✓		
~~- ELM check (if applicable)~~	✓			

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNIVAL	27/05/25	M. Carnival
ROSETTI MARINO	G. De Missier	27/05/2025	
CROSSWIND			

Reference No: 04

Server Cabinet

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 Network cables entry position is properly sealed		✓		SOME CABLE ARE TEMPORARY
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 Network cables are terminated properly to the correct server NICs according to the communication cable schedule		✓		SOME CABLES ARE DISCONNECT FOR TEST REASON (SEE CABLE LIST MARK UP ATTACHED
2 Cabinet Temperature				
- Thermostat setting		✓		
- Alarm Contact		✓		
3 Functional check				
3.1 KVM test		✓		
- Selection of PC / Server from Keyboard		✓		
3.2 Power Supply				
Server Power Supply Redundancy Check		✓		

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNIVAL	27/05/25	M. Carnival
ROSETTI MARINO	Gabriel Messina	27/05/2025	
CROSSWIND			

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Reference No: 07

Network Cabinet

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Hardware Installation Inspection Items				
1.1 Location is as per the drawings		✓		
1.2 Mounting hardware is tight & per the Installation drawing		✓		
1.3 Square, level and clean inluding air filters		✓		
1.4 Adequate clearnace for door opening		✓		
1.5 No water/moisture intrusion in or on the cabinet		✓		
1.6 Network cables entry position is properly sealed		✓		SOME CABLES ARE TEMPORARY
1.7 Grounding bar is tight and per the installtion drawing		✓		
1.8 Cabinet is grounded per the drawings and specifications		✓		
1.9 Network cables are terminated properly to the correct switch ports according to the Communication cable schedule		✓		SEE CABLE LIST MARK UP
1.10 Fiber cables are terminated properly to the correct FOPP ports according to the fiber cable schedule		✓		
2 Cabinet Temperature				
- Thermostat setting		✓		
- Alarm Contact		✓		
3 Functional check				
3.1 Power Supply				
Vnet/IP Bus 1 Switch Check		✓		
Vnet/IP Bus 2 Switch Check		✓		
Ethernet (PIN) Switch Check		✓		
4 Fiber Communication Check				NOT CHECKED, FO TEMPORARY
Vnet/IP Bus 1 fiber	✓			
Vnet/IP Bus 2 fiber	✓			
Ethernet fiber	✓			

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI.	27/05/25	M. Carnevali
ROSETTI MARINO	G. Del Missier	27/05/2025	
CROSSWIND			

Ref. No.	Inst Tag	FCS Tag	Sig	FCS Tag	FCS Range Max	FCS Range Units	IS	Marshalling Cabinet No.	Marshalling Cabinet			Field Control Station								0%			50%			100%			Engineering Unit	Tested	Tested By	Witnessed by	Date Tested
									Terminal Block No.	TB A or (+)	TB B or (-)	FCS Cabinet	Card Type	Redundant	Domain	Station	Node	Slot	Channel	Expected Value		Actual Value	Expected Value		Actual Value	Expected Value		Actual Value					
																				Lower Limit	Upper Limit		Lower Limit	Upper Limit		Lower Limit	Upper Limit						
1																														Pass / Fail				
2																														Pass / Fail				
3																														Pass / Fail				
4																														Pass / Fail				
5																														Pass / Fail				
6																														Pass / Fail				
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45																														Pass / Fail				

Responsible Parties	Representative	Date	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

System Cabinet Check

Cabinet Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
3 System Cabinet Functional Check				
3.1 Power-up Check - Main Distribution				
- Incoming Main Feeder 1 voltage (220 - 230VAC) 230 Volts, AC		✓		
- Incoming Main Feeder 2 voltage (220 - 230VAC) 230 Volts, AC		✓		
3.2 Power-up Check - Secondary Distribution				
- 220 VAC Distribution		✓		
- Fan1 / Fan3		✓		
- Fan2 / Fan4		✓		
- Lamp1		✓		
- Lamp2		✓		
- PSU1A G1.5		✓		
- PSU1B G2-5		✓		
~~- PSU2A~~				
~~- PSU2B~~				
- SCS : Node: 01		✓		
- SCS : Node: 02		✓		
- SCS : Node: 03		✓		
~~- SCS : Node:~~				
~~- SCS : Node:~~				
~~- SCS : Node:~~				
~~- SCS : Node:~~				
- SCS Node Fan Comp. No.: A1P602		✓		
~~- SCS Node Fan Comp. No.:~~				
~~- Spare CB (Voltage Out Check) Comp. No.:~~				
3.3 Lamp Function Check				
- Lamp "ON" when door is open Comp. No.:		✓		
- Lamp "OFF" when door is closed Comp. No.:		✓		
3.4 24 VDC PSU Voltage Check				
- Voltage Check (PSU1A "ON", PSU1B "OFF") VDC		✓		
~~- Ripple Check (PSU1A "ON", PSU1B "OFF") mV~~				
- Voltage Check (PSU1A "OFF", PSU1B "ON") VDC		✓		
~~- Ripple Check (PSU1A "OFF", PSU1B "ON") mV~~				
- Voltage Check (PSU2A "ON", PSU2B "OFF") VDC		✓		
~~- Ripple Check (PSU2A "ON", PSU2B "OFF") mV~~				
- Voltage Check (PSU2A "OFF", PSU2B "ON") VDC		✓		
~~- Ripple Check (PSU2A "OFF", PSU2B "ON") mV~~				

Responsible Party	Representative	Date:	Signature
YOKOGAWA	M. CARNEVALI	27/05/25	M. Carnevali
ROSETTI MARINO	G. De Missier	27/05/2025	
CROSSWIND			

System Cabinet Check

Cabinet Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
3.5 Power-up Check - Secondary Distribution		✓		ALL GD. WORK PROPERLY
- 24 VDC Distribution				
- IOBP Comp. No.:				
- ISBP Comp. No.:				
- GFD Comp. No.:				
- Field Terminal Blocks (for field devices with external 24VDC supply)				
3.6 24VDC Redundancy Check		✓		ALL GD. WORK PROPERLY
- PSU1A "ON", PSU1B "OFF", CB___A "ON", CB___B "OFF"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU1A "ON", PSU1B "OFF", CB___A "OFF", CB___B "ON"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU1A "OFF", PSU1B "ON", CB___A "ON", CB___B "OFF"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU1A "OFF", PSU1B "ON", CB___A "OFF", CB___B "ON"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU2A "ON", PSU2B "OFF", CB___A "ON", CB___B "OFF"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU2A "ON", PSU2B "OFF", CB___A "OFF", CB___B "ON"				
- PT_____ Voltage Check (DC) _____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
- PSU2A "OFF", PSU2B "ON", CB___A "ON", CB___B "OFF"				
- PT_____ Voltage Check (DC)				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

System Cabinet Check

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
- PSU2A "OFF", PSU2B "ON", CB___A "OFF", CB___B "ON"				
- PT_____ Voltage Check (DC)_____ VDC				
- IOBP / ISBP / GFD status = ON				
- Voltage Check for Field Terminal Blocks (for field devices with external 24VDC supply)				
3.7 Cabinet Alarm Check		✓		
- PSU1A "OFF" Fault Alarm				
- PSU1B "OFF" Fault Alarm				
- PSU2A "OFF" Fault Alarm				
- PSU2B "OFF" Fault Alarm				
- GFD1 Ground Fault Alarm				
- GFD2 Ground Fault Alarm				
- TE1 Thermostat Fault Alarm				
- TE2 Thermostat Fault Alarm				
3.8 Earthing Check		✓		
- PE connection to doors and devices				
- IE connection to devices				
- ISE connection to devices				
- IE and ISE connection check				
- PE to IE/ISE Isolation Check				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

EWS/SOE Workstation Check

Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
1 PC Model				
Monitor				
Vnet/IP interface card (VI702)				
Domian:				
Station:				
Operation System (OS)				
Product Key				
Prosafe-RS system				
Version:				
License ID:				
License Details:				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS System Architecture and BOM Check

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 System Architecture Check				
(As per reference document)				
2 Bill of Materials Check				
(As per reference document)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS IO Nestloading and System Cable schedule Check

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 IO Assignment/Nest Loading Check (As per reference document)				
2 System Cable Schedule Check (As per reference document)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

SIS Standard System Function Check

Cabinet Number : SCS Station Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 System Startup Test (As per procedure 7.6.1)				
1.1 Power-on start (The Operating Mode of the SCS should remain unchanged during and after failure of one of the Power Supply Module)				
1.2 Operating Mode after cold start (The Operating Mode of the SCS should go to "Waiting" mode after boot up sequence is complete)				
1.3 Output status (All outputs channels remain disabled. After an "Output enable" operation is performed, all output channels which are healthy and have valid output devices wired will be "enabled".)				
1.4 Safety Communication Output status ("Output enable operation" just after starting up the SCS, also enables the output of inter-SCS safety communication, SCS Link Transmission)				
1.5 System Status Display (OWS/ SENG System status display should show SCS in "Waiting" mode after start up sequence is complete)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
2 SCS CPU Backup Function Test				
(As per procedure 7.6.2)				
2.1 CPU Switch Over				
(Redundantly configured CPUs should be able to successfully switch control over to the standby unit)				
2.2 Operating Mode				
(The Operating Mode of the SCS should remain unchanged during and after the control switch over)				
2.3 Logic Check				
(During CPU switch over, logic status should remain unchanged if there is no change in logic conditions)				
2.4 IO Check				
(During CPU switch over, IO status should remain unchanged if there is no change in logic conditions)				
2.5 System Diagnostic Alarm Check				
(CPU switchover and failure are annunciated in the system diagnostics/ OWS System Alarms, and status at System Overview window in OWS changes accordingly.)				
2.6 Failsafe condition check				
(When both CPUs are stopped, outputs assume failsafe condition)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
3 SCS ESB Redundancy Test (As per procedure 7.6.3)				
3.1 Operating Mode (The Operating Mode of the SCS should remain unchanged during and after failure of one of the ESB bus)				
3.2 Logic Check (During failure of one of the ESB bus, logic status should remain unchanged if there is no change in logic conditions)				
3.3 IO Check (During failure of one of the ESB/Optical ESBbus, IO status should remain unchanged if there is no change in logic conditions)				
3.4 System Diagnostic Alarm check (During failure of one of the ESB bus or one of the optical ESB bus repeater modules in a redundant configration or disconnection or other abnormality in any fiber-optic cable connecting these modules, the error is notified to the user via a diagnostic information message/ OWS System Alarms), and fail status at System Overview window in OWS is displayed.)				
3.5 Fail-safe Condition check (On both ESB/Optical ESB bus failure, outputs assume failsafe condition)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
4 SCS Power Supply Module Redundancy Test				
(As per procedure 7.6.4)				
4.1 Operating Mode				
(The Operating Mode of the SCS should remain unchanged during and after failure of one of the Power Supply Modules)				
4.2 Logic Check				
(During failure of one of the Power Supply Modules, logic status should remain unchanged if there is no change in logic conditions)				
4.3 IO Check				
(During failure of one of the Power Supply Modules, IO status should remain unchanged if there is no change in logic conditions)				
4.4 System Diagnostic Alarm check				
(Power supply failure alarm on OWS System Alarms, and fail status at System Overview window in OWS is displayed.)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
5 IO Module Redundancy Test (As per procedure 7.6.5)				
5.1 Logic Check (Failure of active IO module should not affect IO status, provided there is no change in logic conditions. Control right should switch automatically to standby IO module)				
5.2 IO Check (Failure of active IO module should not affect IO status, provided there is no change in logic conditions. Control right should switch automatically to standby IO module)				
5.3 System Diagnostic Alarm check (IOM switchover alarm on OWS System Alarms, and status at System Overview window in OWS changes accordingly.)				
5.4 Redundant path (Switch over to standby module and verify all IO channels are normal (No IOP or channel Fault))				

Responsible Party	Representative	Date:	Signature .
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
6 SIS Field Power Supply Redundancy Test				
(As per procedure 7.6.6)				
6.1 IO Check (sample check)	NA			
(During failure of one of the Cabinet power feeds, IO status should remain unchanged if there is no change in logic conditions)				
6.2 System Alarm check	NA			
(Power supply failure alarm)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
7 SIS Scan time overrun				
(As per procedure 7.6.7)				
7.1 Current CPU Idle Time:	NA			
(Criteria: Above 18 seconds)				
7.2 Idle Time lower than 18 seconds	NA			
(Change scan time and make on online download. Verify CPU idle time low alarm and System common trouble alarm are generated.)				
7.3 Put back the required Idle time (above 18 seconds)	NA			
(Change scan time and make on online download. Verify CPU idle time low alarm and System common trouble alarm are normalized.)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
8 Vnet/IP Bus Redundancy Test				
(As per procedure 7.6.8)				
8.1 Logic Check	NA			
(Failure of one Vnet/IP bus connection (on SCS/L2SW) should not affect logic status, provided there is no change in logic conditions. Communication should be uninterrupted on remaining Vnet/IP bus)				
8.2 EWS/SOE PC	NA			
(EWS/SOE PC should be able to continue monitoring SCS status when one of the Vnet/IP bus connection has failed (from VI702 card)				
8.3 System Alarm Message	NA			
(Vnet/ IP Failure alarm on OWS System Alarms, and fail status at System Overview window in HIS is displayed.)				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
9 SCS Resource Capacity Check				
(As per procedure 7.6.9)				
SCS Station No. : Capacity : _____ %	NA			

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
10 SCS CPU Loading Check				
(As per procedure 7.6.10)				
SCS Station No. : Loading : _____ % Idle Time: _____	NA			

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SIS Standard System Function Check

Reference No: _____

Cabinet Number : SCS Station Number :

Description	NA	Checked Pass	Checked Fail	Remarks / Punch No.
11 SCS Online / Offline Loading Test				
(As per procedure 7.6.11)				
11.1 Online Download				
(Application logic with modifications within allowable guidelines should be able to be Online Downloaded to the SCS, without stopping or affecting its operation)				
11.2 Offline Download				
(Application logic with modifications outside allowable guidelines will require Offline Download to the SCS. This will stop its operation)				
12 SCS Online / Offline Loading Test				
(As per procedure 7.6.8)				
Remote				
Program				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

Backup/Restore Function Test

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 Backup Function Test				
1.1 Start Back-up				
1.2 Backup completed				
Error Message (if any):				
2 Restore Function Test				
2.1 Start Restore of data				
2.2 Restore completed				
Error Message (if any):				
3 EWS PC Version Control				
- Back up using version control tool				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Test Phase: Internal / FAT **IO Database Rev:** **Process Area:**

* IO List will updated after all documents of IO assignment and wiring drawing approved.

Ref. No.	Inst Tag	SIS/FGS Tag	Comm	Data Range Min	Data Range Max	Data Range Units	IS	Marshalling Cabinet No.	Marshalling Cabinet: Terminal Block No.	Marshalling Cabinet: TB A or (+)	Marshalling Cabinet: TB B or (-)	Field Control Station: SCS Cabinet	Field Control Station: Card Type	Field Control Station: Redundant	Field Control Station: Domain	Field Control Station: Station	Field Control Station: Node	Field Control Station: Slot	Field Control Station: Channel	0%: Expected Value: Lower Limit	0%: Expected Value: Upper Limit	0%: Actual Value	50%: Expected Value: Lower Limit	50%: Expected Value: Upper Limit	50%: Actual Value	100%: Expected Value: Lower Limit	100%: Expected Value: Upper Limit	100%: Actual Value	Engineering Unit	Alarm (SOE & ANN)	Trip (SOE & ANN)	IDP (-) (SOE & ANN)	TRNS (-) (SOE & ANN)	TRNS (+) (SOE & ANN)	IDP (+) (SOE & ANN)	Fail Safe Value	IDP	Tested	Tested By	Witnessed by	Date Tested
1																																						Pass / Fail			
2																																						Pass / Fail			
3																																						Pass / Fail			
4																																						Pass / Fail			
5																																						Pass / Fail			
6																																						Pass / Fail			
7																																						Pass / Fail			
8																																						Pass / Fail			
9																																						Pass / Fail			
10																																						Pass / Fail			
11																																						Pass / Fail			
12																																						Pass / Fail			
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38																																						Pass / Fail			
39																																						Pass / Fail			
40																																						Pass / Fail			

Note Confirm for the SOE Event occurance whenver the Input or Output is simulated beyond the Trip/Alarm status of the Signal.

Responsible Parties	Representative	Date	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Test Phase: Internal / FAT **IO Database Rev:** **Process Area:**

* IO List will updated after all documents of IO assignment and wiring drawing approved.

Ref. No.	Inst Tag	SIS/FGS Tag	Tag Comment	Tested	Sig	IS	Marshalling Cabinet				Safety Control Station						Close Contact		Open Contact		Line Monitoring		Fail Safe Value	Tested	Tested by	Witnessed by	Tested Date
							Marshalling Cabinet No.	Terminal Block No.	TB A or (+)	TB B or (-)	SCS Cabinet	Card Type	Domain	Station	Node	Slot	Channel	Expected Value	Actual Value	Expected Value	Actual Value	Open	Short					
																			SOE &ANN		SOE &ANN	SOE &ANN	SOE &ANN					
1																											
2																											
3																											
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Responsible Parties	Representative	Date	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SAT PUNCH LEDGER

Customer Group: _____
Project:
Record Date: 29/05/25

Recorded By: M. CARNEVALI
Witnessed By: _____

Punch Record No.	Punch Description	Cause (C/M) I=INFO	Initiated by	Action By	Date of Completion	Re-test By (MAC)	Witnessed by (EPC/End-User)
001	LAMPS NOT WORKING/NOT INSTALLED	C		YOKOGAWA			
002	CABINET INSTALLATION	I		EPC/END USER			
003	ETHERNET CABLES (TEMPORARY)	C		YOKOGAWA EPC			
004	HART INSTRUMENTATION	C		INST. VENDOR			
005	USERS CONFIGURATION	C		YOKOGAWA			
006	DISPLAYS/ALARMS	I		YOKOGAWA			
007	TIME SYNCHRONIZATION	C		VENDOR YOKO			

Legend for cause column:
C = Correction, items is to be corrected by YOKOGAWA
M = Modification, items is to be modified, deleted or added due to design input changes

YOKOGAWA	Appendix 19.9 - SAT Punch Record (SIS FGS) SIS Punch Record	Ref. No.

Project No.		Project Name	
Contractor			
EPC Subcontractor			
Employer			
System		Proc.Area/Unit	
Stage		Controller No.	

Punch Description

Noted By		Approved By		Date		Category	
Proposed/Agreed Solution						Action By	

Impact Analysis

Impacted Aspects	☐ Hardware	☐ Software	☐ Documentation	☐ Graphics	☐ Other Non-Safety Items	☐ No Impact

Safety Related		Re-Test Required?		Impact Analysis By	

Impacted Documents and Revision Details

Punch Record Status

Status			
Implemented By		Verified/Tested By	
Implemented Version (VC)			

Yokogawa	Sign		Rosemetti Marino	Sign		Crosswind	Sign	
	Name			Name			Name	
	Date			Date			Date	

Notes:
1) Safety Impact defined by any hardware or software change in the safety path of the applicable SIF.
2) Detailed Impact analysis shall be elaborated in Impact analysis section including Impacted Documents with Revision Details.
3) Punch Description should include summary of the issue including deviations to project specifications - if any.

SAT PUNCH RECORD	Punch Record No.	Date
	001	27/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:	Classification :
CABINETS: B400-FGS-002 HKN-WP01-BLPH-SVR-01 HKN-WP01-BLPH-NET-01	Correction (Code C) ☒ Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)

1) LAMP NOT WORKING FOR B400-FGS-002

2) LAMPS NOT INSTALLED FOR HKN-WP01-BLPH-SVR-01/NET-01

Related to: Hardware ☒ Software ☐ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

1) REPLACE

2) INSTALL

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	27/05/25
Witness (Name)	**Signature**	**Date**
FABIO SURIGA		27/05/2025

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

OK

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No. 002	Date 27/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:
CABINETS HKN-WP01-BLPH-SVR-01
HKN-WP01-BLPH-NET-01
(PAR. 9.3)

Classification :
Correction (Code C) ☒
Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)
CABINETS ABOVE INDICATED SHALL BE INSTALLED ON SHORE.
DURING SAT, THEY'RE INSTALLED IN TEMPORARLY LOCATION.

Related to: Hardware ☒ Software ☐ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)
PROPER INSTALLATION, ACCORDING TO TEST 8.2/9.1/10.1/10.2/10.3, SHALL BE EXECUTED AT FINAL INSTALLATION POSITION

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	27/05/25
Witness (Name)	**Signature**	**Date**
FABIO SIRIGU		27/05/2025

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No.	Date
	003	28/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:	Classification :
CABINET B400-NET-001 (PAR. 11.5.2)	Correction (Code C) ☒ Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)

1) TEMPORARILY ETHERNET CABLES TO BE REMOVED BEFORE SHIPPING

2) CABLE MODSWL2-002:P3 IS NOT CONNECTED BECAUSE OF TEST

3) SEAL OFF CABLE ENTRY

Related to: Hardware ☒ Software ☐ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

1) REMOVE BEFORE SHIPPING

2) CONNECT THE CABLE AT THE END OF TEST

3) SEAL OFF BEFORE SHIPPING

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	28/05/25
Witness (Name)	**Signature**	**Date**
FABIO SURIGA		28/05/2025

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No. 004	Date 28/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:	Classification :
PRM (ASSET MANAGEMENT SYSTEM) HART INSTRUMENTATION (PAR. 12.4)	Correction (Code C) ☒ Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)

HART CAPABLE FIELD INSTRUMENTATION DOES NOT HAVE THE CORRECT TAG NAME

Related to: Hardware ☐ Software ☒ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

MODIFY THE TAG NAMES. THIS TASK SHALL BE PERFORMED BY THE VENDOR OF FIELD INSTRUMENTATION AND CHECK BY YOKOGAWA USING PRM

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	28/05/25
Witness (Name)	**Signature**	**Date**
FABIO SURIGA		28/05/2025

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No. 005	Date 29/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:	Classification :
USERS CONFIGURATION	Correction (Code C) ☒ Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)

USERS SET CURRENTLY FOR TESTING PURPOSE ARE DIFFERENT FROM FINAL USERS. Ref (TEST 17.3)

Related to: Hardware ☐ Software ☒ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

FINAL USERS WILL BE SET AFTER COMMISSIONING

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	29/05/25
Witness (Name)	**Signature**	**Date**

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No. 006	Date 29/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item:	Classification :
DISPLAYS/ALARMS	Correction (Code C) ☐ Modification (Code M) ☐ INFO ☒

Punch Item description: (Attach Separate sheets/attachments, if necessary)

PROCESS DISPLAYS (17.5), ALARMS PAGES (17.6), ALARM FUNCTION (17.7) TO BE CHECKED DURING COMMISSIONING.

Related to: Hardware ☐ Software ☒ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

TESTS 17.5, 17.6, 17.7 TO BE CHECKED DURING COMMISSIONING

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	29/05/25
Witness (Name)	**Signature**	**Date**

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

SAT PUNCH RECORD	Punch Record No. 007	Date 29/05/25
Process Area: PCS	System:	

Please enter all fields or indicate 'Not Applicable' where appropriate

Test reference / item: TIME SYNCHRONIZATION FOR PACKAGES

Classification : Correction (Code C) ☒ Modification (Code M) ☐

Punch Item description: (Attach Separate sheets/attachments, if necessary)

NTP CONFIGURATION FOR THE FOLLOWING PACKAGES IS PENDING

- UPS
- HVAC
- WTP
- SG-200 N1
- SG-200 D2

Related to: Hardware ☐ Software ☒ Documentation ☐

Details of change required: (Attach Separate sheets/attachments, if necessary)

COMPLETE THE CONFIGURATION PACKAGES. YOKOGAWA TO SUPPORT

Tester (Name)	Signature	Date
M. CARNEVALI	M. Carnevali	29/05/25
Witness (Name)	**Signature**	**Date**

Repeat the test? : YES ☒ NO ☐

If NO, reason: _____

Resolution: (Attach Separate sheets/attachments, if necessary)

SAT CLOSURE APPROVAL SIGNATORIES BY :

	Names	Company	Signatures	Date
Prepared By		YOKOGAWA		
Witnessed By		ROSETTI MARINO		
Approved By		CROSSWIND		

YOKOGAWA

SIS Punch Record Summary

Project No.		Project Name	
Contractor	Rosetti Marino	EMPLOYER	Crosswind

Sl. No.	Punch Record Reference No	Date	Stage	System	Punch Description	Category	Action By	Safety Related	Proposed / Agreed Solution	Punch Status

Yokogawa Rosetti Marino Crosswind

Check Sheet Third party System
PLANT NAME _____
FAR Number _____
SUBSYSTEM NAME _____
SUBSYSTEM Comp Number _____
:

Reference No: _____

Description		NA	Checked Pass	Checked Fail	Remarks / Punch No.
1 Physical Location					
1.1 FCS Number	FCS0101				
1.2 Node Number	1 Slot No:				
1.3 MODBUS cable					
1.3.1 Type	TCP/IP				
1.4 **Fibre Optic Converter**	NO				
1.4.1 Quantity					
1.4.1 Model Number					
1.5 **REDUNDANT MODULES**	Yes				
2 COMMUNICATION PARAMETERS					
2.1 BAUD RATE	19200				
2.2 PARITY	Even				
2.3 STOP BIT	1				
2.4 START BIT	1				
2.4 DATA BIT	8				
3 REDUNDNACY TEST (if applicable)					
3.1 ALE111 Primary Failure					
3.2 ALE111 Secondary Failure					
3.3 Communication Cable Failure					
3.4 Subsytem Primary equipment Failure					
3.5 Subsytem Primary equipment Failure					
4 Communication Test					
4.1 Communication Status - SND/RCV on Module					
4.2 Sub-System Comm Alarms/messages					

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Check Sheet Third party System
PLANT NAME _____
FAR Number _____
SUBSYSTEM NAME _____
SUBSYSTEM Comp Number _____

Reference No: _____

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 CI SERVER				
1.1 Station Number				
1.2 IP Address				
1.3 Station Number				
1.4 IP Address				
2 CI SERVER Redundancy test (if applicable)				
Standby switch over				
3 CI SERVER Communication test				
OPC Communication System Alarms				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

SYSTEM ACCEPTANCE CERTIFICATE

JOB NAME	:	BASE LOAD POWER HUB
END USER	:	CROSSWIND
CUSTOMER	:	ROSETTI MARINO
PLANT	:	OFFSHORE HKN WIND FARM
SYSTEM DESCRIPTION	:	PCS/SIS/FGS/EMCS INTEGRATED WITH CI SERVER

This is to certify that it is mutually agreed by all parties that the **PCS/SIS/FGS/EMCS INTEGRATED WITH CI SERVER** is turned over to CROSSWIND for next stage of plant loop check and commissioning activities.

[Remarks]

_____

_____

_____

Signed in agreement by;

YOKOGAWA : _____ Date: _____

ROSETTI MARINO : _____ Date: _____

CROSSWIND : _____ Date: _____

SITE ACCEPTANCE TEST COMPLETION CERTIFICATE

JOB NAME	:	BASE LOAD POWER HUB
END USER	:	CROSSWIND
CUSTOMER	:	ROSETTI MARINO
PLANT	:	OFFSHORE HKN WIND FARM
SYSTEM DESCRIPTION	:	PCS/SIS/FGS/EMCS INTEGRATED WITH CI SERVER

This is to certify that it is mutually agreed by all parties that the Site Acceptance Test for **PCS/SIS/FGS/EMCS INTEGRATED WITH CI SERVER** has been completed to the satisfaction of all parties concerned.

[Remarks]

_____

_____

_____

Signed in agreement by;

YOKOGAWA : _____ Date: _____

ROSETTI MARINO : _____ Date: _____

CROSSWIND : _____ Date: _____

Reference No: _____

Application Revision Record Sheet Start SAT

No.	Controller	Revision	CRC (Attached Database Validity Tool result)	NA	Checked		Remarks / Punch No.
					Pass	Fail	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

Application Revision Record Sheet End SAT

No.	Controller	Revision	CRC (Attached Database Validity Tool result)	NA	Checked		Remarks / Punch No.
					Pass	Fail	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Reference No: _____

System Cabinet Check

Cabinet Number :

Description	NA	Checked		Remarks / Punch No.
		Pass	Fail	
1 SCS Appearance and Construction Check				
1.1 General Construction				
- Lifting Construction, Plinth, Bakelite				
- Color				
- Side Panel				
1.2 Internal Layout				
- SCU Mounting and termination				
- ESB Bus Node Unit - IO module quantity				
- PSU				
- I/O Modules, Barriers				
- Components specification / quantity as per BOM				
- Components mounting and termination as per GA/IA				
1.3 Doors				
- Handle and document pocket				
1.4 Labeling				
- Cabinet				
- Devices & interface boards				
- Terminals, Earth bars etc.				Refer to System cable List
- Safety Covers and Safety Stickers				
- Cable markers				
1.5 Earthing				
- Bolt type & locations				
- Wire types				
- connection to doors and devices				
- Cabinet Isolation Test (Verify isolation test has been completed in the Panel Quality Check List)				
1.6 Cable Routing				
- Vnet/IP Bus				
- ESB Bus, Optical ESB Bus				
- System Cable (e.g., KS1 and AKB331)				
-Internal I/O Wiring				
-Cable size and specification				
- Cable Color Coding as per Supply type (AC/DC)				
- Power Cables				
				Refer to IO Assigment
1.7 Signal terminations				
- Terminal and wiring types, spare				
1.8 Power Distribution				
- Isolators and Circuit Breakers				
- Fuse terminal and rating				
- Terminal block type/size				
1.9 Others				
- Fan and thermostat				
2 SCS Nest Loading Check				
- SCS Station No. : _____				
- SCS Station No. (exten) _____				

Responsible Party	Representative	Date:	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

Ref. No.	Inst Tag	FCS Tag	Sig	IS	Marshalling Cabinet	Marshalling Cabinet			Field Control Station						Expected Result				Actual Result		Tested	Tested by	Witnessed by	Tested Date
						Terminal Block No.	TB A or (+)	TB B or (-)	FCS Cabinet	Card Type	Domain	Station	Node	Slot	Channel	Indication (DI)		Button (DO)							
																Close Contact	Open Contact	Activate	De-Activate						
1																						Pass / Fail			
2																						Pass / Fail			
3																						Pass / Fail			
4																						Pass / Fail			
5																						Pass / Fail			
6																						Pass / Fail			
7																						Pass / Fail			
8																						Pass / Fail			
9																						Pass / Fail			
10																						Pass / Fail			
11																						Pass / Fail			
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41																						Pass / Fail			
42																						Pass / Fail			
43																						Pass / Fail			
44																						Pass / Fail			
45																						Pass / Fail			

Responsible Parties	Representative	Date	Signature
YOKOGAWA			
ROSETTI MARINO			
CROSSWIND			

REF. 17.1

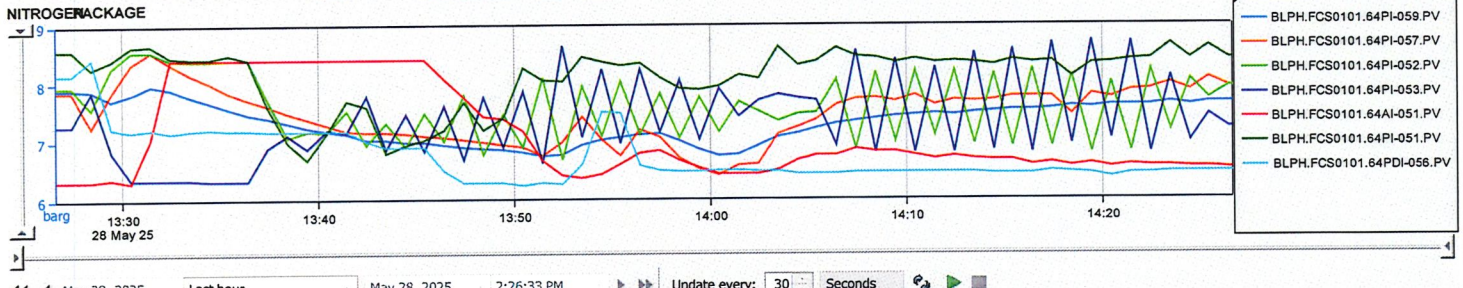
dit Trail

/ 27, 2025 Last day Start

Time	User	Profile	Location	Dataset	Source	Attribute	Action	Ident	Before	
y 28, 2025, 1:01:46 PM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 1:01:40 PM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 12:16:29 PM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	CI-SERVER	OPER-INTERFACE		LOGOUT			
y 28, 2025, 11:03:23 AM	FULLAUTHORIZATION	FULLAUTHORIZATION	BLPH_SRV	CI-SERVER	ENT-ENG-MOD		LOGOUT			
y 28, 2025, 11:03:10 AM	FULLAUTHORIZATION	FULLAUTHORIZATION	BLPH_SRV	CI-SERVER	ENT-ENG-MOD		LOGIN			
y 28, 2025, 10:52:24 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	DESCRIPTION	MODIFY	BLPH.FCS0101.87XA054AN.TAG	SIS PWR SUP FAIL ALM	PCS CA
y 28, 2025, 10:52:15 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	DESCRIPTION	MODIFY	BLPH.FCS0101.87XA054AN.T3	SIS PWR SUP FAIL ALM - BUTTON 3 TEXT	PCS CA
y 28, 2025, 10:52:09 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	DESCRIPTION	MODIFY	BLPH.FCS0101.87XA054AN.T1	SIS PWR SUP FAIL ALM - BUTTON 1 TEXT	PCS CA
y 28, 2025, 10:52:02 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OBJECT_ATTR_VAL	LOC-ENG-MOD	ATTR_VALUE	MODIFY	BLPH.FCS0101.87XA054AN:A_DESC	SIS PWR SUP FAIL ALM	PCS CA
y 28, 2025, 10:51:49 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	DESCRIPTION	MODIFY	BLPH.FCS0101.87XA054AN.87XA054AN	SIS PWR SUP FAIL ALM-ALRM	PCS CA
y 28, 2025, 9:13:43 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OPCUAC_POINT_DF	LOC-ENG-MOD	OPC_NODE_ID	MODIFY	TEST_1:[BLPH.EMCS.A7.80UF-0032.PV]	|var|Logic.Application.FUELCELL_GVL.LT-Flowrate	|var|Lo
y 28, 2025, 9:13:25 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OPCUAC_POINT_DF	LOC-ENG-MOD	OPC_NODE_ID	MODIFY	TEST_1:[BLPH.EMCS.A7.80UF-0028.PV]	|var|Logic.Application.FUELCELL_GVL.HT2-Flowrate	|var|Lo
y 28, 2025, 9:12:59 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OPCUAC_POINT_DF	LOC-ENG-MOD	OPC_NODE_ID	MODIFY	TEST_1:[BLPH.EMCS.A7.80UF-0024.PV]	|var|Logic.Application.FUELCELL_GVL.HT1-Flowrate	|var|Lo
y 28, 2025, 9:09:37 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OPCUAC_POINT_DF	LOC-ENG-MOD	OPC_NODE_ID	MODIFY	TEST_1:[BLPH.EMCS.A7.80TI-0031.PV]	|var|Logic.Application.FUELCELL_GVL.LT-Coolant_Forward_Temperat	|var|Lo
y 28, 2025, 9:09:29 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	ENG_UNIT	MODIFY	BLPH.EMCS.A7.80TI-0031.PV	°C	DegC
y 28, 2025, 9:09:07 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	ITEM_DF	LOC-ENG-MOD	ENG_UNIT	MODIFY	BLPH.EMCS.A7.80TI-0030.PV	°C	DegC
y 28, 2025, 9:09:07 AM	ALESSANDRO.BERRA@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	HISTMP1	OPCUAC_POINT_DF	LOC-ENG-MOD	OPC_NODE_ID	MODIFY	TEST_1:[BLPH.EMCS.A7.80TI-0030.PV]	|var|Logic.Application.FUELCELL_GVL.LT-Coolant_Return_Temperatu	|var|Lo
y 28, 2025, 9:02:47 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 9:02:43 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 9:02:34 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 9:02:28 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 9:02:18 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 9:02:14 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 9:02:00 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 9:01:56 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 9:01:45 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 9:01:40 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1	OPER	
y 28, 2025, 9:01:28 AM	FABIO.SIRIGU.ENG@BLPH.OT.CROSSWINDHKN.NL	CIX_ADMIN	CW-OPER	ITEM	OPER-INTERFACE	VALUE	MODIFY	BLPH.PASSWORD.Password1		OPER
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4529.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4601.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4623.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4427.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4501.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4521.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4501.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4401.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4419.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4418.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4426.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4733.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4401.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4701.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4725.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4732.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4631.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4630.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4701.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4724.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4520.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4601.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4622.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CI-4528.PV	nack	ack
y 28, 2025, 8:28:16 AM	DAVIDE.CASAGRANDE@BLPH.OT.CROSSWINDHKN.NL	CIX_OPR	WORKSTATION1	ITEM	OPER-INTERFACE		ACKNOWLEDGE	BLPH.EMCS.A6.70CA-4402.PV	nack	ack

REF. 17.2

NITROGEN PACKAGE - TREND



May 28, 2025 | Last hour | May 28, 2025 | 2:26:33 PM | Update every: 30 | Seconds

Source	Description	Units	Legend	Minimum	Maximum	Scale range	Appearance
BLPH.FCS0101.64P...	PT INS AIR RECIVR ...	barg	BLPH.F...	6.7349...	7.9713...		
BLPH.FCS0101.64P...	OUTLET B PT - PRO...	barg	BLPH.F...	6.2787...	7.7021...		
BLPH.FCS0101.64P...	T1 PT - PROCESS V...	barg	BLPH.F...	0.6987...	8.1567...		
BLPH.FCS0101.64P...	T2 PT - PROCESS V...	barg	BLPH.F...	0.0045...	7.1225...		
BLPH.FCS0101.64...	OXYGEN TRANS - P...	%	BLPH.F...	1.4955...	5.0200...		
BLPH.FCS0101.64P...	INLET PT - PROCES...	barg	BLPH.F...	4.3561...	8.3239...		
BLPH.FCS0101.64P...	DPT O/L FILTERS - ...	barg	BLPH.F...	0.0652...	0.6442...		
BLPH.FCS0101.64X...	VALVE 64XV-056 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-057 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-055 - P...		BLPH.F...	0.0	1.0		
BLPH.FCS0101.64X...	VALVE 64XV-054 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-053 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-051 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-052 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-058 - P...		BLPH.F...	0.0	2.0		
BLPH.FCS0101.64X...	VALVE 64XV-059 - P...		BLPH.F...	0.0	2.0		

REF. 18.4

CI Server Performance Monitor

General | Services | Processes | Locks | Nodes | Routing | Users | ISAM | Top | Version | Patches | Miscellaneous | Diagnostics

Customer name: CI Server Evaluation
License Group: CEV100154_1

Node information

CI Server version: R1.03.00 (r10200M)
Node number: 1
Node name: BLPH_SRV
Router type: Endpoint
Time of startup: 05/27/2025 20:08:40
License expires: After 33, 11:11:16 (days, hh:mm:ss)
License status: Good
Functions: Core

Inter-process communications

Number of attached processes: 116
Number of connected nodes: 2
Free common space: 100% (249220 of 250000 KB)
High common used: 1% (3436 of 250000 KB)
Free event handles: 99% (987 of 1000 events)
Total number of messages transferred: 30328697
Total number of messages failed: 7696
Total claimed queue space: 0 KB

Item information

Licensed items in use: 23624 of 131072
Other items in use: 42402

PC Redundancy Platform information

License status: Not available
Platform status: Not available

Equipment licenses

VNET-FCS stations in use: 1 of 1
VNET-UGS stations in use: 0 of 0
VNET-SCS stations in use: 2 of 2
VNet/IP Interface Package: YES

ISAM information

Used user space: 40% (811 of 2016)
Used file space: 15% (183 of 1216)

User information

Currently logged in: 7
Previously logged in: 11
Failed login attempts: 0
Licenses in use: Operator Interface - 1 of 1
Mobile Operator - 0 of 0

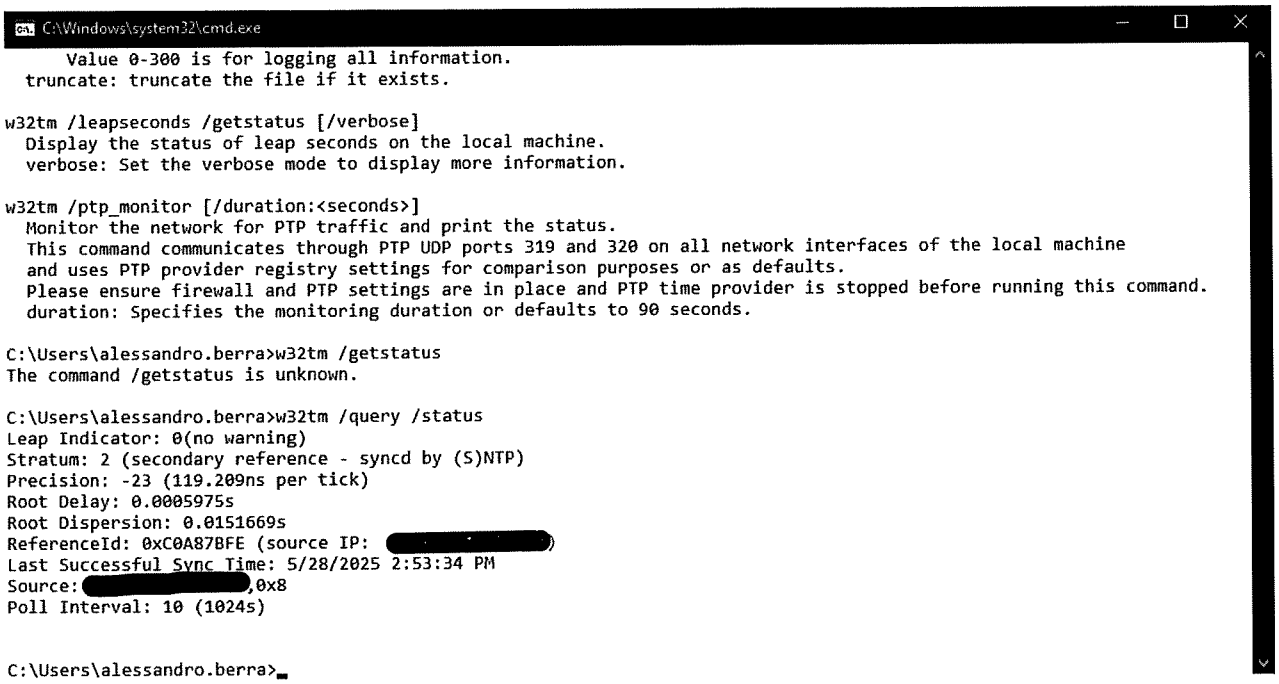
Upgrade license

Revision-Up/Patch: Not Licensed
Revision-Up: Licensed (07/01/2025)
Patch: Licensed (07/01/2025)

CI Server is running as a service | 05/28/2025 | 14:48

Report | Help

REF. 18.6


C:\Windows\system32\cmd.exe
Value 0-300 is for logging all information.
truncate: truncate the file if it exists.
w32tm /leapseconds /getstatus [/verbose]
Display the status of leap seconds on the local machine.
verbose: Set the verbose mode to display more information.
w32tm /ptp_monitor [/duration:<seconds>]
Monitor the network for PTP traffic and print the status.
This command communicates through PTP UDP ports 319 and 320 on all network interfaces of the local machine
and uses PTP provider registry settings for comparison purposes or as defaults.
Please ensure firewall and PTP settings are in place and PTP time provider is stopped before running this command.
duration: Specifies the monitoring duration or defaults to 90 seconds.
C:\Users\alessandro.berra>w32tm /getstatus
The command /getstatus is unknown.
C:\Users\alessandro.berra>w32tm /query /status
Leap Indicator: 0(no warning)
Stratum: 2 (secondary reference - syncd by (S)NTP)
Precision: -23 (119.209ns per tick)
Root Delay: 0.0005975s
Root Dispersion: 0.0151669s
ReferenceId: 0xC0A87BFE (source IP: [redacted])
Last Successful Sync Time: 5/28/2025 2:53:34 PM
Source: [redacted],0x8
Poll Interval: 10 (1024s)
C:\Users\alessandro.berra>

Base Load Power Hub (BLPH)

CYBERSECURITY SAT PROCEDURE

Document Number: 1724000594-QC-PRO-00044

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	30/05/2025

Document Class: 2

NEXT REVISION SHALL BE "Accepted for Construction (AFC)"

Rev.	Date	Description	Prepared	Reviewed	Approved
00	27/05/2025	Issue for Review (IFR)	CB	AB	SC

ADD YOKOGAWA LOGO

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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1 INTRODUCTION

1.1 GENERAL

The purpose of this document is to define the methods and documentation that will be used to carry out the Site Acceptance Test (SAT) on YOKOGAWA's Network Security. The SAT is performed to ensure that the system is properly configured, assembled and functional in accordance with the intended design as specified in the approved documents.

The Objective of SAT is to demonstrate to CROSSWIND that the system hardware and software is built in accordance with requirements as specified in the approved documents.

CROSSWIND and Rosetti Marino would witness to verify the test. Upon successful completion of the test, a SAT Test Certificate to be signed for the acceptance of the test.

1.2 SCOPE AND OBJECTIVE

The Site Acceptance Test referred to as SAT applies to the Network Hardware and Software supplied by YOKOGAWA.

The objective of the SAT is to verify the conformance of the system against the approved specifications and SAT procedure before delivery to site. The SAT shall be conducted to test and verify the main items listed below:

- Security and Administration
- Windows Domain and Account Management
- Antivirus Management
- OS Patch Management
- Backup and Recovery Management
- Network Management System
- Network Infrastructure
- Application Whitelisting
- Firewall
- Switch
- Remote Access Facility

2 REFERENCE DOCUMENTS

2.1 INPUT DOCUMENTS

The OT Network and Systems security is configured by the reference of these documents in the below listed table.

2.1.1 Project Reference Documents

Doc. No.	*Description*
123A90-DDL-IN-DD-40019 Rev.00	Data Network Architecture Drawings
123A90-DDL-IN-DD-40029 Rev.00	Automation Detailed Design and Construction Package
123A90-DDL-IN-RE-40023 Rev. 00	Cyber Security Design Philosophy
123A90-DDL-IN-RE-40093 Rev. 00	Control System Philosophy

2.1.2 YOKOGAWA Project Document

Doc. No.	*Description*
1724000594-IN-RE-00041 Rev00	Cyber security Workshop Preparation
1724000594-QC-ITP-00002 Rev01	INSPECTION AND TEST PLAN
1724000594-QC-PRO-00031 Rev00	SW FACTORY ACCEPTANCE TEST (FAT) PROCEDURE
1724000594-IN-SP-00018 Rev02	PCS and SAFETY SYSTEMS Software Functional Design Specification (FDS-SW)
1724000594-IN-DG-00023 Rev01	NETWORK AND SERVER CABINETS IN OER ROOM WIRING DIAGRAMS AND TERMINAL STRIPS
1724000594-IN-RE-00035 Rev01	Cyber Security Risk Assessment REPORT
1724000594-IN-RE-00043 Rev00	CYBER SECURITY SETTINGS
1724000594-IN-DA-00011 Rev02	NETWORK AND SERVER CABINETS IN ITER ROOM GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
1724000594-IN-DA-00012 Rev01	NETWORK AND SERVER CABINETS IN OER ROOM GENERAL ARRANGEMENT DRAWINGS AND INTERNAL LAYOUT
1724000594-IN-DD-00015 Rev03	System Architecture
1724000594-IN-DG-00016 Rev01	Network Connection Diagram
1724000594-IN-LIS-00007 Rev01	Systems Cables List
1724000594-IN-DG-00022 Rev01	NETWORK AND SERVER CABINETS IN ITER ROOM WIRING DIAGRAMS AND TERMINAL STRIPS

2.2 APPROVED DOCUMENT LIST (DETAIL DESIGN SPECIFICATION)

The Detail Design Specification used for construction shall be listed in this approved document list, and shall be used as reference in the SAT. In principle, the Detail Design Specification documents as included in this list shall form the basis for checking the Network system. The approved Detail Design Specification document list used for construction is listed in 2.1.2.

3 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project

Doc. No.	Description
• ICS	Industrial Control System
• IACS	Industrial Automation & Control System
• AD DS	Active Directory Domain Services
• DC	Domain Controller
• DNS	Domain Name System
• GPO	Group Policy object
• RID	Relative Identifier
• PDC	Primary Domain Controller
• PIN	Plant Information Network
• OU	Organizational Unit
• CMD	Command Prompt
• SQL	Structured Query Language
• SFP	Small Form-factor Pluggable
• HIS	Human Interface System
• Vlan	Virtual LAN
• USB	Universal Serial Bus
• GPS	Global Positioning System
• ePO	ePolicy Orchestrator
• DMZ	Demilitarized Zone
• ENS	End Point Network Security
• FTP	File Transfer Protocol
• NTDS	NT Directory Service
• SSL	Secure Socket Layer
• EPC	Engineering Procurement and construction Contract
• HTTPS	Hyper Text Transfer Protocol Secured
• VBR	Veeam Backup & Replication
• BRS	Backup and Recovery Server
• WL	Whitelisting

• WUG	WhatsUp Gold
• TCP	Transmission Control Protocol
• UDP	User Datagram Protocol
• SNMP	Simple Network Management Protocol
• ACL	Access Control List
• NMSSVR	Network Management Server
• DCSVR01	Domain Controller Server 1
• DCSVR02	Domain Controller Server 2
• AVSVR	Antivirus Server
• WSUS	Windows Server Update Service
• CISVR01 & CISVR02	CI Server
• FDS	Functional Design Specification
• FAT	Factory Acceptance Test
• SAT	Site Acceptance Test

Table 1 – Definitions and Abbreviations

4 RESPONSIBILITY

Responsibilities for each party involved in the SAT are defined here-under to ensure that the SAT is carried out in accordance with the agreed procedure. It also ensures that there shall be authorized personnel(s) from Rosetti Marino, CROSSWIND and YOKOGAWA to facilitate any decisions and schedule changes that have resulted from the SAT.

4.1 CUSTOMER

The full participation of CROSSWIND in the SAT is essential. CROSSWIND shall appoint an Inspector cum Test Approver to witness the SAT. The Test Approver would have the authority to sign-off the check sheets on successful completion of all tests. Once signed off, the test will be deemed accepted and the decision will be final. The Test Approver shall participate in the test and observe the test results daily. The Test Approver shall approve the inspection items based on the test results recorded.

4.2 CONTRACTOR

Rosetti Marino shall appoint a SAT Manager for the SAT. Rosetti Marino SAT manager shall co-ordinate with CROSSWIND and YOKOGAWA SAT Managers to facilitate the smooth execution of the SAT activities and schedule. The role of the SAT Manager is also to resolve SAT issues on a regular basis.

4.3 MAC

YOKOGAWA as MAC shall appoint a Test Conductor to organize and manage all aspects of SAT. Yokogawa shall be responsible for carrying out the testing and recording the test results on a daily basis together with Rosetti Marino representative and CROSSWIND Inspector.

The Site Manager representing YOKOGAWA shall be the SAT Manager and co-ordinate with Rosetti Marino SAT Manager and adjusts the test schedule whenever necessary to ensure the smooth running of the SAT. The SAT Manager shall also ensure that all tests are conducted in accordance with the SAT documents. If changes / modifications are required, the SAT Managers from YOKOGAWA and Rosetti Marino shall discuss and determine the action plan YOKOGAWA

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5 GENERAL ADMINISTRATION

5.1 SAT VENUE

All the Network Security equipment will be installed by Site Construction Contractor selected by Rosetti Marino. The tests shall be conducted on-site.

5.2 SAT ORGANIZATION CHART

A detailed Organization Chart shall be issued for SAT, with all positions and names filled in. In addition, a SAT roster of the participants shall be issued, with following details for each person: full name, company, responsibility, samples of the signature and initials, actual start and finish date of participation in the SAT. Rosetti Marino shall be responsible for maintaining the roster and keeping it updated.

Refer to Appendix-19.1 for SAT organization chart and SAT roster.

5.3 KICK-OFF MEETING

An initial kick-off Meeting will be held prior to starting the SAT to brief the participants, confirm the organization and responsibilities, and review the SAT schedule. At the same time HSE briefing for all participants will be provided by Rosetti Marino/CROSSWIND. YOKOGAWA SAT Manager will prepare the presentation and explain the organization and work practices.

All SAT documentation prepared by Rosetti Marino/CROSSWIND prior to SAT will be inspected for completeness.

5.4 DAILY WORKING SCHEDULE

The SAT will be conducted in Project Site premises from Monday to Friday (working days). The following timing is recommended for the testing:

0900 to 1200 hrs	Inspection and test
1200 to 1300 hrs	Lunch
1300 to 1700 hrs	Inspection and test
1700 to 1730 hrs	Daily review meeting including next day's schedule planning

Table 2 - Daily Working Time

5.5 SAT WRAP-UP MEETING

At the completion of the SAT, a final wrap-up meeting will be held. The overall status of the SAT shall be reported. Upon all parties' agreement that the SAT is completed satisfactorily, Rosetti Marino/CROSSWIND shall sign off SAT Completion Certificate and System Acceptance Certificate.

6 SAT OVERVIEW

Cyber security solutions is a part of SAT. This SAT procedure describes the activities and the requirements that are necessary to confirm that all the cyber security solutions installed on-site meets the project standards and functions as per the approved design engineering / construction drawings. The main objectives of performing the SAT is to facilitate Rosetti Marino/CROSSWIND to check and verify the following.

There are no physical (visible) damages (during shipping and installation) to the system that was inspected during FAT and IFAT.

All manufacturing and assembly that were inspected during the FAT and IFAT remain so and are not affected during the shipment.

The Network components that were inspected during FAT and IFAT do function properly and are not affected during the shipment.

To ensure that all carried over punch items identified as per FAT and IFAT report are addressed.

The Software with proper revisions has been loaded on the respective systems.

All equipment and system cables that have been disconnected for shipment are properly reconnected and is working as expected.

The Site Acceptance Test (SAT) shall be conducted in accordance with the test procedures detailed in this document. The test results shall be recorded in the Check sheet. Each Check sheet shall be given a unique reference number.

6.1 SAT DOCUMENTATION

YOKOGAWA shall prepare all SAT documentation prior to the start of SAT of a particular plant or area. All forms, Check-sheets, sign off sheets, drawings, etc. as listed in this procedure shall be organized in indexed binders. A master index for the area will be provided and maintained by the individual site team(s).

The documentation for hardware checks shall include all relevant documents for each individual cabinet in a separate indexed binder or a binder section.

All SAT reference documents (latest issue) as listed in this procedure originated by other parties, which were issued formally to YOKOGAWA, will form a part of the SAT documentation and shall be printed out, and organized in indexed binders by YOKOGAWA.

All SAT reference documents as mentioned above shall be stamped "SAT MASTER" on every page/sheet (or printed with a watermark). Any additional documents as may be necessary and generated later during SAT shall also be stamped, and indexes amended accordingly.

6.2 METHOD OF TESTING

Detailed test procedure for each test item is described in this document. Check-sheet shall be provided, listing the equipment to be tested. All test results shall be recorded in the Check-sheets. The following color codes shall be used in the testing:

a) Yellow marker – Items that were checked and cleared

b) Pink marker – Items that were having issues

c) Green marker – Items that were checked after completion of recovery/resolution of issue

6.3 PUNCH RECORD

Any deficiency found during the test shall be noted in the SAT Punch Record. Each punch Record shall cover one punch item/fault. A Punch Record Ledge shall be used to summarize all the punch records. Punch record items shall be classified as follows:

M = Modification, item is to be modified, deleted, added due to design input changes.

C = Correction, item is to be corrected by YOKOGAWA.

If the recovery work involves change/modification, it is to be recorded on the punch record and the recovery shall be carried out after the agreement of both the SAT managers. YOKOGAWA shall clear all correction items (**Code C**) as per the identified resolutions. For recovery work that involves modification (**Code M**), the item will be jointly reviewed by all parties on a daily basis and determined whether to be implemented during SAT or later, depending on complexity and potential schedule and/or cost impact. After verification, all concerned parties in the punch record will sign off the same.

The punch record will be reviewed during the daily meeting and the action to be taken will be discussed and finalized. If the modification request were deemed deviated from the original design, it would be considered as variation order.

6.4 SAT COMPLETION CERTIFICATE & SYSTEM ACCEPTANCE CERTIFICATE

Upon completion of the SAT, a SAT Completion Certificate and System Acceptance Certificate will be signed by CROSSWIND, Rosetti Marino and YOKOGAWA. The purpose of these two documents is to certify that the SAT has been completed and accepted by Rosetti Marino/CROSSWIND. Both Rosetti Marino/CROSSWIND and YOKOGAWA agree that the system is in order and can be released for the next stage of site activities. However, if the tested system is to be accepted in partial for whatever reasons, Rosetti Marino shall advise and issue the SAT documents accordingly.

6.5 SAFETY AT WORK

CROSSWIND site safety procedures shall form the basis for YOKOGAWA to conduct the SAT. Rosetti Marino/CROSSWIND shall provide necessary safety orientation to YOKOGAWA site team so that YOKOGAWA site engineers can follow the safety rules while working on-site.

6.6 TEST EQUIPMENT

Rosetti Marino/CROSSWIND will provide all test equipment (e.g. Digital Multimeter, Calibrator, Signal Generators, etc.) for the SAT.

7 WINDOWS DOMAIN ENVIRONMENT SAT PROCEDURES

7.1 DOCUMENT UPDATE AND CONFIGURATION VERIFICATION

Objective	To verify that FDS is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Check FDS used is the latest version and approved by EPC or End User. 2. Check that current Domain Controller configurations are compliant with FDS documents.
Criteria	1. The following is true; FDS is of the latest version

TEST RESULT: PASS / FAIL

Remarks:

12/06/2025 FINAL FDS TO BE ISSUED. ('SEE PUNCH CS-01)

26/7: PASS

YOKOGAWA Representative : A. BERRA QB Date: 26/7/2025

Rosetti Marino Representative : S. SINGH Date: 26/7/2025

Crosswind Representative : Date:

7.2 DOMAIN AND FOREST FUNCTIONAL LEVEL

Objective	To verify the Domain and Forest functional level.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. In the Domain controller, go to **Start -> All Programs -> Administrative Tools -> Active Directory Domains and Trusts.** 2. Right-click on the name of the domain -> click Properties. 3. Verify the Domain and Forest Functional Level.
Criteria	The result should show that the Domain and forest Functional level is Windows Server 2016

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGAN Date: 12/06/2025

Crosswind Representative : E. Hu - Date: 12/06/2025

7.3 FORWARD LOOKUP AND REVERSE LOOKUP ZONE

Objective	To verify that DNS is installed on the domain controllers and the Forward and Reverse Lookup Zone is integrated to Active Directory.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	**Forward Lookup Zone** 1. On the Domain controller, go to **Start -> All Programs -> Administrative Tools -> DNS -> Forward Lookup Zone.** 2. Right-click on the zone which is the name of the domain and select properties. 3. Repeat steps on the redundant domain controller 4. Also check whether dynamic updates are in secure only mode **Reverse Lookup Zone** 1. On Domain controller, go to **Start -> All Programs -> Administrative Tools -> DNS -> Reverse Lookup Zone.** 2. Right-click on the zone which is the name of the domain and select properties. 3. Click on the Reverse Lookup Zone>[IP].in-addr.arpa 4. Repeat steps on the redundant domain controller. 5. Also check whether dynamic updates are in secure only mode
Criteria	1. The zone, which is the name of the domain, should be present under Forward Lookup Zone. ✓ 2. The properties of the zone, which is the name of the domain, should show Active Directory-Integrated. ✓ 3. The properties of the zone, which is the name of the domain, should show that it is configured to replicate to all DNS servers in the same Active Directory domain. ✓ 4. Hostname and IP should match as mentioned in FDS ✓ 5. Verify that all IP subnets should show in-addr.arpa under Reverse Lookup Zones ✓ 6. Verify whether dynamic updates are in secure only mode ✓

TEST RESULT: (PASS) / FAIL

Remarks: 12/06 REMOVE TEMPORARY STATIONS FROM DNS (SEE PUNCH CS_02)

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SPAGNOLI Date: 12/06/2025

Crosswind Representative : E Klom Date: 12/06/2025

7.4 NAME RESOLUTION

Objective	To verify that hostnames can be resolved by the Active Directory DNS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Open the command prompt on one of the domain controllers. 2. Type nslookup <LookupName/IP> <Nameserver/IP> 3. Type the name of the other domain controller. 4. Type the name of any other domain members. 5. Type in the IP address of the other domain controller. 6. Type the IP address of any other domain members.
Criteria	1. The nslookup should be able to resolve the name of the domain controller and other domain members to their correct IP addresses. 2. The nslookup should be able to resolve the IP address of the other domain controller and other domain members to its correct hostnames.

TEST RESULT: PASS / ~~FAIL~~

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SPIGAI Date: 12/06/2025

Crosswind Representative : E. Islam Date: 12/06/25

7.5 ACTIVE DIRECTORY REPLICATION

Objective	To verify that replication can occur between 2 domain controllers.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. On domain controllers, go to **Start -> All Programs -> Administrative Tools -> Active Directory Sites and Services.** 2. Go to Default-First-Site-Name -> Servers 3. Expand the icon of the domain controller and select NTDS Settings. 4. On the right pane, right-click on the Automatically Generated connection -> Replicate Now. 5. Expand the icon of the redundant domain controller and select NTDS Settings. 6. On the right pane, right-click on the Automatically Generated connection -> Replicate Now.
Criteria	The dialog box "Active Directory has replicated the connections" should pop up when replication is successful.

TEST RESULT: (PASS) / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIANI Date: 12/06/2025

Crosswind Representative : Ekkon Date: 12/06/25

7.6 ACTIVE DIRECTORY REDUNDANCY

Objective	To verify that a user account can still log on to domain members if one of the domain controllers fails.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Shut down any one of the domain controllers. 2. Use a created account to log on to any of the domain members. 3. Log off the test account from the domain member. 4. Turn on the domain controller used in step 1.
Criteria	The test account should still be able to log on to the domain members.

TEST RESULT: PASS / ~~FAIL~~

Remarks:

YOKOGAWA Representative	: ALESSANDRO BERRA, QB	Date:	12/6/2025
Rosetti Marino Representative	: FABIO SARIGU	Date:	12/06/2025
Crosswind Representative	: E Ikkam	Date:	12-6-25

7.7 NAME RESOLUTION REDUNDANCY

Objective	To verify that hostnames and IP addresses can still be resolved even if one of the DNS fails.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Shut down any one of the domain controllers. 2. On any of the domain members, open a command prompt and run "ipconfig /flushdns" to clear any cached entries. 3. Type ping. 4. Type the Hostname of any other domain member. 5. Type ping. 6. Type the IP address of any other domain member. 7. Turn on the shut domain controller.
Criteria	The host names and IP addresses should be resolved if either of them fails.

TEST RESULT: PASS / ~~FAIL~~

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGA Date: 12/06/2025

Crosswind Representative : Ekin Date: 12-6-25

7.8 ORGANIZATIONAL UNIT AND GROUP STRUCTURE

Objective	To verify that the OU and group structure is according to the project requirement as defined in the FDS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Open the Active Directory Users and Computers tool on one of the domain controllers. 2. Verify that the structure of the OU is as mentioned in the FDS. 3. Navigate to the OU containing groups. 4. Verify that the proper descriptions are given under each of the group properties. 5. Verify proper group nesting as per FDS. 6. Verify that specified users as per FDS are created in the system
Criteria	1. The OU structure should be the same as what mentioned in the FDS. 2. All Microsoft OS workstations and servers are part of the domain. 3. Description of group and group nesting should be as per FDS. 4. Make evidence that there are no temporary users in the system.

TEST RESULT: (PASS) / FAIL

Remarks:

YOKOGAWA Representative : A. BERRA AB Date: 26/7/2025

Rosetti Marino Representative : FSURIGA Date: 26/7/2025

Crosswind Representative : Date:

7.9 VERIFY USER ACCOUNT COMPLIANCY, INCLUDING NON-REPUDIATION

Objective	Verification of user account compliance and non-repudiation.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	To verify that the current system user account and password are equal to the specification document, generic accounts are not created (default generic accounts are disabled). * Check: Login all account
Criteria	The current system user account and password tally with the specification document, no generic account is present.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 3/7/2025

Rosetti Marino Representative : [signature] Date: 3/7/25

Crosswind Representative : [signature] Date: 3-7-25

7.10 GROUP POLICY OBJECT STRUCTURE

Objective	To verify that the GPO structure is created according to the project requirement as defined in the FDS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Open the Group Policy Management Console (GPMC) tool on the domain controllers. 2. Verify that the naming conventions of the GPOs are as per FDS. 3. Verify that the unneeded GPO configuration category (Computer configurations or User Configurations) is disabled. 4. Verify that the default GPOs (default Domain and Domain Controllers GPOs) are not linked to any OUs and be modified upon. 5. Verify that the GPOs are linked to the appropriate OUs in the OU structure.
Criteria	1. The naming convention of the GPOs should be as per the FDS. 2. Unneeded GPO configuration category should be disabled to allow faster GPO processing. 3. Default Domain and Domain Controllers GPOs should not be modified and assigned to any OUs. 4. All GPOs should be linked to the appropriate OUs as per FDS for correct IT environment hardening on domain members.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 3/7/2025

Rosetti Marino Representative : Date: 3/7/25

Crosswind Representative : Date: 3-7-25

8 YOKOGAWA ANTIVIRUS SOFTWARE SAT PROCEDURES

8.1 DOCUMENT UPDATE AND CONFIGURATION VERIFICATION

Objective	To verify that the FDS document is up-to-date and are compliant with the actual configuration.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	1. Verify that the FDS used is the latest version and approved by EPC or End User. 2. Verify that the current anti-virus server and client configuration are compliant with FDS documents.
Criteria	1. The FDS is the latest version. 2. Anti-virus server and client configuration are compliant with the FDS document.

TEST RESULT: PASS / FAIL

Remarks:

12/06 FINAL FDS TO BE ISSUED (SEE PUNCH CS_06)

26/7 PASS

YOKOGAWA Representative	: A. BERRA	Date:	26/7/2025
Rosetti Marino Representative	: FSWRGN	Date:	26/7/2025
Crosswind Representative	:	Date:	

8.2 VIRUS DEFINITION UPDATE

8.2.1 The Trellix ePO Server (DMZ) and source site Synchronization

Objective	To verify that the Trellix ePO Server (DMZ) can synchronize the virus definition update from the defined source sever(Crosswind)
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	Verifying virus definition download between Trellix ePO Server (DMZ) and Trellix ePO Server (Office Domain) 1. On the Trellix ePO Server (DMZ), launch the Trellix ePolicy Orchestrator Console. 2. Go to the Master Repositor and click the "Pull Now" button. 3. Select the AMCore Content Package for YOKOGAWA Antivirus Software Management under the Signatures and Engines of Package Types. 4. Click Next and run the Update.
Criteria	The AMCore Content Package of the Trellix ePO Server (DMZ) Master Repository shall be updated following the Trellix ePO Server source site server version.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 13/6/2025

Rosetti Marino Representative : FABIO SURIGA Date: 13/06/2025

Crosswind Representative : E. Hum Date: 13-6-25

8.2.2 YOKOGAWA Antivirus Software Management Virus Definition Update

Objective	To verify that the YOKOGAWA Antivirus Software Management on the PIN and DMZ clients can download the virus definition update from the Trellix ePO Server (DMZ)
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	Verifying virus definition download between YOKOGAWA Antivirus Software Management PIN, DMZ clients and Trellix ePO Server (DMZ) 1. On the client, launch the YOKOGAWA Antivirus Software Console. 2. Open YOKOGAWA Antivirus Software Console. 3. Click the "Update Now" button. 4. Go to Server task menu in order to check whether updates are pushed to the systems
Criteria	The virus definition update on the PIN, DMZ client must be updated following the AV Server (DMZ) virus definition update version.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 13/6/2025

Rosetti Marino Representative : FABIO SARIGU Date: 13/06/2025

Crosswind Representative : E. Klom Date: 13-6-25

8.3 YOKOGAWA ANTIVIRUS SOFTWARE MANAGEMENT

8.3.1 YOKOGAWA Antivirus Software Clients Communication

Objective	To verify that the YOKOGAWA Antivirus Software Management clients are reporting to the Trellix ePO Server (DMZ)
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	Verifying communication between YOKOGAWA Antivirus Software Management DMZ, PIN clients and Trellix ePO Server (DMZ) 1. On the Trellix ePO Server (DMZ), launch the ePolicy Orchestrator Console. 2. Go to the System Tree view. 3. Click the System Properties tab and select the target client, 4. Verify the "Last Communication" value.
Criteria	The last communication shows the client's last reporting scheduled date and time. The last communication value should show a recent date (approx. +/- 1 day) to confirm that the clients are communicating with the Trellix ePO server. ✓

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGA Date: 12/06/2025

Crosswind Representative : E. Klon Date: 12-6-25

8.3.2 ePolicy Orchestrator Exclusion List

Objective	To verify that exclusion policy is configured in the AV Server
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Go to AV Server, and open the ePO console 2. Check the exclusion policy configuration.
Criteria	The current McAfee Product Version is tally with Project FDS.

TEST RESULT: (PASS) / FAIL

Remarks:
12/06. OPEN EXCLUSION SEEM TO BE TOO WIDE

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGU Date: 12/06/2025

Crosswind Representative : E. Klom Date: 12-06-2025

8.3.3 YOKOGAWA Antivirus Software Full Scan Impact

Objective	To verify that YOKOGAWA Antivirus Software Management Full Scan impact is at an acceptable level.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	Verifying virus definition download between YOKOGAWA Antivirus Software Management of DMZ, PIN clients and Trellix ePO Server (DMZ) 1. On the DMZ & PIN client, launch the YOKOGAWA Antivirus Software Console. 2. Open YOKOGAWA Antivirus Software Console. 3. Click the "Scan System" button and run a "Full Scan". 4. Using the Windows inbuilt Performance monitor. 5. Check the Memory and CPU utilization.
Criteria	Confirm that the YOKOGAWA Antivirus Software Full scan impact is at an acceptable level following the FDS document.

TEST RESULT: PASS / ~~FAIL~~

Remarks:

12/06 – NO FULL SCAN IS SCHEDULED FOR ALL MACHINES
– REMOTE TASKS ON REMOTE IS NOT EXECUTED

YOKOGAWA Representative : ALESSANDRO BURRO AB Date: 3/7/2025

Rosetti Marino Representative : FEDERICO Fi Date: 3/7/25

Crosswind Representative : E Klom Date: 3-7-25

8.4 TRELLIX EPOLICY ORCHESTRATOR SERVER

8.4.1 Trellix ePO Server Policy Verification

Objective	To verify the YOKOGAWA Antivirus Software Policy is assigned to the YOKOGAWA System Group
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	Verifying the required YOKOGAWA Antivirus Software policy is assigned to the YOKOGAWA System Group 1. On the Trellix ePO Server (DMZ), launch the ePolicy Orchestrator Console. 2. Under the System Tree, click the YOKOGAWA System group. 3. Click the Assigned Policies tab and verify that the YOKOGAWA Advanced policy is applied.
Criteria	The YOKOGAWA Advanced policy is applied to the YOKOGAWA system group following the FDS document

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SARIGU Date: 12/06/2025

Crosswind Representative : E. Hlom Date: 12-6-25

9 YOKOGAWA APPLICATION WHITELISTING SAT PROCEDURES

9.1 DOCUMENT SPECIFICATION AND CONFIGURATION VERIFICATION

Objective	To verify that FDS is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Verify that the FDS used is the latest version and approved by EPC or End User. 2. Verify that the current application whitelisting configuration is compliant with FDS document.
Criteria	FDS is of the latest version.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative	: A. BERRA QB	Date:	26/7/2025
Rosetti Marino Representative	: FERIGN	Date:	26/7/2025
Crosswind Representative	:	Date:	

9.2 PROTECTION FROM EXECUTION OF UNMANAGED PROGRAM IN ENABLE MODE

Objective	To verify that the Whitelisting service can prohibit from execution of unmanaged programs during Enable Mode
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Verify to execute additional program 1. On the client machine, copy a test program/installer to the target machine's hard drive. (Ensure Solidcore status is enabled) 2. Execute the program. 3. Check the result
Criteria	The test program cannot execute

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : A. BtRRs QD Date: 3/7/2025

Rosetti Marino Representative : Fsuccm Date: 3/7/25

Crosswind Representative : E. Klom Date: 3-7-25

9.4 TRELLIX EPOLICY ORCHESTRATOR SERVER

9.4.1 Trellix ePO Server Policy Verification

Objective	To verify the YOKOGAWA Application Whitelisting policy is assigned to the YOKOGAWA System Group
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Verifying the required YOKOGAWA Application Whitelisting policy is assigned to the YOKOGAWA System Group 1. On the Trellix ePO Server, launch the ePolicy Orchestrator Console. 2. Under the System Tree, click the YOKOGAWA System Group
Criteria	The Standard YOKOGAWA policy is applied to the YOKOGAWA system group following the FDS.

TEST RESULT: (PASS) / FAIL

Remarks:

YOKOGAWA Representative : A BERRO Date: 3/7/2025

Rosetti Marino Representative : Date: 3/7/25

Crosswind Representative : E. Klom Date: 3-7-25

9.3 CHANGE OPERATION MODE OF WHITELISTING

9.3.1 Changing to Observe Mode and Enable Mode

Objective	To verify that the Whitelisting status changes to update mode
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	**Verify Whitelisting status mode changes to "Observe Mode"** 1. Open the System Tree from the ePO management console and select the target machine from the System Tree. 2. Run a client task (YOKOGAWA Standard WL – Begin Update) on the selected station. 3. Once the agents apply the new policy, confirm that the systems have moved to observe mode. 4. Review the system's Solidcore status in the **ePO Console**. **Verify Whitelisting status mode changes to "Enable Mode"** 1. Open the System Tree from the ePO management console and select the target machine from the System Tree. 2. Run a client task (YOKOGAWA Standard WL – Begin Update) on the selected station. 3. Once the agents apply the new policy, confirm that the systems have moved to Enable mode. 4. Review the system's Solidcore status in the **ePO Console**.
Criteria	Verify if **Whitelisting Status** changes to Observe mode and Enable Mode

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA JP Date: 3/4/2025

Rosetti Marino Representative : FEDERICO Date: 3/4/25

Crosswind Representative : E. Klom Date: 3-3-25

10 PATCH MANAGEMENT SAT PROCEDURES

10.1 DOCUMENT UPDATE AND CONFIGURATION VERIFICATION

Objective	To verify that FDS is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Check FDS used is the latest version and approved by EPC or End User. 2. Check that current WSUS servers and client's configurations are compliant with FDS.
Criteria	1. FDS is of the latest version. 2. WSUS servers and client's configurations are compliant with FDS.

TEST RESULT: PASS / FAIL

Remarks:

12/06 FINAL FDS TO BE ISSUED (SEE PUNCH CS_12)

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

10.2 OS PATCH MANAGEMENT SERVER

10.2.1 OS Patch Management Server Verification

Objective	To verify the WSUS server product version
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	**WSUS Downstream Server Version Verification** 1. On the WSUS server, click on Start and go to All Programs 2. Go to Administrative Tools and click on Windows Server Update Services. 3. Go to Help. 4. Click on the About Update Services 5. Look for the version number. **WSUS Upstream Server Version Verification** 1. On the WSUS server, click on Start and go to All Programs 2. Go to Administrative Tools and click on Windows Server Update Services. 3. Go to Help. 4. Click on the About Update Services 5. Look for the version number.
Criteria	The current WSUS server tallys with the project FDS.

TEST RESULT (PASS) / FAIL

Remarks:

NEWER VERSION ALREADY INSTALLED

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGUI Date: 12/06/2025

Crosswind Representative : E. Hom Date: 12-6-2025

10.2.2OS Patch Management Server Configuration Verification

Objective	To verify the WSUS Server (DMZ) configuration
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	1. Log on to the AV/WSUS Server. 2. From Start menu navigate to All Programs > Administrative Tools and click on Windows Server Update Services. 3. Click on Options > Product and Classifications 4. Verify the configuration setup.
Criteria	The current WSUS server setup tallys with the project FDS.

TEST RESULT (PASS) / FAIL

Remarks:

12/06 TEST FAILED BECAUSE FDS IS NOT UPDATED, BUT CONFIGURATION IS DONE

CS_14

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 12/6/2025

Rosetti Marino Representative : FABIO SURIGU Date: 12/06/2025

Crosswind Representative : e.h.bom Date: 12-6-25

10.2.3WSUS Synchronization Check

Objective	To verify that the WSUS servers are synchronized;
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	**Login to the WSUS Upstream Server** 1. Start the WSUS Administration Console. 2. From the Update Services menu, click on Synchronizations. 3. From Synchronizations, check that all scheduled synchronizations have been completed. **Login to the WSUS Downstream Server** 1. Start the WSUS Administration Console. 2. From the Update Services menu, click on Synchronizations. 3. From Synchronizations, check that all scheduled synchronizations have been completed.
Criteria	Automatic or manual synchronizations should be successful if the configuration has been done properly.

TEST RESULT: PASS / FAIL

Remarks:

12/06 - FINAL UPSTREAM SERVER TO BE CONFIGURED

YOKOGAWA Representative : ALESSANDRO BERRA Date: 12/6/2025

Rosetti Marino Representative : FABIO SIRIGU Date: 12/06/2025

Crosswind Representative : E. Islam Date: 12-6-2025

10.3 OS PATCH MANAGEMENT CLIENT

10.3.1 Client Configuration

Objective	To verify that all clients have been configured properly and report back to the dedicated WSUS server.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	**Login to the WSUS Downstream Server** 1. Start the WSUS Administration console. 2. Click on All Computers on the submenu of Computers. 3. From the list, verify that all clients have reported back to a WSUS Server based on the last maintenance window time. **Login to the WSUS Upstream Server** 1. Start the WSUS Administration console. 2. Click on All Computers on the submenu of Computers. 3. From the list, verify that all clients have reported back to the WSUS Server based on the last maintenance window time.
Criteria	The clients should report to WSUS servers based on project requirements.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative	: ALESSANDRO BERRA, QD	Date:	12/6/2025
Rosetti Marino Representative	: FABIO SUCCHI	Date:	12/06/2025
Crosswind Representative	: E Mon	Date:	12-6-25

10.3.2 Patch Approval

Objective	To verify that the selected patch can be downloaded into clients and that clients are notified for installation.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	1. From the approved YOKOGAWA Validation Report, Select one patch for approval to the client-server and client workstation. 2. From the Updates menu, search for the selected patch on the WSUS server. 3. Right-click on the selected patch and approve the groups that the client-server and client workstation are members of. 4. Login to the client server and client workstation. 5. Click on Start and Run, type CMD, and enter the command prompt window. 6. Type wuauclt.exe /detect now to force the client-server and client workstation to detect the approved patch. 7. Wait for the Windows Update Icon [Yellow Icon] to appear on the right-hand side of the taskbar. 8. Verify that the downloaded patch is the correct patch. 9. Install the downloaded patch onto the Client Server and Client Workstation. 10. Check from Add and Remove Software that the patch has been installed.
Criteria	The patch should be available and can be approved for installation onto selected clients.

TEST RESULT (PASS) / FAIL

Remarks:
12/06 NEW XML FILE TO BE IMPORTED (SEE PUNCH CS_16)

YOKOGAWA Representative : A. BERRA AB Date: 26/7/2025

Rosetti Marino Representative : FSWRIGHT Date: 26/7/2025

Crosswind Representative : Date:

10.3.3 Installed Patch Verification

Objective	To verify that all recommended patches are installed on all clients.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-MAN-00037_R01
Procedure	1. From the approved YOKOGAWA Validation Report, list up all relevant patches whose recommended status is "Install". 2. Compare the above list with installed patches in all clients from the WSUS Administration Console or each client's control panel to verify that all the applicable patches are installed to the clients properly. 3. Create all installed patches list in all clients. Note: • If a new patch or not installed patch update is required while SAT is based on the site contract, a patch update list for each client should be created or updated and approved by the EPC or end user before installing the patches. • If the above new or not installed patch will require a reboot machine, confer with the EPC or end user about how to handle that patch before installing that patch.
Criteria	All recommended patches should be installed to all clients correctly.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative	: ALESSANDRO BERRA	Date:	12/6/2025
Rosetti Marino Representative	: FABIO SURIGUI	Date:	12/06/2025
Crosswind Representative	: E. Hlon	Date:	12-6-25

11 BRS (BACKUP RECOVERY SYSTEM)

11.1 DOCUMENT VERIFICATION

Objective	To verify that FDS document is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Check FDS used is the latest version 2. Check that the current BRS configuration is compliant with FDS document.
Criteria	FDS is of the latest version.

TEST RESULT: (PASS) / FAIL

Remarks:

12/06 FINAL FDS TO BE ISSUED

YOKOGAWA Representative	: A. BERRA AB	Date:	26/7/2025
Rosetti Marino Representative	: FSURIGU	Date:	26/7/2025
Crosswind Representative	:	Date:	

11.2 BACKUP SOFTWARE VERSION VERIFICATION

Objective	To verify the backup software product version.
Reference	**1724000594-IN-RE-00043-Cyber Security Settings**
Procedure	1. Open Veeam backup and replication console 2. Connect as local host. 3. Click on Help at the left top most corner>click on 'about'. 4. Verify the version
Criteria	The result should display Veeam backup software product & version.

TEST RESULT: (PASS) / FAIL

Remarks:
13/06: BUILD 12.2.0.334

YOKOGAWA Representative : ALESSANDRO BERRA Date: 13/6/2025

Rosetti Marino Representative : FABIO SARIGU Date: 13/06/2025

Crosswind Representative : E. Klom Date: 13-6-25

11.3 BACKUP AND RECOVERY SYSTEM - SCHEDULE BACKUP POLICIES

Objective	To verify that all the systems deployed with backup agent are covered under Backup Policies.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Launch the Veeam Backup console. 2. Verify the Image backup policies and their schedules as well as their retention rules.
Criteria	All the systems shall be covered under backup policies.

TEST RESULT: PASS / ~~FAIL~~ PASS

Remarks:
13/06 - BACKUP JOBS ARE NOT SCHEDULED YET
- RETENTION TIME : 60 DAYS

16/07 PASS

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 16/7/25

Rosetti Marino Representative : FRANCK Date: 16/7/2025

Crosswind Representative : PP PAUL WILLIAMSON Date: 16/7/25

11.4 BACKUP AND RECOVERY SYSTEM - IMAGE BACKUPS

Objective	Objective is to create image backup plans.
Reference	**1724000594-IN-RE-00043-Cyber Security Settings**
Procedure	1. Select the desired machine in the list which you need to take the backup. 2. For full backup select the desired machine, right click and select active full. 3. For incremental backup select the desired machine, right click and select start button 4. The backup will be scheduled.
Criteria	System Image Backup plan created, and backup job completed.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 13/6/2025

Rosetti Marino Representative : FABIO SURIGA Date: 13/06/2025

Crosswind Representative : E. Ilom Date: 13-6-25

11.5 BACKUP AND RECOVERY SYSTEM - IMAGE RECOVERY

Objective	Objective is to recover a system from disaster.
Reference	**1724000594-IN-RE-00043-Cyber Security Settings**
Procedure	1. Boot from the Veeam Recovery Media. 2. Select the network adapter & configure appropriate settings 3. Launch the Veeam Recovery Media wizard and click Bare Metal Recovery 4. Specify the backup file location. 5. Select the remote storage type. 6. Specify remote storage settings. 7. Select a backup. 8. Select a restore point. 9. Select the data restore mode. 10. Map the restored disks. 11. Resize the restored volumes. 12. Start the restore process.
Criteria	Bare Metal Recovery is successful.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : A. BERRA AB Date: 17/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

11.6 BACKUP AND RECOVERY SYSTEM - REPORT

Objective	To Verify the Report generation of the BRS.
Reference	**1724000594-IN-RE-00043-Cyber Security Settings**
Procedure	1. Open the Veeam Backup & Replication console. 2. In the **Home** view, expand the **Jobs** node in the inventory pane and click **Applications Plug-ins**. 3. In the working area, select the necessary job and click **Report** on the ribbon. You can also right-click the job and select **Report**.
Criteria	The Report is Generated successfully.

TEST RESULT: PASS / FAIL
Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 13/6/2025
Rosetti Marino Representative : FABIO SVERGA Date: 13/06/2025
Crosswind Representative : E. Ilbom Date: 13-6-25

12 NETWORK MANAGEMENT SAT PROCEDURES

12.1 WUG SOFTWARE VERSION & LICENSE

Objective	To verify the Whatsup Gold product Version & License.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • E366772C00-BOM_Rev.03
Procedure	1. Login to NMS Server using administrator privilege. 2. Run the 'WhatsUp Gold Admin Console' from desktop. 3. Click on 'Help' and select 'About Whatsup'. 4. Verify the followings. 5. License Type: WhatsUp Gold Total Plus 6. Version: 24.x.x
Criteria	The shown Whatsup Gold software version should match as per BOM.

TEST RESULT: PASS / (FAIL)

Remarks:

13/06: VERSION IS "GOLD BUSINESS" AND IT WILL EXPIRE IN 99 DAYS (SEE PUNCH CS_22)

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

12.2 NMS LOG MANAGEMENT

Objective	To verify that the NMS Server is implemented with Log Management.
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Verifying the NMS Server (PIN) is using Log Management. 7. Login to the host server where WhatsUp® Gold is hosted. 8. Go to Settings>Log management>Log Management Source setup and check that all devices and software are configured. 9. Go to ANALYZE>Log Management>Log Viewer or Log Management dashboard to verify the logs from the assigned device.
Criteria	1. Confirm that the NMS Server is implemented with a Log Management Feature. 2. Validate that unsuccessful login attempts are logged by the Log Management Feature. 3. Validate that all used devices and software send the logs to NMS Log Management.

TEST RESULT: PASS / (FAIL)

Remarks:

13/06: LOG MANAGEMENT NOT INCLUDED, TO BE CHECKED WITH CORRECT VERSION (SEE PUNCH CS_23)

YOKOGAWA Representative : _____ Date: _____

Rosetti Marino Representative : _____ Date: _____

Crosswind Representative : _____ Date: _____

12.3 NETWORK STATUS

Objective	To verify network status alert will be captured by NMS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Network Interconnection Test 1. Physically disconnect cables that are specified as monitoring targets. 2. Check if the Network icon on the System Architecture Network 3. Explorer window will change its color from Green to Red color. 4. Check the Web Alarm list of alerts. 5. Physically reconnect the cable. Check the Web Alarm if there is a list with a UP message or status, and the System Architecture screen will back to green color. 6. Repeat the above steps for all the target cables of respective monitoring targets specified in the FDS.
Criteria	NMS should be able to display the device interface; UP or DOWN, and its detailed information.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : A. BERRA AB Date: 26/7/2025

Rosetti Marino Representative : FSWRGM Date: 26/7/2025

Crosswind Representative : Date:

12.4 RESOURCE MANAGEMENT AND UTILIZATION

Objective	To verify server resource management and utilization will be captured by NMS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Monitoring the CPU/Memory/Hard Disk Utilization 1. Select DC01 on the Network Explorer right-click and select Device Status Report. 2. Open the task manager select the performance tab on the DC01 and confirm the CPU and memory usage. 3. Open Windows Explorer on DC01 and confirm the HDD usage. 4. Confirm the CPU/Memory/Hard Disk usage shown in the Device Status Report under Performance Monitor. 5. Repeat the above steps for all the target servers respectively which are specified in the FDS.
Criteria	NMS should be able to display the server's CPU, Memory, and Hard Disk usage on the NMS Device Status Window – Utilization Window.

TEST RESULT: PASS / ~~FAIL~~ PASS

Remarks:

13/06: - SERVICE NETWORK FW NOT RESPONDING
- TIME SERVER NOT CONFIGURED

16/07 PASS

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 16/7/25

Rosetti Marino Representative : [signature] Date: 16/7/2025

Crosswind Representative : [signature] PP PAUL WILLIAMSON Date: 16/7/25

12.5 NETWORK DEVICE RESOURCE MANAGEMENT AND UTILIZATION

Objective	To verify network device resource management and utilization captured by NMS.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	**Monitoring the CPU/Memory/Port Interface Utilization** 1. Select any network device on the Network Explorer, right-click on the device icon, and select Device Status Report 2. Confirm the CPU/memory/port interface usage shown in the Device Status Report under Performance Monitor. 3. Repeat the above steps for all the target network devices respectively which are specified in the FDS.
Criteria	NMS should be able to display the network device's CPU, Memory, and Port Interface usage on the NMS Device Status Window – Utilization Window.

SEE CHAPTER 12.4

PASS 26/7

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : F. SURIGA Date: 26/7/2025

Crosswind Representative : Date:

12.6 WUG CONFIGURATION BACKUP TEST

Objective	To verify that WUG server backup is preforming successfully
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Login to NMS Server using administrator privilege. 2. Run the 'WhatsUp Gold Admin Console' from desktop 3. Click on Tools>Database Utility>Backup WhatsUp SQL Database 4. Mention the name and location to save backup file.
Criteria	Verify if the backup is done successfully. Message will be displayed regarding successful backup.

PASS

YOKOGAWA Representative : ALESSANDRO BERRA AB Date: 13/6/2025

Rosetti Marino Representative : [signature] Date: 3/7/25

Crosswind Representative : E. Holm Date: 13-6-25

12.7 WUG CONFIGURATION RESTORE TEST

Objective	To verify that WUG server restores successfully from backup.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Login to NMS Server using administrator privilege. 2. Run the 'WhatsUp Gold Admin Console' from desktop 3. Click on Tools>Database Utility>Restore WhatsUp SQL Database 4. Mention the name and location of the database file to be restore.
Criteria	Verify if the restore is done successfully. Message will be displayed regarding successful restore.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative	: ALESSANDRO BERRA AB	Date:	13/6/25
Rosetti Marino Representative	: F. Burgan	Date:	3/7/25
Crosswind Representative	: E. Blom	Date:	13-6-25

12.8 NETWORK SCAN TO DISCOVER SYSTEMS

Objective	To verify the network is not connected with unnecessary network devices or computers.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Network Scan 1. Before starting the network scan, obtain the approval of the NMS network scan function from the EPC or END User. The approval should include the possible impact caused by network scan such as network delay or application delay. 2. Select "Discover Devices" from File in the toolbar. Set the proper IP address range. Click "Start a discovery session". 3. Check all existing devices are shown and any newly discovered devices in the Devices Discovered Window. 4. If there is a newly discovered device, MAC should verify the reason.
Criteria	The network should not have unnecessary devices.

TEST RESULT: (PASS) / FAIL

Remarks:

13-6-25 : Skipped due to state of wwg config

26/7/25 : PASS

YOKOGAWA Representative : A. BERRA AB Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

13 NETWORK INFRASTRUCTURE SAT PROCEDURES

13.1 DOCUMENT UPDATE AND CONFIGURATION VERIFICATION

Objective	To verify that Network FDS is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Check FDS used is the latest version and approved by EPC or End User.
Criteria	FDS is of the latest version.

TEST RESULT: PASS / FAIL

Remarks:

13-6 : FDS needs to Be sHared

26/7 : FDS UPDATED, PASS

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

13.2 NETWORK ARCHITECTURE VERIFICATION

Objective	To verify the network architecture is implemented according to Network FDS (as per SL requirements)
Reference	• 1724000594-IN-RE-00043-Cyber Security Settings • 1724000594-IN-DD-00015_System Architecture_Native_R4
Procedure	1. Check if the Network implementation matches the design. 2. Check if the Safety Zone is separated from the DCS zone with VLANs and Firewalls.
Criteria	Network implementation is matching the approved design architecture from Network FDS

TEST RESULT: (PASS) / FAIL

Remarks:

13-6 skipped due to Fw config

3-7 Label list, + small punch stand with yoke

YOKOGAWA Representative : A. BEARA QB Date: 3/7/2025

Rosetti Marino Representative : Date: 3/7/25

Crosswind Representative : E. Klom Date: 3-7-25

13.3 LOGIN BANNER VERIFICATION

Objective	To verify that Network devices and components are configured with a Login Banner
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Login at all network devices and components: Switches, Workstations, Servers, 2. After login, a banner with disclaimer information about unauthorized access and its consequences.
Criteria	All network devices and components are configured to display a Login Banner.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : ALESSANDRO BERRA Date: 13/6/2025

Rosetti Marino Representative : Date: 13/6/25

Crosswind Representative : E. Klom Date: 13-6-25

13.4 VLANS

Objective	To verify that VLANs are implemented according to Cyber Security Settings FDS specifications.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. From Network FDS VLANs properties, test one VLAN implementation at a time. For each VLAN, check that the IP addresses of all devices connected to the respective VLAN are part of the Network IPs defined in the table. 2. Check IP Address in the Firewalls, Switches, Workstations, Servers, Printers, and Time Synchronization GPS Clock.
Criteria	1. The network devices are assigned to the proper VLAN based on Network Segmentation specifications. 2. All network devices and components (Firewalls, Switches, Workstations, Servers, Printers, and Time Synchronization GPS Clock) have an assigned IP address for communication and/or management purposes.

TEST RESULT: PASS / FAIL

Remarks:

13-6 : IPNAC is not configured CS_29

26/7 : PASS

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

13.5 UN-USED PORTS MANAGEMENT

13.5.1 Physical Locks at network devices/components

Objective	Check all unused ports are restricted from physical access.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Check all un-used Ethernet ports, SFP ports, and USB ports from Firewalls, Switches, Workstations, Servers, Printers, and Time Synchronization GPS Clock are blocked with a dedicated physical lock (RJ45 lock, Fiber Optic lock, USB lock).
Criteria	All unused Ethernet ports, SFP ports, and USB ports are blocked accordingly.

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : A. BEKRA AB Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

13.5.2 Disabling unused ports

Objective	Check all unused ports are restricted from logical access.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Login to all Firewalls, Switches, Workstations, Servers, Printers, and Time Synchronization GPS Clock. Check that all unused Ethernet ports, SFP ports, and USB ports are disabled from the software configuration.
Criteria	All unused Ethernet ports, SFP ports, and USB ports are disabled accordingly.

TEST RESULT: (PASS) / FAIL

Remarks:

13-6 : Skipped due to switch config

3-7 : only tmp ports are open.

26/7: temp ports from BA00-NET-001 to HKN-WP01-BLPH-NET-001 (n. 4) will stay open (to be closed only once permanent control room will be defined

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : FERRIGNI Date: 26/7/2025

Crosswind Representative : Date:

13.6 SWITCH REDUNDANCY

13.6.1 Turning off one of the Redundant Pair Network Switch and check the Network Connectivity

Objective	Turn of the any one switch in the Network which is Redundant
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Ping the Any End Devices in the Redundant Network continuously. 2. Turn off the Power supply for any one of the Switch in the Redundant pair. 3. Check for Continuous Network Connectivity and Ping. (1-4 ICMP Packet Drop may be observed) 4. Turn on the Testing Device of the Redundant Pair of the Network Switch. 5. Repeat the test for the other Network Device Note: Applicable Switches are PINSWL2-001, PINSWL2-002, PINSWL2-003, PINSWL2-004, PINSWL2-005, PINSWL2-006, MODSWL2-001, MODSWL2-002, IECSWL2-001. IECSWL2-002, COMSWL2-001, COMSWL2-002, CNSWL2-001, CNSWL2-002, SNSWL2-003, SNSWL2-004, SERVSWL2-001, SERVSWL2-002, SERVSWL2-003, SERVSWL2-004
Criteria	Continuous Ping of the end device is Observed with little to no Packet drop

TEST RESULT: PASS / FAIL

Remarks: CS-36 see Test sHeet

YOKOGAWA Representative : A. BERKA Date: 3/7/2025

Rosetti Marino Representative : Date: 3/7/25

Crosswind Representative : Date: 3-7-25

14 FIREWALL SAT PROCEDURES

14.1 DOCUMENT UPDATE AND CONFIGURATION VERIFICATION

Objective	To verify that FDS document is up-to-date and are compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Check FDS is the latest version and approved by EPC or End User. 2. Check that the current firewall configuration is compliant with FDS.
Criteria	1. FDS is the latest version. 2. Firewall configuration is compliant with FDS document.

TEST RESULT: (PASS) / FAIL

Remarks:

13-6 : FDS not final

YOKOGAWA Representative : A. BERRA AB Date: 26/7/2025

Rosetti Marino Representative : FSURIGM Date: 26/7/2025

Crosswind Representative : Date:

14.2 DEFAULT POLICY CONFIGURATION DENY ALL - ALLOW BY EXCEPTION

Objective	To verify that deny all - Allow by exception is applied on firewalls.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	**L3.5 Firewall** 1. Login in L3.5 Firewall with an administrative account. 2. Checking "deny all" policy is present and active at the bottom of the policies configuration list. 3. Check firewall policies (allowed by exception) are configured above the default "deny all" policy in the configuration list. **Vnet/IP Firewalls** 1. Login in Vnet/IP Firewalls with administrative account 2. Checking "deny all" policy is present and active at the bottom of the policies configuration list. 3. Check firewall policies (allowed by exception) are configured above the default "deny all" policy in the configuration list.
Criteria	1. The L3.5 Firewall is configured with deny all - allow by exception policies. 2. The Vnet/IP Firewalls are configured with deny all - allow by exception policies.

TEST RESULT: PASS / FAIL
Remarks:

YOKOGAWA Representative	: ALESSANDRO BERRA AB	Date:	13/6/2025
Rosetti Marino Representative	: FRANCESCO	Date:	13/6/25
Crosswind Representative	: E. Hom	Date:	13-6

14.3 FIREWALL "OBJECTS" CONFIGURATION

Objective	To verify that the firewall objects (devices: workstations, servers, other network components with an IP address) are properly configured.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	L3.5 Firewall 1. Login in the L3.5 Firewall with an administrative account. 2. Navigate to Configuration -> Firewall -> Objects. 3. Check Objects configuration is implemented as per design documentation, with hostname and following IP Addressing scheme and Network Architecture. Vnet/IP Firewalls 1. Login in Vnet/IP Firewalls with an administrative account. 2. Navigate to Policy & Objects -> Addresses. 3. Check Objects configuration is implemented as per design documentation, with hostname and following IP Addressing scheme and Network Architecture.
Criteria	1. The L3.5 Firewall objects (devices) are configured according to design documents. 2. The Vnet/IP firewall objects (devices) are configured according to design documents.

TEST RESULT: PASS / FAIL

Remarks:

13-6 Skipped due to final config

26/7 PASS

YOKOGAWA Representative	: A. BERRA	Date:	26/7/2025
Rosetti Marino Representative	:	Date:	26/7/2025
Crosswind Representative	:	Date:	

14.4 FIREWALL NETWORK SEGMENTATION

Objective	To verify that the firewall is configured using the Network segmentation agreed design.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	L3.5 Firewall 1. Login in the L3.5 Firewall with an administrative account. 2. Check interfaces and VLANs configuration is implemented as per design documentation, following IP Addressing scheme and Network Architecture. Vnet/IP Firewalls 1. Login into Vnet/IP Firewalls with administrative account 2. Check interfaces and VLANs configuration is implemented as per design documentation, following IP Addressing scheme and Network Architecture.
Criteria	1. The L3.5 Firewall interfaces and Vlans are configured according to design documents. 2. The Vnet/IP firewall interfaces and Vlans are configured according to design documents.

TEST RESULT: PASS / FAIL

Remarks:

13-6 : Skipped due to final config and documentation

26/7 : PASS

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

14.5 FIREWALL "FAIL CLOSE"

Objective	To verify that after the shutdown of Vnet/IP firewalls, the Safety systems will continue to safeguard the plant.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Vnet/IP Firewalls 1. Shutdown Vnet/IP Firewalls. 2. Check that the Safety System shall not move to Emergency Shutdown mode, due to lost communication with DCS, as per IACS Engineering design function.
Criteria	Safety System shall continue to function without moving to Shutdown mode if DCS communication is lost at Vnet/IP Level.

TEST RESULT: (PASS) / FAIL

Remarks:

13-6 : Skipped due to current plant operations

26/7 PASS

YOKOGAWA Representative : A. BERRA Date: 26/7/2025

Rosetti Marino Representative : Date: 26/7/2025

Crosswind Representative : Date:

14.6 FIREWALL LOGIN BANNER VERIFICATION

Objective	To verify that Firewalls are configured with a Login Banner
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Using NMS station, login to all firewalls. 2. After login, a banner with disclaimer information about unauthorized access and its consequences.
Criteria	All firewalls are configured to display a Login Banner.

TEST RESULT: PASS / FAIL
Remarks:

YOKOGAWA Representative	:	Date:	
Rosetti Marino Representative	: F. Surian	Date:	13/6/25
Crosswind Representative	: E. Hlom	Date:	13-6-25

14.7 FIREWALL REDUNDANCY

14.7.1 Shut down any one of the firewall pairs to check the network redundancy.

Objective	Shut down any one firewall in the firewall pair which hosting the Redundant connections
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	1. Ping any end devices in the **Redundant Network** continuously. 2. Turn off the power supply for any one of the firewalls. 3. Check for Continuous Network Connectivity and Ping. (1-4 ICMP Packet Drop may be observed) 4. Turn on the Testing Device. 5. Repeat the test for the other firewall. Note: **Applicable to all the firewalls supplied by Yokogawa.**
Criteria	Continuous Ping of the end device is Observed with little to no Packet drop

TEST RESULT: (PASS) / FAIL

Remarks:

CS_36 See test sheet

A. BERRA QB 3/7/2025
F. FURIAN 3/7/25
E. Falcon 3-7-25

15 SWITCH SAT PROCEDURES

15.1 DOCUMENT SPECIFICATION AND CONFIGURATION VERIFICATION

Objective	To verify that FDS document is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Check FDS used is the latest version and approved by EPC or End User.
Criteria	FDS is of the latest version.

TEST RESULT: PASS / FAIL

Remarks:

26/1 : PASS

YOKOGAWA Representative : A. BERRA Date: 26/1/2025

Rosetti Marino Representative : Date: 26/1/2025

Crosswind Representative : Date:

15.2 SWITCH CONFIGURATION

Objective	To efficiently direct and manage data traffic between devices within a network, ensuring secure, reliable, and optimized communication by forwarding data to the correct destinations based on MAC addresses.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Check that the current switch configuration is compliant with the FDS document. 1. Confirm Switches are in managed state. 2. Confirm Hostnames are defined. 3. Confirm VLAN are configured as per IP addressing scheme. 4. Confirm Interface description is defined. 5. Confirm Switch ports are allocated as per the port allocation plan. 6. Confirm Switch ports access mode is configured. 7. Confirm network monitoring is enabled.
Criteria	Confirm that all the switch functions are compiled as per FDS

TEST RESULT: PASS / FAIL

Remarks:

YOKOGAWA Representative : A. BERRA — Date: 26/7/2025

Rosetti Marino Representative : — Date: 26/7/2025

Crosswind Representative : — Date:

16 REMOTE ACCESS FACILITY SAT PROCEDURES

16.1 DOCUMENT SPECIFICATION AND CONFIGURATION VERIFICATION

Objective	To verify that FDS document is up-to-date and is compliant with the actual configuration.
Reference	1724000594-IN-RE-00043-Cyber Security Settings
Procedure	Check FDS used is the latest version and approved by EPC or End User.
Criteria	FDS is of the latest version.

TEST RESULT: PASS / FAIL

Remarks:

123A90-PML-COM-PRO-03064 - REMOTE ACCESS TRACKING REGISTER - GUIDELINES

26/7: REMOTE ACCESS DEVICES IN RM'S YARD REMOVED AFTER SHUTDOWN BEFORE SAIL AWAY.
ANOTHER REMOTE ACCESS INFRASTRUCTURE TO BE IMPLEMENTED AT FINAL DESTINATION (EEMSHAVEN, NL) BY CPY.
FIREWALL RULES FOR CP1 / CPY / YOK NOT DELETED BUT DISABLED. FW RULES FOR RM DELETED.

YOKOGAWA Representative : A. BERRA — Date: 26/7/2025

Rosetti Marino Representative : — Date: 26/7/2025

Crosswind Representative : — Date:

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

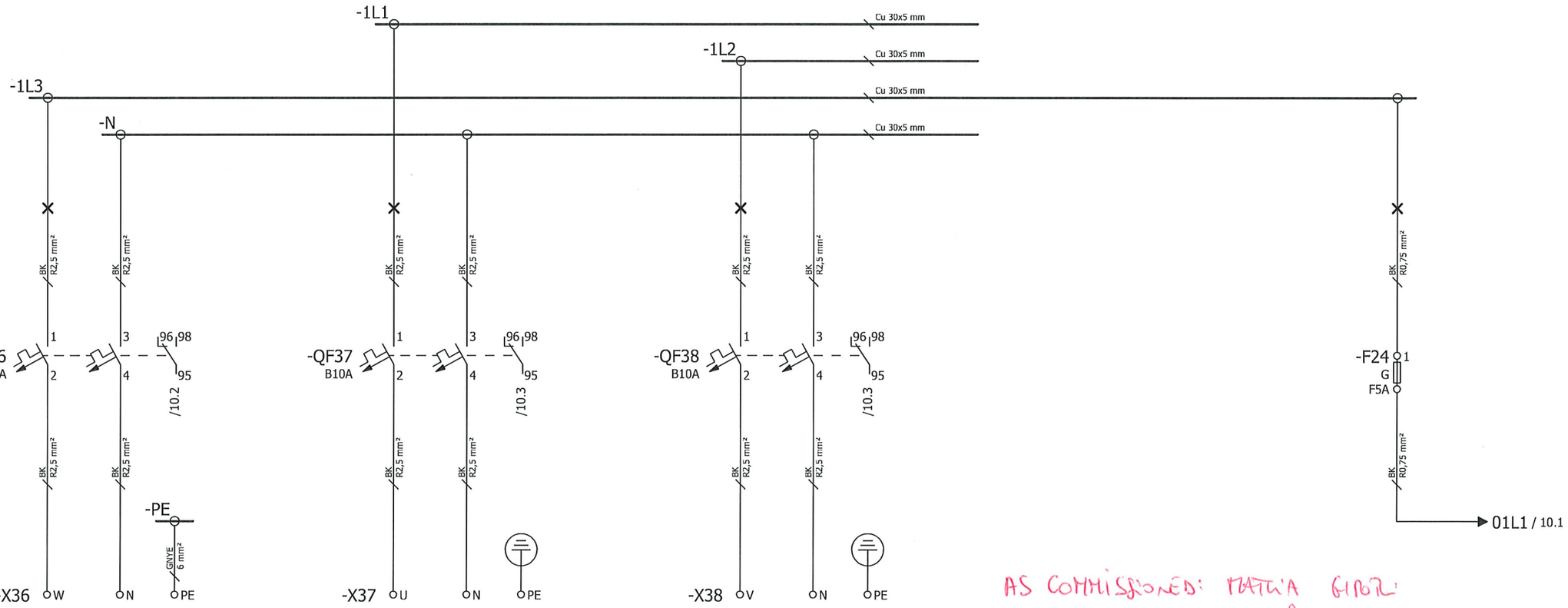
Section 7.3 Vendor Spares & Special Tools lists references

NOT APPLICABLE

Section 7.4 Vendor Data / Operations / Maintenance Manuals References

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CAE EPLAN Electric P8



Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE A
1KW

Load
230V/N/PE~50Hz

B400-NET-01
NETWORK CABINET LINE B
1KW

Load
230V/N/PE~50Hz

SPARE
1KW

AS COMMISSIONED: MATTIA GIROLI
24/3/25
NO MARK UP

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

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

ROSETTI MARINO SpA

				Date	28.05.2024
01	500000002053	13.08.2024	Beckschäfer	Editor	Beckschäfer
02	500000002089	27.08.2024	Beckschäfer	Checked	Ch.Peck
Stat	Alteration	Date	Name	Norm	

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 20 kVA
Circuit diagram

1000007888.090
10009760

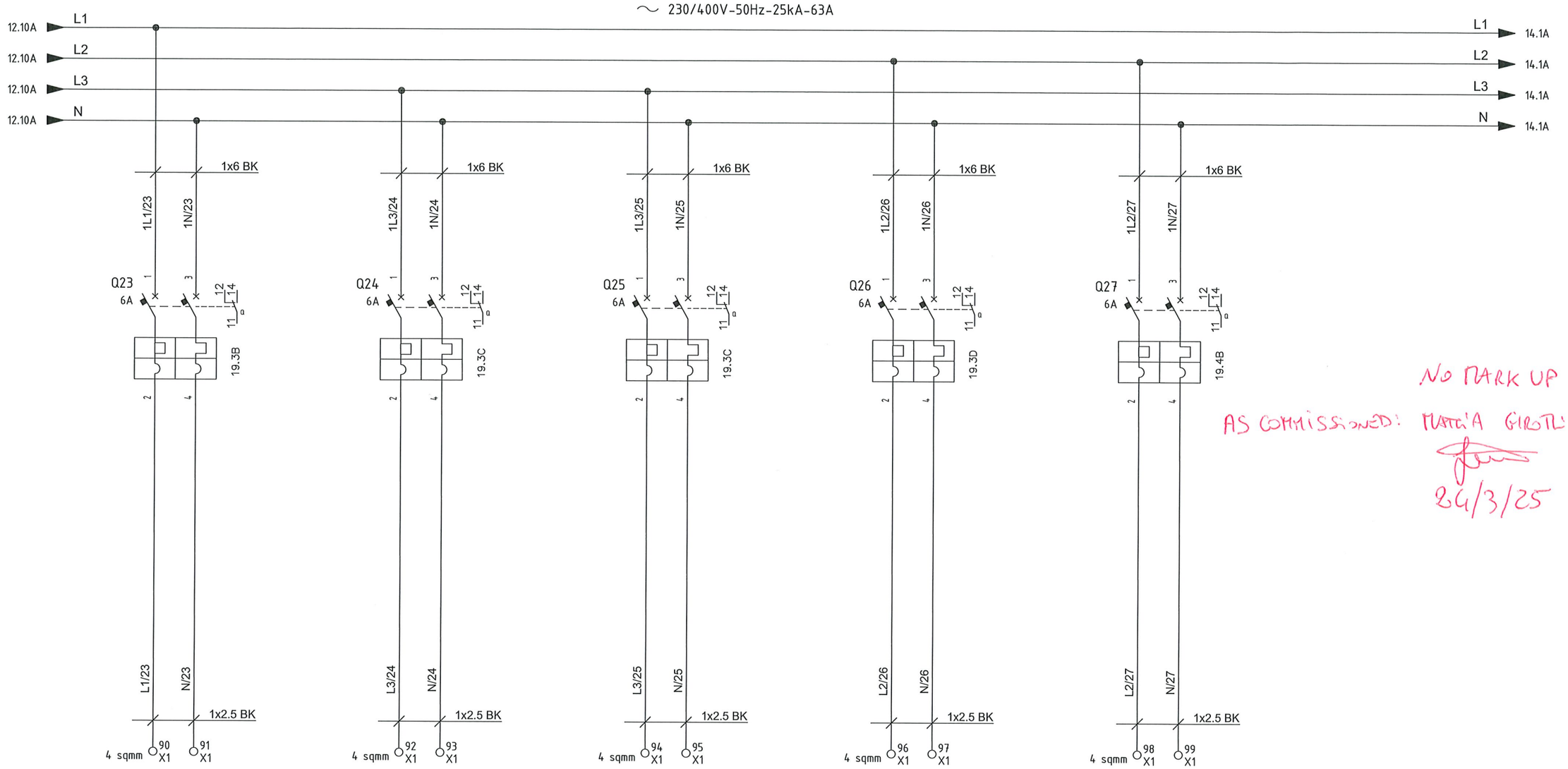
1000007888_080 en

=
+ MBC1
& EFS

A3

sheet 8
sheets 11

1000007888_080



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

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

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

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

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

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

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

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

ROSETTI MARINO SpA

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

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

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

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

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

SCALE : NTS

A3

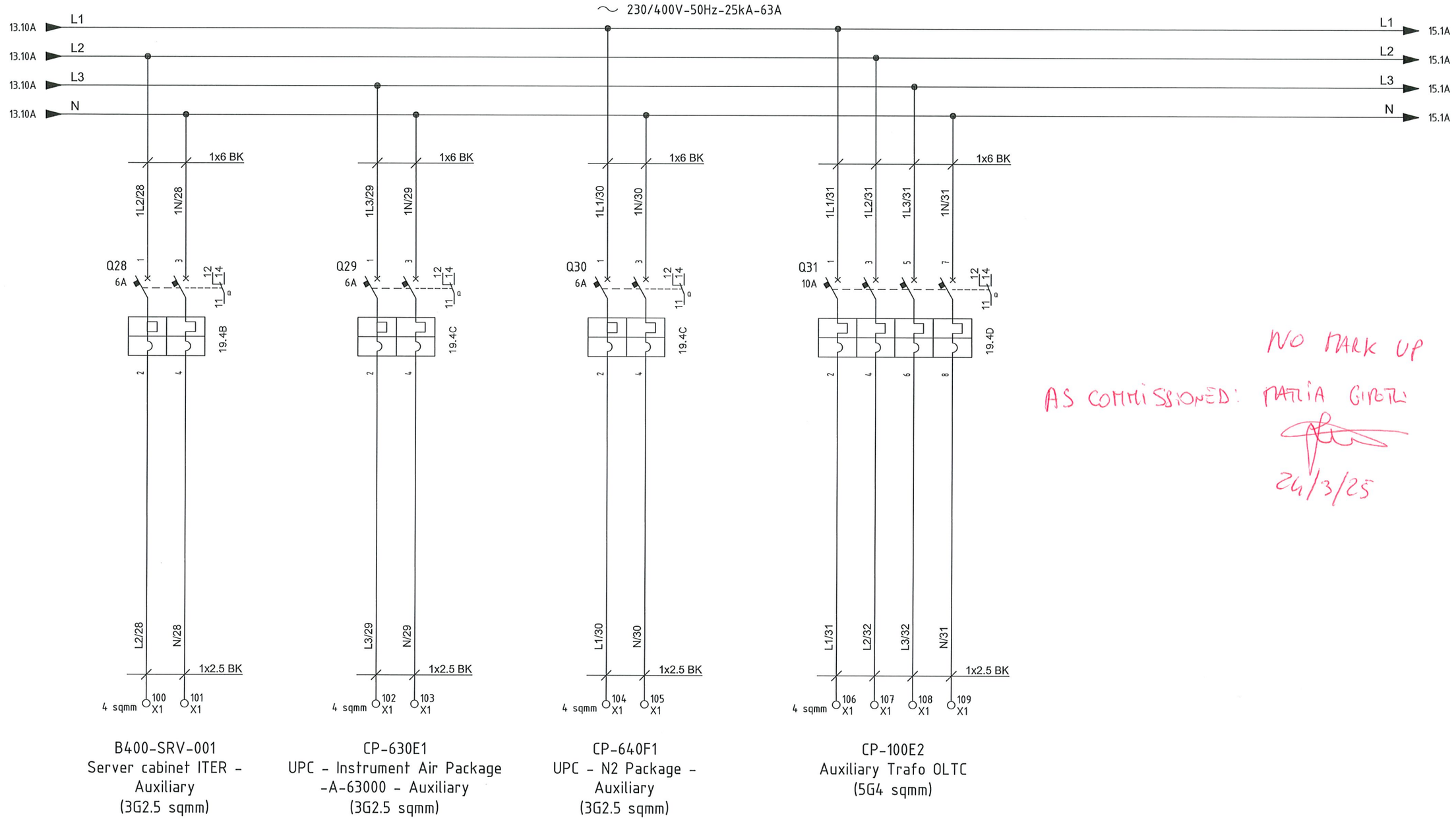
DRAWING NO. 1723002197-EL-DG-00033

SHEET 1.3

REV. 03

F.to UNI A3: 420mmx297mm

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



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

CAE EPLAN Electric P8

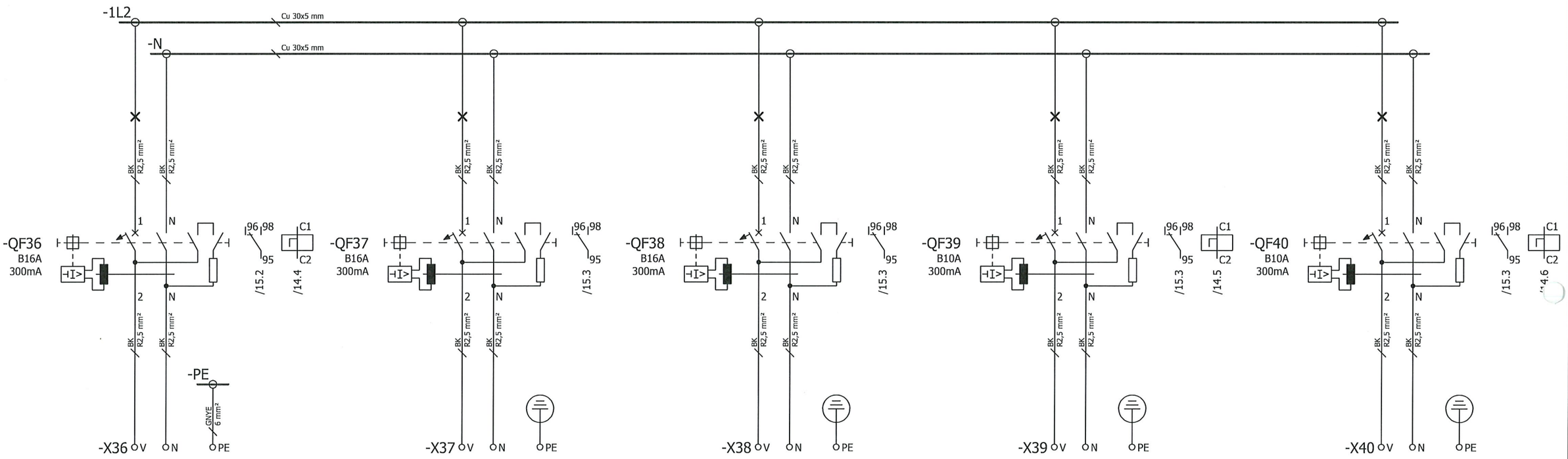
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VENDOR DOCUMENT - FDL DWG:
123A90-FDL-1724000372-EL-DG-00009

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

ROSETTI MARINO SpA

NO MARK UP
AS COMMISSIONED: NATCIA GIROTI
24/3/25



Load
230V/N/PE~50Hz

JB-500-F8
UCP WATER PACKAGE
2KW

Load
230V/N/PE~50Hz

B400-SRV-001
SERVER CABINET ITER - LINE A

Load
230V/N/PE~50Hz

B400-SRV-001
SERVER CABINET ITER - LINE B

Load
230V/N/PE~50Hz

B100-HSB-001
UCP-HVAC HV ROOM
0.5KW

Load
230V/N/PE~50Hz

B200-HSB-001
UCP-HVAC LV ROOM
0.5KW

1000007888_010

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

ROSETTI MARINO
Hollandse Kust Noord (HKN) wind farm

AEG POWER SOLUTIONS

Load
Bypass transformer cabinet
with manual bypass 40 kVA
Circuit diagram

1000007888.020
10009757

1000007888_010 en

=
+ MBC1
& EFS

A3

sheet 8
sheets 17

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE