Base Load Power Hub (BLPH)

DATA SHEET FOR 66 kV SWITCHGEAR (GIS)

Document Number: 123A90-DDL-EL-DS-20010

Document Class: 2

01	04/06/2024	Accepted for Construction (AFC)	L. Bosio	A. Madaschi	M. Dossena
00	22/08/2023	Issue for Review (IFR)	D.Vaccariello	C. Giunchi	M. Dossena
Rev.	Date	Description	Prepared	Reviewed	Approved

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
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HOLDS LIST

No.	Description
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REFERENCE DOCUMENT AND STANDARD:

1)	Technical Specification, IDS and DDS for 66kV Switchgear (GIS)	Doc. No.	123A90-DDL-EL-SP-20009
2)	Electrical Single Line Diagram HV Systems	Doc. No.	123A90-DDL-EL-DG-20185
3)	Electrical Control, Protection and Metering Diagrams	Doc. No.	123A90-DDL-EL-DG-20014

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	Data Sheet for 66kV Switchgear (GIS)	Sh. 5 of 7 Date: 04/06/24 Rev. 01

1	TAG NUMBER	**HNA6-AFA70**								
2	**ENVIRONMENT AND SITE**									
3	TYPE OF APPLICATION	☑ INDUSTRIAL	☑ MARINE	☐ OTHER						
4	ALTITUDE	☑ <1000 m.	☐ OTHER							
5	AMBIENT TEMPERATURE MAX./MIN.	MAX. 40 **[°C]**	MIN. -5 **[°C]**							
6	DESIGN TEMPERATURE	40 **[°C]**								
7	RELATIVE HUMIDITY MAXIMUM	95 **[%]**								
8	AREA CLASSIFICATION	☐ SAFE AREA								
9		☐ HAZARDOUS AREA	ZONE	TEMP.	CLASS					
10	**DESIGN DATA**									
11	DESIGN STANDARD GENERAL	**IEC 62271-203**								
12	RATED OPERATION VOLTAGE	**66** **[kV]**								
13	RATED INSULATION VOLTAGE	**72,5** **[kV]**								
14	RATED CURRENT	**1250** **[A]**								
15	RATED FREQUENCY	**50** **[Hz]**								
16	RATED SHORT CIRCUIT symm. R.m.s.	**31,5** **[kA]**	☑ **1s**	☐ **3s**						
17	RATED PEAK WITHSTAND CURRENT	**78,75** **[kA]**	☐ **1s**	☐ **3s**						
18	FREQUENCY WITHSTAND VOLTAGE	**140/160** **[kV]**	**phase to earth / across isolating distance**							
19	RATED LIGHTNING WITHSTAND VOLTAGE	**325/375** **[kV]**	**phase to earth / across isolating distance**							
20	SHORT CIRCUIT LEVEL Min./Max.	Min. **(**)** **[kA]**	**(**)** **[kA]**							
21	NEUTRAL CONNECTION	☐ YES	☑ NO							
22	NUMBER OF PHASE/WIRE	No. **3** PHASE	No. **3** WIRE							
23	EARTHING	☐ SOLID EARTHED	☐ INSULATED	☐ TT	☐ TN-S					
24		☐ EARTHED BY RESISTANCE	☐ IT							
25	**PROTECTION:**									
26	MAIN PROTECTION	Numerical, multifunction protection relay								
27	BACK-UP PROTECTION	Selfpowered protection relay								
28	POWER SUPPLY	Integrated CT supply								
29	CURRENT TRANSFORMER	Electronic type, In 250 A, Class 0.2s/5TPE								
30	VOLTAGE TRANSFORMER	Electronic type, 66/v3, Primary voltage factor 1.9, Class 0.5/3P								
31	**INTERFACE- HV CABLES:**									
32	GRID & TRANSFORMER CABLE FEEDERS	**T-Connector**								
33	**MAIN BUS BAR**									
34	RATING	HORIZONTAL BUS **1250** [A]	VERTICAL BUS **(*)** [A]							
35	SYSTEM	3 PHASES	PE ⏚ ☐ YES ☐ NO							
36	MATERIAL	☐ COPPER	☐ ALLUMINIUM							
37	INSULATION	☑ AIR	☐ RESIN	☐ SHEATHED	☑ SF6 FREE, GREEN GAS					
38	BARS TREATMENT	☐ NATURAL	☐ TINNED	☐ SILVER PLATED						
39	JOINT TREATMENT	☐ NATURAL	☐ TINNED	☐ SILVER PLATED						
40	JOINT INSULATION	☐ AIR	☐ COVERED	☐ SHEATHED						
41	**AUXILIARY POWER SUPPLY**									
42	CONTROL SUPPLY	240 Vac	☐ INTERNAL	☐ EXTERNAL	48 Vdc **(*)**	☐ INTERNAL	☐ EXTERNAL			
43		110 Vdc	☐ INTERNAL	☑ EXTERNAL	24 Vdc **(*)**	☐ INTERNAL	☐ EXTERNAL			
44	SPACE HEATER	240 Vac	☐ INTERNAL	☑ EXTERNAL	AMMETER	☑ YES	☐ NO			
45	**MECHANICAL DATA**									
46	SERVICE CONDITION	☑ INDOOR	☐ OUTDOOR							
47	DEGREE OF PROTECTION	EXTERNAL : **IP 55**	INTERNAL : **IP 20**							
48	INTERNAL SEGREGATION FORM	☐ 2	☐ 3a	☐ 3b	☐ 4b					
49	MOUNTING	**METAL CLAD FLOOR MOUNTED**								
50	INCOMING	☐ TOP	☐ BOTTOM	☑ CABLE	☐ BUS DUCT	☑ SIDE				
51	OUTGOING	☐ TOP	☐ BOTTOM	☑ CABLE	☐ BUS DUCT	☑ SIDE				
52	AUX. CIRCUIT	☑ TOP	☐ BOTTOM	☐ CABLE						
53	BOTTOM PLATE	☐ STEEL SHEET	☐ ALLUMINIUM SHEET	**(single core cable)**						
54	ARRANGEMENT	☑ SINGLE FRONT	☐ DOUBLE FRONT							
55	ACCESSIBILITY	☐ FRONT	☐ REAR	☐ TOP						
56	POSSIBILITY OF FUTURE EXPANSION	☐ YES	☑ NO	**(HOLES IN BARS TO ALLOW FUTURE EXPANSION)**						
57	COLOUR	EXTERNAL : **RAL 7032**	INTERNAL : **(*)**							
58	EQUIPMENT TREATMENT	☐ NORMAL	☐ TROPICAL							
59	**ACCESSORIES**									
60	LIFTING EYE BOLT	☑ YES	☐ NO	BASE IRON	☑ YES	☐ NO	INTERNAL SOCKET	☑ YES	☐ NO	
61	SPACE HEATER	☑ YES	☐ NO	INTERNAL LIGHTING	☐ YES	☐ NO				
62	LABELS	INTERNAL : **ADESIVE TYPE**		INSCRIPTION : **BLACK**						
63		EXTERNAL : **LAMINATED PLASTIC**		BACKGROUND : **WHITE**						
64		LANGUAGE : **ENGLISH**		FIXING TYPE : **SS SCREW**						
65	**(*)** To be define by Vendor	**(**)** After P.O.								
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INCOMING & FEEDER (HNA6-AFA70)

CIRCUIT BREAKER										
TYPE	☐ MOULDED CASE	☐ AIR	☐ SF6	☐ VACUUM	**(*)**					
POLES	☐ 2	☑ 3	☐ 4							
RATED CURRENT - INCOMING	**1250** [A]									
THREE POSITION SWITCH INCL. HIGH SPEED EARTHING SWITCH	**Close, Open, Earthed**									
SWITCH MECHANISM	**Spring operated**									
CONTROL	**Local / Remote**									
VOLTAGE DETECTION SYSTEM	**Capacitive Type** (as redundant detection system for maintenance safety operation purpose)									
TERMINALS	☐ FIXED	☑ PLUG-IN	☐ WITHDRAWABLE							

CIRCUIT BREAKER ACCESSORIES	SHUNT CLOSING RELEASE	☑ YES	☐ NO	SHUNT OPENING RELEASE	☑ YES	☐ NO			
	SPRING CHARGING MOTOR	☑ YES	☐ NO	VOLTAGE ☐ AC 240 [V]	☑ DC 110 [V]				
	SPARE AUX. CONTACT QTY. **2** N.O.			QTY. **2** N.C.					
	COMMUNICATION MODULE			☑ YES	☐ NO				

EARTHING SWITCH	☑ YES	☐ NO							
SWITCH DISCONNECTOR									
RATED CURRENT	1250 [A]								
SERVICE VOLTAGE	66 [kV]								
INSULATION VOLTAGE	160 [kV]								
POLES	☐ 2	☑ 3	☐ 4						
QTY.									
FUSE									
TYPE									
SERVICE VOLTAGE	[V]								
RATED CURRENT	[A]								
BREAKING CAPACITY	[kA]								
QTY.									

MEASURING INSTRUMENT (**)	AMMETER		VOLTMETER		WATTMETER		POWER FACTOR METER	
TYPE	☐ AN	☑ DI	☐ AN	☑ DI	☐ AN	☑ DI	☐ AN	☑ DI
SCALE								
ACCURANCY								
COMMUNICATION								
QTY.								

CURRENT TRANSFORMER	PROTECTION		METERING	
RATIO	**see page 5**	[A/A]	**see page 5**	[A/A]
RATED OUTPUT	**see page 5**	[VA]	**see page 5**	[VA]
CLASS OF ACCURANCY	**see page 5**		**see page 5**	
QTY.	**see page 5**		**see page 5**	
VOLTAGE TRANSFORMER	PROTECTION		METERING	
RATIO	**see page 5**	[V/V]	**see page 5**	[V/V]
RATED OUTPUT	**see page 5**	[VA]	**see page 5**	[VA]
CLASS OF ACCURANCY	**see page 5**		**see page 5**	
QTY.	**see page 5**		**see page 5**	

NOTES:

1) Spare terminals will be provided in the terminal blocks for external connections, at least 30%

(*) To be define by Vendor,

(**) In addition to the specified instruments (A-V-W-cosφ), frequency meter and kVAR meter shall be provided.

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Document Title:	Data Sheet for 66kV Switchgear (GIS)	Sh. 7 of 7 Date: 04/06/24 Rev. 01

1	**INCOMING PROTECTIONS (HNA6-AFA70)**			
2	**PROTECTIVE RELAY**	CODE	**50 / 50N**	
3		MANUFACTURER	**(*)**	
4		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
5		QTY.		
6	**PROTECTIVE RELAY**	CODE	**51 / 51G**	
7		MANUFACTURER	**(*)**	
8		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
9		QTY.		
10	**PROTECTIVE RELAY**	CODE	**67 / 67N**	
11		MANUFACTURER		
12		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
13		QTY.		
14	**PROTECTIVE RELAY**	CODE	**25**	
15		MANUFACTURER		
16		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
17		QTY.		
18	**PROTECTIVE RELAY**	CODE	**27**	
19		MANUFACTURER		
20		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
21		QTY.		
22	**PROTECTIVE RELAY**	CODE	**87**	
23		MANUFACTURER		
24		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
25		QTY.		
26	**PROTECTIVE RELAY**	CODE	**87NT**	
27		MANUFACTURER		
28		TYPE	☐ ELECTROMECHANICAL ☑ DIGITAL	CURVES: ☐ ANSI ☐ IEC
29		QTY.		
30	**CONTROL DEVICES / SIGNALLING**			
31	**PUSH BUTTON**	WITH SIGNALLING LAMP ☐ YES ☐ NO		
32	**SELECTOR SWITCH**	WITH SIGNALLING LAMP ☐ YES ☐ NO	KEY SWITCH ☐ YES ☐ NO	
33		☐ SPRING RETURN ☐ STAY PUT		
34	**SIGNALLING LAMP**	TYPE: **LED**	COLOUR: ☐ RED QTY.	☐ BLUE QTY.
35			☐ GREEN QTY.	☐ YELLOW QTY.
36			☐ WHITE QTY.	☐ AMBER QTY.
37	**NOTES:**			
38	**1)** Multifunction Protection Relay shall be used			
39	**2)** For the Central Control System, Relay needs to interface with an Ethernet Switch (IEC 61850)			
40	**3)** The overcurrent relays settings range shall be suitable for the Short Circuit Levels.			
41	**4)** Multifunction numerical protection relays incorporating features such as communication, measured value display and			
42	disturbance / fault recording facilities shall be provide.			
43	**(*)** To be define by Vendor			
44	**5)** Trip coil supervision shall be provided for each trip coil			
45	**6)** External lock out relay 86 shall be provided			
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