Base Load Power Hub (BLPH)

66KV SWITCHGEARS (GIS)

High-voltage protective devices characteristics and ratings

Document Number: 1723001595-EL-DS-00007

Document Class: 3

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
Luca Maeule	25/10/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
03	21/10/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
02	20/08/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
01	15/04/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
00	08/03/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO

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		00	01	02	03				
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5~16	High-voltage protective devices characteristics and ratings	X	X	X	X				

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Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)
03	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

< Quantity and Reference of use for each devices >

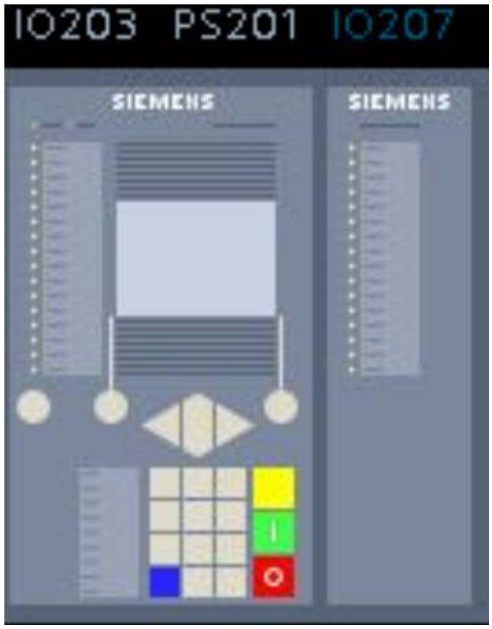
No.	Name of materials	Reference of use	Quantity
1	IED - 7UT85 Protection Unit	Installed in C&P panel / Protection IED	1
2	IED - 7SJ85 Protection Unit	Installed in C&P panel / Protection IED	1
3	RED BOX	Installed in C&P panel / Ethermet Switch	1
4	MU - IM2	Installed in C&P panel / Connected with LPIT/LPVT	1

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Device: 7UT85 Protection Unit

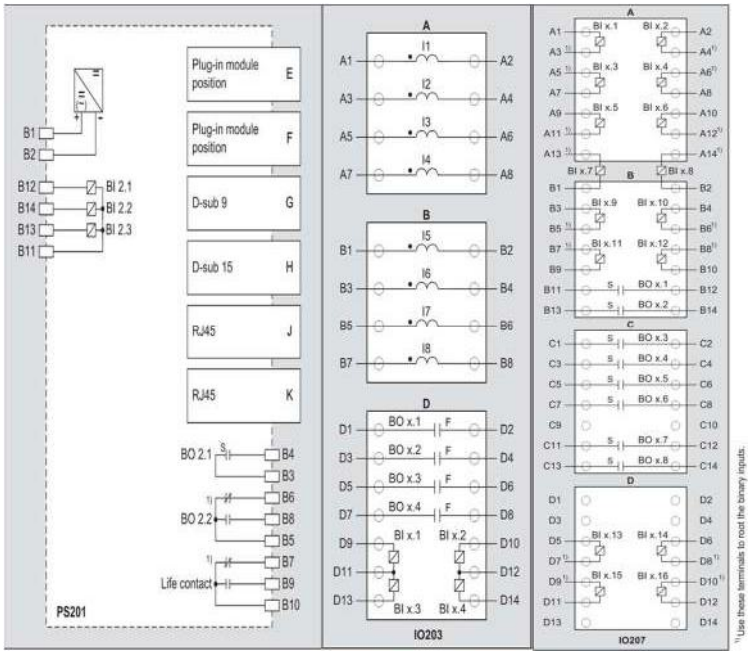
Product code(Short) : P1F940825

Product code(Long) : 7UT85DAAAAA00AAAA0AH011122111BBBD000000AC0CC1BA1CG0



Technical Data

①	Binary inputs :	23
②	Binary outputs :	15 Relays (11 Standard, 4 Fast)
③	CT/PT Inputs :	8CT (protection), 0VT (standard), PB Client
④	Measuring-transducer inputs :	0 (4~20 mA) 0 (RTD)
⑤	Dimensions :	1/2 19"
⑥	Housing type :	Flush mounting
⑦	LCD :	Small display 192 x 128 pixels
⑧	LEDs :	32 LED
⑨	Power Supply :	60-250 Vdc, 100-230 Vac



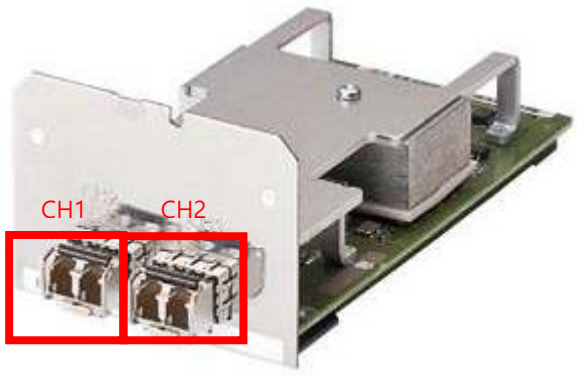
Communication

① module E (Station Bus)

ETH-BB-2FO

Communication Protocols : applicable for DIGSI 5, IEC 61850-8-1 MMS and GOOSE, IEC 60870-5-104, DNP3 TCP, Modbus TCP, Synchrophasor (IEEEC37.118 - IP), SNTP, SNMP, etc.

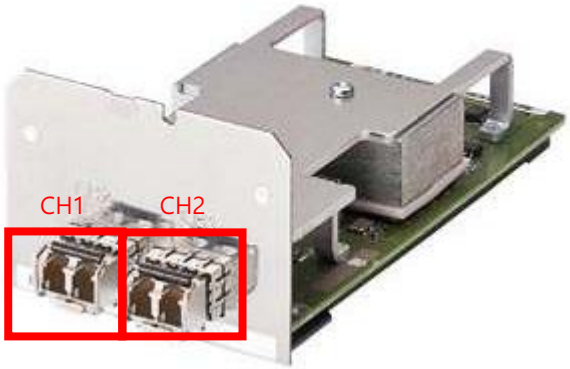
Redundancy protocols: Line Mode, RSTP, HSR, PRP



②	E module SFP (Station Bus)	2x optical Ethernet 100 Mbit/s, 1300 nm, duplex LC type 2 km over 50/125 um or 62.5/125 um multimode optical fiber



③	module F: (Process Bus)	ETH-BD-2FO Communication Protocols : applicable for DIGSI 5, IEC61850-9-2 Processbus Client und Merging Unit, IEC 61850-8-1 MMS and GOOSE, IEEE1588v2/PTP(1us accuracy), DNP3 IP, IEC 60870-5-104, Modbus TCP, IEEE C37.118 PMU, SNTP, SNMP, Redundancy protocols: Line Mode, PRP, HSR, RSTP



④ F module SFP (Process Bus) 2x optical Ethernet 100 Mbit/s, 1300 nm, duplex LC type
2 km over 50/125 um or 62.5/125 um multimode optical fiber



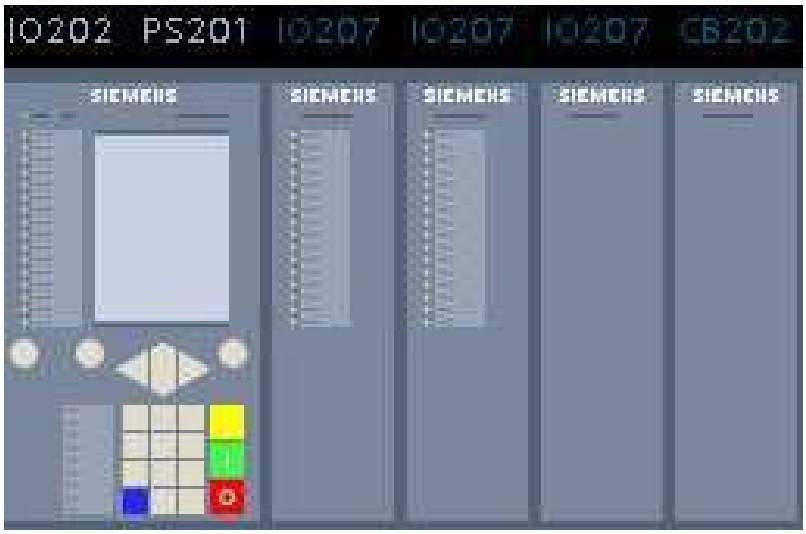
Functions

① Function points class: Base + 100 function points

Device: 7SJ85 Protection Unit

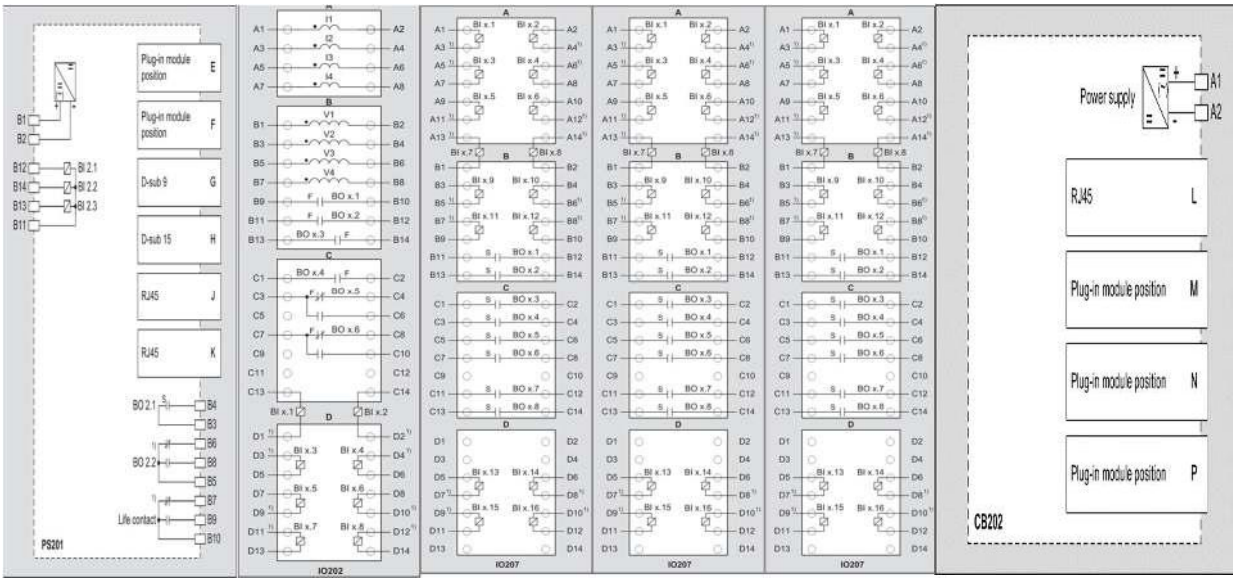
Product code(Short) : P1J1799071

Product code(Long) : 7SJ85DAAAAA00AAAA0AM011133111BBBD000000AC0CB1BA1CG0CG0CG0CG0CG0



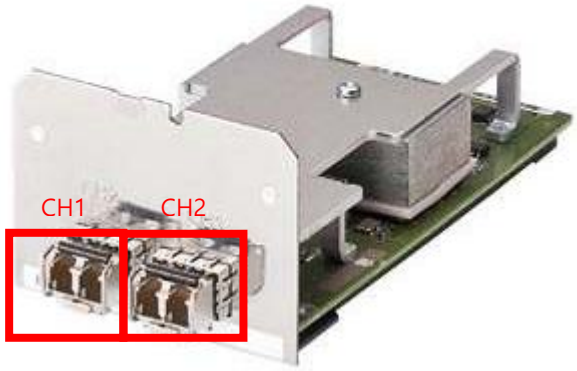
Technical Data

①	Binary inputs :	59
②	Binary outputs :	33 Relays (27 Standard, 6 Fast)
③	CT/PT Inputs :	4CT (protection), 4VT (standard), PB Client
④	Measuring-transducer inputs :	0 (4~20 mA) 0 (RTD)
⑤	Dimensions :	1/1 19″
⑥	Housing type :	Flush mounting
⑦	LCD :	Large display 240 x 320 pixels
⑧	LEDs :	48 LED
⑨	Power Supply :	60-250 Vdc, 100-230 Vac



Communication

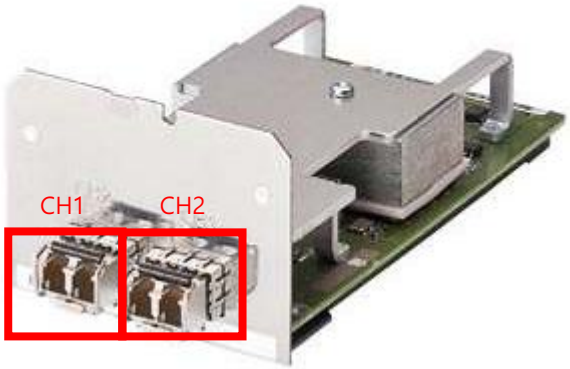
①	module E	ETH-BB-2FO
	(Station Bus)	Communication Protocols : applicable for DIGSI 5, IEC 61850-8-1 MMS and GOOSE, IEC 60870-5-104, DNP3 TCP, Modbus TCP, Synchrophasor (IEEEC37.118 - IP), SNTP, SNMP, etc. Redundancy protocols: Line Mode, RSTP, HSR, PRP



②	E module SFP (Station Bus)	2x optical Ethernet 100 Mbit/s, 1300 nm, duplex LC type 2 km over 50/125 um or 62.5/125 um multimode optical fiber



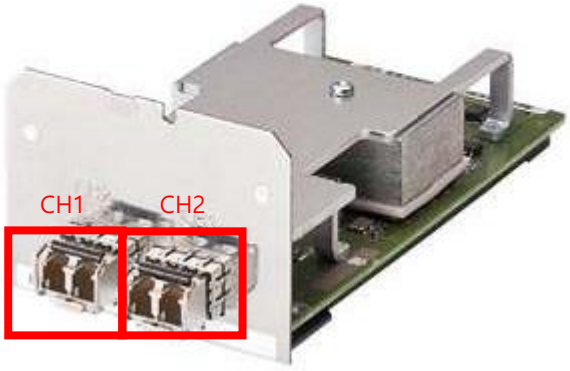
③	module F: (Process Bus)	ETH-BD-2FO Communication Protocols : applicable for DIGSI 5, IEC61850-9-2 Processbus Client und Merging Unit, IEC 61850-8-1 MMS and GOOSE, IEEE1588v2/PTP(1us accuracy), DNP3 IP, IEC 60870-5-104, Modbus TCP, IEEE C37.118 PMU, SNTP, SNMP, Redundancy protocols: Line Mode, PRP, HSR, RSTP



④	F module SFP (Process Bus)	2x optical Ethernet 100 Mbit/s, 1300 nm, duplex LC type 2 km over 50/125 um or 62.5/125 um multimode optical fiber



⑤	module N: (Station Bus)	ETH-BD-2FO Communication Protocols : applicable for DIGSI 5, IEC61850-9-2 Processbus Client und Merging Unit, IEC 61850-8-1 MMS and GOOSE, IEEE1588v2/PTP(1us accuracy), DNP3 IP, IEC 60870-5-104, Modbus TCP, IEEE C37.118 PMU, SNTP, SNMP, Redundancy protocols: Line Mode, PRP, HSR, RSTP



⑥ N module SFP (Station Bus) 2x optical Ethernet 100 Mbit/s, 1300 nm, duplex LC type 24 km for 9 µm/125 µm optical fibers

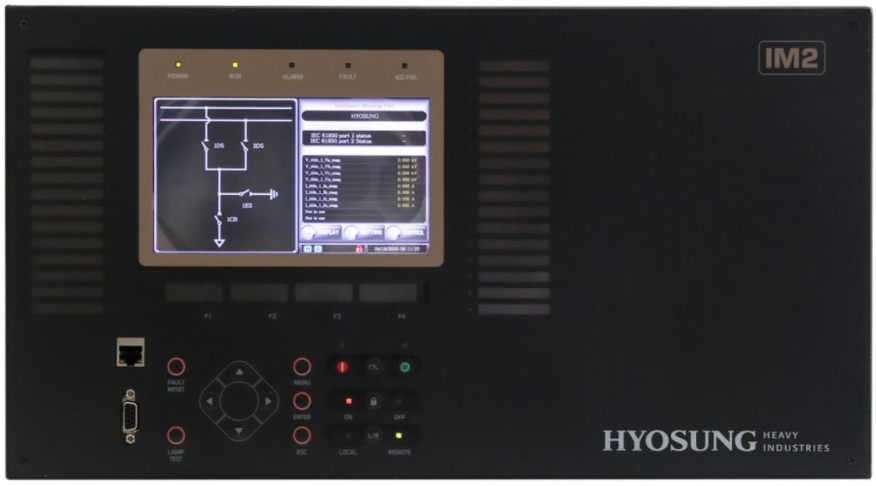


Functions

① Function points class: Base + 200 function points

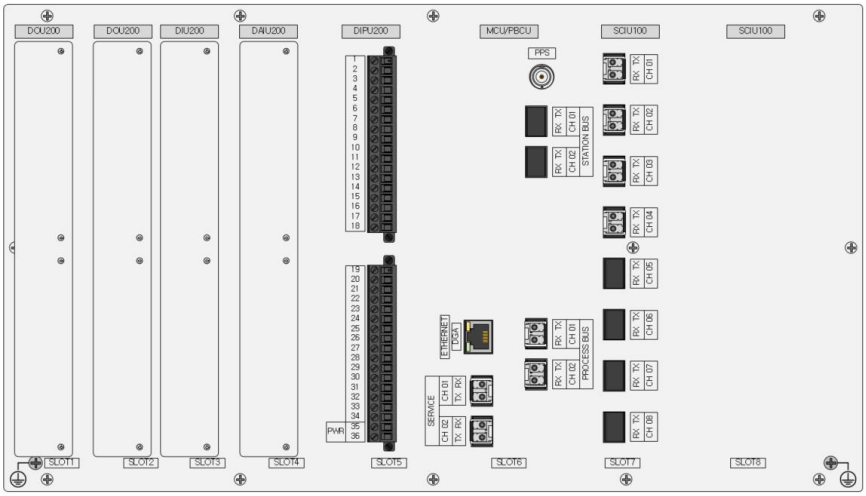
Device: IM2 Merging Unit

Product code : B1-0000-0B-L040



Technical Data

①	Binary inputs :	26
②	Binary outputs :	0
③	LPIT Inputs :	4
④	Measuring-transducer inputs :	0 (4~20 mA) 0 (RTD)
⑤	Dimensions :	263(H) x 487(W) x 219(D) mm
⑥	Housing type :	Flush mounting
⑦	LCD :	800×480 TFT LCD with touch screen
⑧	LEDs :	32 LEDs, 3-colored (green/red/yellow)
⑨	Power Supply :	100-250 Vdc, 100-250 Vac (50/60Hz ± 3Hz)



Communication

①	Process Level	2x optical Ethernet 1000 Mbit/s, 1310 nm, duplex LC connector, 2 km over 50/125 µm and 62.5/125 µm multimode optical fiber Communication Protocols: IEC61850-9-2LE Sampled Value, IEEE1588v2/PTP(1 µs accuracy) Redundancy protocols: PRP, HSR
②	Station Level	-

Functions

① Transmits SV up to 8 streams

② Sampling rate : 80 or 256 samples per cycle

③ Provides high-precision time synchronization : PTP, PPS

④ Provides protocols for network redundancy : HSR/PRP (IEC 62439-3)

⑤ Fault recording of analog and binary signals

⑥ Interoperability with IEC 61850 Ed2 compliance certificate

Device: RED BOX

Product code : 6GK6490-7RB00-1CN0



Technical Data

①	Ports :	4 x 100BASE-FX + 3 x 1000 BASE-X (SFP)
②	RNA uplinks (A / B) & coupler port :	3 x 1 Gbit/s SFP ports
③	Supported specifications :	IEEE 1588
④	Supported input voltage ranges :	24/48 VDC (12 – 60 VDC) HI (85 – 264 VAC / 88 – 300 VDC)
⑤	Dimensions (w x h x d) in mm :	91 mm x 177 mm x 173 mm
⑥	Weight :	2.9 kg
⑦	Mounting :	DIN rail and panel mount
⑧	Operating temperature :	-40° C to +85° C
⑨	IP rating :	IP40

Communication Port

① RNA and coupler ports(SFP Module)

5.2 RUGGEDCOM SFP1122-1SX2

Siemens' RUGGEDCOM SFP1122-1SX2 industrial grade 1 Gbps fiber optic SFP transceiver operates within a wide temperature range (-40 to 85 °C or -40 to 185 °F) and provides high performance Gigabit Ethernet communication up to 2 km (1.2 mi) using multi-mode fiber.

Highlights

- Compliant with SFP MSA and IEEE 802.3z for 1000Base-SX
- Compliant with SFF-8472 Digital Diagnostic Monitoring Interface
- Transmission distance up to 2 km (1.2 mi)
- LC duplex connector optical interface
- Operates with 50/125 µm and 62.5/125 µm multi-mode fiber
- Bail latch
- Hot swappable
- RoHS compliant

Specifications

Optical Characteristics

Transmit Power	-9 to 1 dBm
Receiver Sensitivity	-19 to -1 dBm
Power Budget	10 dB

Cabling

Speed	1 Gbps
Mode	MM (Multi-Mode)
Interface	SX
Connector	LC
Cable Type	50/125 or 62.5/125 µm
Wavelength (Tx)	1280 to 1355 nm
Wavelength (Rx)	1270 to 1620 nm
Nominal Distance	2 km (1.2 mi)

Environment

Operating Temperature	-40 to 85 °C (-40 to 185 °F)
Operating Relative Humidity	5 to 85% (non-condensing)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Mean Time Between Failures (MTBF)	182 years[a]

[a] Tested at an operating temperature of 40 °C (104 °F)

② Singly Attached Node (SAN) ports

5.4 Fiber Optic Ethernet Port Specifications

The following details the specifications for fiber Ethernet ports that can be ordered with the RUGGEDCOM RSG907R.

Note

- All optical power numbers are listed as dBm averages. To convert from average to peak, add 3 dBm. To convert from peak to average, subtract 3 dBm.
- Maximum segment length is greatly dependent on factors such as fiber quality, and the number of patches and splices. Consult a Siemens sales associate when determining maximum segment distances.

Data Rate (Mbps)	Mode	Connector	Cable (µm)	Wavelength (nm)[a]		Transmit Power (dBm)		Receiver Sensitivity (dBm)	Receiver Saturation (dBm)	Distance (km)[a]	Power Budget
				Transmit	Receive	Min	Max				
100	MM	LC	50/125	1308	1308	-22.5	-14	-31	-14	2	11
100	MM	LC	62.5/125	1308	1308	-20	-14	-31	-14	2	11

[a] Typical.