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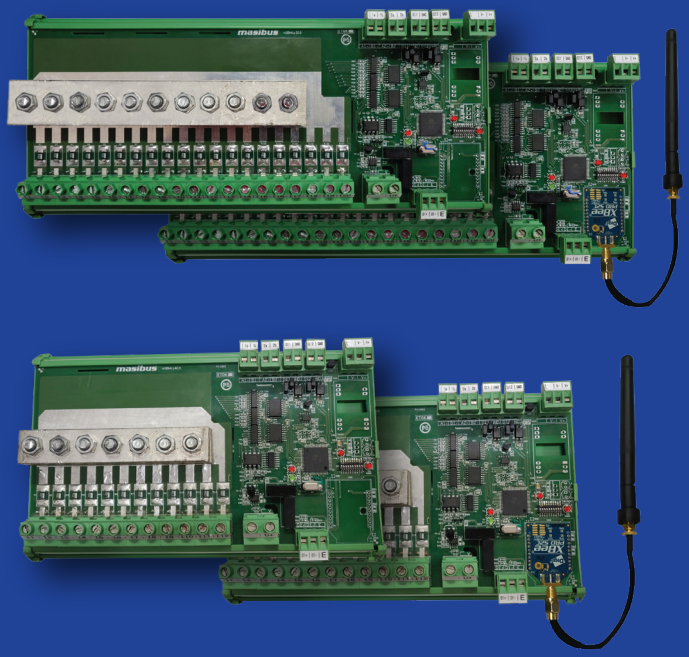

SBM-S-0825
SBM-S-1225
SBM-S-1625
SBM-S-2025

String Box Monitor

RoHS

Masibus String Box Monitor precisely measures string DC currents using DC shunts, Voltage and RTD sensors for temperature of solar PV system. Continuous monitoring of solar PV DC side helps detect loss of power and/ or efficiency and immediate rectification of faults.

SBM can monitor up to 8/12/16/20 individual string current (25A), 1 string voltage (1500 VDC), 2 RTD sensors and 2 DI inputs. The unit comes in a compact open frame DIN module with built-in shunts for string current measurement. String Box Monitor has one onboard temperature sensor for continuous measurement of cabinet temperature.

String Box Monitor has upto two isolated RS485 port with Modbus RTU protocol that can be configurable as independent or repeater for daisy chaining, wherein 2nd RS485 port is optional. Front panel DIP switches help set the device ID and discrete LEDs provide diagnostics and status information. String Box Monitor also has an option of wireless Zigbee protocol in lieu of 2nd RS485 port, where in it will communicate with Masibus wireless Communication Processor and transmits data to it.

String Box Monitor is generally installed in String Combiner Box and forms the part of SCADA or Data Acquisition System.

Features

- 8/12/16/20 analog input channels for current with built-in shunts
- String Voltage Input: 0-1500 VDC
- 2 Temperature inputs for RTD sensors
- 2 Digital inputs
- 1 on-board temperature sensor
- Calculated DC Power
- RS485 port (Modbus RTU protocol)
- Wireless Communication over Zigbee protocol (Optional in lieu of 2nd RS485 port)
- Diagnostics and status LEDs
- Compact Din Rail Mount

Applications

- Monitoring of solar PV string current, voltage, SCB box/panel temperature, etc.
- Monitoring the status of DC Disconnector/ Isolator and SPD

TECHNICAL SPECIFICATIONS

Input

String Current Input	
Number of Channels	8, 12, 16 or 20
Current Range	25A max (-10 to 60°C), 15A max (-10 to 70°C)
Accuracy	0.25% of F.S.
String measurement side	Negative of string
Connector type	Screw connections
Output Current	
Maximum Current	200A (-10 to 60°C) for 8 channels 300A (-10 to 60°C) for 12 channels 400A (-10 to 60°C) for 16 channels 500A (-10 to 60°C) for 20 channels
Connector	M6 bolt connectors
Temperature Input	
Number of Channels	2
Type	Pt100 RTD (2 wire)
Measurement range	-50°C to +200°C
Accuracy	0.1% of F.S.
Connector type	Screw connections
On-board Sensor	1, Range: -10 to 70°C, Accuracy: ±1°C
String Voltage Input	
No of channel	1
Measuring range	0-1500V DC
Accuracy	0.5% of F.S.
Connector type	Screw connections
Digital Input	
Input Type	2
Signal type	Potential free contact
Connector type	Screw connections

Indications and Switch

Status LEDs	Power, Run, Fault, Transmit/ Receive
Switch	DIP for Modbus slave ID setting

Communication Output

No of ports	upto 2 (configurable as independent or repeater for daisy chaining), 2nd port is optional
Type	RS485, 2-wire
Data format	Data bit: 8; Parity: None; Stop bit: 2
Protocol	Modbus RTU, 9.6Kbps & 19.2Kbps
Number of devices on the bus	127
Connector type	Screw connections

Wireless Communication (Optional)

Frequency Band	ISM 2.4 GHz
Communication port	ZigBee (IEEE 802.15.4 standard)
Protocol	Modbus RTU Slave
Transmit Power	63 mW (+18 dBm)
Receiver Sensitivity	-101 dBm
Line of sight range	3000 meter typically (Line of sight) without any Obstacles
Connector type	RPSMA-Female

Antenna for Wireless Communication

Type	External Dipole pluggable 5 dBi (Extension Cable can be provided optionally)
Connector	RPSMA-Male
Mounting	Recommended to Pole mount via clamp for line of sight

Power Supply

Voltage Range	18-36V DC or 5 V DC from external module SVPS (Factory Set)
Power consumption	3W (Max)
Connector type	Screw connections

Isolation (withstanding voltage)

- Between primary terminals* and secondary terminals**: At least 1500V AC for 1 minute
- Between secondary terminals**: At least 500V AC for 1 minute
- * Primary terminals indicate power terminals.
- ** Secondary terminals indicate I/O signal & Communication O/P.

Insulation resistance: 20 MΩ or more at 500V DC between power terminals and grounding terminal

Physical

	SBM-S-0825 / SBM-S-1225	SBM-S-1625 / SBM-S-2025
Size (in mm)	200(L) x 125(W) x 65(D)	276(L) x 125(W) x 65(D)
Weight Approx	250gm	400gm
Mounting	DIN Rail	
Material	Polyamide	

Environmental

Operating temperature	-10°C to +70°C
Storage Temperature	-10°C to +85°C
Humidity	20%-95%, non-condensing

Ordering Code

Model		Communication o/p		Power Supply	
SBM-S-0825	08 channels input strings	**XX**		**XX**	
SBM-S-1225	12 channels input strings	1X	1 x RS485	U2	18-36V DC
SBM-S-1625	16 channels input strings	2X	2 x RS485	0S	5V DC (through SVPS)
SBM-S-2025	20 channels input strings	1W	1 x RS485 + Wireless		

Optional Accessory (extra cost)	
SVPS	String Voltage Power Supply

Sonepar India Private Limited
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382016, Gujarat, India.
Tel: +91 79 23287275-77
E-mail: sales.masibus@soneparindia.com, Web: www.masibus.com

All specifications are subject to change without notice due to continuous improvements.
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