



SBM-S-0825

SBM-S-1225

SBM-S-1625

SBM-S-2025

String Box Monitor

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 Disconnect/ Isolator and SPD

TECHNICAL SPECIFICATIONS

Input		Wireless Communication (Optional)	
String Current Input		Frequency Band	ISM 2.4 GHz
Number of Channels	8, 12, 16 or 20	Communication port	ZigBee (IEEE 802.15.4 standard)
Current Range	25A max (-10 to 60°C), 15A max (-10 to 70°C)	Protocol	Modbus RTU Slave
Accuracy	0.25% of F.S.	Transmit Power	63 mW (+18 dBm)
String measurement side	Negative of string	Receiver Sensitivity	-101 dBm
Connector type	Screw connections	Line of sight range	3000 meter typically (Line of sight) without any Obstacles
Output Current		Connector type	RPSMA-Female
Maximum Current	200A (-10 to 60°C) for 8 channels	Antenna for Wireless Communication	
	300A (-10 to 60°C) for 12 channels	Type	External Dipole pluggable 5 dBi (Extension Cable can be provided optionally)
	400A (-10 to 60°C) for 16 channels	Connector	RPSMA-Male
	500A (-10 to 60°C) for 20 channels	Mounting	Recommended to Pole mount via clamp for line of sight
Connector	M6 bolt connectors	Power Supply	
Temperature Input		Voltage Range	18-36V DC or 5 V DC from external module SVPS (Factory Set)
Number of Channels	2	Power consumption	3W (Max)
Type	Pt100 RTD (2 wire)	Connector type	Screw connections
Measurement range	-50°C to +200°C	Isolation (withstanding voltage)	
Accuracy	0.1% of F.S.	<ul style="list-style-type: none"> • 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. 	
Connector type	Screw connections	Insulation resistance: 20 MΩ or more at 500V DC between power terminals and grounding terminal	
On-board Sensor	1, Range: -10 to 70°C, Accuracy: ±1°C	Physical	
String Voltage Input		SBM-S-0825 / SBM-S-1225 SBM-S-1625 / SBM-S-2025	
No of channel	1	Size (in mm)	200(L) x 125(W) x 65(D) 276(L) x 125(W) x 65(D)
Measuring range	0-1500V DC	Weight Approx	250gm 400gm
Accuracy	0.5% of F.S.	Mounting	DIN Rail
Connector type	Screw connections	Material	Polyamide
Digital Input		Environmental	
Input Type	2	Operating temperature	-10°C to +70°C
Signal type	Potential free contact	Storage Temperature	-10°C to +85°C
Connector type	Screw connections	Humidity	20%-95%, non-condensing
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), 2 nd 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		

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
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