



# Solar Monitor

## SM2-MU Standard Specification

<b>Max. number of devices<sup>1</sup></b>	
SM2-MU Basic and SM2-MU Start	1 device <sup>1</sup>
SM2-MU 60	6 devices <sup>1</sup>
SM2-MU 300	30 devices <sup>1</sup>
SM2-MU 1000	100 devices <sup>1</sup>
<b>Supported devices<sup>1</sup></b>	Ethernet or serial bus connected
Communication	Ethernet (TCP) up to 3 serial ports
Inverter protocols	AEG, Carlo Gavazzi, Danfoss, Delta, Diehl, Fronius, Kaco, Kostal, Mastervolt, Morningstar, Omnik, Omron, Pairan, Power-One, Power-Trap, Refusol, Riello UPS, Santerno, Satcon, Schneider-Electric, Siemens, Siliken, SMA, SolarEdge, Solarmax, Solutronic, Steca, Studer, Sungrow, Sunville, Sunways, Vacon, Xantrex
Meter protocols	ABB (REX521), Carlo Gavazzi (VMU-E/X), Fronius (Smart Meter), KMB (SMC-144, PA-144), Phoenix Contact (MA200/250), Schneider-Electric (SEPAM, PM9), Solar Controls (WattRouter), Yorix (GreenBonO), ZPA (IEC 62056-21)
<b>Sensors</b>	Dallas 1-wire bus
Interface	Screw terminals for 0.5 mm <sup>2</sup> - 15 mm <sup>2</sup> cores
Max. count	10 sensors
Max. distance	100 m Recommended max. cable length for daisy-chained sensors with minimal trunk segments.
<b>Ethernet interface (LAN)</b>	
Interface	RJ45 (100BASE-T) -100Mbit/s, compatible with networks 10/100/1000 Mbit/s, auto MDIX

<sup>1</sup> A device represents an inverter, stringbox, MPP tracker, battery monitor, meter or any other device which can be detected on any serial bus or via ethernet communication.

Protocols	HTTP, SOAP, DNS, UDP Setup, Telnet, ARP, ICMP, SMTP, SNMP, Modbus
<b>RS485 / RS422 / RS232</b>	
Interfaces	2x RS485 or 1x RS422 <sup>2</sup>  <i><u>piggy-back hardware options</u></i> <sup>3</sup> 2x RS485 or 1x RS422 opto-isolated <sup>2</sup> 1x RS485 + 1x RS232 1x RS485 + 1x RS232 opto-isolated  <i><u>SM2-BE extension module</u></i> 1x RS232 + 1x RS485 surge protected <sup>4</sup>
Speed	300 .. 115.200 bps (software configurable) <sup>2, 5</sup>
Termination	Yes, both for half and full duplex  Configurable with jumpers.
<b>Inputs</b>	
3x digital inputs (DI)	opto-electronically isolated  software configurable between dry contact or S0 pulse meter inputs (e.g. from electrometer)
Max. distance	30 m (depends on cable)
<b>Outputs</b>	
1x relay	32 V, 3 A, protected with power fuse
<b>Electrical parameters</b>	
Power supply	9-35 V DC, typ. 1.2 W @ 12V
DI1, DI2, DI3	8-80 V
1-Wire	Interface provides 5 V power supply, max. 350 mA, protected with 500 mA power fuse.
RS485	Protected against transient voltages above 6.8V and against high currents with 10Ω resistors. Additional surge protection can be achieved with SM2-BE (bus extension) module with gas discharge tubes: Minimum DC Sparkover (100 V/s) 185 V Service life: 150 operations 8/20 μs 250 A, 1.2/50, 500 V (IEC61643-21) 20 operations 2/10 μs, 5 kV, 500 A 2 operations 8/20 μs, 1 kA

2 Can be configured by software (web UI, XML).

3 Piggy-back functionality replaces the "2x RS485 or 1x RS422" interface.

4 SM2-BE is mutually exclusive to the SM2-GSM usage. 2x SM2-BE modules can be also used to extend the HBUS connection between SM2 modules.

5 Communication speeds are available according to selected device communication protocols.

<b>Mechanical parameters</b>	
Dimensions	71.6 x 89.7 x 62.2 mm
Mounting	DIN rail
Screw terminals	0.5 mm <sup>2</sup> - 15 mm <sup>2</sup> cable cores
Protection rating	IP20
Operating temperature	0 .. +70 °C
LED diodes	Status, RS485, Sensors
<b>Extension options</b>	
Interface	HBUS (DIN rail, bottom pluggable, no external wires needed)
Extension modules	SM2-PC, SM2-AD, SM2-DI, SM2-GSM, SM2-BE

## Mechanical Dimensions

