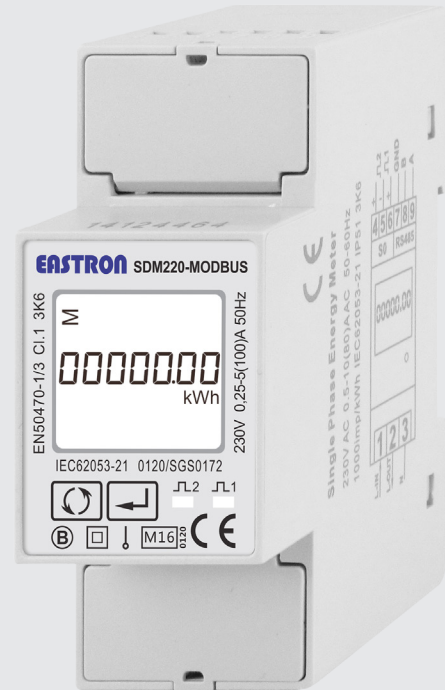


Data Sheet

2018 v1.0

SDM220-Series DIN Rail Multifunction Power Meter (MID Certified)

- SDM220 Modbus (Pulsed & Modbus RTU Output)
- SDM220 MBus (Pulsed & MBus Output)
- SDM220 MT (Pulsed & Modbus RTU Output, Multi-Tariff)
- SDM220 Pulse (Pulsed Output Only)
- Class B (kWh) EC Directive 2004/22/EC
- Multifunction 100A Direct Connected



SDM220 Series Multifunction Power Meter

The SDM220 is a new generation modern design power monitor that will measure and display electrical power quality parameters. It has been engineered to cover most applications (Single Phase networks. There are also 4 models available depending on the output required, this ranges from a just Pulsed Output (SDM220-Pulse), Modbus RTU (SDM220-Modbus), Multi-Tariff (SDM220-MT) and MBus (SDM220-MBus).

As the demand for MID certified meters has increased, we have obtained annex B and D of the EC Directive 2004/22/EC. This power meter has been tested and certified for single phase networks and import and export active energy (kWh).

The SDM220 is produced to the highest quality and utilizes the latest microprocessor and technology. It has a blue backlit display and 16 different measuring parameters. With built in pulsed outputs and RS485 Modbus RTU it is fully compatible for integration with BMS and remote monitoring systems.

Parameters

- | | |
|--------------------------------|----------------------------------|
| • Phase to Neutral Voltage (V) | • Import Active Energy (kWh) |
| • Phase Current (A) | • Export Active Energy (kWh) |
| • Frequency (Hz) | • Total Active Energy (kWh) |
| • Power Factor (PF) | • Import Reactive Energy (kVArh) |
| • Power Max Demand (MD kW) | • Export Reactive Energy (kVArh) |
| • Active Power (kW) | • Total Reactive Energy (kVArh) |
| • Reactive Power (kVAr) | |
| • Apparent Power (kVA) | |

Specifications

Measured Parameters

The unit can monitor and display the following parameters of a single phase two wire (1p2w) system.

Voltage and Current

- Phase to neutral voltages 176 to 276V a.c.
- Current load measurement 5(100)A

Power factor and Frequency and Max. Demand

- Frequency in Hz
- Instantaneous power:
- Power 0 to 3600 MW
- Reactive power 0 to 3600 MVAR
- Volt-amps 0 to 3600 MVA
- Maximum demanded power since last Demand reset Power factor

Energy Measurements

Imported/Exported active energy	0 to 99999.99 kWh
Imported/Exported reactive energy	0 to 99999.99 kVArh
Total active energy	0 to 99999.99 kWh
Total reactive energy	0 to 99999.99 kVArh

Measured Inputs

Voltage inputs through 3-way fixed connector with 19mm² maximum terminal wire.

Nominal Voltage Input	(Ph+N) 176 to 276V
Max Continuous Voltage	120% of nominal
Nominal Input Current	5(100)A
Max Continuous Current	120% of nominal
Nominal Input Current Burden	0.25VA
Frequency	50Hz(±10%)

Accuracy

Voltage	0.5% of range maximum
Current	0.5% of nominal
Frequency	0.2% of mid-frequency
Power factor	1% of unity (0.01)
Active power (W)	±1% of range maximum
Reactive power (VAR)	±1% of range maximum
Apparent power (VA)	±1% of range maximum
Active energy (Wh)	Class 1 IEC 62053-21
Reactive energy (VARh)	±1% of range maximum

Interfaces for External Monitoring

Three interfaces are provided:

- RS485 communication channel that can be programmed for Modbus RTU protocol
- Relay output indicating real-time measured energy.(configurable)
- MBus

The Modbus configuration (baud rate etc.) and the pulse relay output assignments (kW/kVArh, import/export etc.) are configured through the set-up screens.

SDM220 -Pulse (Pulsed Output Only)

The meter provides two pulsed outputs, both pulsed outputs are passive type. The first pulsed output is configurable. The pulsed output can be set to read total / import / export/ kWh / kVarh. The pulse constant can be set to generate 1 pulse per: 0.001(default) /0.01/0.1/1kWh/kVarh. The second pulsed output is non-configurable. It is fixed to read total kWh.

Rate can be set to generate 1 pulse per:
0.001 = 1 Wh/VArh (default)
0.01 = 10 Wh/VArh
0.1 = 100 Wh/VArh
1 = 1 kWh/kVarh

Pulse width 200/100/60 ms.

SDM220-Modbus (RS485 Output for Modbus RTU & Pulsed Output)

For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu:

Baud rate 1200, 2400, 4800, 9600, 19,200 & 38,400.

Parity none (default) / odd / even

Stop bits 1 or 2

RS485 network address 3-digit number, 1 to 247

SDM220-MT (Multi-Tariff, RS485 Output for Modbus RTU & Pulsed Output)

For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu:

Baud rate 1200, 2400, 4800, 9600, 19,200 & 38,400.

Parity none (default) / odd / even

Stop bits 1 or 2

RS485 network address 3-digit number, 1 to 247

SDM220-MBus (Mbus & Pulsed Output)

The meter provides a M-bus port for remote communication. M-bus protocol is applied.

Baud rate 300 / 600 / 1200 / 2400 / 4800 / 9600

Parity NONE / EVEN / ODD

Stop Bits 1 or 2

Primary Address 1 - 250

Secondary Address 00 00 00 01 to 99 99 99 99

Reference Conditions of Influence Quantities

Influence Quantities are variables that affect measurement errors to a minor degree. Accuracy is verified under nominal value (within the specified tolerance) of these conditions.

Ambient temperature	23°C ±1°C
Input waveform	50 or 60Hz ±2%
Input waveform	Sinusoidal (distortion factor < 0.005)
Auxiliary supply voltage	Nominal ±1%
Auxiliary supply frequency	Nominal ±1%
Auxiliary supply waveform (if AC)	Sinusoidal (distortion factor < 0.05)
Magnetic field of external origin	Terrestrial flux

Environment

Operating temperature	-25°C to +55°C*
Storage temperature	-40°C to +70°C*
Relative humidity	0 to 95%, non-condensing
Altitude	Up to 3000m
Warm up time	1 minute
Vibration	10Hz to 50Hz, IEC 60068-2-6, 2g
Shock	30g in 3 planes

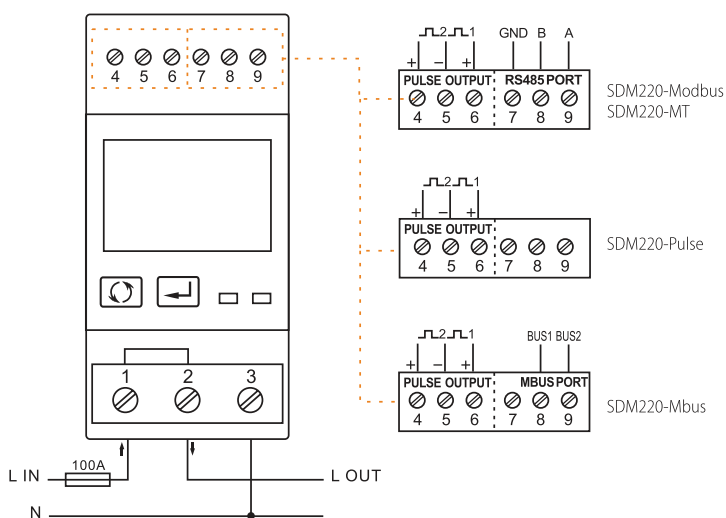
*Maximum operating and storage temperatures are in the context of typical daily and seasonal variation.

Mechanics

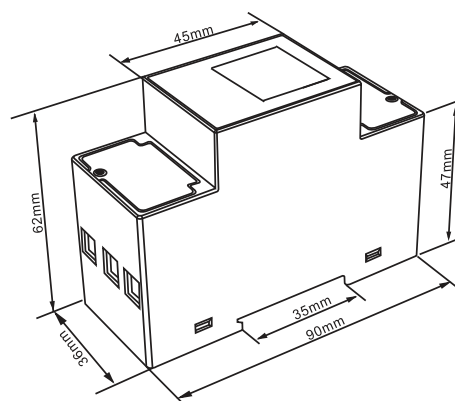
DIN rail dimensions	36mm x 90mm (WxH) per DIN 43880
Mounting	DIN rail (DIN 43880)
Sealing	IP51 indoor
Material	Self-extinguishing UL 94 V-0

Installation

Wiring diagram



Dimensions



Height 90mm
Width 36mm
Depth 62mm