

# Data Sheet

2018 v1.0

## SDM230-Series DIN Rail Multifunction Power Meter (MID Certified)

SDM230 Modbus ( Pulsed & Modbus RTU Output)

SDM230 MBus ( Pulsed & MBus Output)

SDM230 Pulse ( Pulsed Output Only)

SDM230 2T ( Dual Tariff with Pulsed & Modbus RTU Output)

Multifunction 100A Direct Connected

MID B+D Certified

Four kWh Measurement Modes Selectable via Modbus



## SDM230-Series Multifunction Power Meter

The SDM230 Series 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 Pulsed Output (SDM230-Pulse), Modbus RTU (SDM230-Modbus), MBus (SDM230-MBus) and Multi-Tariff (SDM230-2T).

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 SDM230 is produced to the highest quality and utilizes the latest microprocessor and technology. It has a blue backlit display and 16 different measuring parameters.

This meter also has the ability to read four types of Total energy. This can be programmed via modbus and we can supply configurable software for no extra cost. The four options are Total = Import, Total = Import + Export, Total = Export - Import (net kWh) and Total = Import - Export.

## Parameters

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

# Specifications

## Voltage and Current

- Phase to neutral voltages 176 to 276V a.c.
- $I_{min-Iref}$  (Max) 0.5-10(100A)

This meter is certified and tested at class 1 (Accurate to within  $\pm 1\%$ ). If the meter has a load smaller than the  $I_{min}$  (minimum current) we cannot guarantee class 1 accuracy.

## Power factor and Frequency and Max. Demand

- Frequency in Hz
- Instantaneous power:
- Power 0 to 3600 MW
- Reactive power 0 to 3600 MVA
- 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 cage terminals max cable 25mm<sup>2</sup> (Torque 6nm).

|                              |                    |
|------------------------------|--------------------|
| Nominal Voltage Input        | (Ph+N) 176 to 276V |
| Max Continuous Voltage       | 120% of nominal    |
| Nominal Input Current        | 0.5-10(100)A       |
| Max Continuous Current       | 120% of nominal    |
| Nominal Input Current Burden | 0.5VA              |
| Frequency                    | 50Hz( $\pm 10\%$ ) |

## 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)       | $\pm 1\%$ of range maximum |
| Reactive power (VAR)   | $\pm 1\%$ of range maximum |
| Apparent power (VA)    | $\pm 1\%$ of range maximum |
| Active energy (Wh)     | Class 1 IEC 62053-21       |
| Reactive energy (VARh) | $\pm 1\%$ of range maximum |

## SDM230-Pulsed Output

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.

## SDM230-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.  
Parity none (default) / odd / even  
Stop bits 1 or 2  
RS485 network address 3-digit number, 1 to 247

## SDM230-2T (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.  
Parity none (default) / odd / even  
Stop bits 1 or 2  
RS485 network address 3-digit number, 1 to 247  
Multi-Tariffs

## SDM230-M-Bus

For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu:  
Baud rate 1200, 2400, 4800, 9600.  
Parity none (default) / odd / even  
Stop bits 1 or 2  
RS485 network address 3-digit number, 1 to 247

## Interfaces for External Monitoring

Three interfaces are provided:

- MBus
- Modbus
- Relay output indicating real-time measured energy.(configurable)

## 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                    | 50Hz ±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

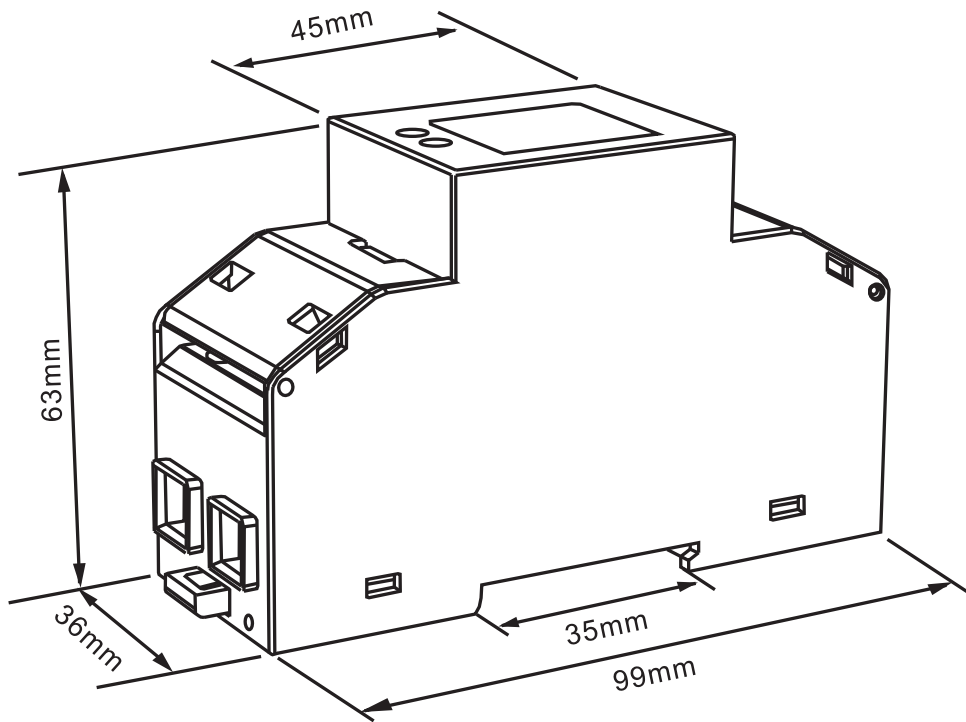
|                       |                                 |
|-----------------------|---------------------------------|
| Operating temperature | -25°C to +55°C*                 |
| Storage temperature   | -40°C to +70°C*                 |
| Relative humidity     | 0 to 95%, non-condensing        |
| 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 | mm x mm (WxH) per DIN 43880  |
| Mounting            | DIN rail (DIN 43880)         |
| Sealing             | IP51 indoor                  |
| Material            | Self-extinguishing UL 94 V-0 |

# Dimensions



# Installation

