

SDM18 SERIES -M/-MB

100A DIRECT CONNECT



User Manual V1.0

- Measures kWh, kVArh, kW, kVAr, KVA, PF, Hz, dmd, V, A, etc.
- Bi-directional measurement IMP & EXP
- RS485 Modbus RTU
- Din rail mounting 35mm
- 100A direct connection
- Better than Class 1 accuracy

1. Introduction

This document provides operating, maintenance and installation instructions of SDM18 Series. The meter measures and displays the characteristics of single phase two wire application. It can handle direct current connection up to 100A. The meter provides measurement for voltage, current, power, frequency, power factor and energy information. An RS485 or Mbus port was provided for remote communication and configuration.

Model table:

Model	Current Input	Communication	MID
SDM18-M	0.5~10(100)A	RS485 Modbus	●
SDM18-MB	0.5~10(100)A	M-Bus EN13757-3	●

2. Specifications

2.1 General Specifications

Voltage AC (Un)	230V
Voltage range	176~276V AC
Base Current (Ib/Iref)	10A
Max. Current (Imax)	100A
Mini Current (Imin)	0.5A
Starting current	0.4% of Ib
Power consumption	<2W/10VA
Frequency	50Hz (MID) 50/60Hz (non-MID)
AC voltage withstand	4KV for 1 minute
Impulse voltage withstand	6KV~1.2uS waveform
Overcurrent withstand	30Imax for 0.01s
Pulse LED	1000imp/kWh
Display	LCD with white backlight
Max. Reading	99999.9kWh

2.2 Accuracy

Voltage	0.5% of range maximum
Current	0.5% of nominal
Frequency	0.2% of mid-frequency
Power factor	1% of Unity
Active power	1% of range maximum
Reactive power	1% of range maximum
Apparent power	1% of range maximum
Active energy	Class 1 IEC62053-21 Class B EN50470-1/3 Class 2 IEC 62053-23
Reactive energy	

2.3 Environment

Operating temperature	-40°C to +70°C
Storage and transportation temperature	-40°C to +70°C
Reference temperature	23°C±2°C
Relative humidity	0% to 95%, non-condensing
Altitude	Up to 2000m
Warm up time	3s
Installation category	CAT III
Mechanical environment	M1
Electromagnetic environment	E2
Degree of pollution	2

2.4 Mechanics

Din rail dimensions	18x90x66 (WxHxD) DIN 43880
Mounting	DIN rail 35mm
Ingress protection	IP51 (indoor)
Material	Self-extinguishing UL94V-0

3 Display

Start-up Screens

When it is powered on, the meter will initialize and do self-checking.

1		Full screen
2		Software version (In kind prevail)
3		Total active energy(kWh)

After the self-checking program, the meter screen will display the total active energy (kWh)

Scroll Display by Button

There is a button on the front of the meter. After initialization and self-checking program, the meter display the measured values. The default page is total kWh. If the user wants to check other information, he needs to press the scroll button on the front panel.

	Click the button, the LCD display will scroll the measurements.
	Keep pressing the button for 3 seconds, the meter will enter set-up mode.

1		Total active energy(kWh)
1-1		Import active energy(kWh)
1-2		Export active energy(kWh)
2		Voltage (V)
3		Current (A)
4		Active power (W)
5		Frequency (F)
6		Power factor (PF)
7		Modbus address or Mbus primary address
8		Baud rate
9		Parity Option: None/Even/Odd Default: none
10		M-Bus secondary address High (M-Bus version only)
11		M-Bus secondary address Low (M-Bus version only)
12		Software version (In kind prevail)

The display of each model:

SDM18-M:

Total kWh → Import kWh → Export kWh → Voltage → Current → Active power → Frequency → Power factor → Address → Baudrate → Parity → Software version

SDM18-MB:

Total kWh → Import kWh → Export kWh → Voltage → Current → Active power → Frequency → Power factor → Address → Baudrate → Parity → Secondary address high → Secondary address low → Software version



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4. Communication

4.1 RS485 output for Modbus RTU

The meter provides a RS485 port for remote communication. Modbus RTU is the protocol applied. For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu.

Baud rate: 1200, 2400, 4800, 9600(default), 19200(optional)bps

Parity: NONE/EVEN/ODD

Stop bits:1 or 2

Modbus Address: 1 to 247

4.2 M-Bus communication EN13757-3

The meter provides an M-Bus port for remote communication. The protocol fully comply with EN13757-3. The following communication parameters can be configured via M-Bus communication.

Baud rate: 300,600,1200, 2400, 4800, 9600bps

Parity: NONE/EVEN/ODD

Stop bits:1 or 2

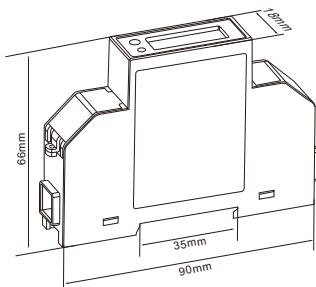
M-Bus network primary address: nnn – 3 digits number from 001 to 250

M-Bus network secondary address: 00 00 00 00 to 99 99 99 99

Please contact us for the detailed Modbus/M-Bus communication protocol.

sales@eastrongroup.com

5. Dimensions



6. Installation

6.1 Safety instruction

The Installation instructions do not include a complete list of all safety measures necessary for operating the device. Special operating conditions may require additional measures. The installation instructions contain notes that must be observed for your personal safety to prevent property damage. Safety instructions in this document are highlighted with a warning triangle and are presented as follows depending on the level of risk.



The General warning symbol calls attention to possible risks of injury. Observe all the instructions listed under the symbol to prevent injuries or even death



This additional symbol indicates an electrical danger that can result in serious injuries or death

ATTENTION

Warns of an imminently dangerous situation that can result in property damage or environmental damage in the event of noncompliance

Qualified personnel

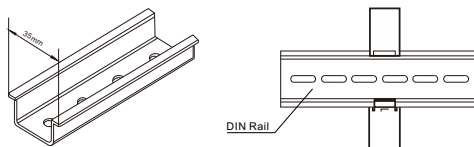
Operation of the equipment (module, device) described in this manual may only be performed by qualified personnel. Qualified personnel in this manual means person who are authorized to commission, start up, ground and label devices, systems and circuits according to safety and regulatory standards.

Proper handling

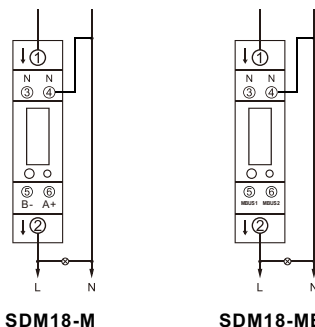
The equipment (device, module) may only be used for the application specified in the catalogue and the user manual, and only be connected with devices and components recommended and approved by EASTRON.

- Use only insulating tools.
- Do not connect while circuit is live (hot).
- Place the meter only in dry surroundings.
- Do not mount the meter in an explosive area or expose the meter to dust, mildew and insects.
- Make sure the used wires are suitable for the maximum current of this meter.
- Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- Do not connect the meter to a 3 phase - 400VAC - network.
- Do not touch the meter connecting clamps directly with your bare hands, with metal, blank wire or other material as you may get an electrical shock.
- Make sure the protection cover is placed after installation.
- Installation, maintenance and reparation should only be done by qualified personnel.
- Never break the seals and open the front cover as this might influence the functionality of the meter, and will avoid any warranty.
- Do not drop, or allow physical impact to the meter as there are high precision components inside that may break.

6.2 Installation



6.3 Wiring diagram



SDM18-M

SDM18-MB

Terminals Capacity	COMM / Pulse	0.5~1.5mm ²
	Load	2.5~6mm ²
Screw Torque	COMM / Pulse	0.2Nm
	Load	2Nm

7. Declaration of Conformity (for the MID approved meters only)

We Zhejiang Eastron Electronic Co., Ltd.

Declares under our sole responsibility as the manufacturer that the single phase multifunction electrical energy meter SDM18 series correspond to the production model described in the EU-type examination certificate and the requirements of the Directive 2014/32/EU. Type examination certificate number 0120/SGS0608.

Identification number of the Notified Body: 0598.



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