

SDM530D / SDM530D-2T

Three Phase Four Wires DIN Rail Energy Meter 7 Modules



Description

SDM530* Series is a range of 7 modules three phase four wire energy meters. The series contains 2 models: SDM530D and SDM530D-2T.

SDM530D: measures and displays active energy(kWh)
SDM530D-2T: measures and displays active energy(kWh) in 2 tariffs.

2 tariffs: SDM530D-2T has a time relay inside which can monitor if there is external 230V signal input. When it detected an external 230V signal input, the meter switches to tariff 2 measurement. Otherwise it will measure as tariff 1.

With high accuracy of Class 1, they are widely used to measure three phase energy in commercial and industrial applications. A pulse output is provided.

Safety Instructions

Information for your own safety

This manual does not contain all of safety measures for operation of the equipment (module, device), because special operating conditions, and local code requirements or regulations may necessitate further measures. However, it does contain information which must be read for your personal safety and to avoid material damages. This information is highlighted by a warning triangle and is represented as follows, depending on the degree of potential danger.



Warning

This means that failure to observe the instruction can result in death, serious injury or considerable material damage.



Caution

This means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

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.

Use for the intended purpose

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.

Proper handling

The prerequisites for perfect, reliable operation of the product are proper transport, proper storage, installation and assembly, as well as proper operation and maintenance. When operating electrical equipment, certain parts of this equipment automatically carry dangerous voltages. Improper handling can therefore result in serious injuries or material damage.

- ◆ 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 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.

Technical Data

Performance criteria

Operating humidity	≤ 90%
Storage humidity	≤ 95%
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
International standard	IEC 62053-21
Accuracy class	1
Ingress protection	IP51
Insulating encased meter of protective class	II

Specifications

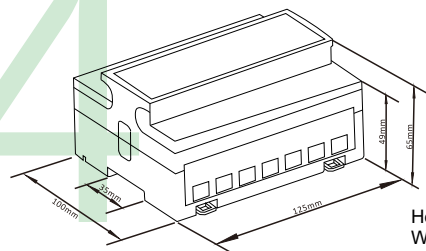
Nominal voltage(Un)	230/400V AC(3~)
Operational voltage	80%~120% Un
Insulation capabilities	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV-1.2/50μS
Basic current (Ib)	10A
Maximum rated current (Imax)	100A
Operational current range	0.4% Ib-Imax
Over current withstand	30Imax for 0.01s
Operational frequency range	50/60Hz
Internal power consumption	≤ 2W/10VA/phase
Pulse output flash rate (PULSE LED)	800imp/kWh
Pulse output rate (pins 8 & 9)	800imp/kWh

Basic errors

With balanced loads

0.05Ib Cosφ = 1	±1%
0.1Ib Cosφ = 0.5L	±1%
Cosφ = 0.8C	±1%
0.1Ib - Imax Cosφ = 1	±1%
0.2Ib - Imax Cosφ = 0.5L	±1%
Cosφ = 0.8C	±1%

Dimensions



Height	100mm
Width	125mm
Depth	65mm

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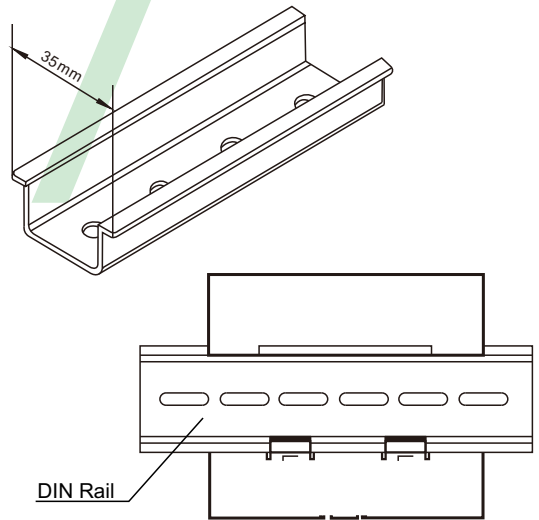
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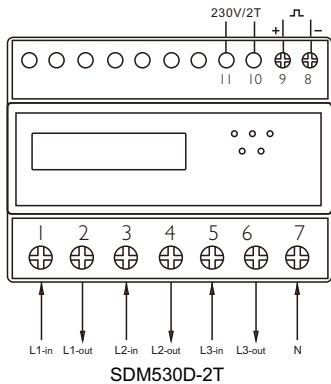
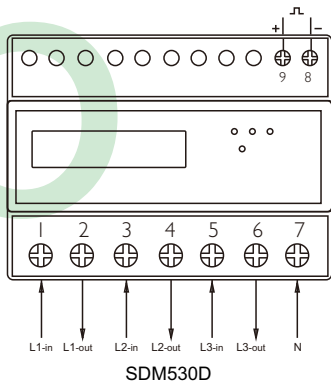
Installation

- ◆ We recommend that the connecting wire which is used to connect the meter to the outside circuit should be sized according to local codes and regulations for the capacity of the circuit breaker or over current device used in the circuit.
- ◆ An external switch or a circuit-breaker should be installed on the inlet wire, which will be used as a disconnection device for the meter. And there it is recommended that the switch or circuit-breaker is near the meter so that it is more convenience for the operator. The switch or circuit-breaker should comply with the specifications of the buildings electrical design and all local regulations.
- ◆ The meter has to be installed against a wall which is fire resistant.
- ◆ The meter has to be installed in a good ventilated and dry place.
- ◆ The meter has to be installed in a protection box when placed in dangerous or dusty environment.
- ◆ The meter can be installed and used after being tested and sealed with a letter press printing.
- ◆ The meter can be installed on a 35mm DIN rail or direct on a meter board with screws.
- ◆ The meter should be installed in an available height so that it is easy to read.
- ◆ When the meter is installed in an area with frequent surges due to e.g. thunderstorms, welding machines, inverters etc, protect the meter with Surge Protection Devices.
- ◆ After finishing installation, the meter must be sealed to prevent tampering.
- ◆ Wiring of the wires should be done in accordance with the underneath wiring diagram.

Installation Diagram



Wiring Diagram



1/2	L1 IN/OUT
3/4	L2 IN/OUT
5/6	L3 IN/OUT
7	Neutral wire
8/9	Pulse output contact
10/11	2 Tariff Shifting Terminals(230V ~)

Operation

● LED indicator

On the SDM530D's front panel, there are four LEDs, in which top three LEDs are for three phase voltage and the other one is impulse indication for active energy measurement. The constant of the impulse is shown on the nameplate of the meter. SDM530D-2T has one more LED impulse indicator for the separate measurement of T1 and T2 active energy.

● Reading the meter

The SDM530* energy meter is equipped with 6+1 LCD display, which is used as recording consumption and can't be reset to zero. The unit is kWh. The meter shows the following data:

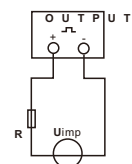
1. T1 Active Energy
2. T2 Active Energy

When T1 is working, you will see on the display the symbol of "T1" is flashing. When T2 is working, you will see on the display the symbol of "T2" is flashing. Meanwhile, the corresponding LED indicator on the front panel will flashes. *SDM530D measures T1 Active Energy only.

● Pulse output

SDM530* DIN rail energy meter is equipped with a pulse output which is fully separated from the inside circuit. That generates pulses in proportion to the measured energy. They are test pulse output (pins 8 & 9). Usually, the test pulse output is used as testing accuracy or reading purpose in close quarters.

The test pulse output is a polarity dependant, passive transistor output requiring an external voltage source for correct operation. For this external voltage source, the voltage (U_i) should be 5-27V DC, and the maximum input current (I_{max}) should be 27mA DC. To connect the impulse output, connect 5-27V DC to connector 9 (anode), and the signal wire (s) to connector 8 (cathode). The meter pulse is indicated on the front panel.



ATTENTION: Pulse output must be fed as shown in the wiring diagram on the left. Scrupulously respect polarities and the connection mode. Opto-coupler with potential-free SPST-NO Contact.

Contact range: 5-27VDC
Max. current Input: 27mA DC

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