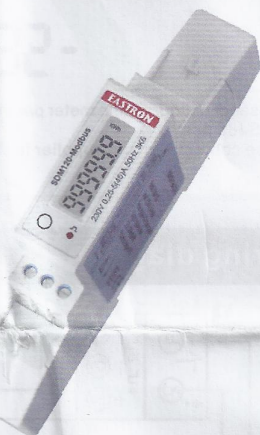


SDM120-MODBUS

Smart Mini Power, One Module

EASTRON
东鸿科技



Safety Instructions

Information for your own safety

This manual does not contain all of the 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 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.

Technical Data

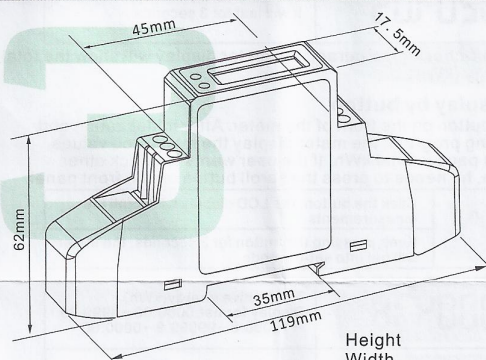
Performance Criteria

Operating Temperature	-25°C to +55°C
Storage Temperature	-40°C to +70°C
Reference Temperature	23°C ±2°C
Relative Humidity	0 to 95%, non-condensing
Altitude	Up to 2500m
Warm up Time	10s
Installation Category	CAT II
Mechanical Environment	M1
Electromagnetic Environment	E2
Degree of Pollution	2

Specifications

Voltage AC (Un)	230V AC
Voltage Range	176~276V AC
Base Current (Ib)	5A
Max. Current (Imax)	45A
Mini Current (Imin)	0.25A
Starting Current	0.4% of Ib
Power Consumption	<2W/10VA
Frequency	50/60Hz(±10%)
AC Voltage Withstand	4KV for 1 minute
Impulse Voltage Withstand	6KV-1.2uS wavform
Over Current Withstand	30I _{max} for 0.01s
Pulse Output	1000imp/kWh (default) 100/10/1 imp/kWh/kVarh (configurable)
Display	LCD
Max. Reading	99999.9kWh

Dimensions



Height	119mm
Width	17.5mm
Depth	62mm
Weight	0.15Kg(net)

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 convenient 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.

JIAXING EASTRON ELECTRONIC INSTRUMENTS CO., LTD.

Add: No.1369 Chengnan Road, Nanhu, Jiaxing, Zhejiang, 314001, China

Tel: +86-573-83698881 / 83698882

Fax: +86-573-83698883

Email: sales@eastrongroup.com

Web: www.eastrongroup.com

Output

Pulse Output

The meter provides two pulse outputs. Both pulse outputs are passive type. Pulse output 1 is configurable. The pulse output can be set to generate pulses to represent total / import/export kWh or kVarh.

The pulse constant can be set to generate 1 pulse per: 0.001 (default) / 0.01 / 0.1 / 1 kWh / kVarh.

Pulse width: 200/100/60ms

Pulse output 2 is non-configurable. It is fixed up with total kWh. The constant is 1000imp/kWh.

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

Parity: NONE/EVEN/ODD

Stop bits: 1 or 2

Modbus Address: 1 to 247

Operation

Initialization Display

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

1	8888888	Full Screen It will last for 3 seconds.
2	020 105	Software version It will last for 3 seconds.

After the self-checking program, the meter display will show 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 get into set-up mode.
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1	000478	Total active energy(kWh) Display format:0000.00~9999.99 →10000.0~99999.9→0000.00
1-1	000245	Import active energy(kWh) Display format:0000.00~9999.99 →10000.0~99999.9→0000.00
1-2	000232	Export active energy(kWh) Display format:0000.00~9999.99 →10000.0~99999.9→0000.00
2	2 198	Voltage (V)
3	20.18	Current (A)
4	22 102	Active power (W)
5	F 5000	Frequency (F)
6	PF 100	Power factor (PF)
7	18 001	Modbus Address (ID) Default: 001
8	6 2400	Baudrate Default: 2400bps
9	None	Parity None/Even/Odd are optional Default: none

Set-up Mode

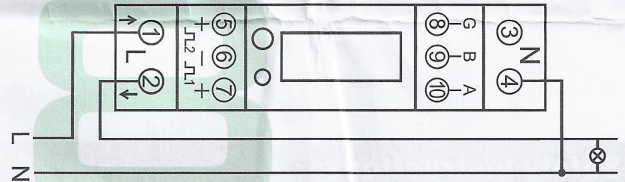
To get into Set-up Mode, the user need keep pressing the button for 3 seconds, the meter LCD will shows "-SET-".

-SET-

The user can program the meter parameters by sending correct command via RS485 port.

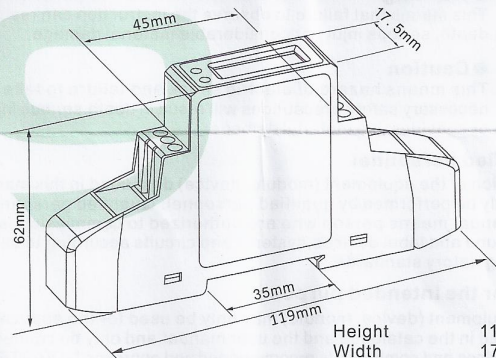
Please contact with the supplier for "Eastron SDM120-Modbus protocol"

Wiring diagram



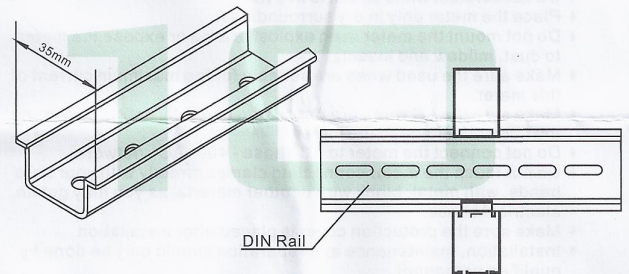
Terminal 1: L-in
Terminal 2: L-out
Terminals 3 & 4: Neutral wire
Terminals 5 & 6 & 7: Pulse output
Terminals 8 & 9 & 10:RS485 (G B A)

Wiring diagram



Height 119mm
Width 17.5mm
Depth 62mm
Weight 0.15Kg(net)

Installation Diagram



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