

SDM230-WiFi

Single-Phase Two Module DIN rail Meters

User Manual

2025 V1.0



- Measures kWh, kVAh, kW, kVA, PF, Hz, dmd, V, A, etc.
- Bi-directional measurement IMP & EXP
- Two pulse outputs
- WiFi Communication
- Din rail mounting 35mm
- 100A direct connection
- Better than Class 1 / B accuracy

PART 1 Specification

1.1 General Specifications

- | | |
|-----------------------------|--------------------|
| • Voltage AC (Un) | 230V |
| • Voltage Range | 176~276V AC |
| • Base Current (Ib) | 10A |
| • Max. Current (Imax) | 100A |
| • Mini Current (Imin) | 0.5A |
| • 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 waveform |
| • Overcurrent Withstand | 30 Imax for 0.01s |

Pulse Output Rate

- | | |
|------------------|--|
| • Pulse Output 1 | 1000/100/10/1 imp/Exp/
kWh/kVArh (configurable) |
| • Pulse Output 2 | 1000imp/kWh (default)
for import kWh |
| • Display | LCD with white backlit |
| • Max. Reading | 999999.9 kWh/kVArh |

1.2 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 |
| • Reactive energy | Class 2 IEC62053-23 |

1.3 Environment

- Operating temperature -25°C to +55°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 5s
- Installation category CAT III
- Mechanical Environment M1
- Electromagnetic environment E2
- Degree of pollution 2

1.4 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 kVAh.

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

Pulse width: 200/100/60ms

Pulse output 2 is non-configurable. It is fixed to import kWh. The constant is 2000imp/kWh.

Wi-Fi support: 2.4Ghz b/g/n

Wi-Fi data freq.: Every second

1.5 LCD display



PART 2 Operation

2.1 Initialization Display

When powered, the meter will initialize and self check.

The diagram illustrates the STS IMPEX PMD1 JL J1.2 device interface, which consists of a monochrome LCD screen and a set of five physical buttons. The screen displays the following information:

- Top Line:** STS IMPEX PMD1 JL J1.2
- Second Line:** 888.88.8.8
- Third Line:** PF Hz Mk VArh MkWh
- Bottom Line:** A row of status icons including signal strength, battery level, and a lock symbol.

The five buttons are arranged vertically and are labeled as follows:

- Initialize:** The top button, labeled with the number 70.
- Software version:** The second button, labeled with the number 04.04.
- Software number:** The third button, labeled with the number 0393.
- Self testing:** The fourth button, labeled with the text "TESTING".
- AP distribution network:** The bottom button, labeled with the text "AP" in red.




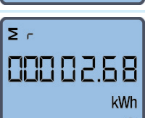


2.2 Signal symbol

The signal bar on the display interface indicates the network strength and status, while connected, you will see between 0-6 bars indicating signal strength. If the signal bar is flashing simultaneously with 6 bars then this means the meter is not connected to the network.

2.3 Scroll display by Button


After initialization and the self-checking program has run, the meter will display the measured values. The default page is the total kWh. If the user would like to check other information, they should press the WIFI button to scroll through the other pages.

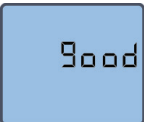
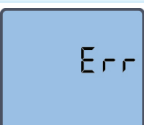
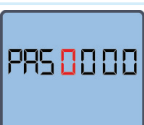

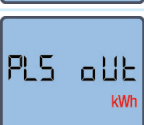
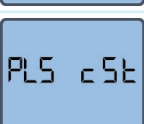
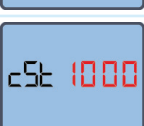
2.4 Start-up Screens

 <p>00070.00 kWh</p>	<p>Total active energy Example: 70.00kWh</p>
 <p>IMP 00050.00 kWh</p>	<p>Import active energy Example: 50.00kWh</p>
 <p>EXP 00020.00 kWh</p>	<p>Export active energy Example: 20.00kWh</p>
 <p>Σ r 00002.68 kWh</p>	<p>Total resettable energy</p>
 <p>Σ 00010.00 kVARh</p>	<p>Total reactive energy Example: 10.00kVARh</p>
 <p>IMP 00005.00 kVARh</p>	<p>Import reactive energy Example: 5.00kVARh</p>

<div>EXP</div> <div>000005.00</div> <div>kVArh</div>	<div>Export reactive energy</div> <div>Example: 5.00kVArh</div>
<div>Σ r</div> <div>0000 1.49</div> <div>kVArh</div> <div>🔒</div>	<div>Total resettable reactive energy</div>
<div>Σ MD</div> <div>6930</div> <div>W</div>	<div>Total Max. power demand</div> <div>Example: 6930W</div>
<div>229.8</div> <div>V</div>	<div>Voltage</div> <div>Example: 229.8V</div>
<div>30.156</div> <div>A</div>	<div>Current</div> <div>Example: 30.156A</div>
<div>4700</div> <div>W</div> <div>...</div>	<div>Active Power</div> <div>Example: 4700W</div>
<div>1030</div> <div>VAr</div> <div>...</div>	<div>Reactive Power</div> <div>Example: 1030VAr</div>
<div>4811</div> <div>VA</div> <div>...</div>	<div>Apparent power</div> <div>Example: 4811VA</div>
<div>PF</div> <div>1.000</div>	<div>Power factor</div> <div>Example: 1.000</div>
<div>49.99</div> <div>Hz</div>	<div>Frequency</div> <div>Example: 49.99Hz</div>
<div>Σ</div> <div>0.1h</div> <div>🕒</div>	<div>Running time</div> <div>Example: 0.1h</div>
<div>01:01:01</div>	<div>Server time</div> <div>Example: 01:01:01</div> <div>Note: If not connected to the server, the meter will display offline</div>
<div>ESP04.04</div>	<div>Version number of ESP32</div> <div>Example: ESP04.04</div>

2.5 Set-up Mode

To get into Set-up Mode, the user need press the 'Scroll button' button  for 3 second.

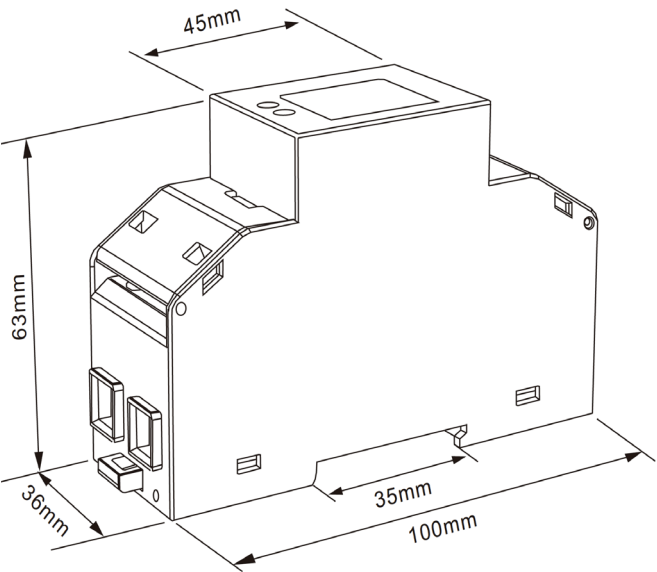
	<p>The setting is done correctly</p>
	<p>The entering information is wrong. The operation fails.</p>
	<p>Password To get into set up mode, you will need to enter the default password below. Default password: 1000</p>
	<p>Pulse Output Default: Export kWh Option: kWh / kVArh / Imp. kWh / Exp.kWh / Imp.kVArh / Exp.kVArh</p>
	<p>Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the type. After selecting the new pulsed output type, the user should hold down the 'Enter' button to confirm the setting.</p>
	<p>Pulse Constant Default: 1000 Option: 1000 / 100 / 10 / 1</p>
	<p>Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the option. After selecting the new pulse constant option, the user should hold down the 'Enter' button to confirm the setting.</p>

PLS t	Pulse duration Default: 100ms Option: 200 / 100 / 60ms
PLSt200	Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the option. After selecting the new pulse duration option, the user should hold down the 'Enter' button to confirm the setting.
dIt SEt	Demand Integration Time Default: 15 minutes Option: 5 / 10 / 15 / 30 / 60 / OFF
dIt 15	Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the option. After selecting the new DIT option, the user should hold down the 'Enter' button to confirm the setting.
ScrL t	Automatic Scroll Time Interval Default: 0 S Option: 0 ~ 255S
t 30 S	Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the option. After selecting the new scroll time option, the user should hold down the 'Enter' button to confirm the setting.
LP SEt	Backlight duration timer set-up Default: 60 min Option: 0 (OFF) / 5/ 10/ 20/ 30/ 60 Hold down the 'Enter' button to enter set-up mode.
LP 60	Press the 'Scroll' button to change the backlight time. After selecting the new backlight option, the user should hold down the 'Enter' button to confirm the setting.
CLr	Clear Hold down the 'Enter' button to enter clear interface.
MD CLr	To clear the Max demand reading for active power, hold down the 'Enter' button.
Σr CLr	To clear the resettable energy readings, hold down the 'Enter' button.
SEt PASS	Password Default: 1000
PAS 1000	Hold down the 'Enter' button, the red text will flash. Press the 'Scroll' button to change the values. After selecting the new password, hold down the 'Enter' button to confirm the setting.
AP nOdE	AP mode Hold down the 'Enter' button to enter AP mode setting.
SEt	Hold down the 'Enter' button to set the AP mode.
UPdAtE	Online update function Hold down the 'Enter' button to set the AP mode.
nEtEr	Online update function Two options: Meter: Meter update ESP32: wifi module update
GOOd	After all settings are completed Good: Good means the setting was successful ERR: ERR means the setting was unsuccessful
ERR	

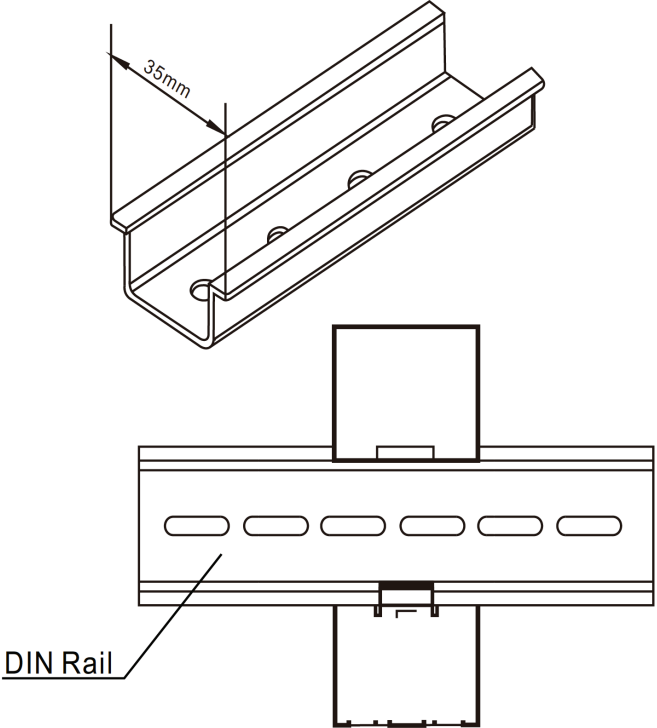
2.6 Wiring Diagram



2.7 Dimensions



2.8 Installation



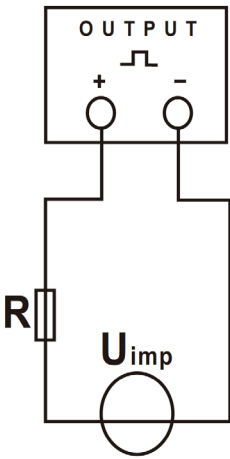
2.9 Wiring Torque

Terminals Capacity	COMM / Pulse / 2T	0.5~1.5mm²
	Load	4~25mm²
Screw Torque	COMM / Pulse / 2T	0.4Nm
	Load	2.5Nm-3Nm

2.10 Mechanics

- Din rail dimensions 36x100x63 (WxHxD) Per DIN 43880
- Mounting DIN rail 35mm
- Ingress protection IP51 (indoor)
- Material Self-extinguishing UL94V-0

2.11 Pulsed output type



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 (Ui) should be 5-27V DC, and the maximum input current (Imax) should be 27mA DC. To connect the impulse output, connect 5-27V DC to connector 7 (anode) and the signal wire (s) to connector 6 (cathode). The meter pulse is indicated on the front panel by a red flashing LED

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

Contact range: 5~27V DC Max current input: 27mA DC

EU Type Examination Certificate



SGS		EU-Type Examination Certificate Number:	
		0120/SGS0206	
		Issue Number: 9	Dated: 20 th October 2023
1. Technical Data			
Manufacturer	Zhejiang Eastron Electronic Co., Ltd.		
Meter Type(s)	SDM230-Modbus, SDM230-BI, SDM230-DR, SDM230-Pulse, SDM230-Mbus V1, SDM230-Mbus V2, SDM230-2T, SDM230-M-L, SDM230-Lora, SDM230-WIFI, SDM230-NMI, SDM230-NMI-2		
Voltage Rating (Un)	230V		
Current Rating (Imin ~ Iref (Imax))	0.5/10/100A		
Frequency (Pn)	50Hz		
Active Accuracy Class (kWh)	A or B (kWh)		
Type of circuit	1p2w		
Temperature Range	-25°C to +55°C		
Software Version No's	SDM230-Modbus, SDM230-BI, SDM230-DR, SDM230-Pulse: V1.2 SDM230-2T: V1.3 SDM230-Mbus V1, SDM230-Mbus V2: V1.2 SDM230-M-L: V1.1 SDM230-Lora: V2.3 SDM230-WIFI: V4.4 SDM230-NMI: V1.3 SDM230-NMI-2: V1.6		
Checksum No's	SDM230-Modbus, SDM230-BI, SDM230-DR, SDM230-Pulse: 0x000052F2 SDM230-2T: 0x0000A0D9 SDM230-Mbus V1, SDM230-Mbus V2: 0x00004D23 SDM230-M-L: 0x2547 SDM230-Lora: 0x81F2 SDM230-WIFI: 0xD712 SDM230-NMI: 0x7AF0E4 SDM230-NMI-2: 6F51DBED		
Identification Location	Nameplate		
Bill of Materials No's	SDM230-Modbus: DH-JS-100040 V1.6 SDM230-BI, SDM230-DR, SDM230-Pulse: DH-JS-150051 V1.6 SDM230-2T: DH-JS-180009 V1.0 SDM230-Mbus V1: DH-JS-180017 V1.0 SDM230-Mbus V2: DH-JS-180029 V1.0 SDM230-M-L: DH-JS-200072 V1.3 SDM230-Lora: DH-JS-200016 V1.6 SDM230-WIFI: DH-JS-190042 V1.6 SDM230-NMI: DH-JS-210077 V1.2 SDM230-NMI-2: DH-JS-210027 V1.3		
IP Rating	IP51		
Insulation Protective Class	Class II		
LED Pulse Constant	1000imp/kWh		
Impulse Voltage Rating	8kV		
AC Voltage Rating	4kV		
Terminal Cover Sealing Type	4 x Wire & Crimp		
Integrity of meter	Inaccessible without breaking seals		
Intended Location of the Meter	Indoor		
Type of Register	LCD		



Declaration of Conformity

(for the MID approved version meter only)

We Zhejiang Eastron Electronic Co.,Ltd. Declare under our sole responsibility as the manufacturer that the single phase multi-funtion electrical energy meter “SDM230 Series” correspond to the production model described in the EU-type examination certificate and to the requirements of the Directive 2014/32/EU EU type examination certificate number 0120/SGS0206. Identification number of the NB0598

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.

Warning Triangle: 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

Lightning Bolt: This additional symbol indicates any 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 non-compliance.

Misrepresentation Act – The details provided in this document are believed to be accurate but cannot be guaranteed. All liability, whether in negligence or otherwise, for any loss arising from the use of these details is hereby excluded.

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