

DIGITAL POWER METER



FC CE

SPM-8

Integrated ethernet, electric power measurement, power quality analysis and reporting all power reading in one meter.

SPM-8 is a multi-function device which collecting measured data and monitoring the power system. It can replace a variety of meters, relays, communications devices and other meter parts.

SPM-8 is generally applied in factory and building. The design and functions of SPM-8 is qualified for CE & FCC.

SPM-8 multi-function power meter is mainly a collection of three-phase power system designed for continuous monitoring, with the rich power measurement functions, including current, voltage, power, watts, power factor, watt-hour, frequency, demand, effective and ineffective power calculation. Bi-directional energy metering and its harmonic analysis allows SPM-8 can fit in a modern industrial power management, and built-in Ethernet communications and a number of choices to make SPM-8 can easily, and various SCADA (Supervisor Control And Data Acquisitions) system integrated with the application.

Product Features

- a. A Class 0.5 Parameters of two-way power and power measurement accuracy (True RMS).
- b. The electricity daily and monthly reports, including kWh, max Demand, max THD, max / min, V, I, kW, kVA, min PF.
- c. Support the RS485 Modbus.
- d. 12 digital input contacts.
- e. 2 digital outputs, can be used for alarm and kWh pulse output.
- f. Support 4 analog input and output contacts.
- g. Time zone (Block) or moving average type (Rolling) demand measuring.
- h. Measurement of total harmonic and single harmonic of three phase voltage and current. (Max. 31 orders)
- i. Event log with time tag can record alarm and voltage swell / sag.
- j. Support Modbus over TCP / IP for Ethernet.
- k. Voltage swell / sag power quality recording.
 - l. Wiring detecting function.
 - M. Built-in lithium battery and calender, the time utility meter can still be running when power failure occurs.
 - N. Storage function enables the cumulative data reminds when power failure occurs. (Contains kWh, kvarh, day / month reports, event log).

※ **Note : Items marked with ■ refers to features of the advanced type**

Order Information

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SPM-8	TYPE 0 : Standard 1 : Advanced	SECONDARY CONNECTION PORT 0 : N/A 1 : Ethernet	ANALOG INPUT 0 : No 1 : Yes	ANALOG OUTPUT 0 : No 1 : Yes

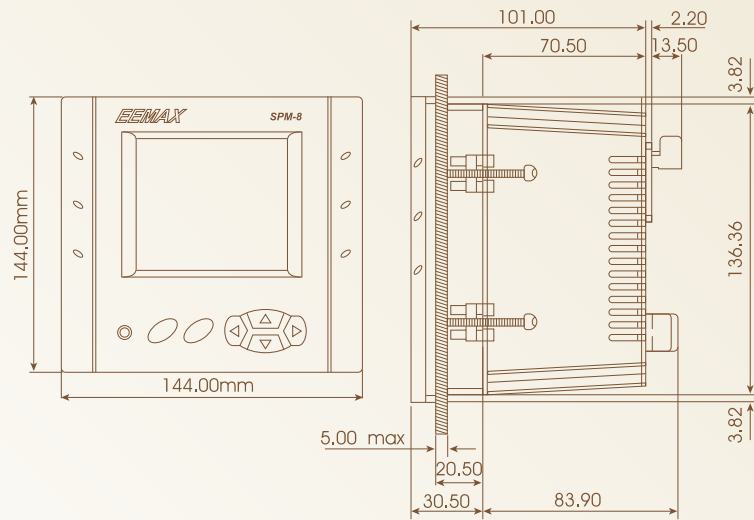
※ **Note: The standard type is unable to select the secondary connection port.**

SPM-8 Main Function

- a. Energy reading
- b. Power analysis
- c. Demand reading
- d. Alarm set point
- e. Digital / Analog I/O
- f. Report logging
- g. Event logging
- h. Communication port

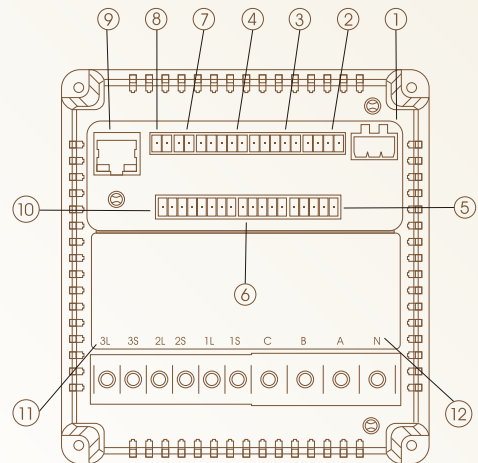
Installation

Four support latches must be placed in position after mounting.
The panel cut off: 138×138mm



Terminal Connection

- ① Auxiliary Power (N-L 86 ~ 242VAC or 100 ~ 300VDC)
- ② Digital Output (Com1-DO1, Com2-DO2)
- ③ Analog Output (Com1-AO4-AO3-AO2-AO1)
- ④ Digital Input (Com1 -DI4 -DI3 -DI2 -DI1)
- ⑤ Digital Input (Com2 -DI8 -DI7 -DI6 -DI5)
- ⑥ Digital Input (Com3 -DI12 -DI11 -DI10 -DI9)
- ⑦ RS485 Port (D-D +)
- ⑧ Lon Talks port (D-D +)
- ⑨ Ethernet Port
- ⑩ Analog Input (AI1+ AI1-AI2+ AI2-AI3+ AI3-AI4+ AI4-)
- ⑪ Current input Terminal (3L 3S 2L 2S 1L 1S)
- ⑫ Voltage Input Terminal (C.B.A.N)



Input / Output

Digital Input : 12 group input.

Digital Output : 2 relay output, can be used for alarm and kWh pulse output.

Analog Output : 4 group 4-20mA output can be set to V, I, kW, kVA, kVAR.

Analog Input : 4 group 4-20mA input.

Voltage Input : up to 600V.

Current Input: 0~5A

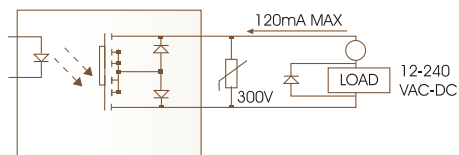
Digital Output

Digital output : 4 pin 2 channel.

12-240VAC-DC / 120mA max.

Digital output port-1 function selection : voltage / current unbalance alarm, over voltage / current alarm, voltage / current loss alarm, THD alarm, under voltage alarm, maximum demand alarm.

Digital output port-2 function selection : as pulse output

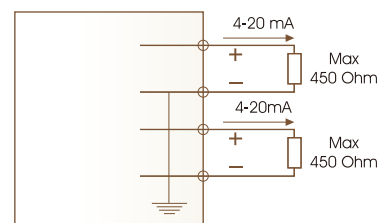


Analog Output

Analog output : 5 pins, 4 channel.

4-20mA output.

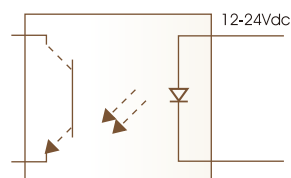
Analog output options : phase, voltage, current and power



Digital Input

Digital input : 3 groups, 15 pins, 12 channels.

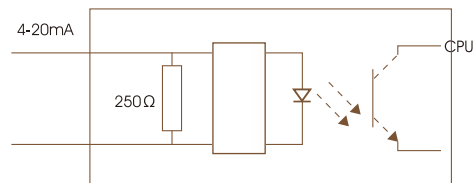
12-24Vdc.



Analog Input

Analog input : 8 pins, 4 channels.

4-20mA input



Setting Function with Password

The 7 digits password is required for entering the setting mode.
Factory default password "0000000"

Enter Pword



Electric Parameter Measurement

Current: 3 phase, neutral line current, accuracy 0.1%.

Voltage: 3 phase, phase-phase, phase-neutral voltage, accuracy 0.1%.

Frequency: 50/60 Hz

Total power: effective, ineffective, apparent power, accuracy 0.5%.

Each phase power: effective, ineffective, apparent power, accuracy 0.5%.

Power factor: Total and phase

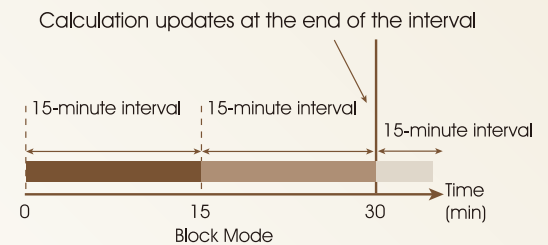
Demand Model

Block: Fixed

Rolling: Moving average type

Block

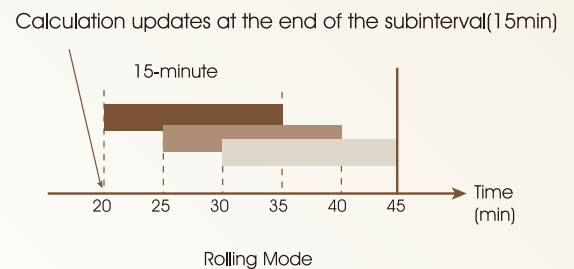
In the fixed interval, select the range of 1 to 60 minutes, SPM-8 can calculate at the end of each interval and update the demand.



Rolling

In the moving average type, select the number of sub-interval and sub-interval length.

The end of each sub-interval and update the demand will be calculated.

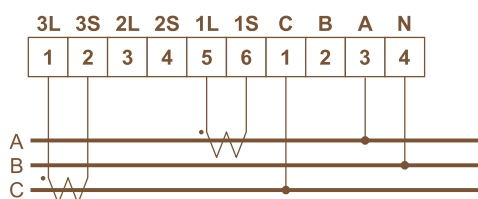


Specification

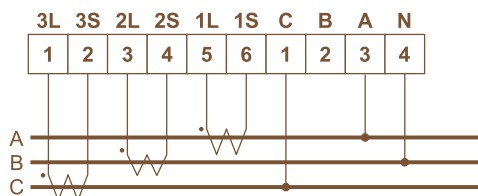
Power parameters measurement	<p>Current: 3 phase, neutral, accuracy 0.1%</p> <p>Voltage: 3 phase phase-phase, phase-neutral, accuracy 0.1%</p> <p>Frequency: 50/60 Hz</p> <p>Total power: Active, reactive, apparent power, accuracy 0.5%</p> <p>Power per phase: Active, reactive, apparent power, accuracy 0.5%</p> <p>Power factor: Total, per phase</p>
Energy measurement	<p>Energy: Active, reactive, apparent energy, accuracy 0.5%</p> <p>Bi-directional energy: Deliver and receive kWh, kVARh, kVAh</p>
Display and input/output	<p>Panel display: Mono 128×128 TFT-LCD</p> <p>Digital input: 12 channels dry contact inputs</p> <p>Digital output: 2 channels relay for alarm or kWh pulse output</p> <p>Analog output: 4 channels 4~20mA for V, I, kW, kVA, kVAR</p> <p>Analog input: 4 channels 4~20mA input</p> <p>Voltage connection: 0~600V</p> <p>Current connection: 0~5A</p> <p>Power supply: 86~242 Vac or 100~125Vdc</p>
Environmental & physical	<p>Operation temperature: -10°C to 55°C</p> <p>Storage temperature: -25°C to 60°C</p> <p>Humidity: 20 to 80%RH (non-condensing)</p> <p>Dimensions: 144mm(L) × 144mm(W) × 94mm(H)</p>
Communication	<p>Primary port: RS485 Modbus</p> <p>Second port: ETHERNET, 10/100Mbps, Modbus over TCP/IP</p>

Wiring

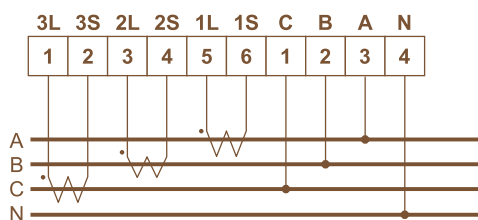
3P3W/2CT



3P3W/3CT



3P4W/3CT



Operation Display

The reading on display on real time measuring value during the general use. The display items can be mode by setting and adjustment. The display items are stated in the table below:

NO.	Item	Display
1	Average / Σ Result	Vavg 、 lavg 、 Σ LW 、 Σ LVAR
2	Line Voltage L-L	L12 、 L23 、 L31 V, kV, MV
3	Phase Voltage L-N	L1 、 L2 、 L3 V, kV, MV
4	Line Current	L1 、 L2 、 L3 、 N A, kA, MA
5	Active Power	L1 、 L2 、 L3 、 Σ L W, kW, MW
6	Apparent Power	L1 、 L2 、 L3 、 Σ L VA, kVA, MVA
7	Reactive Power	L1 、 L2 、 L3 、 Σ L VAr, kVAr, MVAr
8	Power Factor	L1 、 L2 、 L3 、 Σ L
9	Total Energy	kWh del 、 rec 、 total
10	Total Energy	kVARh + (lagging) 、 - (leading) 、 total
※11	Demand	kW 、 Time
12	Frequency / Status	Freq: Hz
		Digital Output 1~2 ON/OFF
		Digital Input 1~12 ON/OFF

※Features only for the advanced type

Auto Scroll

The display reading page will change automatically during the general use. The time can be set from 1 ~ 6 sec.

Use ◀ ▶ to change the page, press ▶ to the next page, press ◀ the back page.



Monitor

Display panel : single color 128 × 128 STN-LCD.

Communication

Main communication port: RS485, Modbus protocol support.

Secondary connection ports: Ethernet, 10/100 Mbps, Modbus protocol support.

Electric Energy Measurement

Energy: Effective, ineffective, apparent power, accuracy 0.5%

Two-way power: input-output effective, ineffective, apparent power.

Demand Measurement

Two-way time zone (Block) and moving average type (Rolling) Demand

Power Quality

Voltage swell / sag: Setting the voltage swell / sag detection point

Harmonic: V, I THD, and a single harmonic (available to 31-order harmonic analysis)

Event Log Report

Report: daily report, monthly report, regular report

Event Log: Voltage swell / sag, alarm record (which can record up to 20 recent events)

Operating Environment

Ambient operating temperature: -20°C~ 60°C.

Storage temperature: -25°C~ 80°C.

Humidity: 20 ~ 90% RH (no condensation).

Dimensions: 144mm (length) × 144mm (width) × 114mm (depth).

Protection class: Panel IP54, Case IP20.

