Resi9 Energy Meter Wired

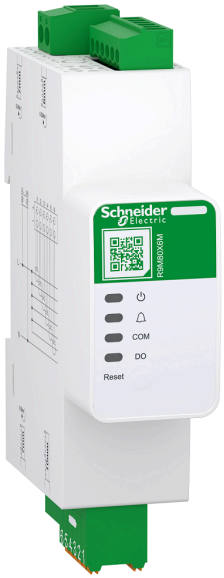
Configuration and User Manual

9 Series

Resi9 Current Transformer 80 A, 160 A and 250 A

03/2025

R9M80X6M



R9MUX6M

www.se.com

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Table of Contents

Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that accompany this symbol to avoid possible injury or death.

⚠⚠DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Safety Precautions

Installation, wiring, testing, and maintenance must be performed in accordance with all the local and national electrical codes.

Read carefully and follow the safety precautions given below.

⚠⚠DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Safe electrical installation must be carried out only by skilled professionals.

Skilled professionals must prove profound knowledge in the following areas:

- Connecting to installation networks.
- Connecting to several electrical devices.
- Laying electrical cables.
- Safety standards, local wiring rules and regulations.

Failure to follow these instructions will result in death or serious injury.

NOTICE

RISK OF EQUIPMENT DAMAGE

Use only the compatible Current Transformers to ensure safety and proper function of the equipment.

Failure to follow these instructions can result in equipment damage.

Cybersecurity

At Schneider Electric, we believe that cybersecurity is an essential prerequisite. We are committed to providing reliable, stable, and secure products to minimize potential network risks and protect the safety of customers, property, and the environment.

Cybersecurity aims to prevent your system, communication networks, and devices from possible attacks, data tampering, or confidential information leakages, property, and the environment.

In addition to the direct instructions in this document, observe and follow Schneider Electric's security recommendations. For details and assistance in protecting your installation, you can also contact your local Schneider Electric Industrial Cybersecurity Services organization or visit Cybersecurity Services on the Schneider Electric website.

Recommended Cybersecurity Best Practices	Proven cybersecurity procedures
Cybersecurity service	From conception to maintenance: certified experts advise and guide you through a holistic cybersecurity program.
Cybersecurity support portal	Security notifications, reporting a vulnerability, reporting an incident.

Defense in Depth Approach

Defense in Depth (DiD) is an approach to cyber security in which a series of defense mechanisms are layered on top of each other to protect valuable data and information. If one mechanism fails, another immediately springs into action to thwart an attack.

We strongly recommend following the Defense in Depth approach when integrating the Energy meter into your system, including the recommended access control as shown in the following content.

Access Control

The Energy meter allows local access and the remote access based on Modbus-RTU. It is strongly recommended to secure the Energy meter by authorized users.

It is advisable that the Energy meter is installed in a secure area in which access rules are implemented and managed (e.g., locked cabinet with keys). Also, always ensure physical protection on communication/connection ports and network cables.

For remote access based on Modbus RTU of the Energy meter, it is advisable that in addition to local access control, the system that is able to access the Energy meter should deploy a defense in depth approach to limit such an access to authorized components in the system.

Secure disposal

If a device needs to be disposed of, perform a factory reset so that all data, project data and programming is deleted from the device.

Ensure that it is securely to prevent its redeployment into your operational system or unauthorized use.

Cybersecurity vulnerabilities/incidents

You can review the Vulnerability Management Policies on Schneider Electric's Cybersecurity Vulnerabilities Portal (https://www.se.com/ww/en/work/support/cybersecurity/vulnerability-policy.jsp) or report potential cybersecurity vulnerabilities or incidents.

About the Device

Resi9 Energy Meter Wired

The Energy meter has basic capabilities to measure current, voltage, and energy consumption, etc., which are required for monitoring single-phase and 3-phase electrical installations.
Single phase circuits for R9M80XM and a combination of single phase and 3 phases circuits for R9MU6XM

The Energy meter enables various functions, some of which are listed below:

- Voltage, current, active power, active energy readings.
- Power factor measurement.
- Digital output.
- Communication via Modbus RTU (Remote Terminal Unit).

Function Summary

Parameter	Energy meter
Measurement Method	Direct measurement
Accuracy class for Active energy Wh	Class 1
Sampling rate per cycle	128
Current: 6–circuit current	✓
Voltage • R9M80X6M: phase voltage • R9MUX6M: phase voltage, line-line voltage	✓
Power factor: 6–circuit power factor	✓
Frequency	✓
Power: Active power (kW) • R9M80X6M: per-circuit • R9MUX6M: per-circuit at single phase application, per-circuit and total power at 3-phase application	✓
Demand parameters (kW, I): • Present demand • Peak demand	✓
Energy: kWh	Delivered, Received
RTC (real time clock)	✓
Communication	RS485 Modbus-RTU
Digital output • R9M80X6M: 1 output • R9MUX6M: 2 outputs	✓

Type of Measurement

Accumulated

This Energy meter provides bi-directional active energy measurement.

The active energy is saved in the non-volatile memory of the Energy meter:

- kWh (delivered/consumption) per circuit.
- kWh (received/producing) per circuit.

  NOTE: When R9MUX6M Energy meter is used in 3-phase application, it provides total energy consumption of 3-phase circuits.

Instantaneous

The Energy meter provides highly accurate measurement data or calculated average value of a second time for the true RMS (root mean square) value for the below listed items:

- Voltage (single phase).
- Current per circuit.
- Active Power (W)
  - R9M80X6M: per-circuit
  - R9MUX6M: per-circuit at single phase application, per-circuit and total power at 3-phase application
- Power factor per circuit.
- Frequency.

Serial Modbus configuration

Overview

After you have wired the RS485 port and powered up the Energy meter, you could configure the serial communication port in order to communicate with it.
Each device on the same RS485 communication bus shall have a unique address and all connected devices must have the same protocol, baud rate and parity (data format).

Modbus communication

The Energy meter supports serial communication through the RS485 port. It is recommended up to 15 devices to be connected on a single RS485 bus.

In an RS485 network, there is one server device, usually be an gateway providing bridge function between RS485 and the Ethernet. It enables communication between the upper system and multiple client devices (such as the Energy meters). For applications that require the communication between only one dedicated computer and client devices, an RS232 to RS485 converter may serve as the master device.

RS485 wiring

In a point-to-point configuration, devices on the RS485 bus are connected by linking the (D1/+) and (D0/–) terminals of one device to the corresponding (D1/+) and (D0/–) terminals of the next device.

RS485 cable

The total distance of devices connected on the RS485 bus shall not exceed 1,000 meters (3,280 feet).

RS485 terminal

D1/+	Data positive pole. Transmits/receives non-reversal data signals.
D0/-	Data negative pole. Transmits/receives reversal data signals.
0 V	Ground
	Shielded wire

RS485 port setup

The Energy meter is factory-configured with default serial communication settings. Before connecting the Energy meter to the RS485 bus, you must first wire and configure each one separately.

The Energy meter is with below default values for Modbus serial communication settings:

- Protocol = Modbus RTU
- Address = 1
- Baud rate = 19,200
- Data bit = E81 (Even checksum, 8 data bits, 1 stop bit)

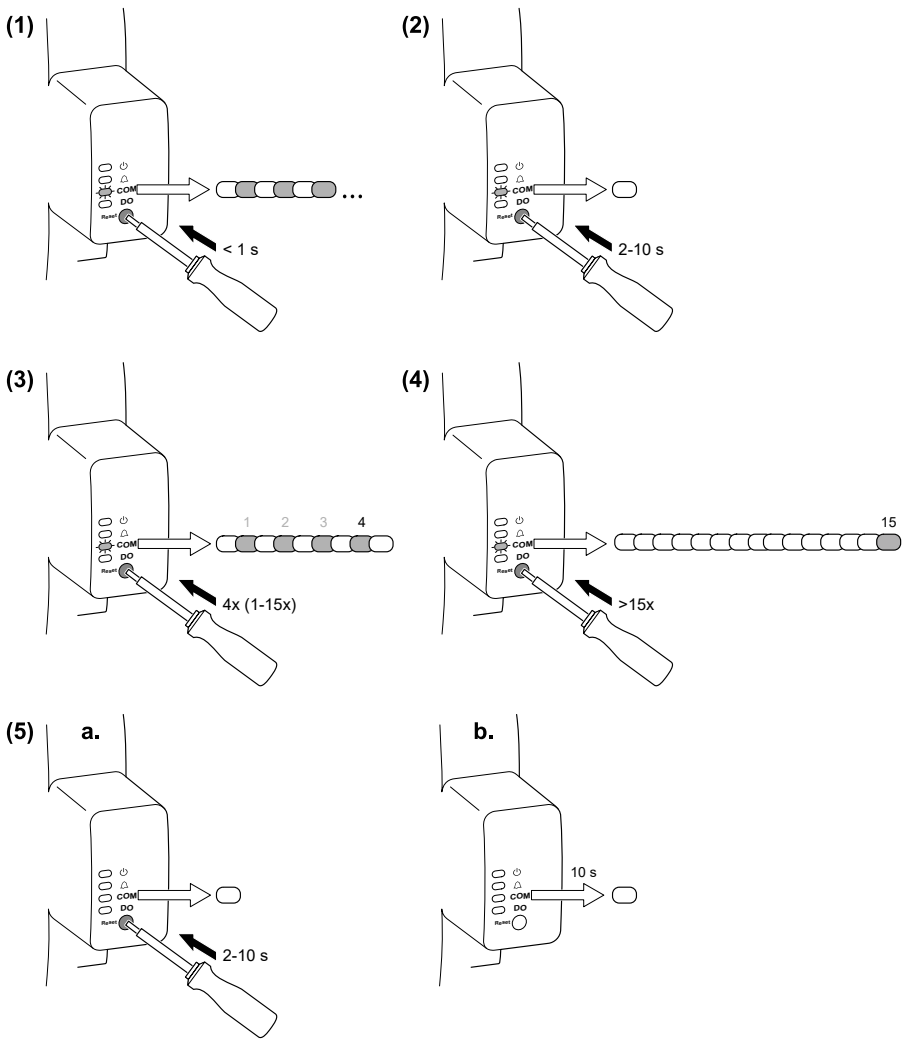
You can use a communication converter (USB to RS485 or RS232 to RS485) or ethernet gateway device to connect to the Energy meter. The corresponding RS485 port setting registers can be found in the Modbus register table, which can be downloaded from the web page: www.se.com.

Change Modbus address using reset button

1. You can check the current Modbus address by short press on the reset button, the number of times the COM LED blinks represents the current address.
2. By long press (press and hold) the reset button (2 s < T < 10 s), the COM LED will turn off, which means that the address setting mode is activated.
3. Modbus address will be defined by the number of short press, (it has nothing to do with the Modbus address previously configured).
4. When pressing more than 15 times in Modbus address setting mode, the address will be always set as 15.
5. You can quit the Modbus setting mode:
   A. By long press the reset button (2 s < T < 10 s) again, or
   B. Let it quit automatically after 10 s time out.

You can check out the Modbus address by step 1.

For module R9M80X6M



For module R9MUX6M

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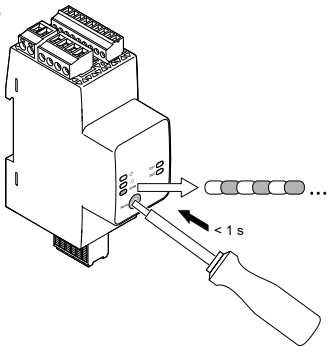

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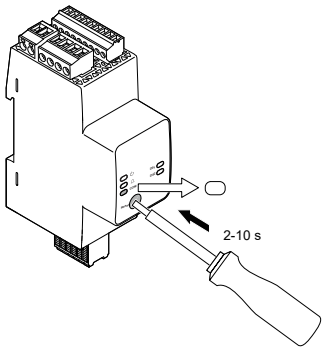

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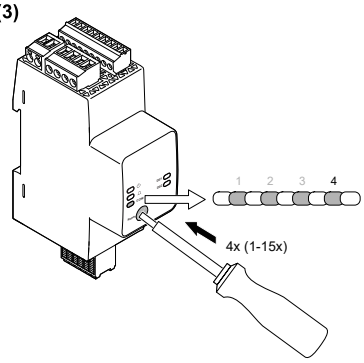

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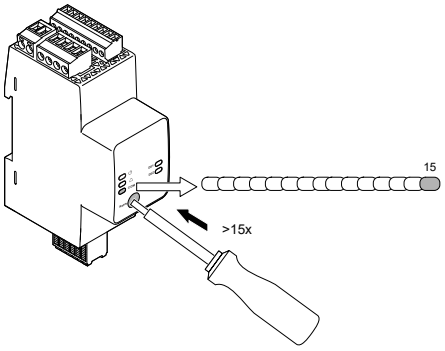

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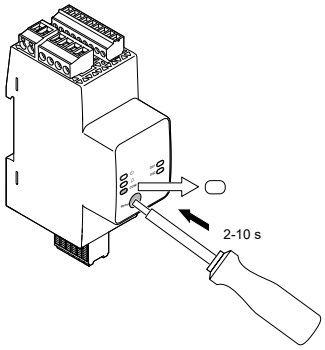

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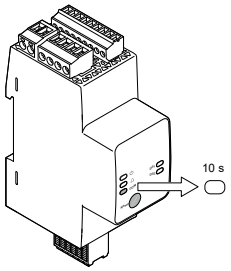


Get Energy meter data

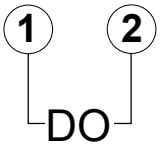
Check Energy meter data via software

You may access to or display the Energy meter data using different software systems and methods. This includes employing a simple Modbus register interface to read values saved in the Energy meter registers, as well as using energy management systems to view intelligent information in the Energy meter.

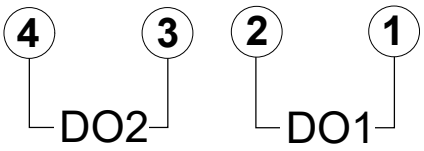
Digital output

The digital output may be configured for digital applications, such as generating ON/OFF control signals for capacitor banks, generators, and external devices and appliances.

For module R9M80X6M



For module R9MUX6M



Digital output configuration

Parameters	Value	Remarks
Control mode	Level mode or pulse mode	Level mode: The relay outputs a level signal Pulse Mode: The relay outputs a pulse signal
Pulse width	Range from 0 to 9999	In the settings, the pulse width (ON time) is defined in unit of 0.1 s. **NOTE:** It is effective only when the control mode is set to pulse mode.

Digital Output as Alarm

It can be output to drive external buzzer or light to alert users by following steps:

1. Set the corresponding bit of the alarm to 1 (Enable) of “SOE mask bit” Modbus register.
2. Set alarm through “SOE alarm Set” for specific type of alarm/event via “Pickup Setpoint” register for threshold value, and the time delay via “Pickup Time Delay to avoid false alarm reporting.
3. Alarm will be trigged and output the pulse or level signal when the threshold is exceeded, and the latest alarm/event record can be read out through register “Last 1” to “Last 128” as well, supporting up to 128 records.

Factory reset

Long press reset button more than 10 s will let the Energy meter reset to factory default. Modbus configuration are set back to the factory value (for the default values, refer to the section “RS485 port setup, page 11”).

NOTE: Factory reset settings will only reset the following parameters:

- **Communication settings**: Device modbus address, RS-485 port baud rate and parity.
- **Digital output**: Digital alarm output settings, Digital alarm bit mask.

Parameters	Value
Control mode	Level mode or pulse mode
Pulse width	Range from 0 to 9999

Measurement and Calculation

Real-time readings

The Energy meter measures current and voltage and reports in the real-time RMS (Root Mean Squared) values for all six circuits.

The voltage and current inputs are continuously monitored at a sampling rate of 128 samples per cycle. The amount of resolution enables the Energy meter to provide reliable measurements and calculated electrical values for various commercial, building, and residential applications.

The Energy meter's registers refresh readings in such frequency as in below table:

Parameters	**Refresh frequency**
Voltage, Current, Active power, Power factor	250 msec
Frequency	Around 500 msec
Active energy	1 sec

Energy measurements

The Energy meter offers fully bidirectional active energy measurement. The Energy meter calculates and stores all accumulated active energy data in the non-volatile memory.

Power demand

Power demand is a measure of average power consumption over a fixed time interval.

The Energy meter measures instantaneous power consumption and can calculate demand using block interval demand method.

NOTE: If not specified, references to demand are assumed to mean power demand.

Power demand calculation methods

Power demand is calculated by dividing the energy accumulated during a specified period by the length of that period.

How the Energy meter performs this calculation depends on the method and time parameters (for example, timed rolling block demand with a 15 min interval and a 5 min sub-range).

The Energy meter provides calculation method for power demand based on the block interval demand.

Block interval demand

For block interval demand method types, specify a period of time interval (or block) that the Energy meter uses for the demand calculation.

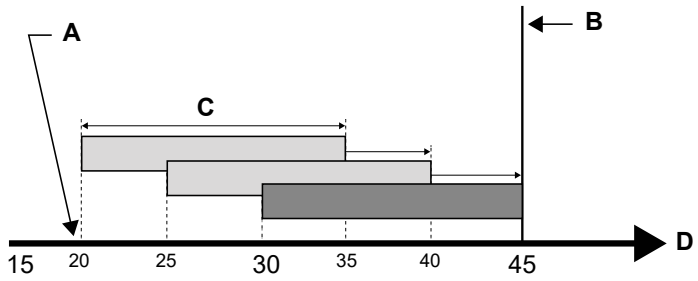
The Energy meter provides the timed rolling block method as below:

Type	Description
Timed rolling block	Select an interval and a subinterval. The subinterval must divide evenly into the interval (for example, three 5 min subintervals for a 15 min interval). Demand value is updated at the end of each subinterval. The Energy meter provides the demand value for the last completed interval in the register.

Block interval demand example

Below diagram shows how power demand is calculated with timed rolling block method. In this example, the interval is set to 15 min and subinterval is set to 5 min.

Timed rolling block



A. Calculation updates at the end of the subinterval (5 min)

B. Demand value is the average for the last completed interval

C. 15 min interval

D. Time (min).

Present demand

The present demand is calculated by the Energy meter based on the block interval method. You can set the demand interval from 1 to 60 min in increments of 1 min (for example, 15 min).

Peak demand

The Energy meter records the peak (or maximum) values of active power. The peak for each value is the highest average reading since the Energy meter was last reset. These values are saved in the non-volatile memory of the Energy meter. The Energy meter also stores the date and time when the peak demand occurred.

SOE event record

When events such as digital input changes, the power-on, power-off, and alarms of the Energy meter occur, the Energy meter will save these events in the non-volatile memory, which can be viewed through communication.

The table below displays the list of events that the Energy meter is capable of recording. Under the "SOE Type" column, it presents the event type number that appears in the SOE records within the Energy meter's registers when the event occurs. The "Event Name" provides specific details about the event; for instance, "Over current L1" indicates that the load current of channel 1 exceeds the pre-set threshold of the current value. For the threshold value setting, please consult the "SOE Alarm Threshold" section in the Modbus register table. To access the Modbus register table, kindly visit the web page of the Energy meters.

Event list for module R9M80X6M

SOE Type	Event Name	Remarks
01	Power-on	**Power changes**
02	Power-off	
03	Set parameters	**Commands**
04	Clear Energy	
05	Clear SOE record	
07	Overvoltage	**Alarms**
08	Undervoltage	
09	Over Current L1	
10	Under Current L1	
11	Over Current L2	
12	Under Current L2	
13	Over Current L3	
14	Under Current L3	
15	Over Current L4	
16	Under Current L4	
17	Over Current L5	
18	Under Current L5	
19	Over Current L6	
20	Under Current L6	
21	Over Power, Active L1	

Event list for module R9M80X6M (Continued)

SOE Type	Event Name	Remarks
22	Under Power, Active L1	
23	Over Power, Active L2	
24	Under Power, Active L2	
25	Over Power, Active L3	
26	Under Power, Active L3	
27	Over Power, Active L4	
28	Under Power, Active L4	
29	Over Power, Active L5	
30	Under Power, Active L5	
31	Over Power, Active L6	
32	Under Power, Active L6	
57	Low true power factor L1	
58	Low true power factor L2	
59	Low true power factor L3	
60	Low true power factor L4	
61	Low true power factor L5	
62	Low true power factor L6	
63	Over frequency	
64	Under frequency	

Event list for module R9MUX6M

SOE Type	Event Name	Remarks
1	Power On	**Power changes**
2	Power Off	
3	Set parameter	**Commands**
4	Clear energy	
5	Clear SOE	
7	Over Current L1	**Alarms**
8	Under Current L1	
9	Over Current L2	
10	Under Current L2	
11	Over Current L3	
12	Under Current L3	
13	Over Current L4	
14	Under Current L4	
15	Over Current L5	
16	Under Current L5	
17	Over Current L6	
18	Under Current L6	
19	Over Power, Active L1	
20	Under Power, Active L1	
21	Over Power, Active L2	
22	Under Power, Active L2	
23	Over Power, Active L3	
24	Under Power, Active L3	
25	Over Power, Active L4	
26	Under Power, Active L4	
27	Over Power, Active L5	
28	Under Power, Active L5	
29	Over Power, Active L6	
30	Under Power, Active L6	

Event list for module R9MUX6M (Continued)

SOE Type	Event Name	Remarks
55	Under Power Factor, True L1	
56	Under Power Factor, True L2	
57	Under Power Factor, True L3	
58	Under Power Factor, True L4	
59	Under Power Factor, True L5	
60	Under Power Factor, True L6	
61	Over Frequency	
62	Under Frequency	
69	Over Voltage 1	
70	Under Voltage 1	
71	Over Voltage 2	
72	Under Voltage 2	
73	Over Voltage 3	
74	Under Voltage 3	
75	Over Current L1L2L3	
76	Under Current L1L2L3	
77	Over Current L4L5L6	
78	Under Current L4L5L6	
79	Over Power, Active L1L2L3	
80	Under Power, Active L1L2L3	
81	Over Power, Active L4L5L6	
82	Under Power, Active L4L5L6	
91	Under Power Factor, True L1L2L3	
92	Under Power Factor, True L4L5L6	

Maintenance

Maintenance overview

This Energy meter contains no user-serviceable parts. If a Energy meter requires service, contact the local representative of Schneider Electric Technical Support.

NOTICE
ENERGY METER DAMAGE • Do not open the Energy meter case. • Do not attempt to repair any part of the Energy meter. **Failure to follow these instructions can result in equipment damage.**

IMPORTANT: Opening the Energy meter voids the warranty.

Troubleshooting via COM LED

Abnormal serial communications LED behavior could mean potential problems with the Energy meter.

Problem	Probable causes	Possible solutions
COM LED remains lit and does not flash	Internal hardware problem	Perform a hard reset: turn off control power to the Energy meter, then re-apply power. If the problem persists, contact Technical Support.

If the problem is not fixed after troubleshooting, contact Technical Support for help. Make sure you have your meter's firmware version, model, and serial number information available.

Energy meter memory

The Energy meter uses its non-volatile memory to retain data and configuration values.

Viewing firmware version

You can find the Energy meter’s firmware version from the Modbus communication.

In the corresponding register address, you can view the following items:

Device information	Device name, version number

Technical assistance

If you have technical questions, or you need support and assistance, please contact the Customer Care Centre in your country:

https://www.se.com/ww/en/work/support/country-selector/contact-us.jsp

Make sure to provide the model number, serial number, and firmware version of your Energy meter in your email or have such information available when seeking technical support.

Power, Energy and Power factor

The sampled measurements taken at the voltage and current inputs provide data for calculation of power, energy and PF.

Power flow

Positive active power P (+) flows from the source to the load. Negative active power P (–) flows from the load to the source.

Energy delivered (imported) /energy received (exported)

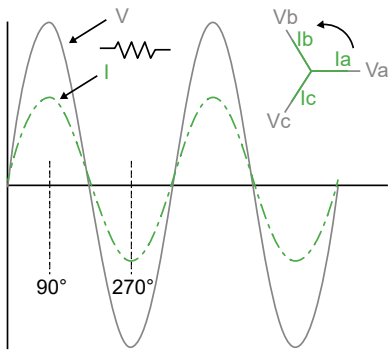
The Energy meter interprets energy delivered (imported) or received (exported) according to the direction of active power flow. Energy delivered (imported) means positive active power (+P) and energy received (exported) means negative active power flow (–P).

Current phase shift from voltage

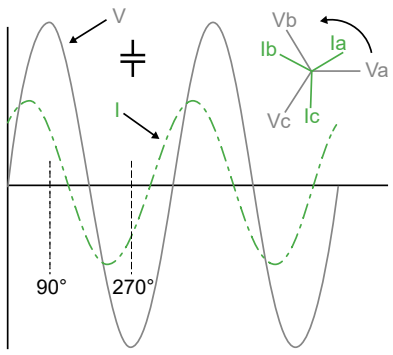
Electrical current can lag, lead, or be in phase with the AC voltage waveform and is typically associated with the type of load – inductive, capacitive, or resistive.

For purely resistive loads, the current waveform is in phase with the voltage waveform. For capacitive loads, current leads voltage. For inductive loads, current lags voltage.

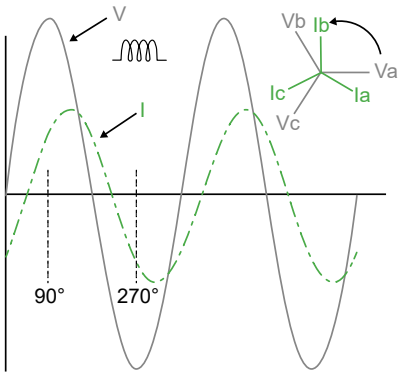
The following diagrams show how voltage and current waveforms shift based on load type under ideal (laboratory) conditions.



Current and voltage in phase (resistive)



Current leads voltage (capacitive)



Current lags voltage (inductive)

Power factor and Power factor total

Power factor (PF) is the ratio of active power (P) to apparent power (S).

PF is provided as a number between –1 and +1 or as a percentage from –100% to +100%, where the sign is determined by the convention.

PF= P/S

A purely resistive load has no reactive components, so its power factor is 1 (PF = 1, or unity power factor). Inductive or capacitive loads introduce a reactive power (Q) component to the circuit which causes the PF to become closer to zero.

Power factor total

The Energy meter R9MUX6M provides power factor total value for the 3-phase application. For example, channel 1, 2 and 3 are for a 3-phase measurement. Total power factor (PF_total) is the ratio of total active power (P_total) to total apparent power (S_total). Here total active power is the sum value of the active power of the three channels, and total apparent power is the sum value of the apparent power of the three channels.

P_total = P1 + P2 + P3

S_total = S1 + S2 + S3

PF_total = P_total / S_total

True PF and sign convention

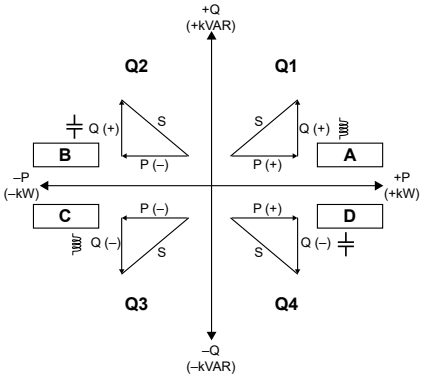
True PF

The Energy meter supports true power factor values:

- True PF includes harmonic content.

  NOTE: The PF displayed by the Energy meter is the true PF.

Power and PF lead/lag



Q1 Quadrant 1
Q2 Quadrant 2
Q3 Quadrant 3
Q4 Quadrant 4
A PF Lag
B PF Lead
C PF Lag
D PF Lead

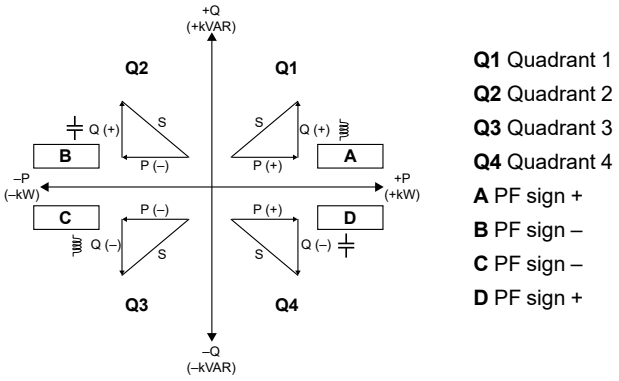
PF sign convention

Power factor sign (PF sign) can be positive or negative according to IEC standards.

PF sign convention: IEC

PF sign correlates with the direction of active power (kW) flow:

- Quadrant 1 and 4: Positive active power (+kW), the PF sign is positive (+).
- Quadrant 2 and 3: Negative active power (–kW), the PF sign is negative (–).



Q1 Quadrant 1
Q2 Quadrant 2
Q3 Quadrant 3
Q4 Quadrant 4
A PF sign +
B PF sign –
C PF sign –
D PF sign +

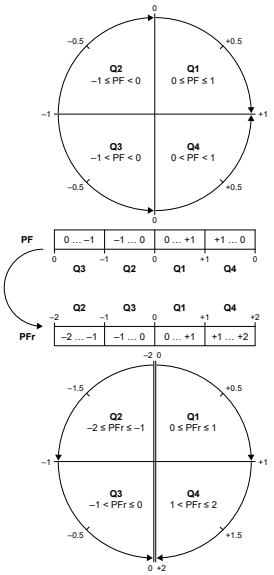
Power factor register format

The meter performs a simple algorithm to the PF value then stores it in the PF register.

The Energy meter provides two groups of registers for Power Factor values. In the register table, “Power Factor, Alternate Formate” is a set of Power Factor values for each of the 6 circuits, which provides value in range from –1 to +1. It follows the IEC standard and provides the true Power Factor value with positive value (0 to +1) meaning active power is positive, and with negative value (–1 to 0) meaning active power is negative.

Another group of registers under “Power Factor” in the register table is a set of Power Factor values for each of the 6 circuits that provides true Power Factor value in range from –2 to +2. It follows below convention to provide Power Factor values in the 4-quadrant system.

The Energy meter and software interpret the PF register for all reporting or data entry fields according to the following diagram:



Q1 Quadrant 1

Q2 Quadrant 2

Q3 Quadrant 3

Q4 Quadrant 4

PF Power factor

PFr PF register

The PF value is calculated from the PF register value using the following formula:

Quadrant	PF Range	PF register range	PF formula
Quadrant 1	0 to +1	0 to +1	PF value = PF register value
Quadrant 2	-1 to 0	-2 to –1	PF value =(-2) - (PF register value)
Quadrant 3	0 to –1	-1 to 0	PF value = PF register value
Quadrant 4	+1 to 0	+1 to +2	PF value =(+2) - (PF register value)

Specification

The specifications contained in this section are subject to change without notice. For installation and wiring information, refer to the Energy meter's instruction sheet.

Mechanical characteristics

IP degree of protection (IEC60529)	Housing: IP20 Front display: IP40
Installation method	DIN rail installation (width of 35mm)
Mounting position	Vertical
Weight	110 g (Module R9M80X6M) 120 g (Module R9MUX6M)
Dimensions W x L x H	27 x 70 x 113.6 mm (Module R9M80X6M) 36 x 70 x 114.6 mm (Module R9MUX6M)

Electrical characteristics

Auxiliary power supply

Item	Energy meter
Voltage	AC: 100-240 V, 50/60 Hz, DC: 80-265 V
Overvoltage category (auxiliary power)	CAT III
Power consumption	< 3 W at DC input; < 5 VA at AC input

Measurement accuracy

Item	Energy meter
Current	± 0.5%
Voltage L-N	± 0.5%
Power factor	± 1%
Active Power	± 1%
Frequency	± 0.02 Hz
Active energy	Cl.1 (Class 1 as per IEC61557-12)

Voltage inputs

Rated voltage	230 V L-N (Module: R9M80X6M) 230 V L-N, 400 V L-L (Module: R9MUX6M)
Impedance	≥ 1.7 MΩ
Frequency	50 Hz, ± 5 Hz

Current inputs

Measured current	20 mA to 80 A (CT: R9MCT80) * # 40 mA to 160 A (CT: R9MCT160) # 40 mA to 250 A (CT: R9MCT250) #
Withstand	Continuous at 80 A (CT: R9MCT80) * # Continuous at 160 A (CT: R9MCT160) # Continuous at 250 A (CT: R9MCT250) #
Impedance	≤ 20 mΩ
Frequency	50 Hz, ± 5 Hz

* For module R9M80X6M, only 80 A CT is supported.
# For module R9MUX6M, 80 A, 160 A, and 250 A CT are supported.

Environmental characteristics

Operating temperature	-25 °C to +60 °C
Storage temperature	-40 °C to +85 °C
Humidity rating	5% to 95% relative humidity at 50 °C (non-condensing)
Operating temperature	5% to 95% (non-condensing)
Storage humidity	10% to 100% (non-condensing)
Pollution degree	2
Altitude	≤ 2000 m (6562 ft)

Safety, EMC, Certification and Standards

Protective class	II Double insulated for user accessible parts
Certification	CE, UKCA
Safety Standards	IEC/EN/BS EN 61010-1
Standards compliance	IEC/EN/BS EN 62052-11 IEC/EN/BS EN 62053-21 IEC/EN/BS EN 61557-12

RS485 communications

Number of ports	1
Maximum cable length	1000 meters
Maximum number of devices (unit load)	Up to 15 devices on the same bus
Parity check	Even, odd, or none, Even by default
Baud rate	1200, 2400, 4800, 9600, 19200, 38400 Default 19200
Insulation	2.5 kV AC real RMS, double insulated

DO terminal

Relay output drive capability	24 VDC (max) / 0.05 A
Isolation voltage	Between contact and coil: 2 kV rms
Pulse output	400 imp/kWh

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