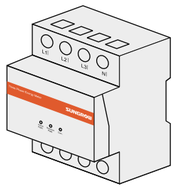
Quick Installation Guide

Three-phase

Sungrow Energy Meter



Applicability

This manual is applicable to Sungrow Three Phase Energy Meter used with

- residential PV grid-connected inverters: SG2K-S, SG2K5-S, SG3K-S, SG3K-D, SG5K-D, etc.
- residential grid-connected hybrid inverters: SH3K6, SH4K6, SH5K, SH5K-20, etc.

More inverters will be compatible in the future. Keep the manual in a convenient place for future reference. The latest manual can be acquiredat www.sungrowpower.com.

Target Group

Only qualified personnel with the following skills are allowed to perform the work described in this document:

- training in the installation and commissioning of the electrical system, as well as the dealing with hazards and local safety regulations;
- knowledge of all applicable standards and directives; and
- knowledge of and compliance with this manual and other related documents.

Symbols

Symbol	Explanation
DANGER	Indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium level of risk that, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazard with a low level of risk that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a situation that, if not avoided, could result in equipment or property damage.
	Indicates additional information, emphasized contents or tips that may be helpful, e.g. to help you solve problems or save time.

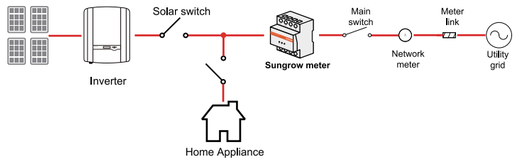
Intended Use

The Energy Meter is designed for indoor use only. It is a measuring device which detects the electrical values at the grid-connected point. It must not be used for billing purposes. The data collected by the Energy Meter relating to the PV power generation may deviate from the data of the main energy meter.

Any use other than described in this document does not qualify as appropriate usage and is not permitted. Do not make any modifications to the product.

Damage or destruction may be caused to the Energy Meter due to inappropriate usage. The Energy Meter must not be operated beyond the values specified in the technical data.

The Energy Meter must only be connected to the distribution board of household loads next to the main switch, as shown in the following figure. The inverter figure is for your reference only.



DANGER

Lethal voltages and danger to life due to electric shock!

- Only use the Energy Meter in a dry environment and keep it away from liquids.
- Install the Energy Meter in the switch cabinet only and ensure that the connection areas for the line and neutral conductors are behind an insulting cover or have contact protection.
- Install an external disconnect switch between the Energy Meter and the grid-connected point. The external disconnector must be close to the Energy Meter and easily accessible.
- Disconnect the Energy Meter from voltage sources before cleaning. The Energy Meter must be cleaned with a dry cloth only.

WARNING

Fire hazard

- If a fuse is missing or incorrect, a fire may be caused when a fault occurs. This can result in death or serious injury.
- Protect the line conductors of the Energy Meter with a fuse or a main/selective circuit breaker, max. 65 A.

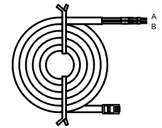
Technical Data

Item	Specifications
Nominal voltage	230 Vac / 400 Vac
Input voltage range	180 Vac–276 Vac
Self-consumption	<2 W (10 VA)
Max. operating current	65 A
Frequency	50 Hz
Measurement accuracy	Class I
Interface and communication	RS485
Ingress protection rating	IP20
Operating ambient temperature	-25℃ to 70℃
Relative humidity	0%–95%
Mounting method	35 mm DIN-rail
Dimensions (W x H x D)	85 x 72 x 72 (mm)
Weight	0.4 kg

1 Delivery Contents

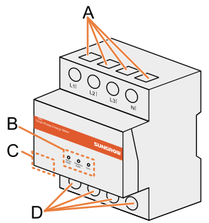
Related components in the scope of delivery:

- 1 x Energy Meter
- 1 x RS485 cable
- 1 x Quick installation guide



Meter RS485 cable

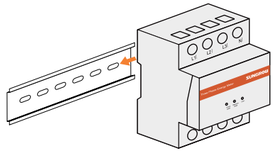
Three-phase energy meter and its terminals:



	Designation	Description
A	L1, L2, L3, N	Output terminals to the load side.
B	Active PWR	Glowing: 1000 impulse per kWh active power is detected. Off: no active power is detected.
	Reactivve PWR	Glowing: reactive power is detected. Off: no reactive power is detected.
	Com.	Glowing: the meter is communicating with the inverter. Off: no communication between the meter and the inverter.
C	RS485-A, -B	RS485 communication terminals.
D	L1, L2, L3, N	Input terminals from the grid side.

2 Installation

Mount the Energy Meter to the 35 mm DIN rail. Hook it into the top edge of the rail and press down until it snaps into place.

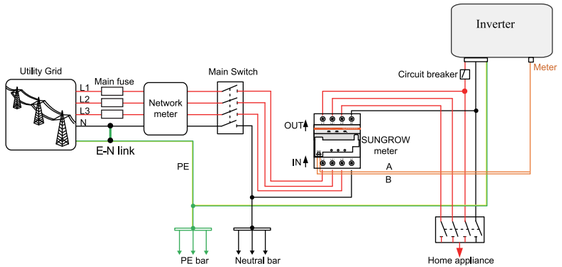


3 Cable Connection

The line conductor L1 supplies power to the Energy Meter. At least the line conductor L1 and the neutral conductor must be connected to switch on the Energy Meter.

Just connect the line conductor L1 and the neutral conductor, then the three-phase Energy Meter can be used as a single-phase meter.

The following figure shows a connection example for the three-phase system.
Electrical Connection for Applications < 65 A :

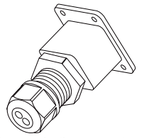


※ The E-N link connection only applies to Australia and New Zealand.

3.1 With PV grid-connected inverters

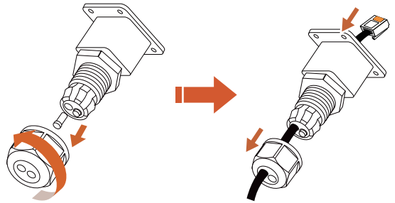
Step 1 Disconnect the connection point from voltage sources and secure it against reconnection.

Step 2 Take out the communication connector from the inverter's packaging.

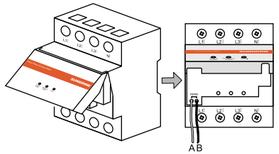


Communication connector

Step 3 Unscrew the swivel nut from the cable gland and remove the waterproof plug from the right inlet. Lead the A and B plugs from inside out through the connector. This will result in the cable with the RJ45 plug on the inside end, and the A and B plugs on the outside.



Step 4 Open the front cover and connect the RS485 wires to terminals A and B on the Energy Meter.

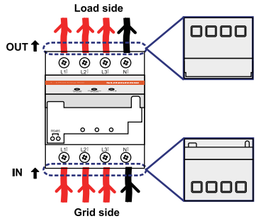


Step 5 Ensure that all the conductors to be connected are free of voltage. Strip the insulation from the power wires by 10 mm. Connect the wires to the terminals on the Energy Meter.

(Cross-section: 10 mm^2 to 25 mm^2)

NOTICE

Make sure that the arrows on the Energy Meter must point away from the grid towards the load.



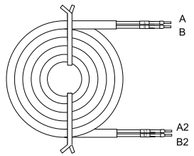
Step 6 For the connections on the inverter, refer to the user manual for the PV grid-connected inverter.

Step 7 Cover the Energy Meter with the insulting cover or contact protection of the sub-distribution. Switch on the power supply to the sub-distribution.

3.2 With grid-connected hybrid inverters

NOTICE

It is recommended to use the RS485 cable with terminals A2 and B2 to the hybrid inverter, but not the RS485 cable with a RJ45 plug.
The right cable for hybrid inverter is delivered with the inverter.



Follow the descriptions in **steps 4 to 7 in section 3.1** to complete the cable connection and then power on the Energy Meter.

4 Troubleshooting

The ***Com.*** LED glows during normal communication. If otherwise, refer to the following table for the troubleshooting.

Fault	Troubleshooting
●Error 514: The ***Com.*** LED is off. The Energy Meter is not supplied with power or fails to communicate with the inverter. ●Error 084: Reverse cable connections.	1. Check whether the power cable connections are correct. 2. Check whether the RS485 connection is correct.

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