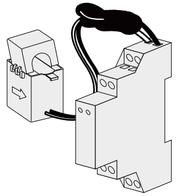
Quick Installation Guide

Single-phase

Sungrow Energy Meter



Applicability

This manual is applicable to Sungrow Single 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

Safety instructions will be highlighted with the following 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.

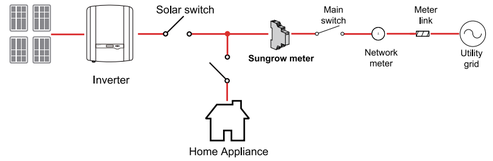
Intended Use

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. 100 A.

Technical Data

Item	Specifications
Nominal voltage	240 Vac
Input voltage range	180 Vac–286 Vac
Self-consumption	<2 W (10 VA)
Max. operating current	100 A
Frequency	50 Hz
Measurement accuracy	Class I
Interface and communication	RS485
Ingress protection rating	IP20
Operating ambient temperature	-25℃ to 75℃
Relative humidity	0%–95%
Mounting method	35 mm DIN-rail
Dimensions (W x H x D)	18 x 117 x 65 (mm)
Weight	0.2 kg

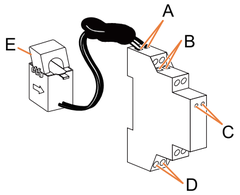
1 Delivery Contents

Related components in the scope of delivery:

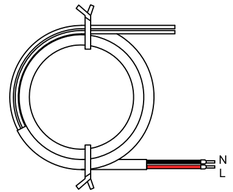
- 1 x Energy Meter
- 1 x Power supply cable
- 1 x RS485 cable
- 1 x Quick installation guide

Contact SUNGROW or the distributor in case of any damaged or missing components.

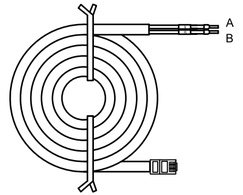
Single-phase energy meter and its terminals:



Designation		Description
A	1, 4	For the 1-phase sensor
B	2, 5	2 is for RS485-A 5 is for RS485-B
C	PWR/COM	Stead on: the meter is powered on. Flashing: the meter is communicating with the inverter. Off: no power supply to the meter.
	1000 imp/kWh	Glowing: 1000 impulse per kWh energy is detected. Off: no active power is detected.
D	3, 6	3 is for the line conductor 6 is for the neutral conductor
E	/	CT clamp for the 1-phase sensor



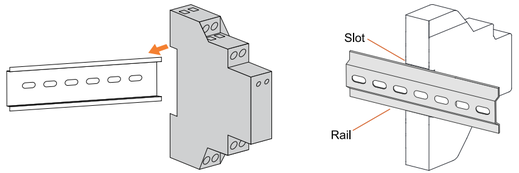
Power supply cable



RS485 cable

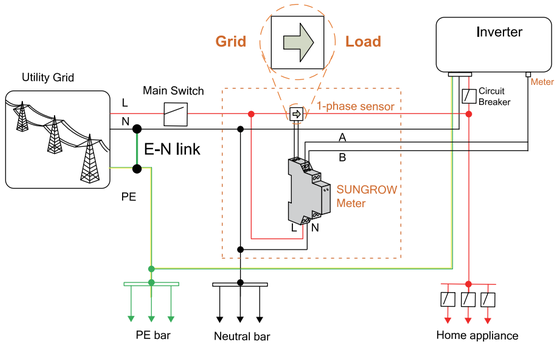
2 Installation

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 following figure shows a connection example for the single-phase system.
The CT clamp of 1-phase sensor can be placed before or after the main switch.
Electrical Connection for Applications <100 A:

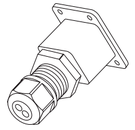


※ The E-N link connection only applies to Australia and New Zealand.

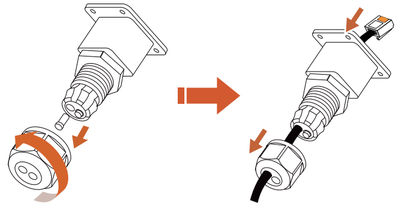
3.1 With PV grid-connected inverters

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

Step 2 Take out the communication connector from 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.

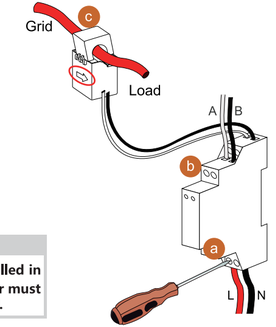


Step 4 Ensure that the conductors to be connected are free of voltage.
Connect the cables to the Enerty Meter.

(a) Tighten the power supply wires to terminal 3 (L) and terminal 6 (N).

(b) Tighten the RS485 wires to terminal 2 (A) and terminal 5 (B).

(c) Place the CT clamp around the phase wire (L) from the main switch.



NOTICE

Make sure that the 1-phase sensor is installed in the right direction: the arrow on the sensor must point away from the grid towards the load.

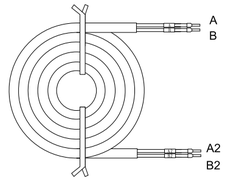
Step 5 For the connections on the inverter, refer to the user manual for the PV grid-connected inverter.

Step 6 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

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

Step 2 Take out the RS485 cable from inverter's packaging.



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.

Step 3 Connect the power supply cable and RS485 cable to the Energy Meter as described in step 4 in section 3.1.

Step 4 For the connections on the inverter, refer to the user manual for the grid-connected hybrid inverter.

Step 5 Cover the Energy Meter with the insulting cover or contact protection of the sub-distribution. Switch on the power supply to the sub-distribution.

4 Troubleshooting

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

Fault	Troubleshooting
• Error 514: The ***PWR/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 and the CT clamp connection are correct.

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Specifications are subject to changes without advance notice.