



English

Keep this document

Operating Instructions Power Measuring Unit

Model No. **MKG1500-DE**

- Thank you for purchasing.
- Please read Operating instructions and Installation Instructions carefully before using this product, and save this manual for future use.
- This manual and the Installation Instructions available online should be read carefully to ensure correct installation.
- This device is to be installed by designated qualified electrician only.
- Users are not to modify the device. Please call the service desk about any modifications or installation problems.
- Please follow the safety regulations of your region or country when installing or specifying electronic devices.

This user manual is a simplified version. A more detailed Installation Instructions is available online.

URL <https://industry.panasonic.eu/energy-building/home-iot>

Disclaimers

Panasonic will bear no responsibility in the following cases.

- If this product is used as a measurement device for billing purposes.
- If data is lost or corrupted due to malfunction of this product.
- If losses arise due to use other than as described in the manual.
- If losses arise due to remodelling, including to the construction, performance or specification of the product, without Panasonic's approval.
- If losses arise due to use in a task requiring a high level of safety.

This device is not to be used in systems directly or indirectly related to medical devices or human life.

- The safety for any system incorporating the equipment is the responsibility of the assembler of the system.

For Your Safety

- Installation should be performed by a qualified electrician.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Read these instructions carefully and look at the equipment to understand the devices before trying to install, operate, service, maintain it.

Explanation of symbols

- The following symbols are used to classify and describe the level of hazard, injury, and property damage caused when the denotation is disregarded and improper use is performed.
- Where this symbol is marked, in order to find out the nature of the potential HAZARD and any actions which have to be taken to avoid them.



WARNING

Denotes a potential hazard that could result in serious injury or death.



CAUTION

Denotes that a hazard that could result in minor injuries or property damage.

- The following are used to classify and describe the type of instructions to be observed.



This symbol is used to alert users to a specific operating procedure that must not be performed.



This symbol is used to alert users to a specific operating procedure that must be followed in order to operate the unit safely.



WARNING



Prohibited

- **Do not disassemble or remodel, as this could cause electric shock or fire.**
- **Do not connect using any cable other than a CT cable to the CT connector.**
Failure to comply could cause electric shock, fire or malfunction.



Compulsory

- **When installing or inspecting the device, switch the mains power off.**
Leaving the power on during installation or inspection may cause electric shock.
- **Do not use an IT earthing system, as this could cause electric shock or fire.**



CAUTION



Prohibited

- **Do not use outside the rated voltage.**
Doing so may cause an accident.



Compulsory

- **The power cable insulation should be removed to suit the strip gauge and inserted firmly.**
Insufficient insertion may cause overheating or fire.

Explanation of Symbols used on Device

Symbol	Description
	Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION
	CAUTION, possibility of electric shock
	<p>Disposal of Old Equipment Only for European Union and countries with recycling systems</p> <p>This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products must not be mixed with general household waste. For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation.</p> <p>By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment. For more information about collection and recycling, please contact your local municipality.</p> <p>Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.</p>

Uses for this product

- This product is for use with the Home IoT Gateway system (MKG100913) and cannot be used alone.
- Power calculations are made based on currents measured using the Current Transformers (thereafter omit to CT) and voltages from a voltmeter connected to the device.
- This product includes a CT cable set for main line (MAIN) measurement.
Extending the CT and 2m Cable for Power Measuring Unit (MKG1510-DE, Optional item) enables voltage measurement of Photovoltaics (PV) and storage batteries (SB).

CAUTIONS when handling / Things to know before use

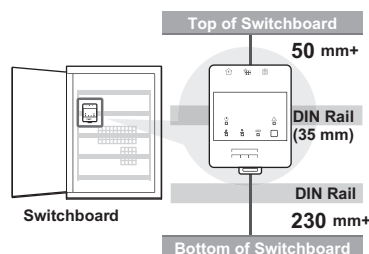
- Due to the different measurement point and measurement method, power measured using this product may differ from that given by a power conditioner, power usage readings provided by a power company or measurements taken with another device.
- When measuring devices with highly skewed current loads, this may be outside the range of the measurement parameters and an accurate reading may not be possible.
- This device is to be used with the N phase earthed. This device is not to be used with an IT earthing system.

Installation Method

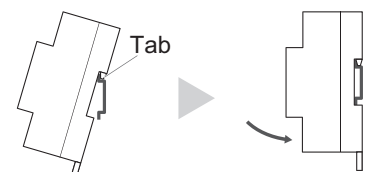
Package Contents			
			<p>Power Measuring Unit</p> <p>3x CT (MAIN use)</p> <p>CT Cable (2 m)</p>
Preparation			
			<p>3-phase 4-wire circuit breaker (max 20 A)</p> <p>2.5 mm² solid wire</p> <p>Flat-head screwdriver (2.0 to 3.5 mm)</p>

Working Space

CAUTION : Ensure that space is allowed to the top and bottom of the unit to enable easier installation and post-installation maintenance. Do not install anything in the space.



Installing the Unit

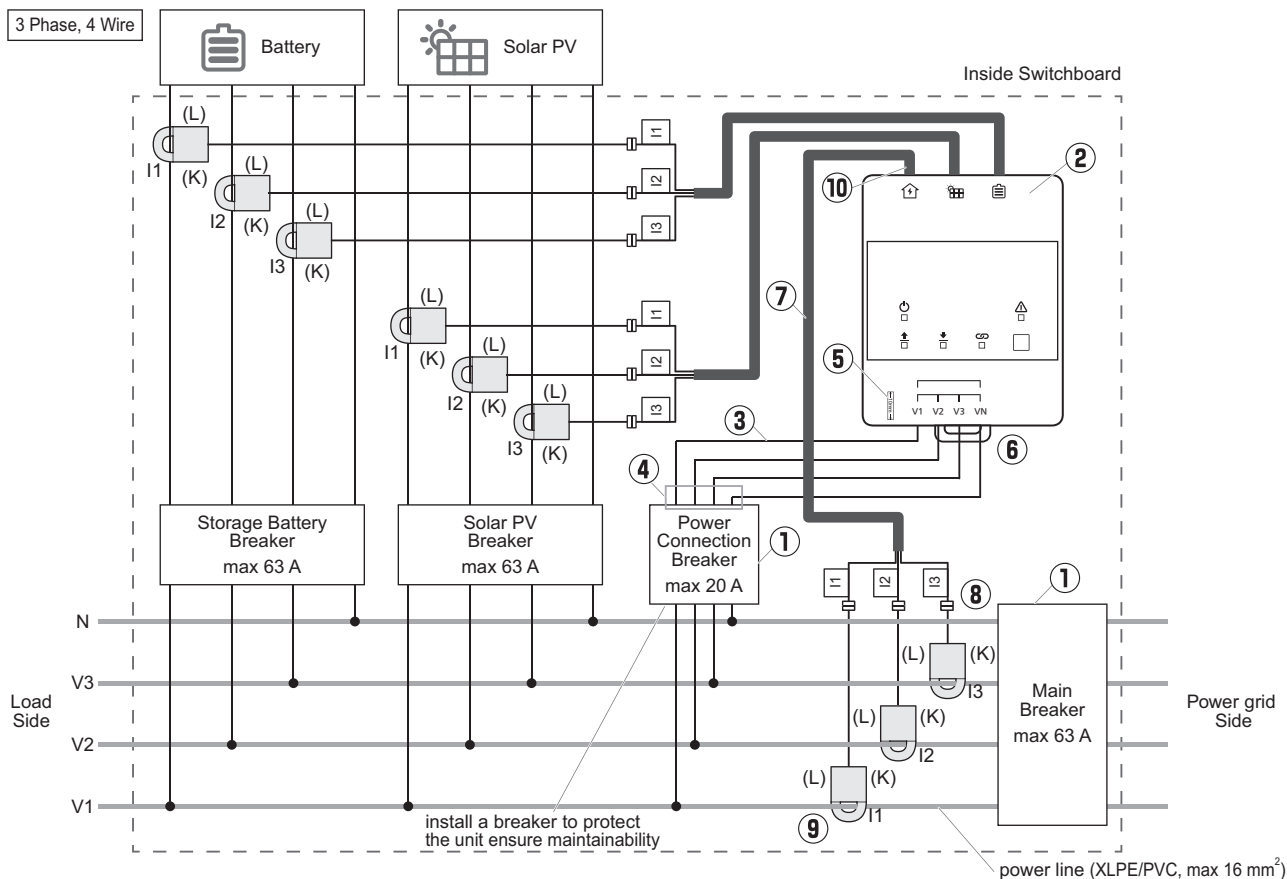


Hang the tab on the rear of the unit on the DIN rail.

Snap it onto the DIN rail.

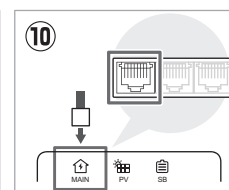
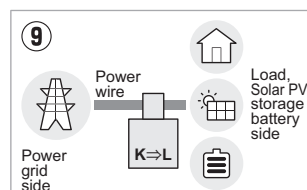
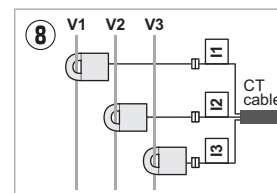
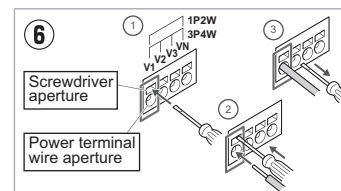
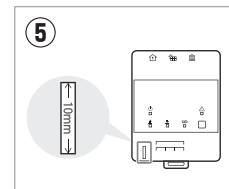
Wiring Diagram

※Numbers in figure refer to steps on [Connecting Power Supply and CT].



Connecting Power Supply and CT

- ① Ensure the main breaker and power connection breaker are OFF.
 - ② Installing the measuring unit to the DIN rail.
 - ③ Prepare the power wire and form the wire along a path from the power connection breaker to the measuring unit. If the power wire straddles the DIN rail, pass it through the rear.
 - ④ Prepare the power connection breaker end of the power wire and connect it to the power connection breaker.
 - ⑤ Remove 10mm of insulation from the measuring unit side of the power wire to match the unit's strip gauge. (Permissible power wire is solid wire 2.5 mm²)
 - ⑥ Connect power wires to the power connection terminal, as per the number of voltage phases displayed on the measuring unit. Power wire connection method: Push the power wire to the back of the power terminal wire aperture while a flat-head screwdriver is inserted into the screwdriver aperture. Once the power wire is fully inserted, remove the screwdriver to lock the power wire in position.
- CAUTIONS:**
- Do not insert a power wire into the screwdriver aperture.
 - Use a flat-head screwdriver with tip width 2.0 to 3.5 mm.
 - After connecting the power wire, check it cannot be removed by lightly tugging.
 - Do not use a bent, damaged or otherwise deformed power wire.
 - A damaged power wire can be trimmed.
 - Inappropriate wiring may cause poor retention, poor connection or overheating.
- ⑦ Pass the CT cable through from the measuring unit until sufficient space is available for installation of the main breaker CT.
 - ⑧ Connect the CT to the three separate side of the CT cable.
 - ⑨ Install the CT on the power wire as per the number of current phases stated on the CT cable. Ensure that there is no branch wire between the CT measurement point and the power grid, otherwise accurate energy measurement will not be possible. The CT cannot provide accurate measurements if the current phase installation positions differ. The CT has a polarity. When installing the power wire to the CT, ensure you follow the labelling on the CT. Use CT where the wire temperature is below 50 °C.
 - ⑩ Connect the other side of CT cable connector to the CT connector on top of the measuring unit labelled MAIN, after removing the cover. Leave the other covers as they are.



Checking Installation

- 1 Are the phases on the power connection breaker side of power terminal connection wires correct? (Step ④)
- 2 Are the measuring unit of power terminal wires on the correct phase and fully inserted? (Step ⑥)
- 3 Is the CT installed location and direction correct? (Steps ⑧ & ⑨)
- 4 Are the CT and CT cable installed in the correct position? (Step ⑨ & ⑩)
- 5 Turn the power connection breaker and main breaker ON, and check the measuring unit POWER LED lights up.
(ERROR LED (red) lights up once when powers ON)

After Checking, other cases

See below [**Information for Installation**] in case of ;

- For a single phase, 2 wire system
- Connecting to Home IoT Gateway
- For Solar PV or Storage Battery Measurement
- Removing and Exchanging

Information for Installation

Installation should be in accordance with the app and online Installation Instructions.

The app can be downloaded by searching "Panasonic Home IoT".



- App Store® is trademarks of Apple Inc., registered in the U.S. and other countries. Google Play and the Google Play logo are trademarks of Google LLC.

- online Installation Instructions

<https://industry.panasonic.eu/energy-building/home-iot>

Panasonic Home IoT

Search

Specifications

Usage	Power Measuring Unit
Dimensions	72 mm (W) × 90 mm (H) × 60 mm (D)
Weight	500 g
Rated Voltage	Single-phase 2-wire with earthed neutral : 220 - 240 VAC 3-phase 4-wire with earthed neutral: 220 - 240 VAC L-N, 380 - 415 VAC L-L 50 Hz, Voltage variance ± 10% ※N phase must be earthed
Rated Current of Current Transformer	63 A
Power Measurement Range	- 45 kW to + 45 kW (- 20 to + 20 W values reads as 0 W)
Power Consumption	2 W
Installation Conditions	Indoors, pollution degree 2, 2000 m or less above sea level residential fuse board, DIN rail (35 mm) installed, for home use
Temperature Range	- 10 to 50 °C
Relative Humidity	85 % RH or lower (no condensation)
Wireless Frequency	868 – 869 MHz
Transmission	<25 mW
Receiver Category (EN 300 220)	CAT II
Overvoltage Category (EN 61010)	300 V / CAT III
Measurement Category (EN 61010)	CAT III
Compatible Standards	EMC : EN 61326-1 EN 301 489-1 EN 301 489-3 EN 62311 RADIO : EN 300 220-2 SAFETY : EN 61010-1 EN 61010-2-030
Environmental Standards	RoHS REACH WEEE

Hereby, Panasonic declares that the radio equipment type MKG1500-DE is in compliance with Directive 2014/53/EU, and RoHS: 2011/65/EU as amended by (EU)2015/863

The full text of the EU declaration of conformity is available at the following internet address:

<http://www.ptc.panasonic.eu>

Panasonic Corporation

Address: 1048, Kadoma, Osaka 571-8686, Japan

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Panasonic Switchgear Systems Co., Ltd.

Address: 1123, Tsunoda, Sango, Owariasahi, Aichi 488-8520, Japan

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