

Panasonic® KW7M Eco-POWER METER

Installation instructions

Read these instructions carefully for proper installation. After installation, keep it in a safe place for reference when required. Refer to the user's manual in detail.

Before using, master the knowledge of the equipment, safety information and all of other notes.

WARNING A handling error could cause serious physical injury to an operator and in the worst case could even be fatal.

- Always take precautions to ensure the overall safety of your system, so that the whole system remains safe in the event of failure of this product or other external factor.
- Do not use this product in areas with inflammable gas. It could lead to an explosion.
- Exposing this product to excessive heat or open flames could cause damage to the lithium battery or other electronic parts.

1. Before use

- Eco-POWER METER is designed chiefly to manage saving energy. It is neither intended nor can it be legally used for billing.
- Please use Eco-POWER METER according to the specification described. Otherwise, it may malfunction or cause fire and an electric shock.
- Connect Eco-POWER METER to the power supply in compliance with the rating.
- Refer to the wiring diagram to ensure proper wiring for the power supply, input and output.
- Use an electric wire applicable to the rated current.
- Do not perform wiring or installation with a live line. It may also lead to circuit burnout or fire by way of the secondary CT side opening.
- Do not connect voltage input wires parallel to high-voltage or power cables and avoid using the same conduit. Use shielded wires as short as possible.
- Do not add voltage and current to an output terminal from outside.
- Do not turn on the power supply or input until all wiring is completed.
- Do not use at secondary side circuit of inverter. It might cause exothermic heat or damage.
- The power supply terminal and voltage input terminal of the main unit is common. Therefore if additional noise effects the power supply line, incorrect measurements may result.
- Installation and wiring must be performed by expert personnel for electrical work or electric piping.

Eco-POWER METER is designed to be used installing in a control panel.

Please wipe dirt of the main unit with soft cloth etc. When thinner is used, the unit might deform or be discolored.

The in the print symbol is a double-insulated symbol.

When using in the application confirming to EN61010-1/IEC61010-1, make sure to satisfy the following conditions.

- Oversupply category: II, Pollution degree 2
- Indoor use
- An ambient non-condensing humidity of 30 to 85%RH (at 20°C)
- A minimum of dust, and an absence of corrosive gases
- Few mechanical vibrations or shocks

This product has been developed / produced for industrial use only.

Manufacturer : Panasonic Industrial Devices SUNX Co.,Ltd.

2431-1 Ushiyama-cho, Kasuga-shi, Aichi, 486-0901, Japan

Importer : Panasonic Electric Works Europe AG

Caroline-Herschel-Strasse 100, 85521 Ottobrunn, Germany

Contact for CE: Panasonic Marketing Europe GmbH Panasonic Testing Center Winsberg 15, 22525 Hamburg, Germany

2. Part Names and Functions

① Display indicator ----- Lighting or Blinking according to the display

② LOCK indicator ----- Lighting while in lock mode

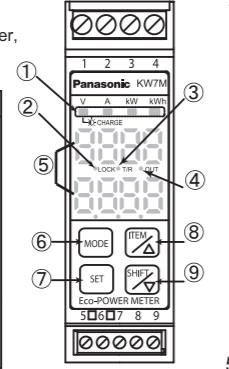
③ T/R indicator ----- Blinking while communication

④ OUT indicator ----- Lighting when pulse output

⑤ Display each value ----- Display Electric energy, Instantaneous power, Current, Voltage, Electricity charge

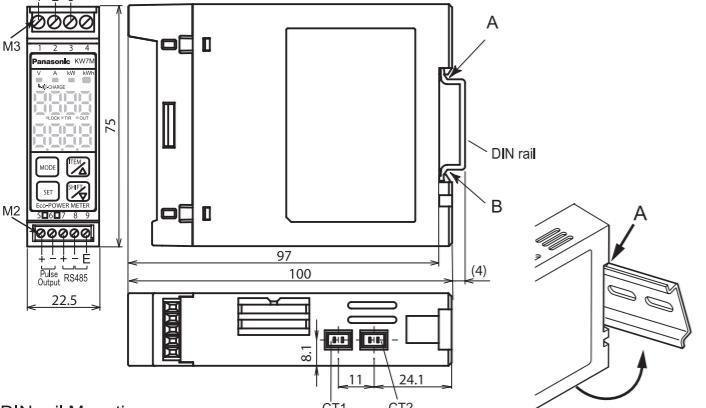
⑥ Display each setting value

| Key | Functions |
|-------------------------|--|
| ⑥ <MODE> | • Use to select mode |
| ⑦ <SET> | • Use to set each value entered |
| ⑧ <ITEM/Δ> | • To select measured display • To shift each mode • To change each setting value |
| ⑨ <SHIFT/▽> | • To select measured display • To shift each mode • To change each setting value |
| <SET>+(MODE) | • Reset the measured value |
| <SET> | • All keys locked |
| continuous press(3-sec) | • Release lock mode while in lock mode |



3. How to Mount

Dimensions (unit: mm)



DIN rail Mounting

- Hook A of main unit on the upper side of DIN rail.
- Making A part as a support, fit B the lower part of main unit to DIN rail.
- Main unit will be completely fixed to DIN rail with a "Click" sound.

Weight
Approx. 100g

Panasonic Industrial Devices SUNX Co., Ltd.
<https://panasonic.co.jp/pids/global/>

4. How to Wire

Use dedicated current transformer (CT) for power measurement.

- Be sure to wire according to the wiring diagrams.
- Please connect a breaker to the voltage input part for safety reasons and to protect the device. The breaker that connects to the voltage input part must arrange at the position easily reached, and display shows it is the breaker of the equipment.
- Do not turn on the power supply or input until all wiring is completed. After completed, turn on the power supply and turn off and power on again.

◆ Terminal Arrangement

| No. | Function | No. | Function |
|-----|---------------|-----|-----------------|
| 1 | 1,R,R | 5 | Pulse output(+) |
| 2 | 2,N,S | 6 | Pulse output(-) |
| 3 | 3,T,T | 7 | RS485(+) |
| 4 | No Connection | 8 | RS485(-) |
| | | 9 | RS485(E) |

▲ The input voltage to each terminal is as follows.

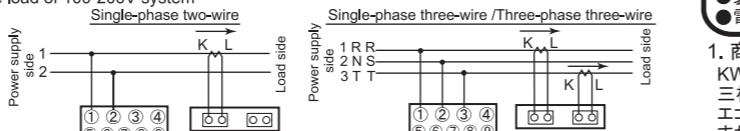
| Phase and wire system | Terminal | Input voltage |
|-------------------------|-----------|--|
| Single-phase two-wire | ① - ② | 100-120/200-240VAC (100-120/200-240V~) |
| Single-phase three-wire | ① - ② - ③ | 100-120VAC (100-120~3W) |
| Three-phase three-wire | ① - ② - ③ | 100-240VAC (100-240V 3~) |

◆ Power supply

~AC symbol

◆ Wiring Diagrams

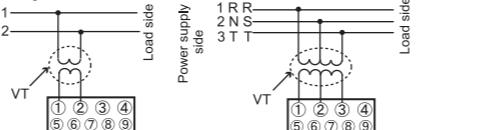
1) Measure load of 100-200V system



2) Measure load of 400V system

Voltage Transformer (VT) is needed to measure over 240VAC.

Use commercial VT, those secondary rating is 110V.



◆ Caution for Wiring

1) Terminal fastening torque should be 0.5 to 0.6 N·m for No.1 to No.4 (M3 screw) and 0.22 to 0.25 N·m for No.5 to No.9 (M2 screw).

2) Use wire with its cross section of 0.14~1.5mm²(AWG#26~14) for voltage input terminal (No.1,2,3), use wire with its cross section of 0.4~1.0mm²(AWG#26~16) for pulse output terminal (No.5,6,8), use wire with its cross section of 0.3~1.0mm²(AWG#22~16) for communication terminal (No.7,9,0). When connecting 2 or more to communication terminal, use same wires with its cross section of 0.3~0.34mm².

3) This has no built-in power switch, circuit breaker or fuse. Therefore it is necessary to install them in the circuit near this unit. (Recommended fuse: Time-lag fuse, rated voltage 250V AC, rated current 2A)

4) We recommend the below ferrules (terminals) for wiring. (We don't recommend when 2 or more wires are connected.)

5) Use wire less than 10m for input and less than 100m for output.

6) Use a flame-resistant cable for all wiring.

◆ How to attach the Current Transformer (CT)

Using all CTs should be the same.

When connecting CT, connect the secondary side to the terminal of the main unit first, and after that wire the primary side to a load electric wire. The CT has polarity. Wire correctly according to the K and L marks.

Check beforehand that the thickness of the electric wire is smaller than the through-hole of the CT. If you use a CT that separates at the bottom, make sure it is closed securely once the wire is in place; if not an error in measurement will occur.

When CT's cable is extended, it is possible to extend up to about 10m with the cable of AWG#22 or more cross section under the environment without noise at all. Please use the thick cable as much as possible.

Only same color housing of cable and connector of CT can be connected. That of different color (blue and white) can't be connected.

◆ RS485 Wiring and Terminal setting

1) When using shielded cable for the RS485 transmission line, ground one end.

Use a class D dedicated earth for grounding.

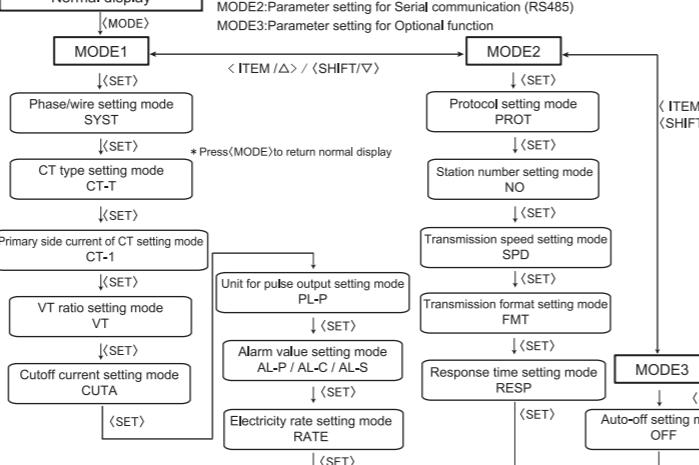
2) Be sure to connect with daisy chain the RS485 transmission line between each unit.

Do not use a splitter.

3) With a terminal station, RS485(E) (No.9) and RS485(-) (No.8) should be shorted.

4) Use a shielded wire for transmission system in case of using as S-Mark applicable product.

5. Operation Procedure



For User's manual
You can download the user's manual from our website.
Anyone who needs help should contact us at the following.
Overseas Sales Division (Head Office)
2431-1 Ushiyama-cho, Kasuga-shi, Aichi, 486-0901, Japan Phone: +81-568-33-7861 FAX: +81-568-33-8591
About our sale network, please visit our website.
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Panasonic® KW7M Eco-POWER METER

保管用
施工説明書

ご使用になる前に必ずこの施工説明書をよくお読みいただき、正しく施工してください。そのあと、大切に保管し、必要なときにお読みください。尚、詳細はユーザーズマニュアルをご覧ください。

◆ 安全上のご注意 ケガや事故防止のため、以下のことを必ずお守りください。
! 警告
● 本製品の故障や外部要因による異常が発生しても、システム全体が安全側に働くように本製品の外部で安全対策を行ってください。
● 燃焼性ガスの雰囲気では使用しないでください。爆発の原因となります。
● 本製品を火中に投棄しないでください。電池や電子部品などが破裂する原因となります。

◆ 注意
● 异常発熱や発煙を防止するため、本製品の保証特性・性能の数値に対し余裕をもたせて使用してください。
● 分解、改造はしないでください。異常発熱や発煙の原因となります。
● 通電中は端子に触れないでください。感電のおそれがあります。
● 非常停止、インターロック回路は外部で構成してください。
● 電線やコネクタは確実に接続してください。
接続不十分な場合は、異常発熱や発煙の原因となります。
● 製品内部に液体、可燃物、金属などの異物を入れないでください。異常発熱や発煙の原因となります。
● 電源を入れた状態では施工（接続、取り外しなど）しないでください。感電のおそれがあります。

1. 商品概要

KW7Mエコパワーメータは、DINレール取付タイプの電力量計です。単相2線式、単相3線式、三相3線式の電力、電圧、電流などを計測します。エコパワーメータは、省エネ目的の自管理用の商品で、課金目的に使用できません。また、計量法に定める指定機関が行う検定に合格した特定計量器ではありませんので、電力量の証明には使用できません。

2. ご使用前に

● 火災・故障・誤作動や感電の原因となりますので、記載された仕様範囲内で使用してください。
● 定格にあった電源に接続してください。
● 電源・入力・出力は、結線図を参照して正しく配線してください。
● 全ての電線サイズは定格電流に適合したものを使用してください。

● 活線工事は行わないでください。感電または短絡やCT2次側開放により故障するおそれがあります。
● 電圧入力の入力線は、高圧線・動力線との平行配線、同一電線管配線を避け、できるだけ短く配線してください。

● パルス出力端子は外部から電圧・電流を加えないでください。

● 全ての配線は終了するまで電源及び入力をONにしないでください。

● インバータの2次側回路では使用しないでください。本体の発熱や故障の原因になります。

● 本体の電源端子と電圧入力端子は共通のため、電源ラインにノイズが加わると正確に計測できないおそれがあります。

● エコパワーメータの配線作業は電気工事・電気配線などの専門技術を有する人が行ってください。

● エコパワーメータは、制御盤内に設置して使用することを前提に製作されています。

● 本体の汚れは柔らかい布などで乾拭きしてください。

(シナーラー類を使用した場合、本体の変形・変色などのおそれがあります。)

◆ ENG1010-1/IEC61010-1を適用される用途にご使用の場合は以下の条件にてご使用ください。

● 過電圧カテゴリ: II、汚染度: 2
● 屋内使用
● 使用温度範囲/使用湿度範囲:
-10~+50°C / 30~85%RH
(20°Cにて) 結露なきこと