

# Panasonic

ideas for life

## Eco-POWER METER

Simple Watt-Hour Meter **KW4S**

On the lookout for wasted electricity!

Now even more powerful  
with communication function  
and easy PLC connection!



Air conditioner



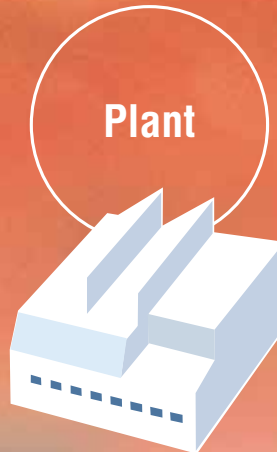
Lights



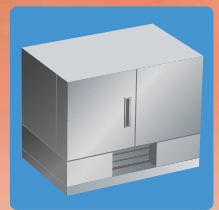
PC



Elevator



Line process



Constant-temperature oven

For maintenance and control in applications involving energy saving and environmental protection

Integrated electrical energy Voltage Current Electricity charge

Keeping a watchful eye.



Eco-POWER METER **KW4S**  
ARCT1B247E '05.1

**New**

<http://www.nais-e.com/>

Panasonic...the new name for **NAIS**

01/2005

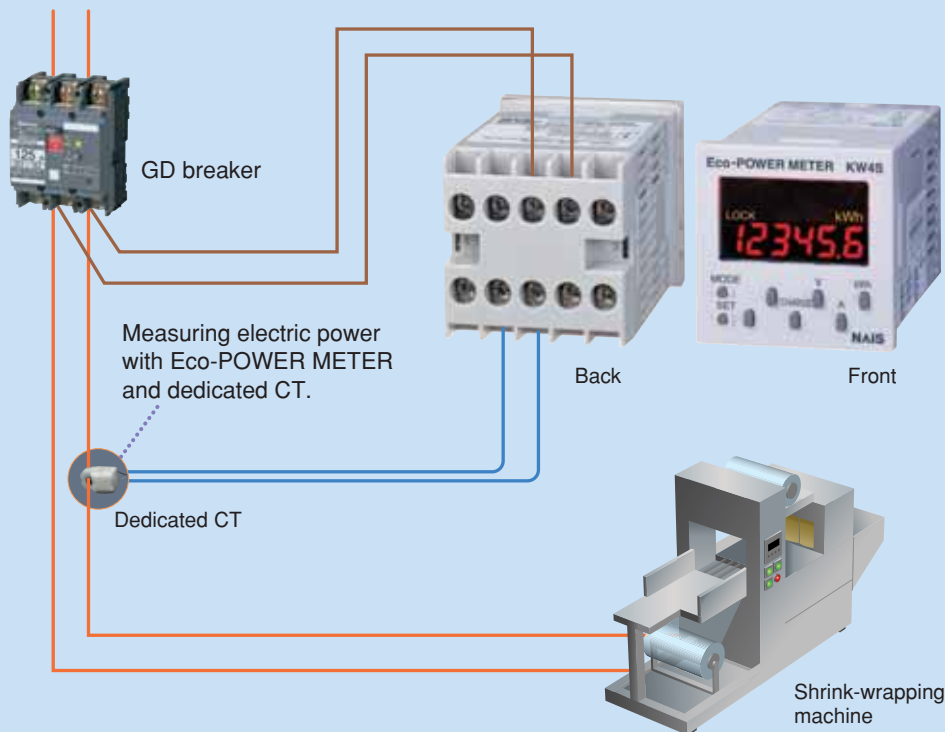
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Matsushita Electric Works, Ltd.

1  
Example

## Electric power measurement for individual equipment and machines

Measure electric power easily with Eco-POWER METER.



**Easy connection**

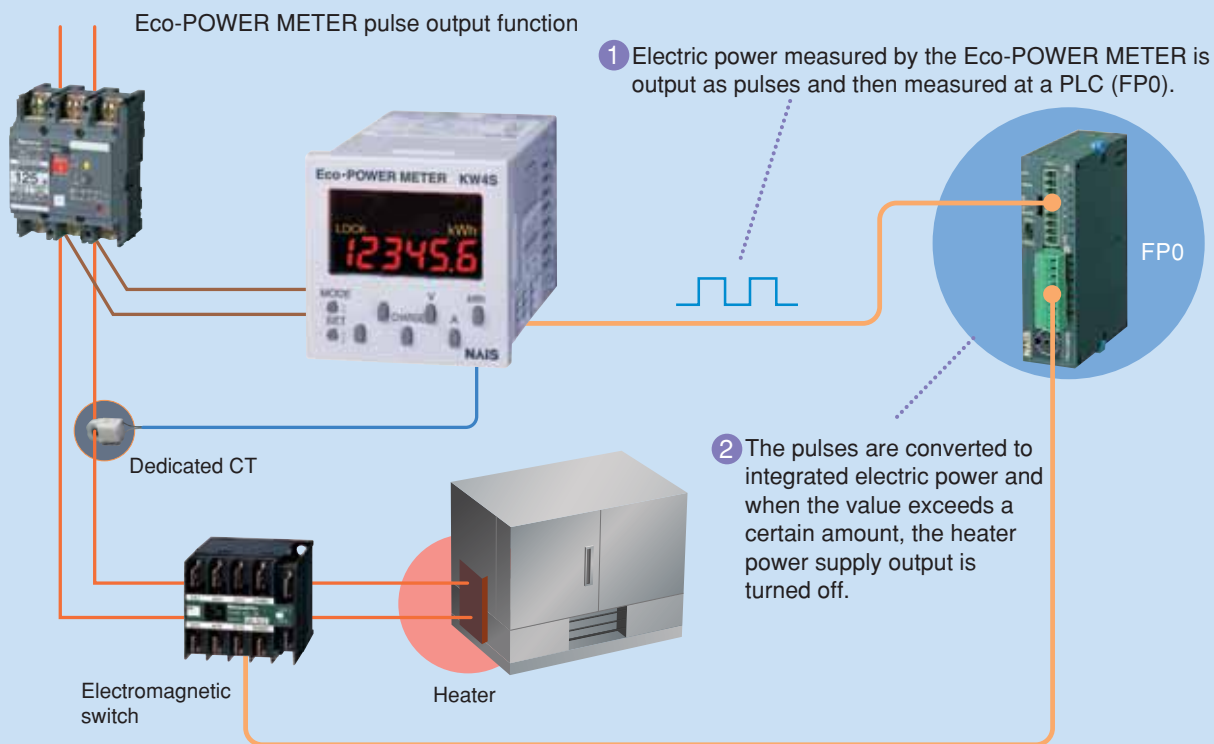
Clamp a CT below the machine's power supply breaker and measure the power consumption with the Eco-POWER METER.

• Please see the catalog (BBCT1B146N) for details about the GD breaker.

2  
Example

## Alarm output when heater is ready for replacement

Easy systemization



• Please see the catalog (BBCT1B135) for details about the electromagnetic switch.

Always on the lookout for wasted electricity, Eco-POWER METER is there to assist in the energy-saving activities of all customers.

### Configuration Examples

(Alone and as system)

#### 1. Standalone measurement

Eco-POWER METER



#### 4. Gathering data with PLC

#### 2. Data management with PLC

#### 3. Data management with computer (Using data collection software)

#### 5. Managing data with Web Datalogger Unit

Pulse output

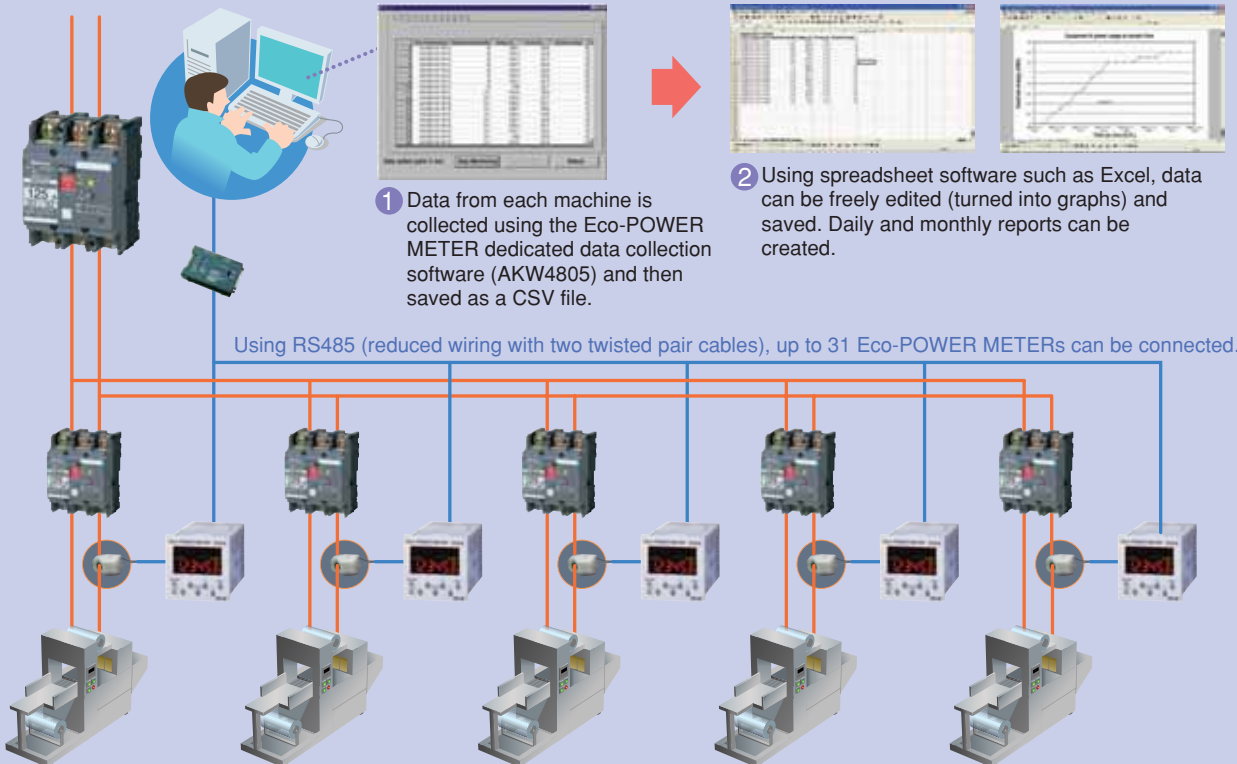
MEWTocol

# 3

## Gathering power consumption data from each manufacturing machine

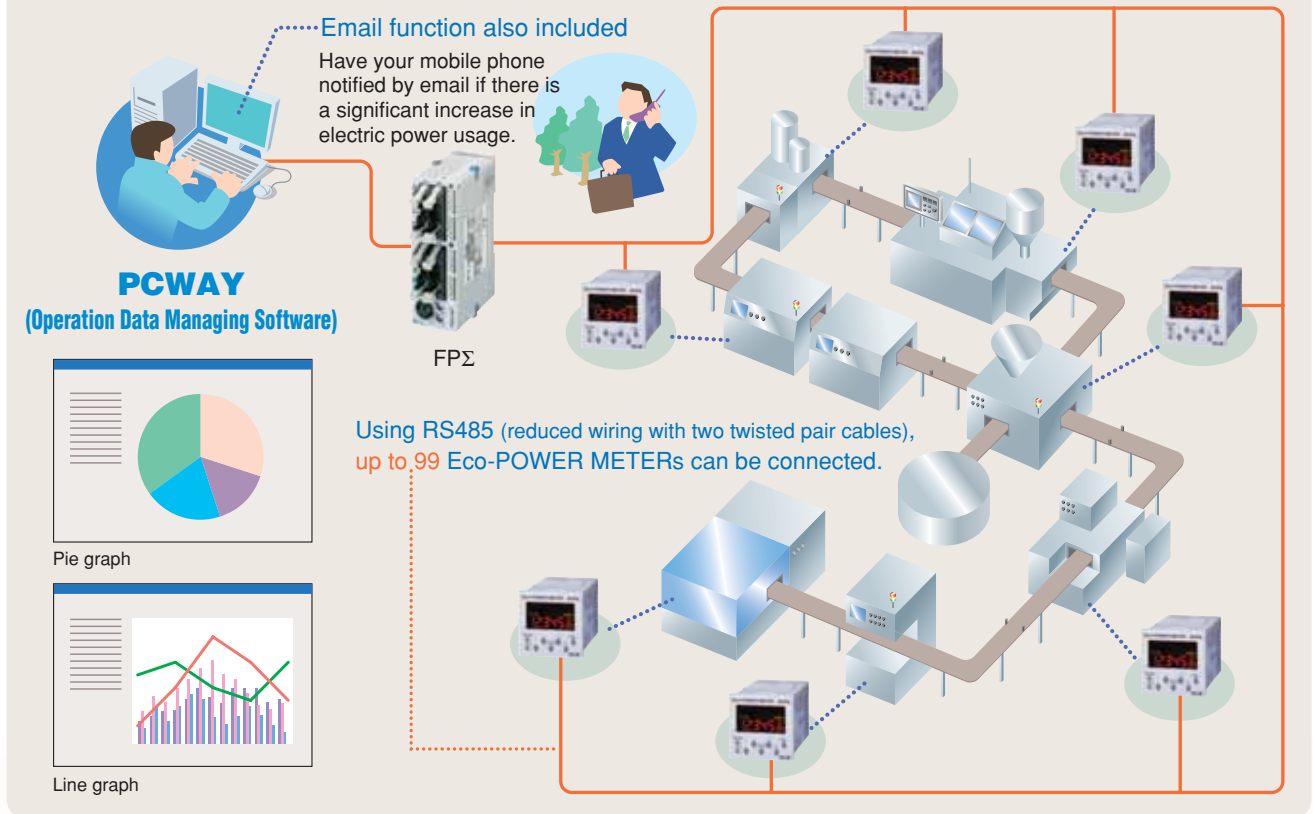
Example

### Automatic gathering of electrical power



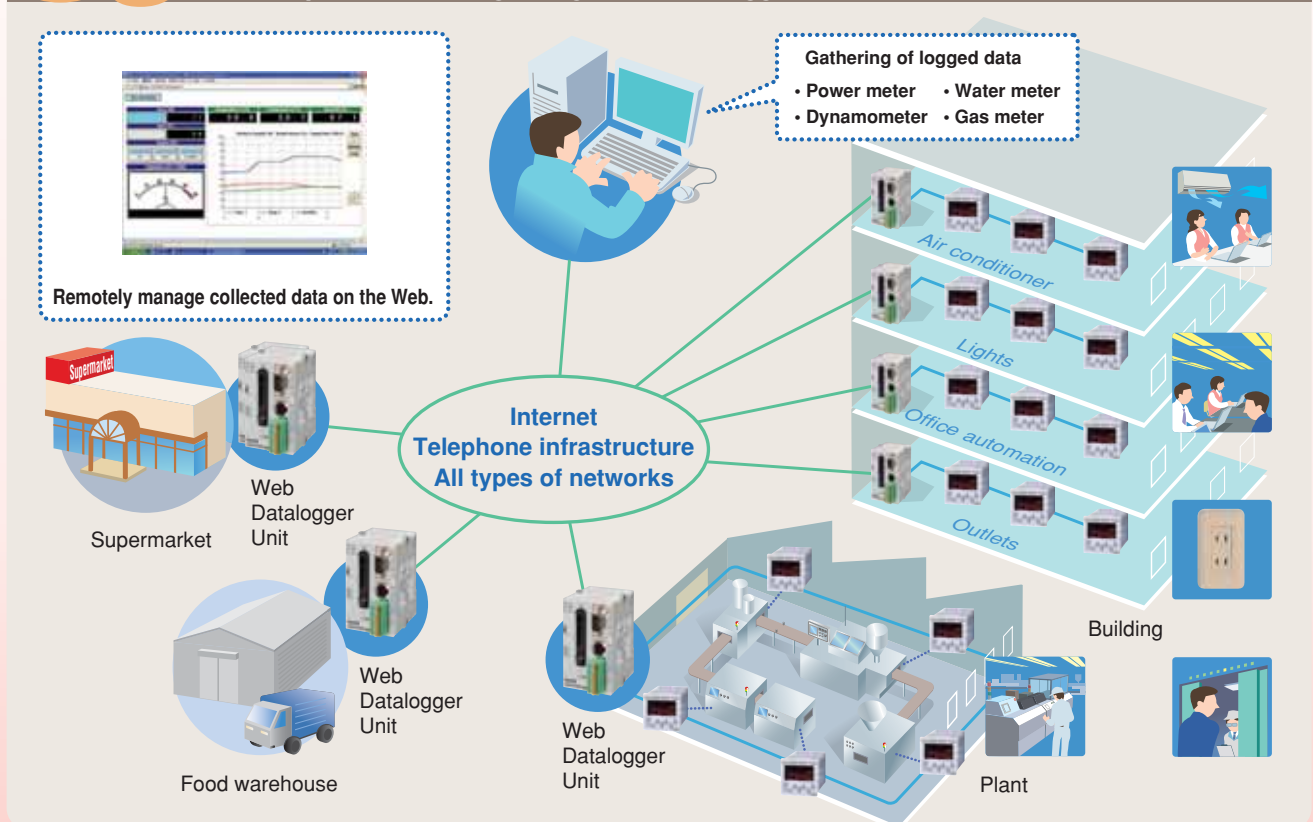
# Example 4 Electric power watching in manufacturing lines

## Electric power watching using PLC with Eco-POWER METER



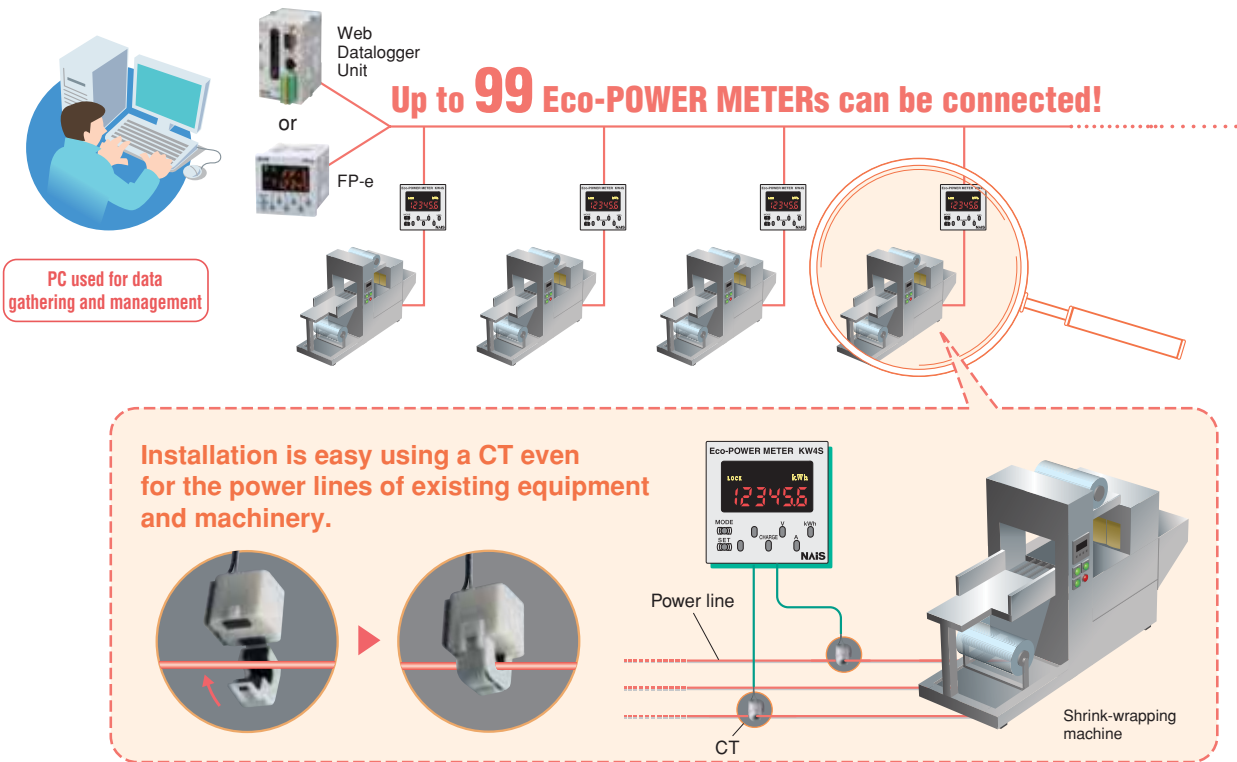
# Example 5 Electric power data collection and remote watching of plants and buildings

## Electric power watching using Web Datalogger Unit with Eco-POWER METER





## System Diagram

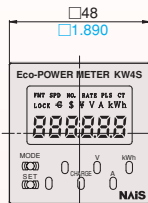


- Please see the catalog (ARCT1E208E) for details on the Web Datalogger Unit.
- Please see the "FP series Programmable Controllers" catalog (ARCT1B230E) for details on the FP-e and FP0 PLC.

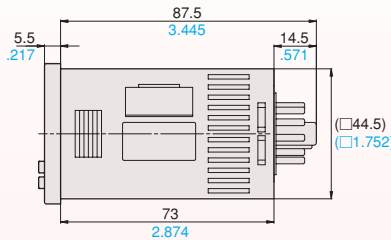
## Dimensions

### Eco-POWER METER KW4S

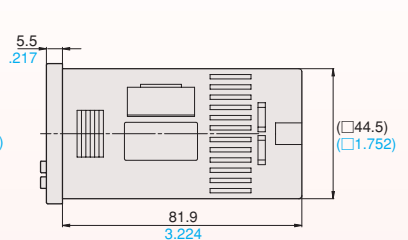
(Display: Integrated electrical energy, Voltage, Current and Electricity charge)



1) Pin type



2) Screw terminal type



## Types and Specifications

### Types

		Current	Changes
Features added	Communication protocol	Only dedicated protocol	Dedicated protocol and MEWTOCOL
	Station number setting	1 to 31	1 to 99 (Note)
Change	Communication format setting	Setting start → Communication format change	Setting start → Protocol switch (dedicated or MEWTOCOL) → Communication format change
	Instruction Manual	—	Above content and communication procedure added.

Note: You must use 1 to 31 when selecting the dedicated protocol (Eco-POWER METER data collection software: AKW4805).

### Communication specifications

Interface	Conforming to RS485	
Protocol	Our method	
Isolation status	Isolated with internal circuit	
No. of connected units	99 units*	
Transmission distance	1,200m	
Transmission speed (Baud rate)	2,400, 4,800, 9,600, 19,200 bps (In each setting mode, settings can be made with front panel keys.)	
Transmission data format	Data length	7-bit/8-bit (In each setting mode, settings can be made with front panel keys.)
	Parity	Not available/Odd/Even (In each setting mode, settings can be made with front panel keys.)
	Stop bit	1 bit (Fix)
Communication method	Half duplex	
Synchronous method	Start-stop synchronous method	
Terminating resistor	Approx. 120Ω (internal)	

### MEWTOCOL-COM commands

The Eco-POWER METER supports five commands.

- RD: Data area read command
- WD: Data area write command
- MD: Monitor data save and save reset command
- MG: Monitor execute command
- RT: Status read command

\*We recommend the SI-35 of Lineeye Co., Ltd., for the RS485 converter on the PC side. (When using SI-35, FP2-CB485 (for FP2-MCU), FPΣ (COM3 and COM4) or FP-e, the maximum number you can connect is 99. When using with devices other than these, the maximum number will be limited to 31.)

## KW4S Eco-POWER METER

### 1. Electricity meter that acts like an industrial component (DIN size: 48x48)

Eco-POWER METER is both compact and inexpensively priced. It is easy to install on your existing equipment and machinery.

### 2. Digitally display integrated electrical energy and electricity charges

You can digitally display integrated electrical energy, voltage, current, and electricity charges. This is handy for managing energy-saving.

### 3. Log and track data of integrated electrical energy usage

It is easy to load the power usage pulse output into a PLC or counter.

### 4. Centrally manage integrated electrical energy, voltage, and current

Adopts the RS485 for communication specification. This allows you to log data (integrated electrical energy, voltage, and current) from up to 99 units on a PC and PLC.



Dedicated CT

Eco-POWER METER

#### ●Product types

Product name	Phase and wire system	Rated input	Current transformer	Terminal type	Part No.
Eco-POWER METER Main unit	Single-phase two-wire system Single-phase three-wire system Three-phase three-wire system	100 to 120/ 200 to 240V AC	Dedicated CT type	Screw terminal	AKW4111
				11-pins	AKW4211
	Commercial CT type		Screw terminal	AKW4121	
			11-pins	AKW4221	
Dedicated current transformer (CT)	Only used for AKW4111, AKW4211			AKW4801	
Data collection software for Eco-POWER METER				AKW4805	

## KC2S Eco-COUNT METER/KE2S Eco-HOUR METER

### 1. Easy to install on existing machinery

Just attach the dedicated CT to your existing cables. There is no need to install any additional cabling.

### 2. Built-in battery

The built-in battery allows the units to be installed anywhere.

### 3. Economically priced

### 4. Compact size doesn't take up space (DIN 24 x 48)

Easy to install even in cramped spaces.

### 5. Two installation methods available (Separate models)

Two installation methods are available: The extremely easy-to-use one-touch installation, and the installation frame installation, used for timers/counters (protective construction IP66). Select the installation type that suits the location.

### 6. Letter's height is 8.7 mm

A large LCD panel is used, with a highly legible 8.7 mm letter's height.

### 7. Conform to CE marking (EMC directive)



Eco-COUNT METER

Eco-HOUR METER

#### ●Product types

##### KC2S Eco-COUNT METER

Product Name	Installation type	Front reset	Measurement count range	Part No.
Eco-COUNT METER main unit*1	Installation frame type*2	Available	0 to 99999999	AKC2421
	One-touch installation type			AKC2621
Intermediate power cable*3				AKE2811

##### KE2S Eco-HOUR METER

Product Name	Installation type	Front reset	Measurement count range	Part No.
Eco-HOUR METER main unit*1	Installation frame type*2	Available	0 to 99999.9h	AKE2421
	One-touch installation type			AKE2621
Intermediate power cable*3				AKE2811

Notes: 1. Eco-HOUR METER (AKE2421/AKE2621) is a product package consisting of the main unit, an exclusive use current transformer (CT), and trunk cable.  
2. Only the installation frame installation type includes rubber gasket and installation frame.  
3. The maximum allowable current of the intermediate power cable is 15 A.

These materials are printed on ECF pulp.  
These materials are printed with earth-friendly vegetable-based (soybean oil) ink.



Please contact .....

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