

Panasonic

ECO-POWER METER

KW9M



Multi function type developed by adding a power surveillance function to a simple power meter

500V (L-L MEASUREMENT) 289V (L-N)

Direct measurement without CT (for loads up to 5A)

HIGH ACCURACY

IMPORT/EXPORT POWER MEASUREMENT

USB

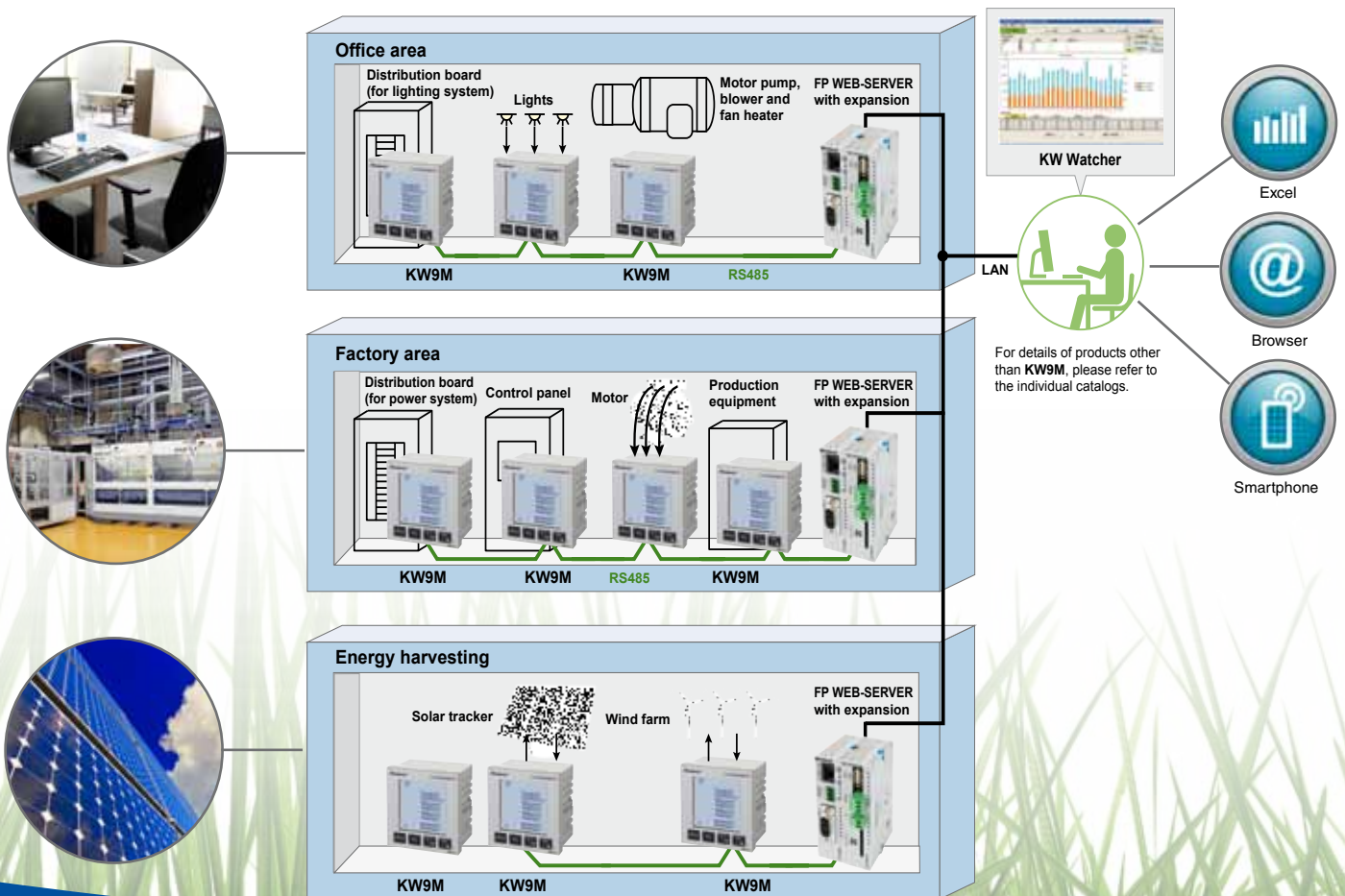
4-LINE LC DISPLAY

RS485

DC/AC POWERED

LOW CURRENT 1mA

Application examples



Specifications

Order guide

Product name	Phase and wire system	Measurement voltage	Measurement current ¹⁾	Part no.
KW9M Eco-POWER METER Standard type	1-phase, 2-wire system 1-phase, 3-wire system 3-phase, 3-wire system 3-phase, 4-wire system	0 to 500V AC	1 to 4000A	AKW91110

¹⁾ Please contact our sales offices for current transformers (CT) with a secondary current of 1A or 5A.

Measurement items

Item	Unit	Data display range
Electric energy (import)	Active	kWh
	Reactive	kvarh
	Apparent	kVAh
Electric energy (export)	Active	kWh
	Reactive	kvarh
	Apparent	kVAh
Instantaneous electric power	Active	kW
	Reactive	kvar
	Apparent	kVA
Current	A	0.000 to 8000.0
Voltage	V	0.00 to 99999
Power factor		-1.000 to 0.000 to 1.000
Frequency	Hz	0.00 to 99.99
Conversion value		0.000 to 9999999.9
Temperature	°C	-100.0 to 0.0 to 100.0

General unit specifications

Item	Description	
Rated operating voltage	AC	85 to 264V
	DC	100 to 300V
Rated frequency	50/60Hz	
Rated power consumption	5VA approx. (240V AC at 25°C)	
	3W approx. (240V DC at 25°C)	
Momentary power-off time	10ms	
Ambient temperature	Accuracy guarantee: -10 to +55°C	
	Operation: -25 to +55°C	
	Storage: -25 to +70°C	
Ambient humidity	30 to 85% RH (at 20°C) non-condensing	
Display method	LCD with backlight	
Measurement speed	Sampling rate	1.024 MHz (1.0µs approx.)
	Data update time	100ms
Power failure memory	Internal memory (overwrite 10 ¹⁰ or more) Saved data: setting and measurement values	
Dimensions W/H/D	96 x 96 x 56mm (without terminal block)	
	96 x 96 x 68mm (with terminal block)	
Weight	450g approx.	

Measurement input specifications

Item	Description			
Voltage	Input voltage	1P2W	L-L	0 to 500VAC
		1P3W	L-L	0 to 500VAC
			L-N	0 to 250VAC
		3P3W	L-L	0 to 500VAC
		3P4W	L-L	0 to 500VAC
	L-N		0 to 289VAC	
	Impedance	2MΩ or more (L-N; V1/V2/V3-Vn)		
Resolution	0.01V			
Accuracy ¹⁾	0.5%			
VT ratio	1.00 to 600.00 (set with setting mode)			
	Voltage transformer (VT) is required when you measure a load with voltage over rated voltage.			
Current	Input current (with CT)	Primary current	4000A or less	
		Secondary current	1A or 5A	
	Max. current	10A (200% of input current)		
	Overload capacity	1000% of input current for 3s		
	Resolution	0.001A		
Power	Accuracy ¹⁾	1.0%		
		Active power class 1 (IEC 62053-21)		
		Reactive power class 2 (IEC 62053-23)		
Temperature	Accuracy	±5.0°C		

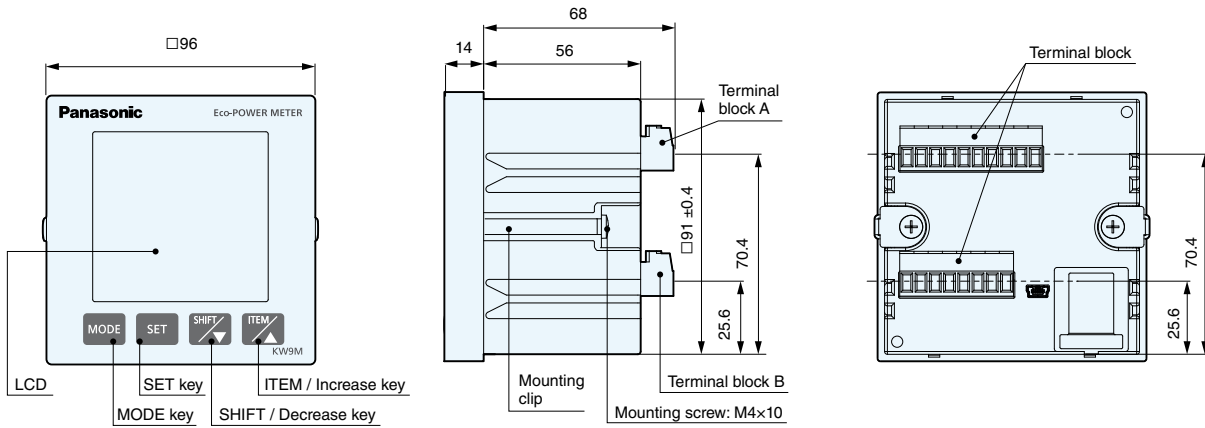
¹⁾ Errors resulting from current transformers (CT) and voltage transformers (VT) are not considered.

Communication

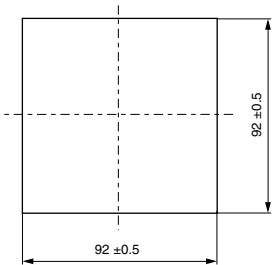
Item	RS485	USB (Full Speed)
Protocol	MEWTOCOL/Modbus (RTU) (selectable)	MEWTOCOL
Max. number of stations	99	1
Transmission speed	38400/19200/9600/4800/2400/1200bit/s	

Dimensions

[mm]



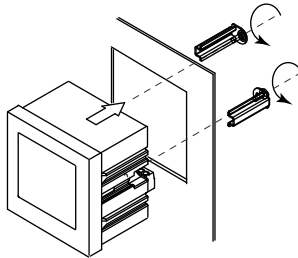
Panel cut-out



When mounting several units adjacent to each other, keep at least 130mm of space on all sides measured from the center of the unit.

Panel mounting

- 1) Remove the mounting clips from the unit.
- 2) Insert the unit from the front of the panel.
- 3) Attach the mounting clips at the both side of the case and secure in place with the screws.
 - Applicable panel thickness: 1 to 5mm

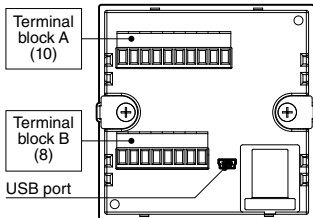


CE
Conforming to
EMC Directive



Terminal arrangement and wiring diagrams

Rear view



Terminal arrangement

Terminal block A (upper) 10P

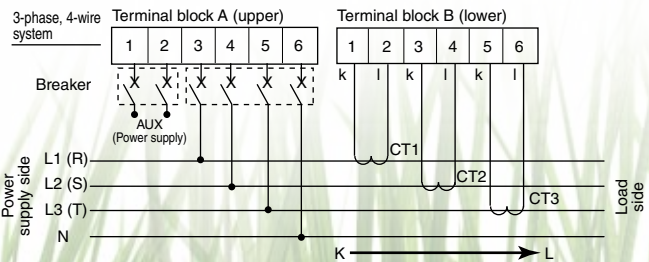
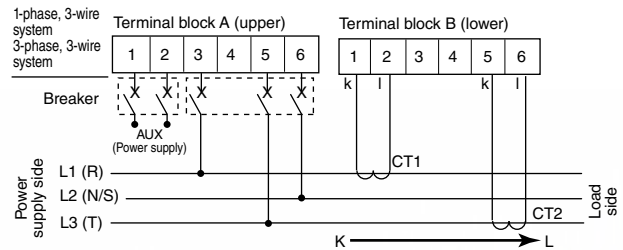
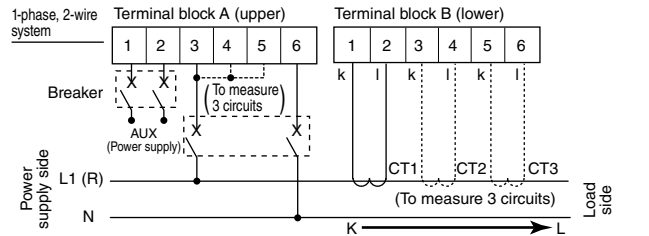
Terminal number	1	2	3	4	5	6	7	8	9	10
Functions	L+	N-	V1	V2	V3	Vn	NC	SG	A+	B-
	AUX (Power supply)		Voltage measurement input			—		RS485		

Terminal block B (lower) 8P

Terminal number	1	2	3	4	5	6	7	8
Functions	*CT1 k	*CT1 l	*CT2 k	*CT2 l	*CT3 k	*CT3 l	NC	NC
	Current measurement input						—	

*CT = current transformer

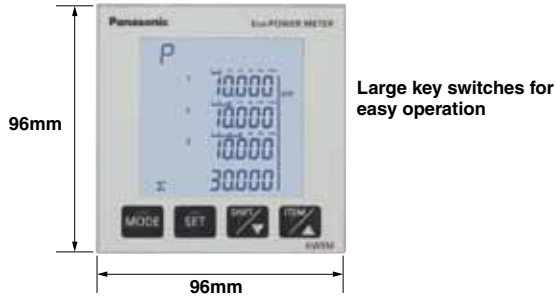
Wiring diagrams



Features

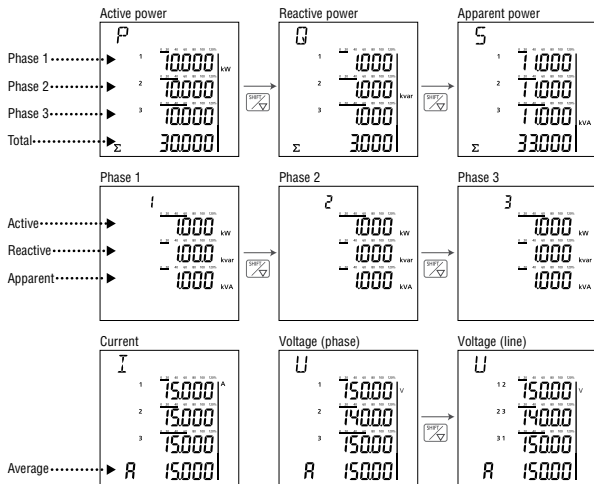
Feature 1

- Large-screen LCD with backlight clearly displays values in four lines
- High accuracy! Instantaneous active power: 1%, class 1 (IEC62053-21)
Display updating time: 0.1s



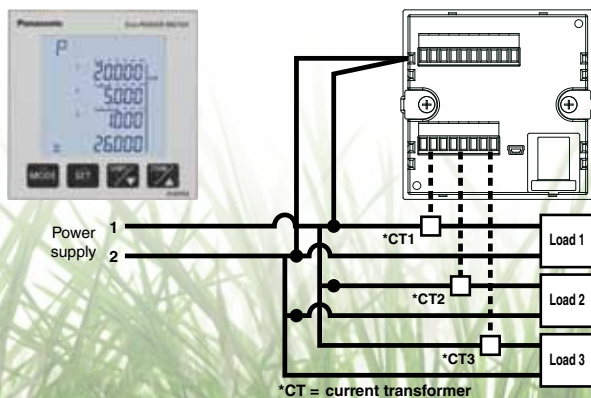
Feature 2

- The total and individual power values of each phase are displayed on one screen, enabling you to check the phase balance at a glance. The data is useful for power quality checks and power factor improvements.
- Capable of displaying voltages, currents, electric power (active, reactive, apparent) and power factor



Feature 3

- Panel-mount type capable of multi-circuit measurement
- Capable of simultaneously measuring up to three circuits in a single phase, two-wire system of same power supply



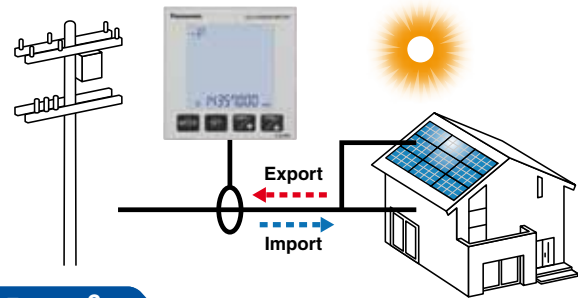
Feature 4

- Capable of displaying currents as low as 1mA
- This allows standby power consumption to be monitored, which helps save energy



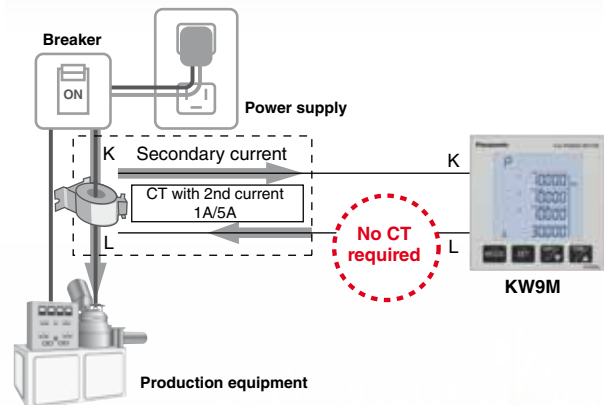
Feature 5

- Regenerative power can also be measured by one KW9M Eco-POWER METER. Bidirectional integrated electric power of each circuit can be measured.



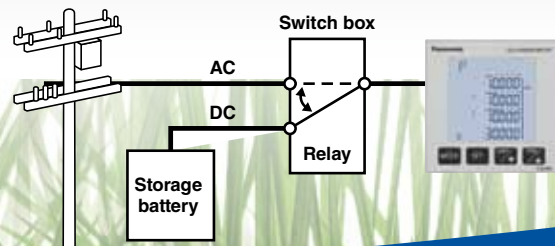
Feature 6

- Measuring power using large-capacity general-purpose CT (secondary side current 1A/5A)



Feature 7

- Compatible with AC/DC power supply



North America

Europe

Asia Pacific

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Panasonic Electric Works

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