

For Electric Power Monitoring

KW2M SERIES Eco-POWER METER



Energy saving and electric power quality monitoring with multiple circuits.

e.Xtreme



Main unit
KW2M-X
AKW264100A



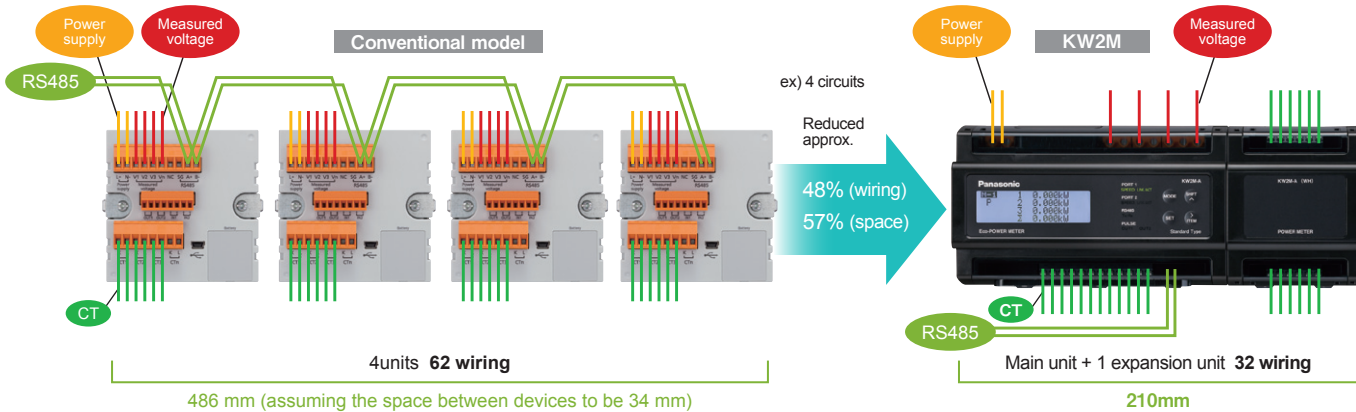
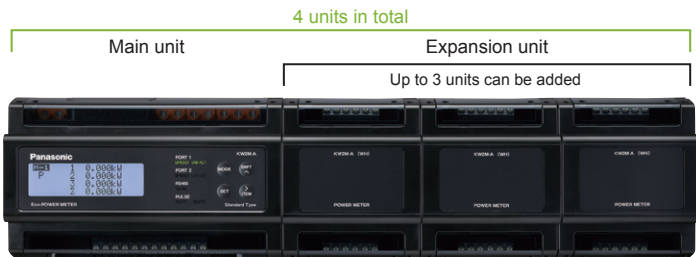
Expansion unit
KW2M-A
AKW272100A

- One unit can measure two circuits. Up to three expansion units may be connected for the required number of circuits.

Up to 8 circuits (three-phase four-wire), or up to 24 circuits (single-phase two-wire)

- Wire-saving and space-saving

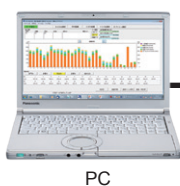
Reduced man-hours through wire-saving. Easy wiring with push-in connectors. (Ø2.6mm single-core cables)



Electric power monitoring

- Internal memory(KW2M-X) e.Xtreme

- Measured data can be saved in CSV files and visualized by KW Watcher.



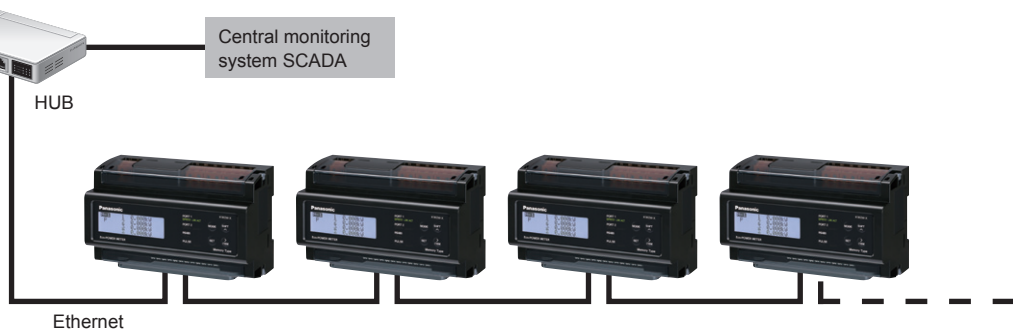
PC

Visualization software, KW Watcher can be downloaded for free from our website.
* Registry of customer information is required.

* For KW2M-A, DLL or ELC is required to use "KW Watcher".

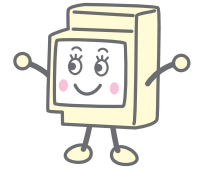
- Ethernet communication

- Equipped with two Ethernet communication ports, so devices can be daisy chained without adding a HUB.
- Connectable to both KW Watcher and Central monitoring system / SCADA at the same time.



* Ethernet is a registered trademark of Fuji Xerox Co.,Ltd. and Xerox Corporation.

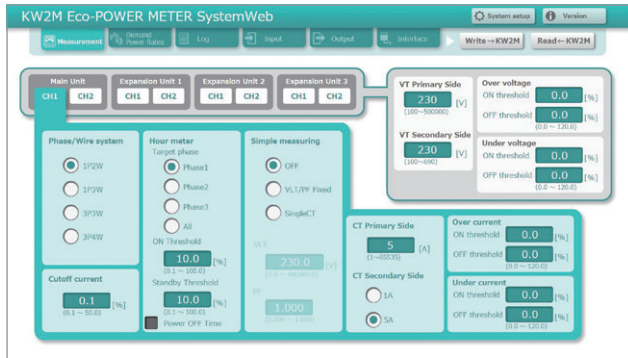
New Product!!



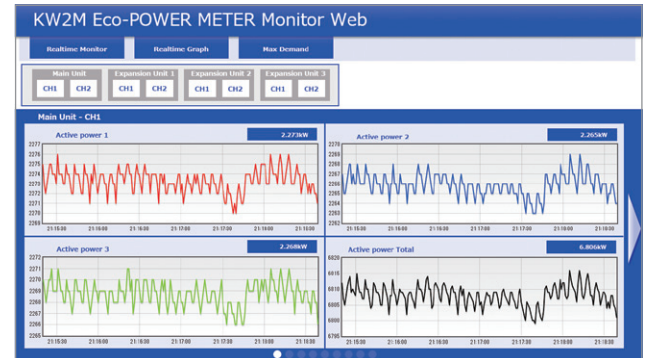
Web server functionality

Web server functionality allows operational settings of the device and upgrading the version of the main unit's firmware without conventional dedicated software tools. Also real-time monitoring is possible with **KW2M-X**.

Measurement Screen



Real-time Monitoring Screen

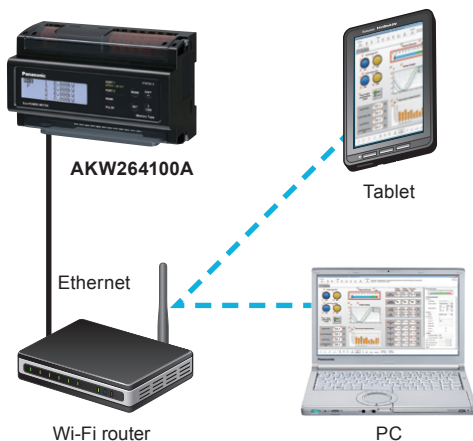


※KW2M-X (AKW264100A) only

e.Xtreme

Web Creator (KW2M-X) e.Xtreme

By uploading screens (content) that are setup as desired by the user with Control Web Creator to **KW2M-X**, the information in the **KW2M-X** internal Web server can be monitored on a browser.



* Wi-Fi is a registered trademark of Wi-Fi Alliance.
* Please provide commercially available products.

[Control Web Creator]

You, too, are a Web content creator

This is a graphics creation tool that allows you to easily design Web content that is published by the **KW2M-X**. You can creatively design content by arranging Web components such as switches, lamps and meters on the screen and then setting the properties. Your content will be linked to information in the **KW2M-X** without any knowledge of HTML.

Menu bar

Creation area

Tool bar

Web component property settings

Abundant Web component library

- Same style of operation as the program display image creation tool
- Components can be arranged by dragging and dropping.
- Detailed component settings are easy using properties.
- Components don't lose quality when enlarged or reduced, and you can color them as desired.
- Images can be pasted in.

* Key unit (sold separately) is required to use Control Web Creator.

Power quality measurements (THD , harmonics up to the 31st order , and unbalance)

Hour meter function

IEC61010-1 CAT III

Type

	Product name	Phase and wire system	Operating power supply	Input measured voltage	Applicable current sensor *1	Model No.
KW2M-A/KW2M-X Eco-POWER METER	Main unit	KW2M-A (standard type)	100 to 240 V AC 50/60 Hz	0 to 690V AC * When UL standard is supported 0 to 300V AC	CT with secondary side output 1A or 5A	AKW263100A
		KW2M-X(memory type)				AKW264100A
	Expansion unit	Three-phase three-wire system Three-phase four-wire system				AKW272100A

*1 Dedicated current sensor (CT) cannot be used. Please use a general-purpose CT with a secondary side current 1A or 5A.

Web screen creation tools *1

Product name	Descriptions	At [a^] No. AAA
Control Web Creator	Windows version. Downloadable free of charge from our website. Please purchase Key unit separately.	AFPSWC
Key unit*2	License Key for Control Web Creator. 1 license. For USB port.	AFPSWCKEY

*1 Only for AKW264100A

*2 Key unit is required to create Web content. You do not need Key unit to view Web content on a browser.

For Electric Power Monitoring

Specifications Use safely and correctly after carefully reading the product specification manual, user manual, and operational instruction manual.

Measurement items

Item		Data display range	
Instantaneous power	Active	-999.99GW to 0.000kW to 999.99GW	
	Reactive		
	Apparent		
Integral power (import)	Active	0.000kWh to 9999.9PWWh	
	Reactive		
	Apparent		
Integral power for each time zone (4 zone) (import)	Active	0.000kWh ~ 9999.9PWWh	
	Reactive		
	Apparent		
Integral power (export)	Active	0.000kWh to 9999.9PWWh	
	Reactive		
	Apparent		
Integral power for each time zone (4 zone) (export)	Active	0.000kWh ~ 9999.9PWWh	
	Reactive		
	Apparent		
Current		0.000 to 99.999kA	
N-phase when 3P4W			
Voltage (Phase and Line voltage)		0.00 to 999.99kV	
Power factor		-1.000 to 0.000 to 1.000	
Frequency		0.00Hz to 99.99Hz	
Pulse count value		0.000 to 99999999	
Power conversion value		0.000kWh to 9999.9PWWh	
Power quality	Unbalanced current	Each phase 0.00% to 300.00%	
	Unbalanced voltage	Each phase 0.00% to 300.00%	
	Current THD (total harmonic distortion)	Each phase 0.00% to 400.00%	
	Voltage THD (total harmonic distortion)	Each phase 0.00% to 400.00%	
	Current harmonics (2nd to 31st)	Each phase 0.00% to 400.00%	
	Voltage harmonics (2nd to 31st)	Phase	0.00% to 400.00%
		Line	0.00% to 400.00%
	Hour-meter measurement	ON	0.0h to 99999.9h
		OFF	0.0h to 99999.9h
		Standby	0.0h to 99999.9h
Maintenance		0.0h to 99999.9h	
Present demand (Present value (inst. value) / Maximum demand)	Active	0.000 kW to 999.9MW	
	Reactive		
	Apparent		
	Active (export)		
	Reactive (export)		
	Current		

* The data display range is the numerical value range which can be displayed by the main unit's display section and is not the allowable measurement range.

* If the voltage to be measured is not the rated (commercial) frequency, it may take time for THD (total harmonic distortion) to stabilize.

* Please use this demand function as your standard.
The demand value calculated with this function is not guaranteed.

General specifications

Item	Specifications	
Supply voltage range	100 to 240V AC	
Rated frequency	50/60Hz	
Nominal power consumption	15VA (240V AC)	
Inrush current	30 A or less (240 V AC at 25°C)	
Allowable momentary power-off time	10ms	
Ambient temperature	Operation: -10 to +50°C 14 to 122°F Storage: -25 to +70°C -13 to 158°F	
Ambient humidity	30 to 85% RH (at 20°C 68°F) with non-condensing	
Breakdown voltage(initial)	Between the isolated circuits: 2000 V/1 min • Enclosure - All terminals • Between primary and secondary insulated circuits (Double insulation is supported) (1) Power supply terminals - other terminals (2) Voltage input terminal - other terminals	
Insulation resistance(initial)	Between the isolated circuits: 100 MΩ or more	
Vibration resistance	10 to 150 Hz (7.5 minutes/cycle) Single amplitude: 0.75 mm 0.030 in (1 h on 3 axes) 10 to 55 Hz (1 minute/cycle) Single amplitude: 0.375 mm 0.015 in (1 h on 3 axes)	
Shock resistance	Min. 294 m/s ² (5 times on 3 axes)	
Display method	Black-and-white LCD with backlight (graphic form)	
Display updating time cycle	500, 1000, 2000, 3000 ms (set with setting mode)	
Power failure memory method	Internal memory	
Sea level altitude	Under 2,000 m 6,562 ft	
Overvoltage category	III	
Pollution degree	2	
Dimensions W/H/D	Main unit: 85x140x65 mm 3.346x5.512x2.559 in Expansion unit: 85x70x65 mm 3.346x2.756x2.559 in	
Weight	Approx. 450 g (Main unit) Approx. 200 g (Expansion unit)	
Calendar timer *1	Range	January 1, 2015 00:00:00 to December 31, 2099 23:59:59 (leap year supported)
	Time accuracy	Monthly accuracy max. 15 sec. (at 25°C)
	Back up period	About 1 month (by secondary battery *When power off after 48-hour or more of power on time, at 23°C)

*1 Only AKW264100A

Accuracy

Item	Specification
Electrical power	0.5% Active electric power Compliant Class 0.5S (IEC 62053-22) *1 Reactive electric power Compliant Class 2 (IEC 62053-23)
Current	0.2% *2 * Single-phase three-wire system 2 (N) phase current, three-phase three-wire system 2 (S) phase current, 0.5%
Voltage	0.2% * Single-phase three-wire system 2 (N) phase voltage, three-phase three-wire system between 3-1 voltage, three-phase four-wire system line voltage is 0.5%

* The tolerances of CT sensor and VT (instrument voltage transformer) are not included.

* 1 IEC62053 is the international standard for electrical power measuring devices.

* 2 Current less than 5% of rated value may be outside of accuracy assurance range according to CT setting (maximum tolerance: 0.5%).

Demand monitoring and specifications

Demand type	• IEC61557-12 Compliant demand 1. Sliding block interval demand 2. Fixed block interval demand 3. Current demand
Demand monitor input type	Current transformer input Pulse input *1 (set with setting mode)
Demand time span	1 to 60 min. (set with setting mode)
Demand measurement item	Present demand
Demand data update cycle	1 min.
Display	Present demand (Active / Reactive / Apparent / Active (export) / Reactive (export) / Current)
Saved data	Max.demand, Monthly max. demand (Latest 13 months)*2

*1 Only CH1 of main unit is available.

Only current transformer input is available for CH2 of main unit and expansion unit.

*2 Only AKW264100A

Web server specifications

Simultaneous access number	6 sessions
Web browser *1	Windows Google Chrome Mozilla Firefox iOS *2 Safari Google Chrome Android *2 Google Chrome

* Windows is the trademark of Microsoft Corporation in USA and other companies.

Google Chrome and Android are the trademarks of Google Inc.

Firefox is the trademark of Mozilla Foundation in USA and the other companies.

Safari and OS X are the trademark or the registered trademark of Apple Inc. of USA.

iOS is the trademark or the registered trademark of Cisco in USA and the other companies.

*1 Use OS and browser with the latest version.

*2 System Web is not supported.

Main unit memory specifications (for AKW264100A)

	Save cycle	5 minutes
	5-min. instantaneous value	Saved data
15-min. instantaneous value	Write timing	Every hour xx:05:05 (fixed)
	Saved data amount	96 records for 1 file (for one-day) (Max. 60 days)
	Save cycle	15 minutes
Demand	Saved data	All items excluding for harmonics and conversion value for integral active power
	Write timing	Every hour xx:15:05 (fixed)
	Saved data amount	2976 records for 1 file (for one-month) (Max. 24 months)
Power quality	Save cycle	1 minute
	Saved data	Present demand (active power, reactive power, apparent power, active power(export), reactive power(export)) Pulse conversion value for integral power, Present current demand (1), (2), (3)
	Write timing	Every hour xx:25:05 (fixed)
Power quality	Saved data amount	1000 records for 1 file (Max. 100 files)
	Saved data	Power interruption, Over voltage, Under voltage, Over current, Under current (with time stamp of event occurrence and occurrence period)
	Write timing	Every hour xx:35:05 (fixed)
Power quality	Saved data amount	1000 records for 1 file (Max. 100 files)

Specifications Use safely and correctly after carefully reading the product specification manual, user manual, and operational instruction manual.

Communication specifications (for AKW263100A and AKW264100A)
(RS485)

Interface	Conforming to RS485	
Communication method	Half-duplex	
Synchronous system	Synchronous communication method	
Isolation status	Isolated with the internal circuits	
Protocol	MEWTOCOL, MODBUS (RTU) (select with setting mode)	
Number of connected unit	99 units (max.) *1	
Transmission distance	1,200 m 3,937 ft *2	
Transmission speed	115200, 57600, 38400, 19200, 9600, 4800, 2400 bps (select with setting mode)	
Transmission format	Data length	8bit (fixed)
	Parity	Not available / Odd number / Even number (select with setting mode)
	Stop bit	1bit, 2bit (select with setting mode)

*1 For RS485 converter on the computer side, we recommend SI-35 and SI-35USB (from LINE EYE Co.,Ltd.). When using SI-35, SI-35USB or PLC from our company (which can be connected up to 99 units), up to 99 can be connected. In case using this system with the other devices, up to 31 can be connected.

*2 Please check with the actual devices when some commercial devices with RS485 interface are connected. The number of connected devices, transmission distance, and transmission speed may be different according to using transmission line.

(Ethernet)

Number of communication ports	2	
Interface	IEEE802.3u, 100BASE-TX / 10BASE-T	
Connector type	RJ45	
Transmission specifications	Transmission speed	100 Mbps / 10 Mbps
	Transmission method	Base band
	Max. segment length	100m 328ft
Communication cable	UTP (category 5)	
Protocol (DNS, DHCP)	TCP/IP, UDP/IP	
Web server	Setting, Monitoring measured values, Web customization *2,3	
Function	Auto-negotiation function *1 MDI/MDI-X auto-crossover function	
Dedicated communication	MEWTOCOL, MODBUS(TCP) (2 session for each)	

*Ethernet is the trademark of Xerox of USA.

*This product has the software developed by OpenSSL Project in order to use OpenSSL Toolkit. (<http://www.openssl.org/>)

*1 It changes the transmission speed automatically with auto-negotiation function.

*2 Control Web Creator is necessary to customize the webpage.

*3 Only **AKW264100A**

Output specifications (for AKW263100A and AKW264100A)

Item	Specifications	
Output points	Two channels * Non-insulated between channels	
Insulation method	PhotoMOS relay	
Output type	1a	
Output capacity	100 mA, 30 V AC/DC	
Output mode	<ul style="list-style-type: none"> Pulse by integral power Output by alarm or events (set with setting mode) 	
Pulse Output by integral power	Pulse width	1 ms to 100 ms (set with setting mode)
	Pulse output unit	0.001 kWh / 0.01 kWh / 0.1 kWh / 1 kWh / 10 kWh / 100 kWh
Alarm output Event output	Type	Stand-by alarm/ Under voltage alarm/ Over voltage alarm/ Power interruption alarm/ Under current alarm/ Over current alarm/ Active power alarm/ Reactive power alarm/ Apparent power alarm/ PF alarm/ Over frequency alarm/ Under frequency alarm/ Voltage harmonics alarm/ Current harmonics alarm/ Voltage THD alarm/ Current THD alarm/ Unbalanced voltage alarm/ Unbalanced current alarm/Power demand alarm/ Current demand alarm/ Counter output/ Level output (external control) / Time control *1
	Alarm reset	Self-reset (according to the setting) / Manual-reset
Protection element		Varistor *2
Alarm output <OUT1> <OUT2>	Display	Lighting alarm mark
	Output signal	· Normal: OFF · Alarm: ON
	Output capacity	100 mA, 30 V AC/DC

*1 Only **AKW264100A**

*2 Varistor is mounted internal as a protection element.

Install a protective device in case of using at the place where it effects by surge.

Input specifications (for AKW263100A and AKW264100A)

Item	Specifications		
Input points	1 channel		
Insulation method	Input dedicated insulation (insulated with other function terminals)		
Input method	Connection point / non-voltage a contact or open collector (operated by internal power source)		
Input signal	Non-voltage input	<ul style="list-style-type: none"> Impedance during short-circuit: 1 kΩ or less (short-circuit current, approx. 10 mA or less) Residual voltage during short-circuit: 3 V or less Impedance while open: 100 kΩ or more 	
	Pulse input	<ul style="list-style-type: none"> Synchronized with input from outer device *1 Measure maintenance time *1 	
Maximum counting speed	2000 Hz / 30 Hz		
Minimum input signal width	0.25 ms (2000 Hz selected) / 16.7 ms (30 Hz selected) ON : OFF ratio=1:1		
Pre-scale setting	Decimal point	Up to three decimal points can be selected	
	Range	0.001 to 100.000 (set with setting mode)	
Output mode (during pulse output selection)	HOLD		
Protection element		Zener diode	
Pulse input	Pulse input	1,000 to 99,000 pulse/kWh Arbitrary setting (External pulse converter required)	
	Pulse rate	0.001 to 100.000 kWh/pulse	
	Pulse input condition	2000Hz	<ul style="list-style-type: none"> Pulse width 0.25 ms or more Pulse interval 0.5 ms or more (OFF time 0.25 ms or more)
		30Hz	<ul style="list-style-type: none"> Pulse width 16.7 ms or more Pulse interval 33.4 ms or more (OFF time 16.7 ms or more)
			Operation voltage / current

*1 Only **AKW264100A**

Dimensions (unit: mm in)

Tolerance ± 1.0 ± 0.04

