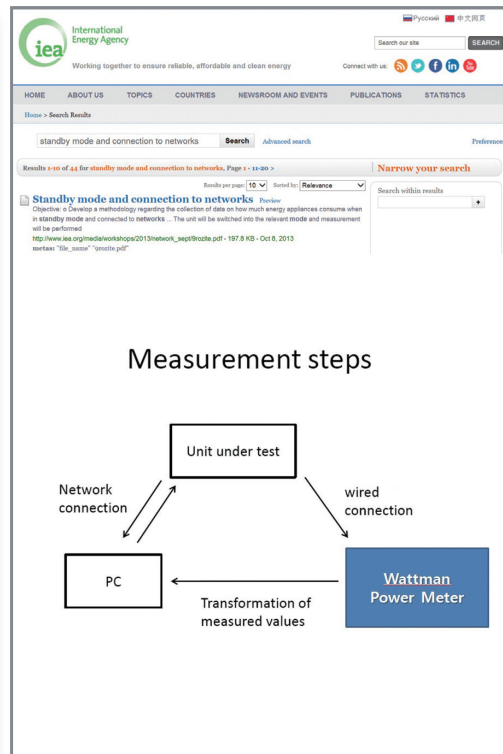


Overseas Usage



UK - Intertek

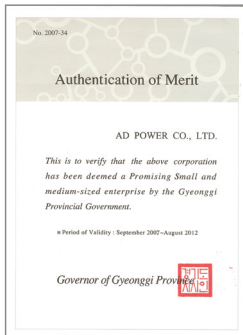
[Analysis on European Standby Power Consumption of Home Appliances]



IEA (The International Energy Agency)

Used Wattman for a workshop on 'Effective energy management on IoT'

Certifications & Intellectual Property Right



Authentication of Merit



CE



CERTIFICATE



Certificate of excellent product



FCC



NEP(Wattman)

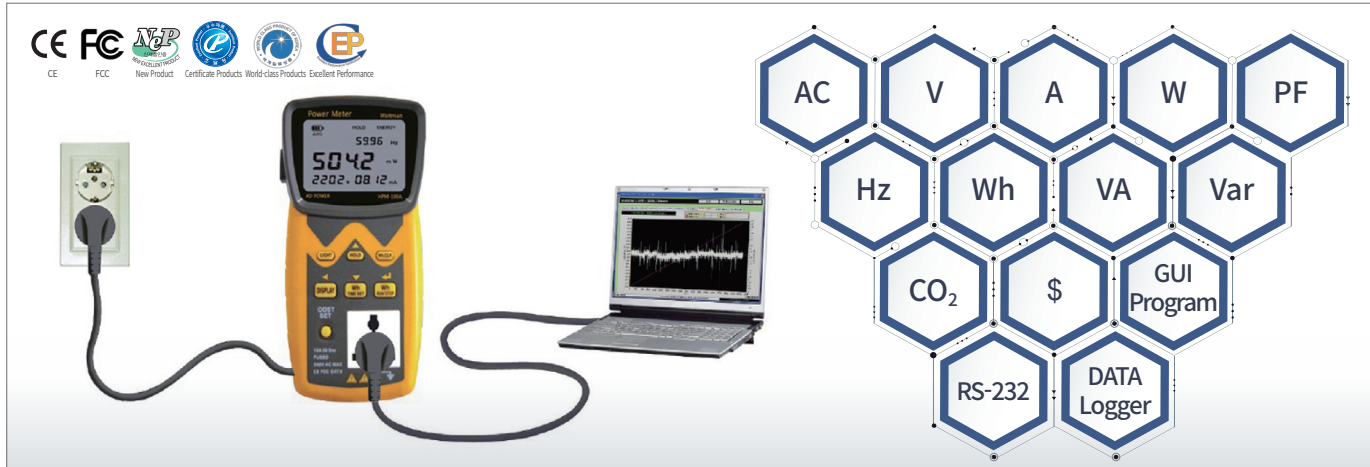


Korean World-class Product Award 2012

Analyze the power
consumption pattern of
IoT(Internet of things)
Communications networks
with “wattman”

Wattman[®]





Overview

The product has a function to measure power consumption and standby power that complies with IEC 62301 International Standby Power Measurement Standard. Based on plug & play measuring method, when the measuring device is plugged to Wattman's universal multi-outlet, 4 items (voltage, current, active power, frequency) appear. Electric charges & carbon emissions can be simply calculated by measuring the alternating current, voltage, power-factor, frequency, and wattage. (Free support for GUI Program, volt-ampere(VA), reactive power (Var), measurement support)

In addition, this is the first product to achieve NEP certification as a wattmeter in Korea and the product was selected as the world's top product and high-grade procurement product by the government.

Features

- Added DATA LOGGER function
- Followed IEC 62301 & EN 61010-1 design standard.
- Can set the electric charges & time with a button
- Size & Weight: 115(W)X200(H)X45(D)mm. ≒ 260g
- Free support for GUI Program
- 1 to 24 hour timer
- Improved precise measurement of low power factor

Usage

- 3rd Nationwide Standby Power Measurement Data Collection
(Participation in a government-run standby power reduction program, e-Standby Program)
- For high efficiency equipment R&D data collection
- Energy conservation & science education materials for elementary and middle schools
- Home appliances customer service & energy diagnosis
- Energy conservation consulting material for local governments & public institutions

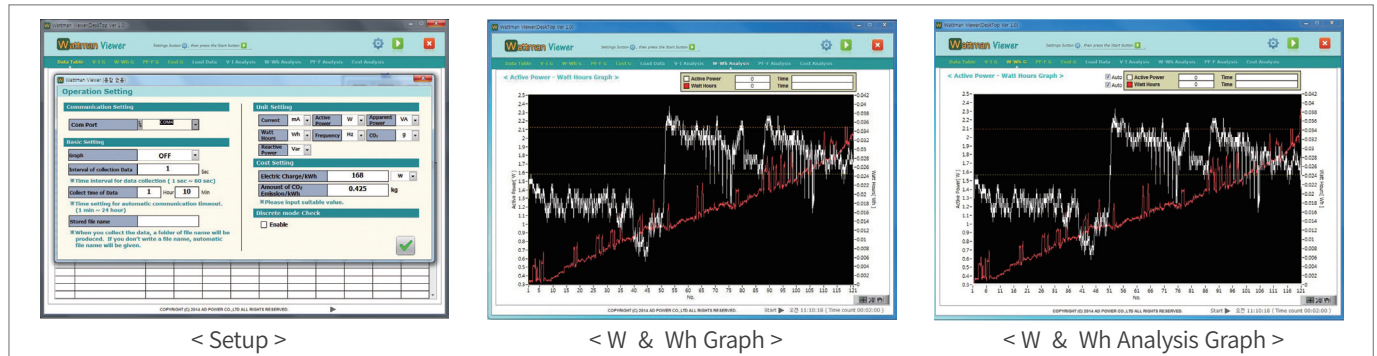


Specifications

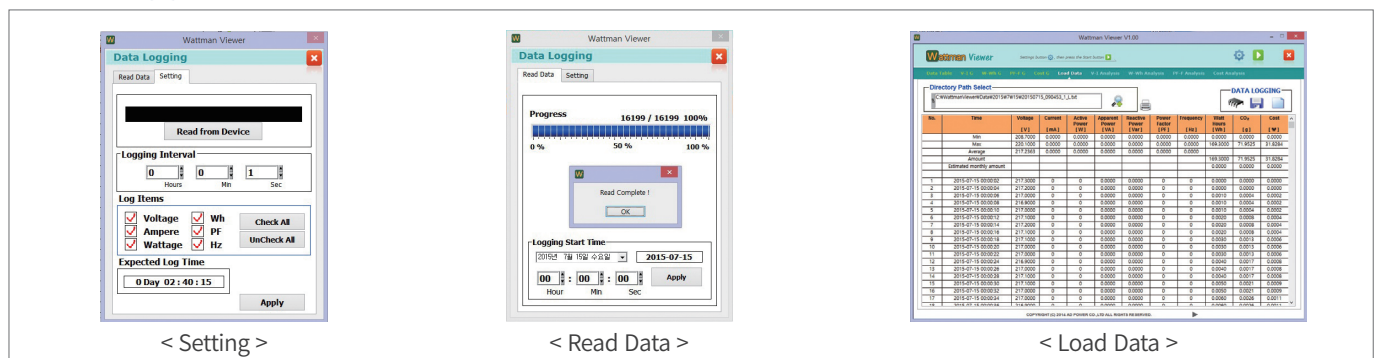
HPM-100A	Measurement Range (AC Only)	Measurement Error
Voltage	90V ~ 240V	±0.3%rdg, ±3dgt
Current	100uA ~ 5mA	±0.5%rdg, ±3dgt
	5mA ~ 10A	±0.3%rdg, ±3dgt
	10A ~ 15A	±0.4%rdg, ±3dgt
Active power	0.009W ~ 0.45W	±0.5%rdg, ±3dgt
	0.45W ~ 2,600W	±0.4%rdg, ±3dgt
	2600W ~ 3,600W	±0.5%rdg, ±3dgt
Reactive power	0.009Var ~ 3,600Var	±0.5%rdg, ±3dgt
Volt-ampere	0.009VA ~ 3,600VA	±0.5%rdg, ±3dgt
Power Factor	±0.001 ~ 1,000	±0.5%rdg, ±3dgt
Wattage	0.000Wh ~ 4,000kWh	±1.0%rdg, ±3dgt
Frequency	50Hz ~ 1,000Hz	±0.3%rdg, ±3dgt

GUI Program Support (For PC)

GUI Program Support (For PC)



Data Logger Menu



Usage Examples



e-Standby Program



Model Schools for Energy
(120 schools)



Energy Conservation Policy Research Center
(Korea Energy Agency)



Safety & Conservation Education
(Korea Electrical Safety Corporation)



Seoul Energy Design



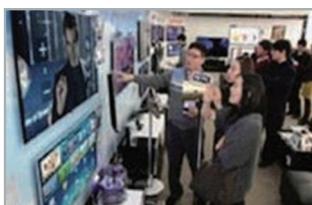
Customer Service Center & Home
Energy Doctor (Cuckoo Electronics)



Green Coordination Project
(Songpa-gu, Seoul)



Green Gyeonggi 21 Technical
Education (Gyeonggi-do)



Customer Service Center & Factory
(Samsung Electronics)



Green Home Consultant
(Gyeonggi-do)

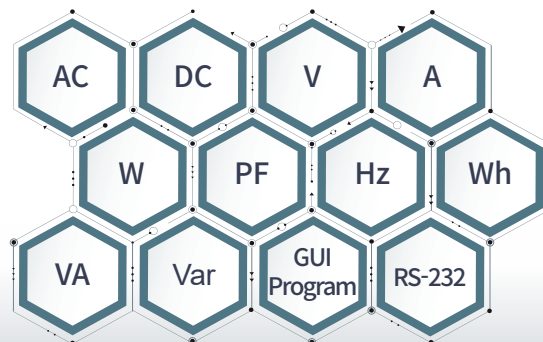


Energy Clinic Service (Seoul)



Energy Conservation Policy Research Center
Teacher Training(Korea Energy Agency)

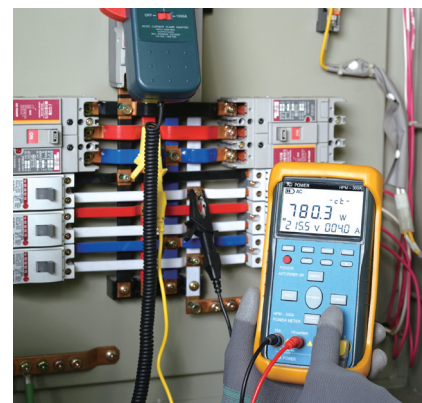
Single Power Meter (HPM-300A)



Overview

Single Power Meter can measure not only the power consumption and standby power it can also measure AC and DC. The product's consumer-centered design makes it easier to use the product and it is a very cost-effective measuring instrument. HPM-300A can measure 4 items (voltage, current, active power, frequency) at the same time and has a wide LCD that shows the result. It also has a measuring function for 11 items including the power factor and wattage.

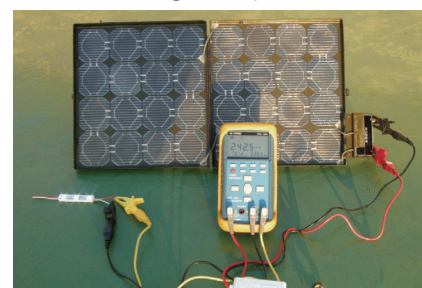
Furthermore, high power from 5A to 1,000A can be measured using an AC/DC clamp sensor and three-phase four-wire system power measurement is also possible by employing three wattmeter method.



▲ Usage Clamp Sensor

Features

- An internal shockproof holster for a rechargeable lithium-ion battery is provided
- Convenient measuring method with AC/DC load wire
- Measurement items (voltage, current, active power, lower power factor, frequency, wattage, reactive power) appear on a LCD
- Use of an AC/DC clamp sensor (5A to 1,000A)
- Free support for GUI Program (electricity bill and CO₂ emission can be calculated on a PC)



▲ DC Power Measurement for Solar Power Generation

Specifications

HPM-300A		Measurement Range		Measurement Error
		AC	DC	
Voltage		1V ~ 500V	1V ~ 1,000V	±0.3%rdg, ±3dgt
Current	Direct		500uA ~ 5mA	±0.6%rdg, ±3dgt
		500uA ~ 15A	5mA ~ 15A	±0.3%rdg, ±3dgt
	Clamp Sensor(CA-1000D)	5A ~ 1,000A	5A ~ 1,000A	±3.5%rdg, ±3A
Active power			0.5mW ~ 5mW	±0.8%rdg, ±3dgt
		0.5mW ~ 7.5kW	5mW ~ 15kW	±0.4%rdg, ±3dgt
Reactive power		0.5mVar ~ 7.5kVar		±0.5%rdg, ±3dgt
Volt-ampere		0.5mVA ~ 7.5kVA		±0.5%rdg, ±3dgt
Power Factor		±0.001 ~ 1.000		±0.4%rdg, ±3dgt
Wattage		0.00Wh ~ 4,000kWh	0.00Wh ~ 4,000kWh	±0.1%rdg, ±3dgt
Frequency		50Hz ~ 1,000Hz		±0.3%rdg, ±3dgt

GUI Program Support (For PC)

HPM-300A's Various Measurement Solutions



Voltage
Measurement



Current
Measurement



AC Load Wire
Measurement



DC Load Wire
Measurement



High Current Measurement
(Using Clamp Sensor)



High Power Measurement
(Using Clamp Sensor)

HPM-300A Parts & Accessories



Main body (incl. holster)



GUI program + Manual CD



AC Load Wire

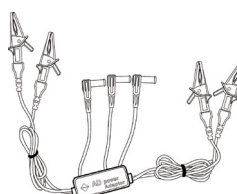


Adaptor(12V, 500mA)

HPM-300A Options



CA-1000D(AC/DC, 1,000A)
+ Alligator Clips



DC Load Wire

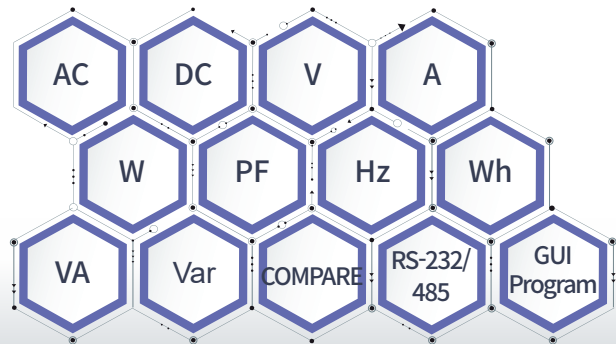


RS232 to USB Cable

Watt Meter (PM-2400series)



- * PM-2400 : only AC
- * PM-2400A : For AC/DC, comparator function
- * The actual product may not be the same as this image



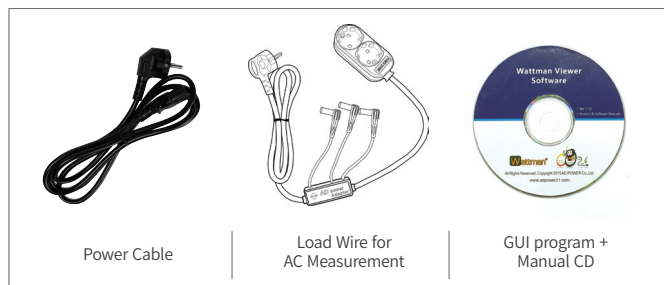
Overview

This product is a watt meter that can be used to measure and analyze the electrical power in various industries. Following the trend of current industrial society, it has a satisfying measuring function to measure both the AC/DC power consumption and standby power. Recently in the standby power measuring environment, it is inevitable to measure the power factor and the product was designed to show parameters of 4 elements including voltage, current, active power, and power factor at the same time. This product is suitable for electrical product and LED automated production tests.

Features

- Power Supply: SMPS(90~240V), AC(50/60Hz)
- Data Analysis using GUI Program
- Comparator function: Hi/Low (Power supply for external interface PM-2400A)
- Size & Weight: 250(W) x 100(H) x 270(D)mm \approx 2.3kg
- Measurement: 1P 2W(AC/DC)
- Use of a AC/DC clamp sensor (AC/DC 5A~1,000A)
- Interface: RS232C/RS485

Parts & Accessories

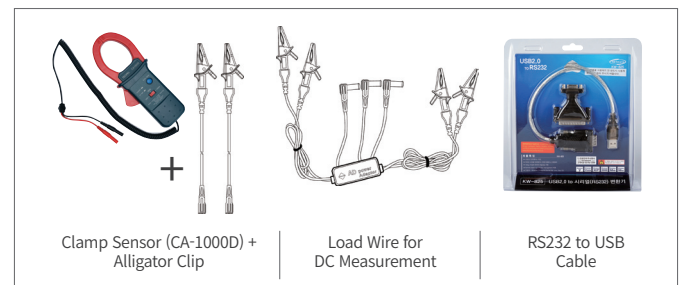


Power Cable

Load Wire for
AC Measurement

GUI program +
Manual CD

Options



Clamp Sensor (CA-1000D) +
Alligator Clip

Load Wire for
DC Measurement

RS232 to USB
Cable

Specifications

(Standard) PM-2400A		Measurement Range		Measurement Error
		AC	DC	
Voltage		0.5V ~ 600V	0.5V ~ 1,000V	$\pm 0.2\%rdg, \pm 3dgt$
Current	Direct	0.1mA ~ 1mA	0.1mA ~ 1mA	$\pm 0.5\%rdg, \pm 3dgt$
	Clamp Sensor(CA-1000D)	1mA ~ 20A	1mA ~ 20A	$\pm 0.2\%rdg, \pm 3dgt$
Active power		50uW ~ 0.5W	50uW ~ 0.5W	$\pm 0.7\%rdg, \pm 3dgt$
Reactive power		0.5W ~ 10kW	0.5W ~ 10kW	$\pm 0.4\%rdg, \pm 3dgt$
Volt-ampere		10mVar ~ 10kVar		$\pm 0.4\%rdg, \pm 3dgt$
Power Factor		10mVA ~ 10kVA		$\pm 0.4\%rdg, \pm 3dgt$
Wattage		$\pm 0.001 \sim 1.000$		$\pm 0.4\%$
Frequency		0 ~ 4,000kWh	0 ~ 4,000kWh	$\pm 0.7\%$
		10Hz ~ 1,000Hz		$\pm 0.3\%rdg, \pm 3dgt$

* Please see the manual for detailed specifications of PM-2400 Model

Power Measurement Module



Power Meter



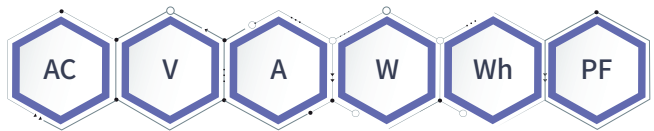
Communication module



Power Meter (LCD type)



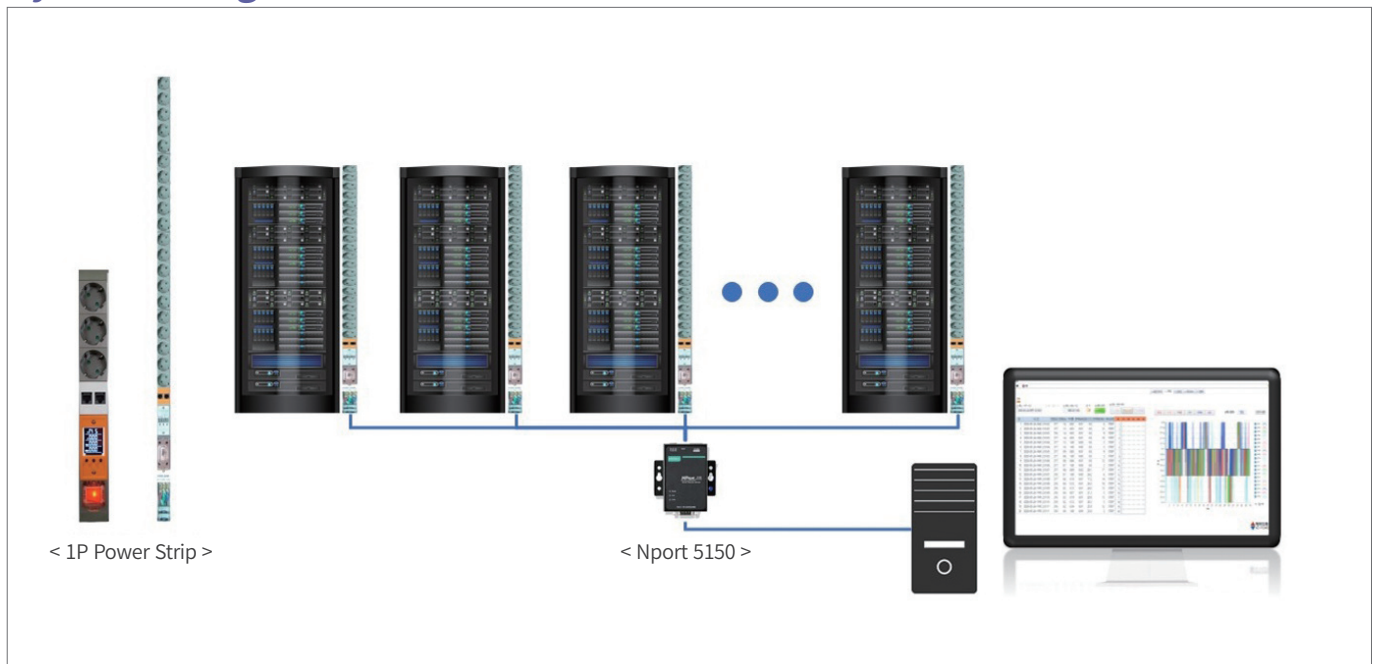
RS485 (Communication test)



Overview

Power, voltage, current, power factor, electricity, and wattage are measured and the data appears when the module is connected to the multi-outlet. The central manager monitors the power usage of multi-servers and it is a power module for IDC Data System necessary for the reduction of power rates.

System configuration



Applications

BEMS (Building Energy Management System) Carbon Emission Check, smart metering, electric rates management system, telecommunication company server, EMS for hotels

Data Collection Method (Based on RS485 communication standard)

1) Speed: 19200 bps 2) Stop Bit: 1 3) ID Setting Range: 1-256

Features & Merits

- Followed EN 61010-1 design standards
- Provides alarm services by monitoring voltage, current, and electricity
- Shows 3 digit FND power value
 - Can use a switch to check the measured value (V, A, W, Wh, PF)
- Can set the highest/lowest critical value of current and voltage for alarms
- Communication: RS485
- IDC Center Installation Example

Specifications

- Voltage: LCD type(85 ~ 265V), FND type(110V or 220V)/ $\pm 1.0\%$
- Current: AC 0.1A ~ 65A/ $\pm 1.0\%$
- Active Power: 9W ~ 17.2kW/ $\pm 1.0\%$
- Wattage: AC 0.00 ~ 999MWh
- Power Factor: $\pm 0.001 \sim 1.0$
- Frequency: 50/60Hz