HIOKI

POWER METER Series

Measure Everything from AC, DC and 3-Phase Power Sources to Standby Power

The optimal power meter lineup for all applications

POWER METER PW3337/PW3336

POWER METER PW3335

AC/DC POWER HiTESTER 3334

POWER HiTESTER 3333

CE

3 year Warranty

Advancing the Standard for Power Measurement

The best performing instruments for power measurement
on production lines, in laboratories, and in research facilities.
Hioki delivers the optimal power testing solutions
based on use case conditions, practical application, and accuracy.

Three-phase Power Meter

The PW3337 and PW3336 are suitable for a wide variety of connections,
such as measuring three-phase circuits and single-phase 2-wire multiple circuits.
There is little internal resistance for the current input,
and large currents up to 65 A can be measured with great accuracy.

PW3337 (3ch)

PW3336 (2ch)

Single-phase Power Meter

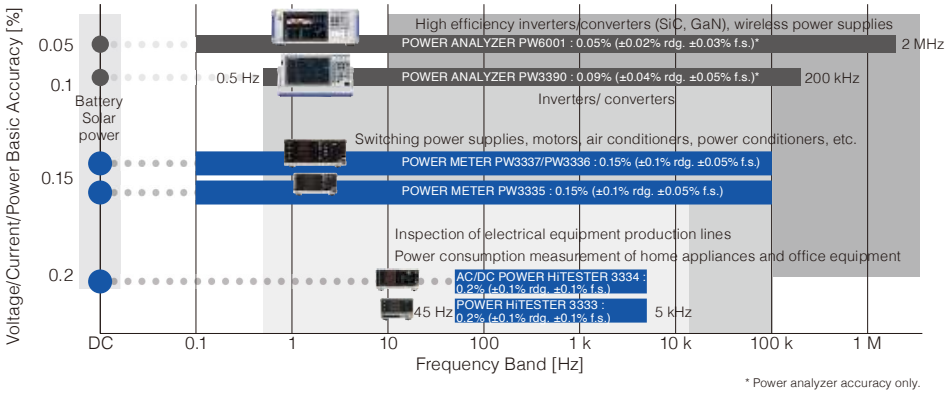
The PW3335 provides highly accurate measurements for
everything from standby power to operating power.
Compliant with the IEC62301 measurement standard for standby power,
it is capable of measuring current as low as 10 μA.
Designed for power consumption testing,
the 3334 and 3333 are guaranteed for accuracy for up to 3 years.

PW3335 (1ch)

3334 (1ch)

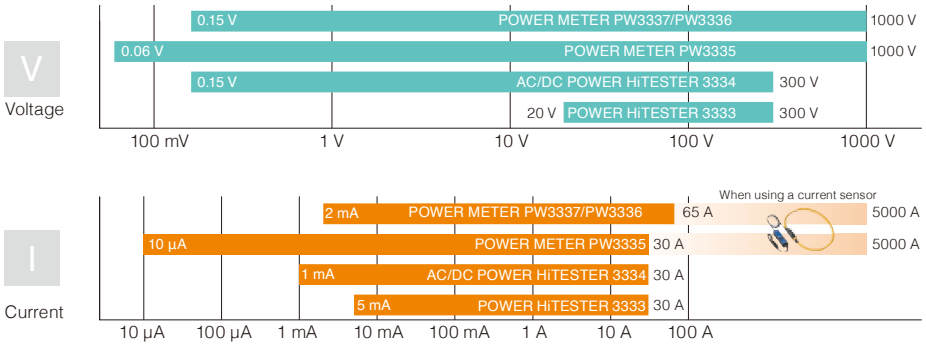
3333 (1ch)

Basic Accuracy and Frequency Bands



* Power analyzer accuracy only.

Effective Measurement Range



Comparison Chart

		PW3337	PW3336	PW3335	3334	3333
No. of channels		3	2	1	1	1
Supported connections		Three-phase, three-phase + single-phase, single-phase x 3, DC x 3	Three-phase, single-phase x 2, DC x 2	Single-phase, DC	Single-phase, DC	Single-phase
Effective measurement range, voltage		0.15 V to 1000 V		0.06 V to 1000 V	0.15 V to 300 V	20 V to 300 V
Effective measurement range, current		2 mA to 65 A		10 µA to 30 A	1 mA to 30 A	5 mA to 30 A
Frequency band		DC, 0.1 Hz to 100 kHz			DC, 45 Hz to 5 kHz	45 Hz to 5 kHz
Basic accuracy, AC (Voltage, current, power)		±0.1% rdg. ±0.05% f.s.			±0.1% rdg. ±0.1% f.s.	±0.1% rdg. ±0.2% f.s.
Basic accuracy, DC (Voltage, current, power)		±0.1% rdg. ±0.1% f.s.			±0.1% rdg. ±0.2% f.s.	-
Integrated power measurement		Yes			Yes	-
Harmonic measurement		IEC61000-4-7 compliant			-	
Current sensor input		Yes		PW3335-03, -04	-	
Interface	LAN	Yes			-	
	RS-232C	Yes		PW3335, -02, -03, -04	Yes	
	GP-IB	PW3337-01, -03	PW3336-01, -03	PW3335-01, -04	3334-01	3333-01
	D/A output	PW3337-02, -03	PW3336-02, -03	PW3335-02, -04	Yes	

Features

POWER METER PW3337/PW3336

Accurate measurement of power for three-phase equipment, through direct input up to 1000 V AC/DC / 65 A.

PW3337-03 Front Panel

PW3337-03 Rear Panel

Maximum 65 A input.
Cable terminals are fixed securely
with large screws on the terminal block.

- Voltage/current/power basic accuracy of ±0.1% *
- Direct input up to 1000 V AC/DC / 65 A
- Harmonic measurement as standard feature, IEC61000-4-7 compliant
- Little instrument loss, even with large currents. DCCT input with an input resistance of 1 mΩ or less.
- Power factor effect of ±0.1% f.s. delivers highly accurate measurements even for no-load testing of transformers with a low power factor
- Measurement of multiple connections in the optimal range for each due to independent ranges for each channel
- Measure up to 5000 A AC with optional current sensor

PW3336-03
Rear Panel

POWER METER PW3335

Highly accurate AC/DC measurements from standby power to operating power

PW3335-04 Front Panel

PW3335-04 Rear Panel

Half-rack Size to Save Space

For development/production lines for
electrical equipment

- Voltage/current/power basic accuracy ±0.1% *
- Highly accurate AC/DC measurements from standby power to operating power
- Accuracy guaranteed throughout a wide range, from 10 µA to 30 A and 60 mV to 1000 V AC/DC
- Harmonic measurement as standard feature, IEC61000-4-7 compliant
- Compliant with the IEC62301 and EN50564 measurement standards for standby power
- Power factor effect of ±0.1% f.s. delivers highly accurate measurements even for no-load testing of transformers with a low power factor
- Accurate measurement of fluctuating electric power thanks to auto range integration with guaranteed accuracy for measurements while range switching
- Measure up to 5000 A AC with optional current sensor (PW3335-03, -04)

V Voltage input terminal	I Current input terminal	L LAN connector	R RS-232C connector	G GP-IB connector
D D/A output terminal	C Current sensor input terminal	S Synchronous control terminal	E External control terminal	

* For complete details, please refer to the specifications

Options

TYPE 1 Current Sensor (General Current Measurements)

PW3337 PW3336 PW3335

Connect this unit to the current sensor input terminal (BNC) on the PW3337/PW3336/PW3335. It can be used with a direct connection.

Wiring method	External appearance	Product name/ model no.	Rated current	Frequency band	Diameter of measurable conductors	Basic accuracy (amplitude) Basic accuracy (phase)	Cord lengths	Power supply
Clamp method		CLAMP ON SENSOR 9660	100 A	40 Hz to 5 kHz	ϕ 15 mm (0.59 in)	±0.3% rdg. ±0.02% f.s. Within ±1°	3 m (9.84 ft)	Not used
		CLAMP ON SENSOR 9661	500 A	40 Hz to 5 kHz	ϕ 46 mm (1.81 in)	±0.3% rdg. ±0.01% f.s. Within ±0.5°		
		CLAMP ON SENSOR 9669	1000 A	40 Hz to 5 kHz	ϕ 55 mm (2.17 in), 80 mm (3.15 in) × 20 mm (0.79 in) BUS BAR	±1.0% rdg. ±0.01% f.s. Within ±1°		
		FLEXIBLE CLAMP ON SENSOR CT9667-01	500 A/ 5000 A	10 Hz to 20 kHz	ϕ 100 mm (3.94 in)	±2.0% rdg. ±0.3% f.s. Within ±1°		AA (LR6) Alkaline Batteries x 2 (approx. 7 days) or AC ADAPTER 9445-02 (optional)
		FLEXIBLE CLAMP ON SENSOR CT9667-02			ϕ 180 mm (7.09 in)			
		FLEXIBLE CLAMP ON SENSOR CT9667-03			ϕ 254 mm (10.00 in)			

Options for CT9667-01/-02/-03

External appearance	Product name/ model no.	Functions	Power supply
	AC ADAPTER 9445-02	For supplying power to CT9667-01/-02/-03	100 to 240 V AC

TYPE 2 Current Sensor (Highly Accurate Current Measurements)

PW3337 PW3336 PW3335

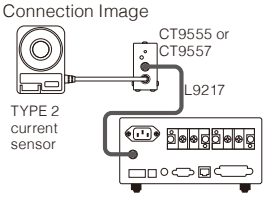
Connect this unit to the current sensor input terminal (BNC) on the PW3337/PW3336/PW3335.
SENSOR UNIT CT9555 or CT9557 and CONNECTION CABLE L9217 are required.

Wiring method	External appearance	Product name/ model no.	Rated current	Frequency band	Diameter of measurable conductors	Basic accuracy (amplitude) Basic accuracy (phase)	Cord lengths	Power supply
Through method		CT6862-05	50 A	DC to 1 MHz	ϕ 24 mm (0.94 in)	±0.05% rdg. ±0.01% f.s. Within ±0.2°	3 m (9.84 ft)	CT9555 or CT9557
		CT6863-05	200 A	DC to 500 kHz	ϕ 24 mm (0.94 in)			
		CT6875	500 A	DC to 2 MHz	ϕ 36 mm (1.42 in)	±0.04% rdg. ±0.008% f.s. Within ±0.1°		
		CT6876	1000 A	DC to 1.5 MHz	ϕ 36 mm (1.42 in)			
		CT6877	2000 A	DC to 1 MHz	ϕ 80 mm (3.15 in)			
Clamp method		CT6841-05	20 A	DC to 1 MHz	ϕ 20 mm (0.79 in)	±0.3% rdg. ±0.01% f.s. Within ±0.1°		
		CT6843-05	200 A	DC to 500 kHz	ϕ 20 mm (0.79 in)			
		CT6844-05	500 A	DC to 200 kHz	ϕ 20 mm (0.79 in)			
		CT6845-05	500 A	DC to 100 kHz	ϕ 50 mm (1.97 in)			
		CT6846-05	1000 A	DC to 20 kHz	ϕ 50 mm (1.97 in)			
		9272-05	20 A/ 200 A	1 Hz to 100 kHz	ϕ 46 mm (1.81 in)	±0.3% rdg. ±0.01% f.s. Within ±0.2°		

Options for Current Sensor TYPE 2

External appearance	Product name/ model no.	Max. no. of sensors	Functions	Power supply	Cord lengths
	SENSOR UNIT CT9555	1	For supplying power to the TYPE 2 current sensor	100 V to 240 V AC	-
	SENSOR UNIT CT9557	4	For supplying power to the TYPE 2 current sensor With addition output function	100 V to 240 V AC	-
	CONNECTION CORD L9217	-	For connecting CT9555/CT9557 and PW3330 series units	-	1.6 m (5.25 ft)

Connection Image



Rack Mount Hardware

HIOKI can also manufacture rack mount hardware (EIA, JIS). Please contact your Hioki distributor or subsidiary for more information.

Printing with a Printer

3333

Connect the 3333 to PRINTER 9442* to print out values.

Printing example

```
STATUS,000000.U,+0200.0E+0,1,+014.82E+0,
P,+02.727E+3,S,+02.964E+3,PF,+00.920E+0
```

PRINTER 9442
Thermal serial dot method, 112 mm (4.41 in) paper width
Power supply: AC ADAPTER 9443-02, or the included nickel hydride batteries
Dimensions, mass: 160 mm W × 67 mm H × 170 mm D (6.30 in W × 2.64 in H × 6.69 in D), 580 g (20.5 oz)

CONNECTION CABLE 9444
9-pin - 9-pin, straight, 1.5 m (4.92 ft)

AC ADAPTER 9443-02
For printer, 9442, EU type

RECORDING PAPER 1196
112 mm (4.41 in) × 25 m (82.03 ft), 10-roll set

PW3335 Specifications

Input Specifications

Measurement line type	Single-phase 2-wire(1P2W)
Input methods	Voltage Isolated input, resistive voltage divider method Current Isolated input, shunt input method
Voltage measurement ranges	AUTO/ 6 .0000 V/ 15.000 V/ 30.000 V/ 60.000 V/ 150.00 V/ 300.00 V/ 600.00 V/ 1.0000 kV
Current measurement ranges	AUTO/ 1.0000 mA/ 2.0000 mA/ 5.0000 mA/ 10.000 mA/ 20.000 mA/ 50.000 mA/ 100.00 mA/ 200.00 mA/ 500.00 mA/ 1.0000 A/ 2.0000 A/ 5.0000 A/ 10.000 A/ 20.000 A
Power ranges	Depends on the combination of voltage and current ranges; From 6.0000 mW to 20.000 kW (also applies to VA, var) The details are as below.
Input resistance	Voltage input terminal: 2 MΩ Current input terminal: 1 mA to 100 mA range 520 mΩ or less 200 mA to 20 A range 15 mΩ or less

Basic Measurement Specifications

Measurement method	Simultaneous voltage and current digital sampling, zero-cross simultaneous calculation
Sampling frequency	Approx. 700 kHz
A/D converter resolution	16-bit
Frequency bandwidth	DC, 0.1 Hz to 100 kHz (Values within 0.1Hz ≤ f < 10 Hz are for reference only)
Synchronization sources	U, I, DC (fixed to 200 ms)
Measurement items	Voltage / Current / Active power Apparent power / Reactive power / Power factor Phase angle / Frequency / Current integration Active power integration / Integration time Voltage waveform peak value / Current waveform peak value Voltage crest factor / Current crest factor Maximum current ratio / Time average current Time average active power Voltage ripple rate / Current ripple rate Harmonic parameters Harmonic voltage RMS value / Harmonic current RMS value Harmonic active power / Total harmonic voltage distortion Total harmonic current distortion / Funda,mental wave voltage Fundamental wave current / Fundamental wave active power Fundamental wave apparent power / Fundamental wave reactive power Fundamental wave power factor (Displacement power factor) Fundamental wave voltage current phase difference Harmonic voltage content percentage Harmonic current content percentage Harmonic active power content percentage (The following parameters can be downloaded as data via PC communication) Harmonic voltage phase angle Harmonic current phase angle Harmonic voltage current phase difference
Rectifiers	AC+DC : AC+DC measurement Display of true RMS values for both voltage and current AC+DC Umn : AC+DC measurement Display of average value rectified RMS converted values for voltage and true RMS values for current DC : DC measurement Display of simple averages for both voltage and current Display of values calculated by (voltage DC value) × (current DC value) for active power AC : AC measurement Display of values calculated by $\sqrt{(\text{AC+DC value})^2 - (\text{DC value})^2}$ for both voltage and current Display of values calculated by (AC+DC value) - (DC value) for active power FND : Extraction and display of the fundamental wave component from harmonic measurement
Zero-cross Filter	100 Hz: 0.1 Hz to 100 Hz 500 Hz: 0.1 Hz to 500 Hz 5 kHz: 0.1 Hz to 5 kHz 100 kHz: 0.1 Hz to 100 kHz

Measurement accuracy

Voltage

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
DC	±0.1rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.	±0.2%rdg.
0.1Hz≤f<16Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
16Hz≤f<45Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
45Hz≤f≤66Hz	±0.1%rdg.±0.05%f.s.	±0.15%rdg.	±0.15%rdg.
66Hz<f≤500Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
500Hz<f≤10kHz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
10kHz<f≤50kHz	±0.5%rdg.±0.3%f.s.	±0.8%rdg.	±0.8%rdg.
50kHz<f≤100kHz	±2.1%rdg.±0.3%f.s.	±2.4%rdg.	±2.4%rdg.

Current

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
DC	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.	±0.2%rdg.
0.1Hz≤f<16Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
16Hz≤f<45Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
45Hz≤f≤66Hz	±0.1%rdg.±0.05%f.s.	±0.15%rdg.	±0.15%rdg.
66Hz<f≤500Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
500Hz<f≤1kHz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
1kHz<f≤10kHz	±(0.03+0.07×F)%rdg. ±0.2%f.s.	±(0.23+0.07×F)%rdg.	±(0.23+0.07×F)%rdg.
10kHz<f≤100kHz	±(0.3+0.04×F)%rdg. ±0.3%f.s.	±(0.6+0.04×F)%rdg.	±(0.6+0.04×F)%rdg.

Active power

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
DC	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.	±0.2%rdg.
0.1Hz≤f<16Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
16Hz≤f<45Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
45Hz≤f≤66Hz	±0.1%rdg.±0.05%f.s.	±0.15%rdg.	±0.15%rdg.
66Hz<f≤500Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
500Hz<f≤1kHz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
1kHz<f≤10kHz	±(0.03+0.07×F)%rdg. ±0.2%f.s.	±(0.23+0.07×F)%rdg.	±(0.23+0.07×F)%rdg.
10kHz<f≤50kHz	±(0.07×F)%rdg. ±0.3%f.s.	±(0.3+0.07×F)%rdg.	±(0.3+0.07×F)%rdg.
50kHz<f≤100kHz	±(0.6+0.07×F)%rdg. ±0.3%f.s.	±(0.9+0.07×F)%rdg.	±(0.9+0.07×F)%rdg.

- Values for f.s. depend on measurement ranges.
- "F" in the tables refers to the frequency in kHz.
- When using the 1 mA/ 2 mA range:
  Add ±1 µA to 0.1 Hz to 100 kHz measurement accuracy for current.
  Add (±1 µA) × (voltage read value) to 0.1 Hz to 100 kHz measurement accuracy for active power.
- When using the 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range:
  Add ±1 mA to DC measurement accuracy for current.
  Add (±1 mA) × (voltage read value) to DC measurement accuracy for active power.
- When using the 1 mA/ 2 mA/ 5 mA/ 10 mA/ 20 mA/ 50 mA/ 100 mA range:
  Add ±10 µA to DC measurement accuracy for current.
  Add (±10 µA) × (voltage read value) to DC measurement accuracy for active power.
- When using the 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range:
  Add ±(0.02×F)% rdg. to the measurement accuracy for current and active power for which (10 kHz < f ≤ 100 kHz).
- The measurement results for following input are considered reference values:
  Values for voltage, current, and active power for which 0.1 Hz ≤ f < 10 Hz.
  Values for voltage, current, and active power in excess of 220 V or 20 A for which 10 Hz ≤ f < 16 Hz.
  Values for current and active power in excess of 20 A for which 500 Hz < f ≤ 50 kHz.
  Values for current and active power in excess of 10 A for which 50 kHz < f ≤ 100 kHz.
  Values for voltage and active power in excess of 750 V for which 30 kHz < f ≤ 100 kHz.

Effective measuring range	Voltage 1% to 150% of the range (1000 V range, up to 1000 V) Current 1% to 150% of the range Active power 0% to 225% of the range (when using 1000 V range, up to 150%) However, valid when the voltage and current fall within the effective measurement range.
Maximum effective peak voltage	±600% of each voltage range However, for 300 V, 600 V, and 1000 V ranges, ±1500 V peak
Maximum effective peak current	±600% of each current range However, for 20 A range, ±60 A peak
Guaranteed accuracy period	1 year
Post-adjustment accuracy guaranteed	6 months
Conditions of guaranteed accuracy	Temperature and humidity range: 23°C±5°C (73°F±9°F), 80% RH or less Warm-up time: 30 minutes Input: Sine wave input, power factor of 1, voltage to earth of 0 V, after zero-adjustment; within range in which the fundamental wave satisfies synchronization source conditions
Temperature coefficient	±0.03%f.s. per °C or less. However, for 1 mA range, ±0.06%f.s. per °C or less.
Effect of power factor	±0.1%f.s. or less (45 to 66 Hz, at power factor = 0) Internal circuitry voltage/current phase difference: ±0.0573°
Effect of common mode voltage	±0.01%f.s. or less (600 V, 50 Hz/60 Hz, applied between input terminals and enclosure)
Effect of magnetic field	400 A/m, DC and 50 Hz/60 Hz magnetic field Voltage ±1.5%f.s. or less Current ±1.5%f.s. or less than or equal to the following value, whichever is greater 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range: ±20 mA 1 mA/ 2 mA/ 5 mA/ 10 mA/ 20 mA/ 50 mA/ 100 mA range: ±200 µA Active power ±3.0%f.s. or less than or equal to the following value, whichever is greater 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range: (Voltage influence quantity)×(±20 mA) 1 mA/ 2 mA/ 5 mA/ 10 mA/ 20 mA/ 50 mA/ 100 mA range: (Voltage influence quantity)×(±200 µA)
Effect of self-heating	With input of at least 15 A to current input terminals Current AC input signal ±(0.025+0.005×(I-15))%rdg. or less DC input signal 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range ±((0.025+0.005×(I-15))% rdg.+(0.5+0.1×(I-15))mA) or less 1 mA/ 2 mA/ 5 mA/ 10 mA/ 20 mA/ 50 mA/ 100 mA range ±((0.025+0.005×(I-15))% rdg.+(5+1×(I-15))µA) or less I: Current read value (A) Active power (above current influence quantity) × (voltage read value) or less The effects of self-heating will continue to manifest themselves until the input resistance temperature falls, even if the current value is low.

Range table (Power ranges)

Voltage \ Current	6.0000 V	15.000 V	30.000 V	60.000 V	150.00 V	300.00 V	600.00 V	1.0000 kV
1.0000 mA	6.0000 mW	15.000 mW	30.000 mW	60.000 mW	150.00 mW	300.00 mW	600.00 mW	1.0000 W
2.0000 mA	12.000 mW	30.000 mW	60.000 mW	120.00 mW	300.00 mW	600.00 mW	1.2000 W	2.0000 W
5.0000 mA	30.000 mW	75.000 mW	150.00 mW	300.00 mW	750.00 mW	1.5000 W	3.0000 W	5.0000 W
10.000 mA	60.000 mW	150.00 mW	300.00 mW	600.00 mW	1.5000 W	3.0000 W	6.0000 W	10.000 W
20.000 mA	120.00 mW	300.00 mW	600.00 mW	1.2000 W	3.0000 W	6.0000 W	12.000 W	20.000 W
50.000 mA	300.00 mW	750.00 mW	1.5000 W	3.0000 W	7.5000 W	15.000 W	30.000 W	50.000 W
100.00 mA	600.00 mW	1.5000 W	3.0000 W	6.0000 W	15.000 W	30.000 W	60.000 W	100.00 W
200.00 mA	1.2000 W	3.0000 W	6.0000 W	12.000 W	30.000 W	60.000 W	120.00 W	200.00 W
500.00 mA	3.0000 W	7.5000 W	15.000 W	30.000 W	75.000 W	150.00 W	300.00 W	500.00 W
1.0000 A	6.0000 W	15.000 W	30.000 W	60.000 W	150.00 W	300.00 W	600.00 W	1.0000 kW
2.0000 A	12.000 W	30.000 W	60.000 W	120.00 W	300.00 W	600.00 W	1.2000 kW	2.0000 kW
5.0000A	30.000 W	75.000 W	150.00 W	300.00 W	750.00 W	1.5000 kW	3.0000 kW	5.0000 kW
10.000 A	60.000 W	150.00 W	300.00 W	600.00 W	1.5000 kW	3.0000 kW	6.0000 kW	10.000 kW
20.000 A	120.00 W	300.00 W	600.00 W	1.2000 kW	3.0000 kW	6.0000 kW	12.000 kW	20.000 kW

PW3335

Voltage/ Current/ Active Power Measurement Specifications

Measurement types	Rectifiers: AC+DC, DC, AC, FND, AC+DC Umn
Effective measuring range	Voltage ±1% to ±150% of the range. However, up to ±1500 V peak value and 1000 V RMS value Current ±1% to ±150% of the range Active Power ±0% to ±225% of the range. However, valid when the voltage and current fall within the effective measurement range.
Display range	Voltage Up to ±152% of the range. However, zero-suppression when less than ±0.5% Current Up to ±152% of the range. However, zero-suppression when less than ±0.5% or less than ±9 µA. Active Power ±0% to ±231.04% of the range (no zero-suppression)
Polarity	Voltage/ Current Displayed when using DC rectifier Active Power Positive : Power consumption (no polarity display) Negative : generation or regenerated power

Voltage Waveform Peak Value/ Current Waveform Peak Value Measurement Specifications

Measurement method	Measures the voltage waveform's peak value (for both positive and negative polarity) based on sampled instantaneous voltage values.
Range configuration	Voltage Voltage range / Voltage peak range 6.0000 V / 36.000 V 15.000 V / 90.000 V 30.000 V / 180.00 V 60.000 V / 360.00 V 150.00 V / 900.00 V 300.00 V / 1.8000 kV 600.00 V / 3.6000 kV 1.0000 kV / 6.0000 kV Current Current range / Current peak range 1.0000 mA / 6.0000 mA 2.0000 mA / 12.000 mA 5.0000 mA / 30.000 mA 10.000 mA / 60.000 mA 20.000 mA / 120.00 mA 50.000 mA / 300.00 mA 100.00 mA / 600.00 mA 200.00 mA / 1.2000 A 500.00 mA / 3.0000 A 1.0000 A / 6.0000 A 2.0000 A / 12.000 A 5.0000 A / 30.000 A 10.000 A / 60.000 A 20.000 A / 120.00 A
Measurement accuracy	±2.0%f.s. at DC and when 10 Hz ≤ f ≤ 1 kHz (f.s.: current peak range). Provided as reference value when 0.1 Hz ≤ f < 10 Hz and when 1 kHz < f. The above measurement accuracy is multiplied by 2 for the 1 mA range.
Effective measuring range	±5% to ±100% of current peak range, however, up to ±60 A
Display range	Up to ±102% of current peak range, however, the value 0 will be displayed if the current RMS value triggers the instrument's zero suppression function.

Voltage Crest Factor/Current Crest Factor Measurement Specifications

Measurement method	Calculates the ratio of the voltage waveform peak value to the voltage RMS value.
Effective measuring range	As per voltage and voltage waveform peak value, or current and current waveform peak value effective measurement ranges.
Display range	1.0000 to 612.00 (no polarity)

Voltage Ripple Rate/ Current Ripple Rate Measurement Specifications

Measurement method	Calculates the AC component (peak to peak [peak width]) as a proportion of the voltage or current DC component.
Effective measuring range	As per voltage and voltage waveform peak value, or current and current waveform peak value effective measurement ranges.
Display range	0.00 to 500.00 (No polarity)

Apparent Power/ Reactive Power/ Power Factor/ Phase Angle Measurement Specifications

Measurement types	Rectifiers Apparent Power/ Reactive Power/ Power Factor AC+DC, AC, FND, AC+DC Umn Phase Angle AC, FND
Effective measuring range	As per voltage, current, and active power effective measurement ranges
Display range	Apparent Power/ Reactive Power 0% to 231.04% of the range (no zero-suppression) Power Factor ±0.0000 to ±1.0000 Phase Angle +180.00 to -180.00
Polarity	Reactive Power/ Power Factor/ Phase Angle Polarity is assigned according to the lead/lag relationship of the voltage waveform rising edge and the current waveform rising edge. +: When current lags voltage (no polarity display) -: When current leads voltage

Power Calculation Formulas

S : Apparent power	$S = U \times I$
Q : Reactive power	$Q = si\sqrt{S^2 - P^2}$
λ : Power factor	$\lambda = si \mid P/S \mid$
ϕ : Phase angle	$\phi = si \cos^{-1} \mid \lambda \mid$ (±90° to ±180°) $\phi = si \mid 180 - \cos^{-1} \mid \lambda \mid \mid$ (0° to ±90°)

U: Voltage, I: Current, P: Active Power, si: Polarity symbol (acquired based on voltage waveform and current waveform lead and lag)

Frequency Measurement Specifications

Number of measurement channels	2 (Voltage, current)
Measurement method	Calculated from input waveform period (reciprocal method)
Measurement ranges	100 Hz/ 500 Hz/ 5 kHz/ 100 kHz (linked to zero-cross filter)
Measurement accuracy	±0.1% rdg. ±1 dgt. However, for 1 mA range, ±0.2% rdg. ±1 dgt.
Effective measuring range	0.1 Hz to 100 kHz For sine wave input that is at least 20% of the measurement source's measurement range Measurement lower limit frequency setting: 0.1 sec. / 1 sec. / 10 sec. (linked to synchronization timeout setting)
Display format	0.1000 Hz to 9.9999 Hz, 9.900 Hz to 99.999 Hz, 99.00 Hz to 999.99 Hz, 0.9900 kHz to 9.9999 kHz, 9.900 kHz to 99.999 kHz, 99.00 kHz to 100.00 kHz

Maximum Current Ratio Measurement Specifications (MCR)

Measurement method	Calculates the ratio of the current crest factor to the power factor. (MCR) = (Current Crest Factor) / (Power Factor)
Effective measuring range	As per power factor (voltage, current, active power) and current crest factor (current, current waveform peak value) effective measurement ranges.
Display range	1.0000 to 6.1200 M (no polarity)

Time Average Current/ Time Average Active Power Measurement Specifications

Measurement method	Calculates the average by dividing the current or active power integrated value by the integration time.
Measurement accuracy	(Current or Active power measurement accuracy) + (±0.01% rdg. ±1 dgt.)
Effective measuring range	As per the current or active power integration effective measurement range.
Display range	Time Average Current ±0% to ±612% of the range (Has polarity when using the DC rectifier.) Time Average Active Power ±0% to ±3745.4% of the range (Has polarity)

Functional Specifications

Auto-range (AUTO)	Automatically changes the voltage and current range according to the input. Range up: The range is increased when input exceeds 150% of the range or when the peak is exceeded. Range down: The range is decreased when input falls below 15% of the range. However, the range is not decreased when the peak is exceeded at the lower range. The input level is monitored, and the range is switched over multiple ranges. Range select can be used to disable ranges so that they are not selected.
Range select	Selects whether to enable (turn on) or disable (turn off) individual voltage and current ranges. Enabled (use): Ranges can be selected with the range keys. Range switching occurs using auto-range operation. Range switching occurs during auto-range integration. Disabled (do not use): Ranges cannot be selected with the range keys. Range switching does not occur using auto-range operation. Range switching does not occur during auto-range integration.
Zero-cross filter's threshold level	Sets the zero-cross filter's threshold level for voltage and current ranges. Set from 1% to 15% (in 1% intervals). Synchronization occurs when the percentage level set for each measurement range is exceeded.
Averaging	Averages the voltage, current, active power, apparent power, and reactive power. (Other than harmonic measurement parameters.) The power factor and phase angle are calculated from averaged data. Averaging is not performed for parameters other than those listed above. Method: Simple averaging Number of averaging iterations and display update interval Number of averaging iterations / Display update interval 1 (OFF) / 200 ms 2 / 400 ms 5 / 1 s 10 / 2 s 25 / 5 s 50 / 10 s 100 / 20 s
Scaling (VT, CT)	Applies user-defined VT and CT ratio settings to measured values. VT ratio setting range OFF (1.0), 0.001 to 1000 CT ratio setting range OFF (1.0), 0.001 to 1000
Hold	• Stops display updates for all measured values and fixes the display values at that point in time. • Measurement data acquired by communications is also fixed at that point in time. • Internal calculations (including integration and integration elapsed time) will continue. • Analog output and waveform output are not held

Maximum value/ minimum value hold (MAX/MIN HOLD)	• Detects maximum and minimum measured values (except current integration, active power integration, integration elapsed time, time average current, and time average active power values) as well as maximum and minimum values for the voltage waveform peak and current waveform peak and holds them on the display. • For data with polarity, display of the maximum value and minimum value for the data's absolute values is held (so that both positive and negative polarity values are shown). However, this does not apply to the voltage waveform peak value or the current waveform peak value. • Internal calculations (including integration and integration elapsed time) will continue. • The maximum and minimum values during integration are detected (maximum/minimum value measurement during the integration interval). • Analog output and waveform output are not held.
Zero Adjustment	Zeroes out the voltage and current input offset.
Key-lock	Disables key input in the measurement state, except for the KEY LOCK key.
Backup	Backs up settings and integration data if the instrument is turned off and if a power outage occurs.
System Reset	Initializes the instrument's settings.

Integration Measurement Specifications

Integration operation modes	Switchable between fixed-range integration and auto-range integration. Fixed-range integration Integration can be performed for all voltage and current ranges. The voltage and current ranges are fixed once integration starts. Auto-range integration Integration can be performed for all voltage ranges. The current is set to auto-range operation using ranges from 200 mA to 20 A. The integrated value for each range can be displayed by switching the current range (200 mA to 20 A) while integration is stopped.
Measurement items and display	Simultaneous integration of the following 6 parameters: Positive current integrated value (Ah+) Negative current integrated value (Ah-) Sum of current integrated values (Ah) Positive active power integrated value (Wh+) Negative active power integrated value (Wh-) Sum of active power integrated values (Wh)
Measurement types	Rectifiers: AC+DC, AC+DC Umn Current: Displays the result of integrating current RMS value data (display values) once every display update interval as an integrated value. Active power: Displays the result of integrating active power values by polarity calculated once every cycle for the selected synchronization source as integrated values. Rectifier: DC Displays the result of integrating instantaneous data obtained by sampling both current and active power by polarity as integrated values (these values are not integrated values for the DC component when active power contains both DC and AC components)
Integration time	1 min. to 10000 hr., settable in 1 min. blocks
Integration time accuracy	±0.01% rdg. ±1 dgt.
Integration measurement accuracy	(Current or active power measurement accuracy) + (±0.01% rdg. ±1 dgt.)
Effective measuring range	Until PEAK OVER U lamp or PEAK OVER I lamp lights up.
Display resolution	999999 (6 digits + decimal point)
Functions	• Stopping integration based on integration time setting (timer) • Stopping/starting integration and resetting integrated values based on external control • Displaying the integration elapsed time (displayed as TIME on panel display) • Additional integration by repeatedly starting/stopping integration • Backing up integrated values and the integration elapsed time during power outages • Stopping integration when power returns

Harmonic Measurement Specifications

Measurement method	Zero-cross simultaneous calculation method Uniform thinning between zero-cross events after processing with a digital antialiasing filter Interpolation calculations (Lagrange interpolation) When the synchronization frequency falls within the 45 Hz to 66 Hz range: IEC 61000-4-7:2002 compliant Gaps and overlaps may occur if the measurement frequency is not 50 Hz or 60 Hz. When the synchronization frequency falls outside the 45 Hz to 66 Hz range: No gaps or overlap will occur.
Synchronization source	Conforms to synchronization source (SYNC) for the basic measurement specifications.
Measurement items	Harmonic voltage RMS value / Harmonic voltage content percentage Harmonic voltage phase angle / Harmonic current RMS value Harmonic current content percentage / Harmonic current phase angle Harmonic active power Harmonic active power content percentage Harmonic voltage current phase difference Total harmonic voltage distortion / Total harmonic current distortion Fundamental wave voltage / Fundamental wave current Fundamental wave active power / Fundamental wave apparent power Fundamental wave reactive power / Fundamental wave power factor Fundamental wave voltage current phase difference (The following parameters can be downloaded as data with communications) Harmonic voltage phase angle / Harmonic current phase angle Harmonic voltage current phase difference
FFT processing	FFT processing word length : 32 bits Number of FFT points : 4096 points
Window function	Rectangular
Analysis window width	45 Hz ≤ f < 56 Hz : 178.57 ms to 222.22 ms (10 cycles) 56 Hz ≤ f < 66 Hz : 181.82 ms to 214.29 ms (12 cycles) Frequencies other than the above : 185.92 ms to 214.08 ms
Data update rate	Depends on window width.
Maximum analysis order	Synchronization frequency (f) range / Analysis order 10 Hz ≤ f < 45 Hz : 50th 45 Hz ≤ f < 56 Hz : 50th 56 Hz ≤ f ≤ 66 Hz : 50th 66 Hz < f ≤ 100 Hz : 50th 100 Hz < f ≤ 200 Hz : 40th 200 Hz < f ≤ 300 Hz : 25th 300 Hz < f ≤ 500 Hz : 15th 500 Hz < f ≤ 640 Hz : 11th
Analysis order upper limit setting	2nd to 50th
Measurement accuracy	f.s.: Measurement range Frequency (f) / Voltage, Current, Active power DC : ±0.4% rdg. ±0.2%f.s. 10 Hz ≤ f < 30 Hz : ±0.4% rdg. ±0.2%f.s. 30 Hz ≤ f ≤ 400 Hz : ±0.3% rdg. ±0.1%f.s. 400 Hz < f ≤ 1 kHz : ±0.4% rdg. ±0.2%f.s. 1 kHz < f ≤ 5 kHz : ±1.0% rdg. ±0.5%f.s. 5 kHz < f ≤ 8 kHz : ±4.0% rdg. ±1.0%f.s. • When using the 1 mA/ 2 mA range: Add ±1 µA to 10 Hz to 8 kHz measurement accuracy for current. Add (±1 µA) × (voltage read value) to 10 Hz to 8 kHz measurement accuracy for active power. • When using the 200 mA/ 500 mA/ 1 A/ 2 A/ 5 A/ 10 A/ 20 A range: Add ±1 mA to DC measurement accuracy for current. Add (±1 mA) × (voltage read value) to DC measurement accuracy for active power. • When using the 1 mA/ 2 mA/ 5 mA/ 10 mA/ 20 mA/ 50 mA/ 100 mA range: Add ±10 µA to DC measurement accuracy for current. Add (±10 µA) × (voltage read value) to DC measurement accuracy for active power.

Display Specifications

Display	7-segment LED
Number of display parameters	4 (display area a, b, c, and d)
Display resolution	Other than integrated values: 99999 count (5 digits) Integrated values: 999999 count (6 digits)
Display update rate	200 ms ±50 ms (approx. 5 updates per sec.) to 20 s (varies with number of averaging iterations setting)

Synchronized control

Functions	The timing of calculations; display updates; data updates; integration start, stop, and reset events; display hold operation; key lock operation; and zero-adjustment operation for the slave PW3335 series is synchronized with the master PW3335 series. Synchronization with the PW3336 series and PW3337 series is also supported.
Terminal	BNC terminal × 1 (non-isolated)
Terminal name	External synchronization terminal (EXT.SYNC)
I/O settings	Off Synchronized control function off (signals input to the external synchronization terminal (EXT.SYNC) are ignored) In The external synchronization terminal (EXT.SYNC) is set to input, and a dedicated synchronization signal can be input (slave). Out The external synchronization terminal (EXT.SYNC) is set to output, and a dedicated synchronization signal can be output (master).
Number of units for which synchronized control can be performed	Up to 7 slaves per master (total of 8 units including the PW3336/PW3337 series)

External Current Sensor Input Specifications (PW3335-03 and PW3335-04)

Terminal	Isolated BNC terminals
Current sensor type switching	Off / TYPE.1 / TYPE.2 When set to off, input from the external current sensor input terminal is ignored.
Current sensor options	TYPE1 (100 A to 5000 A sensors) 9660, 9661, 9669, CT9667-01/-02/-03 TYPE2 (20 A to 1000 A sensors, Power supply is required to use) CT6862-05, CT6863-05, CT6875, CT6876, CT6877, 9272-05, CT6841-05, CT6843-05, CT6844-05, CT6845-05, CT6846-05, etc.
Current measurement range	Auto/ 1 A/ 2 A/ 5 A (range noted on panel) Can be read directly by manually setting the CT ratio.
Constraints	Auto-range integration not supported.

PW3335

Power range configuration	Depends on the combination of voltage and current ranges; from 24.000 W to 5.0000 MW (also applies to VA, var)
Measurement accuracy	

Current/ Active Power

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
DC	±0.1%rdg.±0.2%f.s.	±0.1%rdg.±0.2%f.s.	±0.3%rdg.
0.1Hz≤f<16Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
16Hz≤f<45Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
45Hz≤f≤66Hz	±0.1%rdg.±0.1%f.s.	±0.2%rdg.	±0.2%rdg.
66Hz<f≤500Hz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.
500Hz<f≤1kHz	±0.1%rdg.±0.2%f.s.	±0.3%rdg.	±0.3%rdg.

Current

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
1kHz<f≤10kHz	±(0.03+0.07×F)%rdg. ±0.2%f.s.	±(0.23+0.07×F)%rdg.	±(0.23+0.07×F)%rdg.
10kHz<f≤100kHz	±(0.3+0.04×F)%rdg. ±0.3%f.s.	±(0.6+0.04×F)%rdg.	±(0.6+0.04×F)%rdg.

Active Power

Frequency (f)	Input < 50%f.s.	50%f.s. ≤ Input < 100%f.s.	100%f.s. ≤ Input
1kHz<f≤10kHz	±(0.03+0.07×F)%rdg. ±0.2%f.s.	±(0.23+0.07×F)%rdg.	±(0.23+0.07×F)%rdg.
10kHz<f≤50kHz	±(0.07×F)%rdg. ±0.3%f.s.	±(0.3+0.07×F)%rdg.	±(0.3+0.07×F)%rdg.
50kHz<f≤100kHz	±(0.6+0.07×F)%rdg. ±0.3%f.s.	±(0.9+0.07×F)%rdg.	±(0.9+0.07×F)%rdg.

- Values for f.s. depend on measurement ranges.
- "F" in the tables refers to the frequency in kHz.
- To obtain the current or active power accuracy, add the current sensor's accuracy to the above current and active power accuracy figures.
- The effective measurement range and frequency characteristics conform to the current sensor's specifications.
- The following input are considered reference values:
  Values for voltage, current, and active power for which 0.1 Hz ≤ f < 10 Hz.
  Values for voltage and active power in excess of 220 V for which 10 Hz ≤ f < 16 Hz.
  Values for voltage and active power in excess of 750 V for which 30 kHz < f ≤ 100 kHz.
- When using the CT684x-05 series, add ±2 mV to the CT684x-05 series accuracy after performing CT684x-05 series zero adjustment using the 1 A range noted on the panel.

Temperature coefficient	Current, active power: ±0.08%f.s./°C or less (instrument temperature coefficient; f.s. : instrument measurement range) Add current sensor temperature coefficient to above.
Effect of power factor	Instrument: ±0.15%f.s. or less (45 to 66 Hz with power factor = 0) Internal circuit voltage/current phase difference: ±0.0859° Add the current sensor phase accuracy to the internal circuit voltage/current phase difference noted above.
Current waveform peak value measurement specifications	±2.0% at DC or 10 Hz ≤ f ≤ 1 kHz (f.s.: current peak range) Add the current sensor accuracy to the above.
Harmonic measurement accuracy	External current sensor input instrument measurement accuracy only

Frequency (f)	Voltage, Current, Active power
DC	±0.4% rdg.±0.2%f.s.
10 Hz ≤ f < 30 Hz	±0.4% rdg.±0.2%f.s.
30 Hz ≤ f ≤ 400 Hz	±0.3% rdg.±0.1%f.s.
400 Hz < f ≤ 1 kHz	±0.4% rdg.±0.2%f.s.
1 kHz < f ≤ 5 kHz	±1.0% rdg.±0.5%f.s.
5 kHz < f ≤ 8 kHz	±4.0% rdg.±1.0%f.s.

- Values for f.s. depend on measurement ranges.
- To obtain the current or active power accuracy, add the current sensor's accuracy to the above current and active power accuracy figures.
- When using the CT684x-05 series, add ±2 mV to the CT684x-05 series accuracy after performing CT684x-05 series zero adjustment using the 1 A range noted on the panel.

D/A Output Specifications (PW3335-02 and PW3335-04)

Number of output channels	7 channels
Configuration	16-bit D/A converter (polarity + 15 bits)
Output voltage	The output level, output speed, and waveform output can be selected. Level output 2 Vf.s. or 5 Vf.s., linked to display updates High-speed level output 2 Vf.s. or 5 Vf.s., linked to synchronization interval Waveform output 1 Vf.s., linked to sampling
Output parameters	Output parameters for all channels Available selections vary with the output parameter. Level output/ High-speed level output/ Waveform output Voltage, current, active power Only Level output Apparent power, reactive power, power factor, phase angle, total harmonic voltage distortion, total harmonic current distortion, voltage ripple rate, current ripple rate, voltage crest factor, current crest factor, time average current, time average active power, maximum current ratio Only Level output 5 Vf.s. Frequency, current integration, active power integration The rectifier can be selected. Harmonic-order output is not supported.
Output accuracy	f.s.: Relative to the output voltage rated value for each output parameter Level output (Output parameter measurement accuracy) + (±0.2%f.s.) High-speed level output (Output parameter measurement accuracy) + (±0.2%f.s.) Waveform output (Output parameter measurement accuracy) + (±1.0%f.s.)
Output frequency band	Waveform output, high-speed level output At DC or 10 Hz to 30 kHz, accuracy is as defined above.
Maximum output voltage	Approx. ±12 V DC
Output update rate	Level output Same as the data update period. High-speed level output AC Updated once every cycle for the input waveform set as the synchronization source. However, voltage and current are only updated once every cycle for input signals from 45 to 66 Hz. Waveform output Approx. 1.43 µs (approx. 700 kHz)
Response time	Level output 0.6 sec. or less High-speed level output 2 ms or less Waveform output 0.2 ms or less
Temperature coefficient	±0.05%f.s./°C or less
Output resistance	Approx. 100 Ω

External control

Functions	Integration start/stop, integration reset and hold via external control
Input signal level	0 to 5 V (high-speed CMOS level) or shorted [Lo]/ open [Hi]

GP-IB interface (PW3335-01 and PW3335-04)

Method	Compliant with IEEE488.1 1987, in reference to IEEE488.2 1987 Interface functions SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0
Address	00 to 30

RS-232C interface (PW3335, PW3335-02, PW3335-03, and PW3335-04)

Connector	D-sub 9-pin connector × 1
Communication method	Full duplex, Start-stop synchronization Stop bits: 1 (fixed) Data length: 8 (fixed) Parity: None
Communication speed	9600 bps/ 38400 bps

LAN interface

Connector	RJ-45 connector × 1
Electrical specifications	Compliant with IEEE802.3
Transmission method	10Base-T/ 100Base-TX (automatic detection)
Protocol	TCP/ IP
Functions	HTTP server (remote operation, firmware updates) Dedicated ports (command control, data transfer) Remote control by controller

General Specifications

Product warranty period	3 year
Operating environment	Indoors, altitude up to 2000 m (6562 ft.), pollution degree 2
Operating temperature and humidity	0°C to 40°C (32°F to 104°F), 80% RH or less (no condensation)
Storage temperature and humidity	-10°C to 50°C (14°F to 122°F), 80% RH or less (no condensation)
Dielectric strength	4290 V rms AC (current sensitivity: 1 mA) Between the voltage input terminals and a connection consisting of chassis, interfaces, and output terminals Between the current input terminals and a connection consisting of chassis, interfaces, and output terminals Between the voltage input terminals and current input terminals
Maximum rated voltage to earth	Voltage input terminal, Current input terminal Measurement category III 600 V (anticipated transient overvoltage: 6000 V) Measurement category II 1000 V (anticipated transient overvoltage: 6000 V)
Maximum input voltage	Between the voltage input terminals U and ± 1000 V, ±1500 V peak
Maximum input current	Between the current input terminals I and ± 200 mA to 20 A range 30 A, ±100 A peak 1 mA to 100 mA range 20 A, ±30 A peak
Applicable Standards	Safety EN61010 EMC EN61326 Class A EN61000-3-2 EN61000-3-3
Rated supply voltage	100 V AC to 240 V AC 50 Hz/60 Hz
Maximum rated power	30 VA or less
Dimensions	Approx. 210W × 100H × 245D mm (8.27"W × 3.94"H × 9.65"D) (excluding protrusions)
Mass	Approx. 3 kg (105.8 oz.)
Accessories	Instruction manual ×1 Power cord ×1 Voltage and current input terminal safety cover ×2

3-phase Power Meter

Model & Appearance	Model No. (Order Code)	Number of Channels	AC/ DC	Harmonic Measurement	LAN	RS-232C	GP-IB	D/A output	Current Sensor Input	Synchronized Control
POWER METER PW3337 	PW3337	3	AC/ DC	✔	✔	✔	×	×	✔	✔
	PW3337-01	3	AC/ DC	✔	✔	✔	✔	×	✔	✔
	PW3337-02	3	AC/ DC	✔	✔	✔	×	✔	✔	✔
	PW3337-03	3	AC/ DC	✔	✔	✔	✔	✔	✔	✔
POWER METER PW3336 	PW3336	2	AC/ DC	✔	✔	✔	×	×	✔	✔
	PW3336-01	2	AC/ DC	✔	✔	✔	✔	×	✔	✔
	PW3336-02	2	AC/ DC	✔	✔	✔	×	✔	✔	✔
	PW3336-03	2	AC/ DC	✔	✔	✔	✔	✔	✔	✔

Accessories: Instruction manual ×1, Measurement guide ×1, Power cord ×1

Single-phase Power Meter

Model & Appearance	Model No. (Order Code)	Number of Channels	AC/ DC	Harmonic Measurement	LAN	RS-232C	GP-IB	D/A output	Current Sensor Input	Synchronized Control
POWER METER PW3335 	PW3335	1	AC/ DC	✔	✔	✔	×	×	×	✔
	PW3335-01	1	AC/ DC	✔	✔	×	✔	×	×	✔
	PW3335-02	1	AC/ DC	✔	✔	✔	×	✔	×	✔
	PW3335-03	1	AC/ DC	✔	✔	✔	×	×	✔	✔
	PW3335-04	1	AC/ DC	✔	✔	✔	✔	✔	✔	✔
AC/ DC POWER HiTESTER 3334 	3334	1	AC/ DC	×	×	✔	×	✔	×	×
	3334-01	1	AC/ DC	×	×	✔	✔	✔	×	×
POWER HiTESTER 3333 	3333	1	AC	×	×	✔	×	✔	×	×
	3333-01	1	AC	×	×	✔	✔	✔	×	×

Accessories : Instruction manual ×1, Power cord ×1

Communications and control options

RS-232C CABLE
9637
Cable length: 1.8 m (5.91 ft)
9pin to 9pin

GP-IB CONNECTOR
CABLE 9151-02
Cable length: 2 m (6.56 ft)

LAN CABLE
9642
Cable length: 5 m (16.41 ft)
supplied with straight to
cross conversion cable

CONNECTION CORD
9165
For synchronized control
Cable length: 1.5 m (4.92 ft),
metal BNC to metal BNC

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