HIOKI

AC/DC CURRENT BOX PW9100

NEW

For PW6001/ 3390/ 3390-10 POWER ANALYZERS

New wideband high-accuracy current measurement option

The optimal device for testing inverters

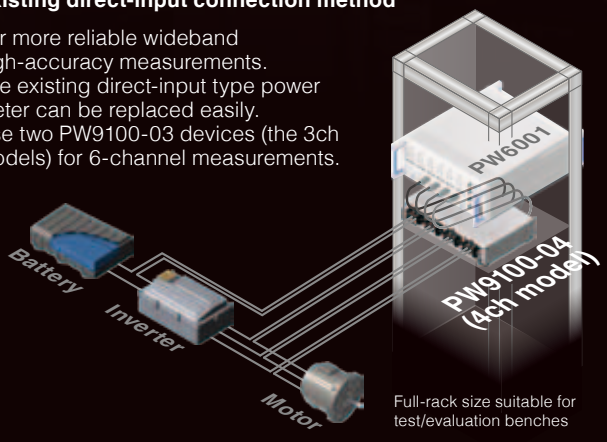
The newly developed DCCT method provides world-leading measurement bands and accuracy at a 50 A rating.
Delivering a direct-coupled type current testing tool that brings out the PW6001 POWER ANALYZER's maximum potential.

Rating	Measurement frequency band	Power accuracy in combination with PW6001	CMRR (100 kHz)
50 Arms DC ±50 A	DC to 3.5 MHz	±0.04% *	120 dB

High consistency and noise resistance for definitive testing of inverters

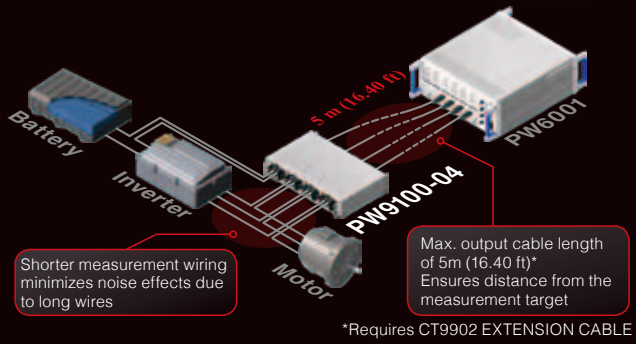
Wiring connection example 1 –
Existing direct-input connection method

For more reliable wideband high-accuracy measurements.
The existing direct-input type power meter can be replaced easily.
Use two PW9100-03 devices (the 3ch models) for 6-channel measurements.



Wiring connection example 2 –
Introducing a new and innovative measuring method

Shorten the wiring for current measurement by installing the PW9100 close to the measurement target. This will also keep the effects of wiring resistance, capacity coupling and other objective factors on the measured values to a minimum.



*Requires CT9902 EXTENSION CABLE

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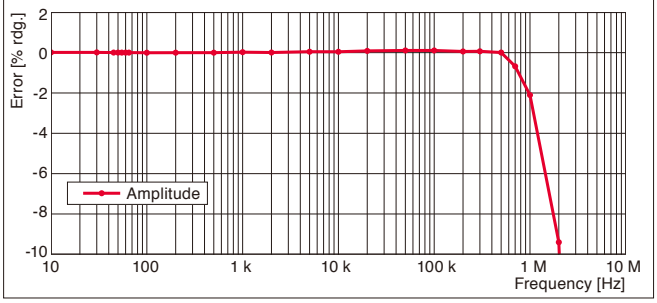
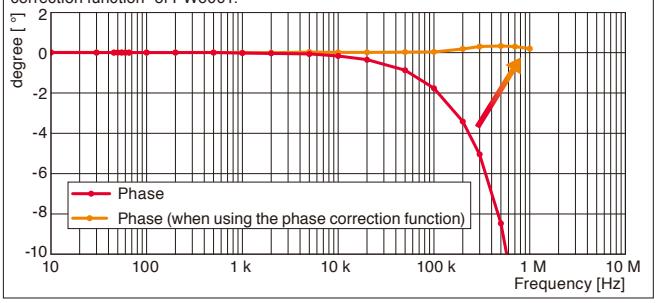
* For complete details, please refer to the specifications.

Frequency characteristics

Amplitude accuracy characteristics (Typical)
Characteristics of a wideband flat amplitude. -3 dB in 3.5 MHz



Phase accuracy characteristics (Typical)
To improve the phase characteristics in the high-frequency band, use the phase correction function* of PW6001.



*Special calibration is required when a CT9902 EXTENSION CABLE is used. Contact us for more information.

Specifications

Current and power measurement accuracy

(Combined accuracy of a PW9100 AC/DC CURRENT BOX and a PW6001 POWER ANALYZER)

Frequency	**Current measurement accuracy**
DC	±0.04% rdg. ±0.037% f.s. (f.s. = PW6001 Range)
45 Hz ≤ f ≤ 65 Hz	±0.04% rdg. ±0.025% f.s. (f.s. = PW6001 Range)
Other bandwidths	PW6001 accuracy + PW9100 accuracy (Consider sensor rating when calculating f.s. error.)

Frequency	**Power measurement accuracy**	Phase
DC	±0.04% rdg. ±0.057% f.s. (f.s. = PW6001 Range)	–
45 Hz ≤ f ≤ 65 Hz	±0.04% rdg. ±0.035% f.s. (f.s. = PW6001 Range)	PW6001 accuracy + PW9100 accuracy
Other bandwidths	PW6001 accuracy + PW9100 accuracy (Consider sensor rating when calculating f.s. error.)	

- For other measurement parameters, add the PW6001 accuracy and the PW9100 accuracy (and consider the sensor rating when calculating the f.s. error).
- For 1 A Range and 2 A Range, apply ±0.12% f.s. (f.s. = PW6001 Range)
- Accuracy additions defined by the conditions in the PW6001 and PW9100 specifications also apply.

The advantages of combined accuracy	The f.s. accuracy of PW9100 doesn't need to be taken into account for DC measurements and measurements from 45 to 66 Hz.

Current measurement accuracy (standalone PW9100)

Frequency	Amplitude	Phase
DC	±0.02% rdg. ±0.007% f.s.	–
DC < f < 30 Hz	±0.1% rdg. ±0.02% f.s.	±0.3 deg.
30 Hz ≤ f < 45 Hz	±0.1% rdg. ±0.02% f.s.	±0.1 deg.
45 Hz ≤ f ≤ 65 Hz	±0.02% rdg. ±0.005% f.s.	±0.1 deg.
65 Hz < f ≤ 500 Hz	±0.1% rdg. ±0.01% f.s.	±0.12 deg.
500 Hz < f ≤ 1 kHz	±0.1% rdg. ±0.01% f.s.	±0.5 deg.
1 kHz < f ≤ 5 kHz	±0.5% rdg. ±0.02% f.s.	±0.5 deg.
5 kHz < f ≤ 20 kHz	±1% rdg. ±0.02% f.s.	±1 deg.
20 kHz < f ≤ 50 kHz	±1% rdg. ±0.02% f.s.	±(0.05*f) deg.
50 kHz < f ≤ 100 kHz	±2% rdg. ±0.05% f.s.	±(0.06*f) deg.
100 kHz < f ≤ 300 kHz	±5% rdg. ±0.05% f.s.	±(0.06*f) deg.
300 kHz < f ≤ 700 kHz	±5% rdg. ±0.05% f.s.	±(0.07*f) deg.
700 kHz < f ≤ 1 MHz	±10% rdg. ±0.05% f.s.	±(0.07*f) deg.
Frequency band	3.5 MHz (-3 dB typical)	–

- Unit for f in accuracy calculations: kHz
- Amplitude accuracy and phase accuracy are defined within the accuracy guarantee range shown in the derating figure. However, for DC < f < 10 Hz, the above shows the design values.
- Accuracy guarantee conditions: 23°C ±5°C (73°F ±9°F), 80% RH or less, warm-up time: 30 minutes or more, sine wave input, terminal-to-ground voltage of 0 V

Output noise	300 μV rms or less (≤1 MHz)
Effects of temperature	Within the range of 0°C to 18°C (32°F to 64°F) or 28°C to 40°C (82°F to 104°F) Amplitude sensitivity: ±0.005% rdg./°C Offset voltage: ±0.005% f.s./°C Phase: ±0.01 deg./°C
Magnetic susceptibility	5 mA or less (Scaled value, after input of ±50 A)
Effects of common-mode voltage (CMRR)	50 Hz/60 Hz: 120 dB or greater, 100 kHz: 120 dB or greater (Effect on output voltage/common-mode voltage)
Effects of radiated radio frequency electromagnetic field	0.5% f.s. or less at 10 V/m
Effects of external magnetic field	±10 mA or less (for a magnetic field of 400 A/m at DC or 50 Hz/60 Hz)

- Add the following accuracy when using a 5-m (16.40-ft) CT9902 EXTENSION CABLE. The measurement band is 2 MHz (±3 dB typical)

Frequency	Amplitude	Phase
DC ≤ f ≤ 10 kHz	±0.015% rdg.	No addition
10 kHz < f ≤ 50 kHz	±0.015% rdg.	±(0.02*f) deg.
50 kHz < f ≤ 300 kHz	±0.015% rdg.	±(0.03*f) deg.
300 kHz < f ≤ 700 kHz	±2% rdg.	±(0.03*f) deg.
700 kHz < f ≤ 1 MHz	±4% rdg.	±(0.03*f) deg.

Basic specifications

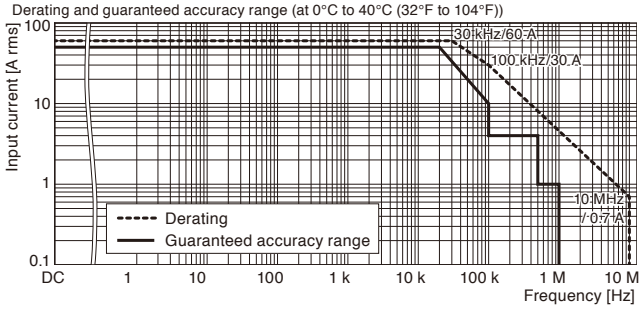
(Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

Input method	Isolated input, DCCT input
Rated primary current	50 A AC/DC
Number of input channels	PW9100-03: 3 channels PW9100-04: 4 channels
Maximum input current	Within derating. However, up to ±200 A peak is allowable if within 20 ms (design value).
Output voltage	2 V/50 A
Maximum rated voltage to ground	1000 V (measurement category II), 600 V (measurement category III), anticipated transient overvoltage: 6000 V
Measurement terminals	Terminal block (with safety cover), M6 screws
Input resistance	1.5 mΩ or less (50 Hz/60 Hz)
Input capacitance	Between measurement terminals and case (secondary side), 40 pF or less, defined at 100 kHz

General specifications

Operating environment	Indoors, pollution degree 2, altitude up to 2000 m (6562.20 ft)
Operating temperature and humidity	Temperature: 0°C to 40°C (32°F to 104°F), Humidity: 80% RH or less (no condensation)
Storage temperature and humidity	Temperature: -10°C to 50°C (14°F to 122°F), Humidity: 80% RH or less (no condensation)
Compliance standard	Safety: EN 61010-2-030:2010 EMC: EN 61326-1:2013 Class A
Dielectric strength	5.4 kV AC (sensed current of 1 mA), 50 Hz/60 Hz, 1 min - Between the input terminal, the cable output terminal and the case - Between channels
Power supply	Power supply from PW6001, 3390, 3390-10
Interface	Dedicated interface (ME15W)
Dimensions	430 mm (16.93 in) W × 88 mm (3.46 in) H × 260 mm (10.24 in) D
Output cable length	0.8 m (2.62 ft)
Mass	PW9100-03: 3.7 kg (130.5 oz), PW9100-04: 4.3 kg (151.7 oz)
Product warranty period	1 year
Accessories	Instruction manual

Derating and guaranteed accuracy range (at 0°C to 40°C (32°F to 104°F))



Options

(Product name)	(Order code)	(No. of channels)
AC/DC CURRENT BOX	PW9100-03	3ch
AC/DC CURRENT BOX	PW9100-04	4ch

EXTENSION CABLE CT9902
2 or more extension cables cannot be combined for use.

Rack mount hardware
Made-to-order, for EIA/JIS
Contact us for more information.

POWER ANALYZERS 3390/3390-10 also support the PW9100.

For connecting to 3390/3390-10

CONVERSION CABLE CT9901

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