ISOLATED OUTPUT HIGH PRECISION CURRENT SHUNT METER

CE USB GPIB

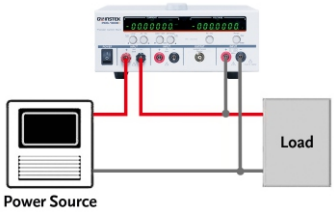
PCS-1000I

FEATURES

- 6 1/2 Digit Voltage and Current Measurement Resolution
- Simultaneous Current and Voltage Measurement
- Five Current Measurement Levels(AC & DC) : 30mA/300mA/3A/30A/300A
- AC Voltage Measurement Levels : 200mV/2V/20V/200V/600V
- DC Voltage Measurement Levels : 200mV/2V/20V/200V/1000V
- Standard : USB & GPIB
- CE Verification

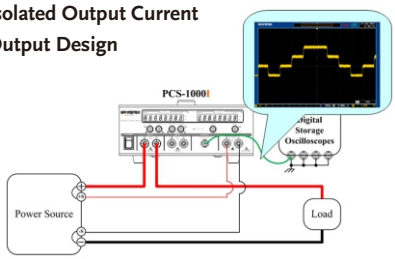
GW Instek rolls out the new PCS-1000I isolated output high precision current shunt meter, which inherits the simultaneous voltage and current measurement function of PCS-1000. PCS-1000I adopts five sets of independent shunt resistors to provide five current measurement levels, including 300A, 30A, 3A, 300mA, and 30mA to meet the requirements of different current level measurements. Internally, PCS-1000I utilizes two sets of 24bits ADCs and low temperature coefficient electronic components to mainly focus on the current measurement of power supply devices. High precision PCS-1000I can be used in adjusting and calibrating instruments. Additionally, temperature variation will not cause PCS-1000I to yield any measurement errors. PCS-1000I can automatically select optimal measurement level with the maximum resolution so as to replace manual selection to save operational time.

PCS-1000I provides a BNC output, which can connect with an oscilloscope to directly observe current waveform variation without using a current probe. General oscilloscopes do not have isolated channels and their input and output are structured at a common point, therefore, the output load will likely result in measurement errors. PCS-1000I's isolated current output design can prevent measurement errors from an oscilloscope with non-isolated outputs. PCS-1000I, a high precision AC/DC current shunt meter, not only provides USB and GPIB communications interfaces for users to remotely control the instrument but also conducts simultaneous voltage and current measurements. The SCPI communications commands of PCS-1000I allow users to remotely control PCS-1000I via a PC to operate measurement data readbacks.



PCS-1000I high precision AC and DC shunt meter can simultaneously measure current and voltage with the maximum 6 1/2 measurement resolution. The above diagram shows the connection method of simultaneous measurement. Compared with the test of conventional meters from other brands, PCS-1000I is simple in connection and there is no requirement of any additional instrument.

Isolated Output Current Output Design

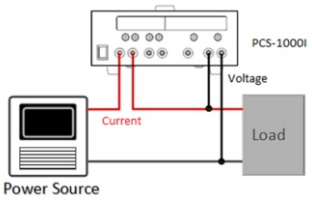


PCS-1000I adopts isolated current output design. Its BNC output can directly connect with an oscilloscope to avoid measurement errors resulted from the common ground of oscilloscope's analog input measurement.

Connection Comparison

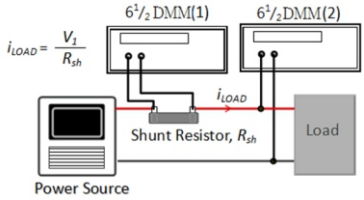
PCS-1000I can simultaneously measure current and voltage with 6 1/2 measurement resolution. The below diagram shows the connection method of simultaneous measurement. Compared with the test of conventional meters from other brands, PCS-1000I is simple in connection and there is no requirement of any additional instrument.

PCS-1000I Conducts Simultaneous Voltage and Current Measurement



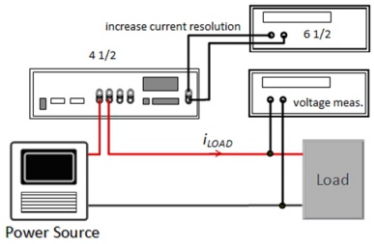
1.Only one PCS-1000I is needed to measure voltage and current
2.Easy connection
3.USB and GPIB communications on the rear panel can be used for data communication while connecting with a PC

Shunt Resistor Conducts Current and Voltage Measurement



1.One voltage meter is needed to measure voltage on shunt and the voltage will be converted to current. For simultaneous voltage and current measurement, one extra voltage meter is required
2.Complex connection
3.For data communication with a PC, the PC must be connected to two voltage meters

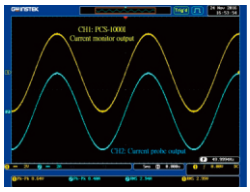
Conventional Shunt Meter Conducts Current and Voltage Measurement



1.This method requires one shunt meter, one current meter to increase current measurement resolution, and one voltage meter to measure voltage
2.Complex connection
3.For data communication with a PC, the PC must be connected to two meters

Front Panel

Rear Panel



PCS-1000I
vs. Current Probe for Measurement

APPLICATIONS

- Power Supply Analysis
- Power Supply Measurement Application
- R & D and Laboratory Application
- Quality Inspection Test
- Precision Measurement

GW INSTEK
Simply Reliable

SPECIFICATIONS

DC CHARACTERISTICS

DC Voltage

Range	Half Year 23 ℃ ± 5 ℃	Temperature Coefficient/℃
200.0000 mV	0.0050 + 0.0035	0.0005 + 0.0005
2.000000 V	0.0050 + 0.0010	0.0005 + 0.0001
20.00000 V	0.0050 + 0.0010	0.0005 + 0.0001
200.0000 V	0.0050 + 0.0010	0.0005 + 0.0001
1000.000 V	0.0050 + 0.0020	0.0005 + 0.0001

Accuracy specification : ±(% of reading + % of range);voltage input resistance: 10MΩ for all DC voltage ranges

DC Current

Range	Burden Voltage	Half Year 23 ℃ ± 5 ℃	Temperature Coefficient/℃
30.00000 mA	< 0.4 V	0.01 + 0.005	0.001 + 0.002
300.0000 mA	< 0.5 V	0.01 + 0.005	0.001 + 0.002
3.000000 A	< 0.8 V	0.01 + 0.005	0.001 + 0.002
30.00000 A*1	< 0.8 V	0.01 + 0.005	0.001 + 0.002
300.0000 A*1	< 0.8 V	0.02 + 0.005	0.001 + 0.002

Accuracy specification : ± (% of reading + % of range)

Isolated DC Current Monitor Accuracy

Range	Half Year 23 ℃ ± 5 ℃ DC Accuracy	Temperature Coefficient/℃
30.00000 mA	0.1 + 0.05	0.001
300.0000 mA	0.1 + 0.05	0.001
3.000000 A	0.1 + 0.05	0.001
30.00000 A*1	0.1 + 0.05	0.001
300.0000 A*1	0.2 + 0.05	0.001

Accuracy specification : ±(% of output + % of full scale);monitor output voltage for the full scale current = 3V

AC CHARACTERISTICS

True RMS AC Voltage

Range	Frequency	Half Year 23 ℃ ± 5 ℃	Temperature Coefficient/℃
200.0000 mV	45Hz~2kHz 2kHz~10kHz 10kHz~20kHz	0.5 + 0.05 1.0 + 0.05 2.0 + 0.10	0.005 + 0.005
2.000000 V			0.005 + 0.005
20.00000 V			0.005 + 0.005
200.0000 V			0.005 + 0.005
600.000 V			0.005 + 0.005

Accuracy specification : ±(% of reading + % of range)

True RMS AC Current

Range	Frequency	Half Year 23 ℃ ± 5 ℃	Temperature Coefficient/℃
30.00000 mA	45Hz~2kHz 2kHz~10kHz	0.5 + 0.05 1.0 + 0.05	0.03 + 0.006
300.0000 mA			0.03 + 0.006
3.000000 A			0.03 + 0.006
30.00000 A*1	45Hz~400Hz	0.5 + 0.05	0.03 + 0.006
300.0000 A*1			0.03 + 0.006

Accuracy specification : ±(% of reading + % of range)

Isolated AC Current Monitor Accuracy

Range	Frequency	Half Year 23℃±5℃ AC Accuracy	Temperature Coefficient/℃
30.00000 mA	45Hz~2kHz 2kHz~10kHz	0.2 + 0.05 0.5 + 0.05	0.001
300.0000 mA			0.001
3.000000 A			0.001
30.00000 A*1	45Hz~400Hz	0.5 + 0.05	0.001
300.0000 A*1			0.001

Accuracy specification : ±(% of output + % of full scale); monitor output voltage for the full scale current = 3V; The specifications are only applicable when the input is 10% or greater of the full scale range

GENERAL

Power Supply	100 V/120 V/220 V/240 V ±10%
Power Line Frequency	50/60 Hz
Operating Environment	Full accuracy for 0 ℃ ~ 55 ℃, Full accuracy to 80% R.H. at 40 ℃
Storage Environment	-40 ℃ ~ 70 ℃
Power Consumption	Max 35VA
Dimensions Weight	210(W) x 80(H) x 390(D)mm ; Approx. 5 kg

(The specifications apply when the PCS-1000I is powered on for at least 30 minutes to warm-up to a temperature of 18 ℃~ 28 ℃, unless specified otherwise.)
Note: *1 The accuracy for 30A/300A levels must be increased by a power factor of 8 ppm/watt.

Specifications subject to change without notice. CS1000GD1DH

ORDERING INFORMATION

PCS-1000I Isolated Output High Precision Current Shunt Meter

ACCESSORIES

Quick Operation Guide, User Manual (CD) x 1, AC Power Cord x 1 (Region Dependant),
GTL-105A Alligator Clip Test Lead (3A Max) **GTL-240** USB Cable
GTL-207 Banana Plug Test Lead **PCS-001** Basic Accessory Kit

OPTIONAL ASSESSORIES

GRA-419-J Rack Mount Adapter (JIS)
GRA-419-E Rack Mount Adapter (EIA)

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