HIOKI

POWER ANALYZER 3390-10

Power measuring instruments

Maximizing the Efficiency of Energy Conversion

Super Precise ±0.1% Accuracy Model to Meet the Demanding Needs of Today

Exceed the Accuracy of Direct Wiring

With Pull-Through Current Sensors

Pull-through Current Sensors

Models **CT6862-10**, **CT6863-10** and **9709-10**

For 50A, 200A and 500A Testing

www.hioki.com

A Higher-Accuracy Power Meter Supporting the Attainment of Maximum Efficiency

Improved Efficiency

The needs of electrical devices driving energy conservation and green energy initiatives such as motors, inverters, solar panels, power conditioners, electric vehicles, and air conditioners are increasing at a pace never seen before. For R&D centers wishing for 0.1% levels of efficiency improvement, highly precise and accurate large current measurements are now within reach. The new 3390-10 delivers unsurpassed top-of-the-class ±0.1% accuracy to aid in accomplishing maximum efficiency in all of your devices.

Enhanced Accuracy

Larger Currents

POINT 1 Pair the 3390-10 with High Accuracy Sensors

And Achieve an Even Higher Level of Excellence in Testing

High Accuracy Version of Model 3390

3390-10

High Accuracy Versions of Pull-through Current Sensors

CT686x-10 series
9709-10

Combined Accuracy of

±0.1%

±0.16%
Standard 3390 Accuracy

Enriched Current Sensors Offer Even High Accuracy

Pull-through Current Sensor
CT6862-10 50A

Pull-through Current Sensor
CT6863-10 200A

Pull-through Current Sensor
9709-10 500A

Pull-through current sensors deliver accuracy surpassing that of traditional shunt resistors while remaining resilient against overheating to enable high current measurements

Standard Setup

Power Meter Accuracy ±0.1%

Current Sensor Accuracy ±0.06%

Combined

Accuracy differs depending on current range

45 to 66Hz
±0.16%

High Accuracy Setup

Defined Combined Accuracy

All Ranges

45 to 66Hz
±0.1%

Refer to specifications for DC accuracy.

Enhanced accuracy parameters available with the higher accuracy combination:

- Voltage Measurement Accuracy: DC (45 to 66 Hz accuracy remains the same as the 3390)
- Current and Active Power Measurement Accuracy: DC and 45 to 66Hz
- Effect of Power Factor: 45 to 66Hz

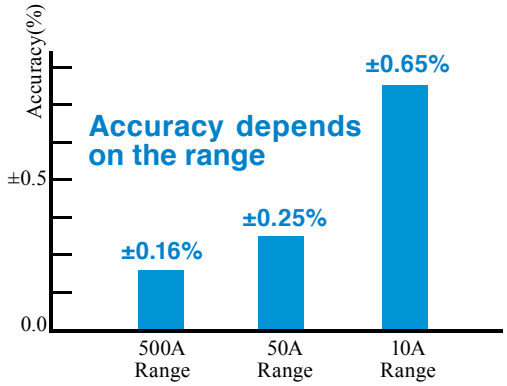
No need to worry about setting the correct range.

POINT 2 ±0.1% on ALL Ranges

Switch from one range to another and still maintain the same accuracy.

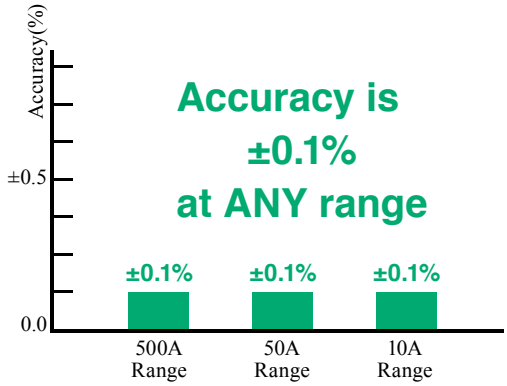
500A Sensor

Standard Model 3390



Accuracy when pairing Model 3390 with the 9709 AC/DC Current Sensor (500A) and measuring the f.s. current at each range
(45 to 66Hz)

High Accuracy Model 3390-10

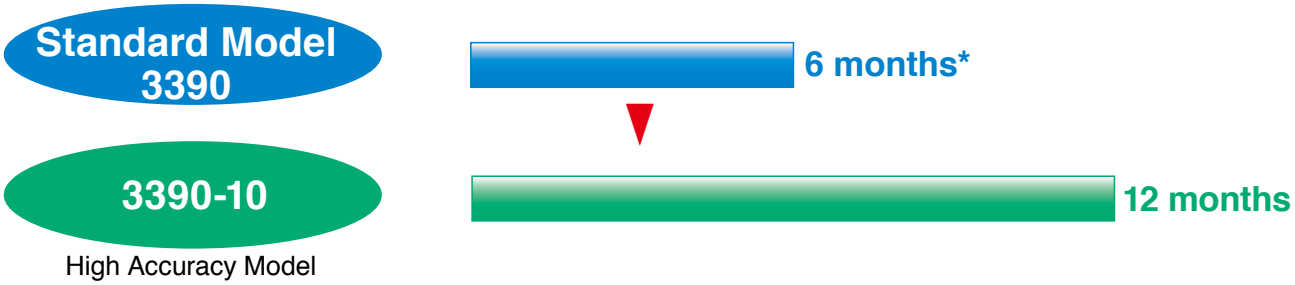


Accuracy when pairing Model 3390-10 with the 9709-10 AC/DC Current Sensor (500A) and measuring the f.s. current at each range
(45 to 66Hz)

High Accuracy Guarantee Period is Further Extended

POINT 3 Accuracy guaranteed for 1 year

Minimize calibration frequency and maximize work efficiency



High Accuracy Model

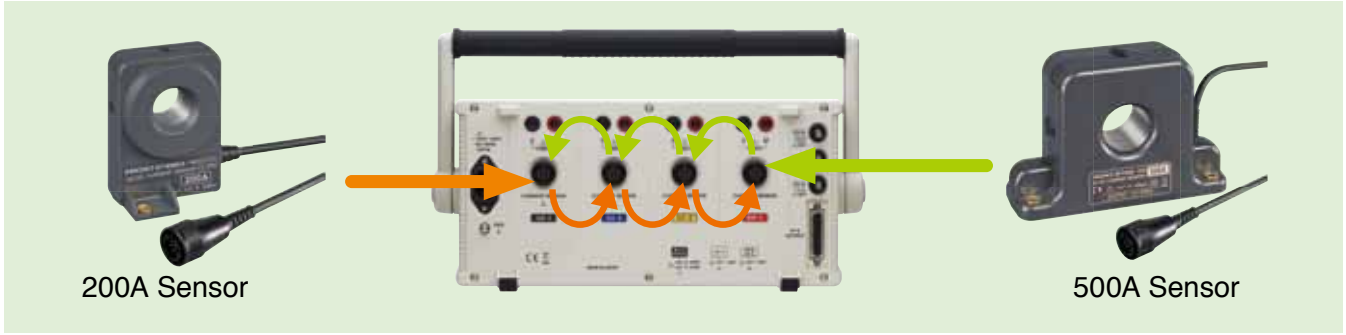
The following options are also offered with 1 year guaranteed accuracy:

MOTOR TESTING OPTION 9791
D/A OUTPUT OPTION 9792

For 1-year guaranteed accuracy on Model 3390, the accuracy uncertainty must increase 1.5 times the accuracy guaranteed for 6 months.

POINT 4 Measure on Any Channel

High accuracy using HIOKI high accuracy current sensors is guaranteed, no matter which channel you use



Model 3390-10 Specifications

Accuracy — Accuracy guaranteed for 1 year

	Voltage(U)	Current(I)	Active Power(P)
DC	±0.07%rdg.±0.1%f.s.	±0.07%rdg.±0.1%f.s.	±0.07%rdg.±0.1%f.s.
45Hz to 66Hz	±0.05%rdg.±0.05%f.s.	±0.05%rdg.±0.05%f.s.	±0.05%rdg.±0.05%f.s.

Accuracy is defined for the frequency range indicated above only when pairing Model 3390-10 with HIOKI high accuracy current sensors (where f.s. is based on the ranges of the 3390-10).
Voltage and active power values for 1000V or higher measurements are for reference only.

	Voltage(U)	Current(I)	Active Power(P)
0.5Hz to 30Hz	±0.1%rdg.±0.2%f.s.	±0.1%rdg.±0.2%f.s.	±0.1%rdg.±0.2%f.s.
30Hz to 45Hz	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.
66Hz to 1kHz	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.	±0.1%rdg.±0.1%f.s.
1kHz to 10kHz	±0.2%rdg.±0.1%f.s.	±0.2%rdg.±0.1%f.s.	±0.2%rdg.±0.1%f.s.
10kHz to 50kHz	±0.3%rdg.±0.2%f.s.	±0.3%rdg.±0.2%f.s.	±0.4%rdg.±0.3%f.s.
50kHz to 100kHz	±1.0%rdg.±0.3%f.s.	±1.0%rdg.±0.3%f.s.	±1.5%rdg.±0.5%f.s.
100kHz to 150kHz	±20%f.s.	±20%f.s.	±20%f.s.

For current and active power accuracy within the frequency range indicated above, add the uncertainty range of the current sensors.
The following accuracy data are for reference only:
- Voltage, current and active power within the 0.5Hz to 10Hz frequency range
- Voltage and active power exceeding 220V within the 10Hz to 10Hz frequency range
- Voltage and active power exceeding 750V within the 30kHz to 100kHz frequency range
- Voltage and active power exceeding (22000/f[kHz])V within the 100kHz to 150kHz frequency range
- Voltage and active power exceeding 1000V

Conditions for Guaranteed Accuracy	Current Input	Only when using HIOKI high-accuracy current sensors (options) (Accuracy specifications defined for Model 3390 apply when other sensors are used)
	Temperature and Humidity Range	23°C±3°C(73°F±5°F), max. 80% rh (3390-10) 23°C±5°C(73°F±9°F), max. 80% rh (when using the 50A to 500A range of Model 9709-10) ±1°C(1.8°F) of temperature after zero adjustment, within 23°C±5°C(73°F±9°F), max. 80% rh (when using the 10A and 20A range of Model 9709-10) 0 to 40°C(32°F to 104°F), max. 80% rh (when using Model CT6862-10 or CT6863-10)
	Warm-up time	At least 30 minutes
	Input	On condition that the signal is a sine wave, with power factor=1, voltage to ground=0V, after zero-adjustment is conducted with current sensors at 23°C±3°C(73°F±5°F), and when the fundamental waveform is the sync source
Temperature coefficient	When used within the operating temperature range but outside the guaranteed temperature and humidity ranges for accuracy, add the following (the f.s. of the ranges of Model 3390-10 applies)	
	3390-10	±0.01%f.s./°C; for DC, add ±0.01%f.s./°C
	9709-10	Current: ±0.01%rdg./°C; for DC, add ±(0.005%f.s.+2mA)/°C Active power: ±0.01%rdg./°C; for DC, add ±(displayed voltage value x (0.005%f.s.+2mA))/°C
	CT6862-10, CT6863-10	Current: ±0.01%rdg./°C; for DC, add ±0.005%f.s. /°C Active Power: ±0.01
Effect of Power Factor	Maximum ±0.2%f.s. (at 45Hz to 66Hz, p.f.=0.0) Add ±0.45%f.s. when LPF is 500 Hz	

For specifications not defined above, please refer to the catalog for Model 3390 Power Analyzer.

Power Analyzer (High Accuracy Model) 3390-10

Dedicated Current Sensors (High Accuracy Models)

- **AC/DC CURRENT SENSOR(50A)** CT6862-10
- **AC/DC CURRENT SENSOR(200A)** CT6863-10
- **AC/DC CURRENT SENSOR(500A)** 9709-10

If calibration data sheets pairing the 3390-10 with specific current sensors are required, please specify at time of order. Calibration data sheets for specific combinations after the products have been delivered will require that the devices be returned to the HIOKI factory for re-calibration.

Please also specify preferred channels if necessary.

Supplied Accessories: Instruction Manual for Model 3390 x 1, Instruction Manual for Model 3390-10 x 1, Measurement Guide x 1, Power cord x 1, USB cable x 1, D-sub connector x 1 (when 9792 or 9793 is installed), Color label x 2

Please note: The dedicated PC application software and communication command manual for Model 3390 are also compatible to Model 3390-10. Please download them from the HIOKI website.

Please purchase separately-sold voltage cords and current sensors for measurements. A HIOKI-issued PC card is also necessary in order to save measured data.

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All information correct as of Jun. 18, 2013. All specifications are subject to change without notice. 3390-10E2-36M Printed in Japan