



Introducing The Most Advanced  
 Current Sensor Power Meter in the Market

# HIOKI 3390 POWER ANALYZER

The much anticipated development from HIOKI - the new Model 3390 Power Analyzer - is scheduled for release in Spring 2009 and represents a wide bandwidth and high precision power measuring device that covers DC to inverter-level frequencies. It is truly an all-encompassing power analysis station supporting all systems from single phase to 3-phase inverter motors.

## Advanced Features

- ◆ Superior **0.01%rdg. (at 50/60Hz) Accuracy** and Exceptional Stability
- ◆ **Directly Measure** the Secondary Side of Inverters
- ◆ Laboratory Precision but Portable for the Field
- ◆ Fully Loaded for Complete Motor Analysis
- ◆ Lightweight and Compact for Complete Installation on Equipment under Test such as Automobiles
- ◆ Advanced Engineering and Design for Lab Use

## Advanced Specifications

- ◆ **Large 9-inch WVGA color LCD** for a brilliant display and easy viewing
- ◆ Achieve both high precision and high-speed measurements
- ◆ Supports common PC interfaces such as **USB, LAN** and **Compact Flash Cards**
- ◆ Proprietary HIOKI Power Analyzing Control Engine Technology

U <sub>rms1</sub>	: 205.07	V	U <sub>min1</sub>	: 168.89	V
U <sub>rms2</sub>	: 204.98	V	U <sub>min2</sub>	: 168.69	V
U <sub>rms3</sub>	: 205.13	V	U <sub>min3</sub>	: 168.95	V
U <sub>rms4</sub>	: 104.00	V	U <sub>min4</sub>	: 104.00	V
I <sub>rms1</sub>	: 0.5430	A	U <sub>frd1</sub>	: 167.53	V
I <sub>rms2</sub>	: 0.5465	A	U <sub>frd2</sub>	: 167.51	V
I <sub>rms3</sub>	: 0.5339	A	U <sub>frd3</sub>	: 167.52	V
I <sub>rms4</sub>	: 3.22	A	P123	: 0.3046k	W
P1	: 0.1016k	W	θ12	: -120.37	°
P2	: 0.1011k	W	θ13	: 120.93	°
P3	: 0.1019k	W	Loss1	: 0.02k	W
P4	: 0.32k	W	η1	: 95.19	%
f1	: 50.021	Hz	U <sub>thd1</sub>	: 3.55	%
f2	: 50.019	Hz	U <sub>thd2</sub>	: 3.55	%
f3	: 50.020	Hz	U <sub>thd3</sub>	: 3.58	%
f4	: 60.021	Hz	U <sub>thd4</sub>	: 6.94	%

## Applications

### Evaluation and development of inverter motors that promote high efficiency power usage

- ◆ Measure power at high precision and superior stability
- ◆ Test for electric angles that is a requirement for complete motor analysis
- ◆ Connect to high precision torque meters or encoders to accurately measure motor efficiency

### Maintenance of Inverter Motors

- ◆ Simultaneously measure AC and DC power
- ◆ Easily measure the power of secondary side of inverters at the site
- ◆ Simultaneously measure the primary and secondary side of inverters
- ◆ Even measure for inverter noise

### R&D of new energy sources such as solar, wind and fuel cell batteries

- ◆ Simultaneously measure AC and DC power
- ◆ Utilize the AC/DC mode's integrated current and power function to measure for individual values of incoming power, sold/consumed power and regenerated power
- ◆ Save long periods of measured data to high-capacity storage media

## SPECIFICATIONS

(subject to change)

<b>Measurable lines</b>	1P2W, 1P3W, 3P3W, 3P3W2M, 3P3W3M, 3P4W
<b>Number of channels</b>	4 fully isolated (current and voltage)
<b>Measurement range</b> (Selectable for each wiring)	Voltage: 15.000V to 1500.0V Current: 0.4000A to 20.000A (when using 20A sensor Model 9277 only) 2.0000A to 20.000A (when using other 20A sensors) 4.0000A to 200.00A (when using 200A sensor) 10.000A to 500.00A (when using 500A sensor)
<b>Frequency bandwidth</b>	DC, 0.5Hz to 150kHz
<b>Synchronizing frequency bandwidth</b>	0.5Hz to 5kHz
<b>Basic accuracy</b>	DC: $\pm 0.1\% \text{rdg.} \pm 0.1\% \text{f.s.}$ ; 50/60Hz: $\pm 0.05\% \text{rdg.} \pm 0.05\% \text{f.s.}$ ; 100kHz: $\pm 1.5\% \text{rdg.} \pm 0.5\% \text{f.s.}$
<b>Accuracy period</b>	6 months (1 year: x 1.5)
<b>Sampling rate</b>	500kS/s
<b>Data refresh rate</b>	50ms
<b>Measurable parameters</b>	Voltage, current, effective power, apparent power, reactive power, power factor, phase angle, frequency, efficiency, integrated current, integrated power, voltage peak, current peak, ripple ratio
<b>*Harmonics measurement</b>	RMS, harmonic content, phase angle, phase difference, distortion ratio, unbalance ratio Largest analyzable order: 100th
<b>*Noise measurement</b>	Largest analyzable frequency: 100kHz
<b>Other functions</b>	RMS switchable, scaling, averaging, efficiency/loss calculations, $\Delta$ -Y calculation
<b>Synchronized operation</b>	Multiple units possible (Max. 4 units with standard software)
<b>Display</b>	9" WVGA (800x480)
<b>Display refresh rate</b>	200ms
<b>PC Compatibility</b>	Real-time data save and full remote control (up to 4 units) via LAN or USB using bundled software
<b>Safety</b>	CATII 1000V, CATIII 600V
<b>External interfaces</b>	LAN, USB(2.0) (function and memory stick), RS-232C, CF card
<b>Power supply</b>	AC100V to 240V, 50/60Hz
<b>Dimensions and mass</b>	340Wx170Hx157Dmm, 4.8 kg
<b>Optional Functions</b>	
<b>Motor Testing</b>	Voltage, torque, rotation number, frequency, slip, motor power measurement
<b>D/A Output</b>	16ch (waveform output [max. 8ch, $\pm 2\text{V}$ /Analog output (DC $\pm 5\text{V}$ ))

## OPTIONS

### Factory Installation Only:

- ◆ Motor Testing Option 9791
- ◆ D/A Output Option 9792
- ◆ Motor Testing & D/A Output Option 9793

### Current Sensors:

- ◆ Clamp On Sensor 9272-10 (AC)
- ◆ Universal Clamp On CT 9277 (AC/DC)
- ◆ Universal Clamp On CT 9278 (AC/DC)
- ◆ Universal Clamp On CT 9279 (AC/DC)
- ◆ AC/DC Current Sensor 9709 (AC/DC)



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