High Accuracy Power Analysis.
Anywhere, Anytime.
High Accuracy and Mobility.
A New Value for Power Analysis.

The original HIOKI POWER ANALYZER 3390, released 8 years ago, featured the latest measurement technology built into a compact casing.

Pair with Hioki current sensors and take them anywhere to immediately make highly accurate measurements.

This was the unique value of the 3390.

Now, Hioki has enhanced this value while refining the measurement technology even further.

Proper accuracy and bandwidth to precisely measure inverter output.
Phase shift function for the exact measurement of high frequency, low power factor power.
A broad current sensor lineup that expands the range of measurement possibilities.

Refinements that empower you to conduct precise power analysis in any situation.
Complete Pursuit of Measurement Accuracy
and High Frequency Characteristics

The PW3390 delivers 4 input channels and ±0.04% basic accuracy for power - the top instrument in its class. Achieve more precise measurements of the power and efficiency of high efficiency equipment used in power electronics. Further, a 200 kHz measurement band and flat amplitude and phase characteristics up to high frequencies enable the precise measurement of power at top frequency levels and low power factor.

Current Sensors for the Thorough Pursuit of High Accuracy.
Achieve Superior Accuracy for High-Frequency, Low Power Factor Power.

High Accuracy Sensor Pass-Through Type
Pass-through type with high accuracy and a wide measurement range. Conduct extremely accurate measurements of large currents to a maximum of 1000 A over a wide operating temperature range.

High Accuracy Sensor Clamp Type
Clamp for quick and easy connections. Conduct extremely accurate measurements of large currents to a maximum of 1000 A over a wide operating temperature range.

High Accuracy Sensor Direct Wire Type
Newly developed DCCT method delivers expansive measurement range and superior measurement accuracy at a rating of 50 A.

Power Analysis Engine That Achieves High-Speed Simultaneous Calculation on 5 Systems

Precisely capture input waveforms with 600 kS/s high-speed sampling and a high resolution 16-bit A/D converter. The power analysis engine performs independent digital processing for 5 systems: period detection, wideband power analysis, harmonic analysis, waveform analysis, and noise analysis. High-speed simultaneous calculation processing enables both precise measurements and a 50 ms data refresh rate.

Built-in Current Sensor Phase Shift Function
Equipped with new virtual oversampling technology. Achieve phase shift equivalent to 200 MS/s while maintaining a high speed of 500 kS/s, as well as a high resolution of 16 bits. Set and correct the phase error of the current sensor at a resolution of 0.01°. Use of the phase shift function results in a dramatic reduction of measurement error. This allows the measurement of high-frequency, low-power factor power included in the switching frequency of inverter output, which is difficult to measure with conventional equipment.

Example of Phase Characteristic Compensation
with AC/DC CURRENT SENSOR CT6862-05 (Typical Values)
In the Laboratory or in the Field

Take Highly Accurate Measurements Even in Tough Temperature Conditions
Severe temperature environments, such as engine rooms with intense temperature changes and constant temperature rooms, can hinder high accuracy measurements. The extremely accurate pass-through and clamp type sensors both feature excellent temperature characteristics and a wide operation temperature range to help address these challenges.

Max. 6000 A Measurement on 50 Hz/60 Hz Lines
The CT7040 AC FLEXIBLE CURRENT SENSOR series can measure commercial power lines up to 6000 A, including solar power conditioner output. Even thick cables can be wired easily among crowded wiring or in narrow locations.

New Method for Measuring Large Current over Multi-Cable Wiring
Highly accurate measurement of current in multi-cable wiring with large currents has been difficult until now. The CT9557 adds the output waveforms from the high accuracy sensors connected to each branch line of the multi-cable wiring, for the highly accurate measurement of large currents.

Achieve High Accuracy Measurement Even in the Field
Dramatically compact and light-weight form factor achieved by concentrating the calculation functions in the power analysis engine. Highly accurate measurements normally achieved in the laboratory are now also possible in the field.

External Power Supply Not Needed for Sensor Connections
Power can be supplied to the current sensor from the main unit, so there is no need to provide a separate external power supply for the current sensor. Connected sensors are recognized automatically, for reliable and quick measurements.

Wiring Displays and Quick Setup Lets You Begin Measuring Immediately
Perform wiring while checking wiring diagrams and vectors on the screen. Optimum settings are performed automatically simply by selecting a connection and using the quick setup function.

Extensive Interface for Linking with External Devices
Wide variety of built-in interfaces, including LAN, USB (communication, memory), CF cards, RS-232C, synchronization control, and external control.

D/A output* delivers analog output at 50 ms for up to 16 parameters. The voltage and current waveform** for each channel can also be output.

* Built-in for PW3390-02 and PW3390-03
** During waveform output, accurate reproduction is possible at an output of 500 kS/s and with a sine wave up to 20 kHz.
Switch Screens with a Single Touch, Accessing a Variety of Power Analysis Methods

The power analysis engine allows the simultaneous, parallel calculation of all parameters. Access a variety of analysis methods simply by pressing the page keys to switch screens.

**Vector**

Confirm the voltage/current/power/phase angle for each harmonic order on a vector graph and as numerical values.

**Waveform**

Display voltage/current waveforms for 4 channels at a high speed of 500 kS/s or a maximum length of 5 seconds. Waveform data can be saved.

**Harmonics Graph**

Display harmonics up to the 100th order for voltage/current/power in bar graphs. Confirm the numerical data for the selected order at the same time.

**Efficiency and Loss**

Using active power values and motor power values, confirm efficiency $\eta$ [%] and loss [W] and total efficiency for each inverter/motor on a single unit at the same time.

**Selection Display**

Select 4/8/16/32 display parameters individually for each screen, and summarize them on a single screen.

**Noise**

Display FFT results for voltage and current as graphs and numerical values, up to a maximum of 100 kHz. This is perfect for the frequency analysis of inverter noise.

**Power**

On the basic measurement screen, display voltage/current/power/power factor/frequency and other parameters in a list for each connection.

**X-Y Graph**

Create inverter characteristic evaluations and motor torque maps. Select the desired parameter to display an X-Y plot graph.
Applications

Measure the Power Conversion Efficiency of Inverters

Key features
1. Isolated input of voltage and current on each of 4 channels for simultaneous measurement of the primary and secondary power of inverters.
2. Simultaneous measurement of all important parameters for secondary analysis of inverters, such as RMS value, MEAN value, and fundamental components.
3. Easy wiring with current sensors. Reliable confirmation of wiring with vector diagrams.
4. Current sensors reduce effects of common mode noise from inverters during power measurement.
5. Simultaneous measurement of noise components, in addition to the harmonic analysis required for the measurement of inverter control.

Highly Accurate and Fast 50 ms Calculation of Power in Transient State
Measure power transient states, including motor operations such as starting and accelerating, at 50 ms refresh rates. Automatically measure and keep up with power with fluctuating frequencies, from a minimum of 0.5 Hz.

Combined Accuracy of Current Sensors Applicable throughout Entire Range
Combined accuracy throughout the entire range is provided through the use of a built-to-order high accuracy pass-through type current sensor. Obtain highly accurate measurements regardless of range, from large to minute currents, even for loads that fluctuate greatly.

Measure High-Frequency Noise in Inverters
Power supply problems caused by high switching inverter frequencies are unrelated to the fundamental frequency, making it difficult to conduct proper harmonic analysis. The noise analysis function performs a frequency analysis of noise components up to 100 kHz, and displays the frequency, and voltage and current levels for the top 10 points. This is effective for measuring high-frequency noise in inverters.

Acquire Data from up to 8 Synchronized Units (32 Channels)
When you connect CONNECTION CABLE 9683 to multiple PW3390 units, the control signals and internal clocks synchronize. From the master unit, you can control the measurement timing on the PW3390 units that are set as slaves. With interval measurement, you can save synchronized measurement data to a CF card or a PC to achieve simultaneous measurements across a larger number of systems.
Analyze and Measure EV/HEV Inverter Motors

Key features
1. Easy wiring and highly accurate measurements with the use of a pass-through type current sensor
2. Simultaneous measurement of all important parameters for secondary analysis of inverters, such as RMS value, MEAN value, and fundamental components
3. 0.5 Hz to 5 kHz harmonic analysis without external clock
4. Total measurement of inverter motors with built-in motor analysis function
5. Measurement of the voltage, torque, rotation rate, frequency, slip, and motor power required for motor analysis with a single unit
6. More precise measurements of electrical angle with incremental type encoders

Electric Angle Measurement of Motors  (PW3390-03 only)

The PW3390-03 features a built-in electric angle measurement function required for vector control via dq coordinate systems in high-efficiency synchronized motors. Make real-time measurements of phase angles for voltage and current fundamental wave components based on encoder pulses. Further, zero-adjustment of the phase angle when induced voltage occurs allows electric angle measurement based on the inductive voltage phase. Electric angle can also be used as an Ld and Lq calculation parameter for synchronized motors.

Measure Harmonics with Consideration for PWM Waveform Characteristics

The zero-crossing filter automatically matches the input frequency in the range of 0.5 Hz to 5 kHz to reliably detect the fundamental frequency. Further, harmonic analysis that is based on the fundamental frequency automatically prevents aliasing error using a digital AAF, which allows both precision and measurement reproducibility at a high level.

Transfer to Data Logger via Bluetooth® wireless technology

Connect the PW3390 and a data logger (with support of LR8410 Link) via Bluetooth® wireless technology to wirelessly transmit 8 parameters of measurement values from the PW3390 to the data logger. In addition to the voltage, temperature, humidity, and other parameters measured by the multichannel data logger, you can also integrate the measurement values of the PW3390 and observe and record them in real time.

No deterioration in accuracy, because of direct transmission
No connection required
Measure the Efficiency of PV Power Conditioners (PCS)

HIOKI's Current Measurement Solutions for Large Currents of 1000 A or More

Introducing a lineup of sensors taking measurements up to 6000 A for 50 Hz/60 Hz, and up to 2000 A for direct current. The CT9557 SENSOR UNIT lets you add the output waveforms from multiple high accuracy sensors. Use multi-cable wiring lines to take highly accurate measurements of up to 4000 A.

<table>
<thead>
<tr>
<th>Recommended current sensor by measurement target</th>
<th>DC power</th>
<th>System power 50 Hz/60 Hz</th>
<th>Inverter secondary power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 A or less</td>
<td>CT6865-05 or CT6846-05</td>
<td>CT7742 or CT7642</td>
<td>-</td>
</tr>
<tr>
<td>2000 A or less</td>
<td>CT7742</td>
<td>CT7642</td>
<td>-</td>
</tr>
<tr>
<td>Less than 2000 A or less</td>
<td>CT9557 + CT6865-05 x 2 or CT9557 + CT6846-05 x 2</td>
<td>CT7044/CT7045/CT7046</td>
<td>-</td>
</tr>
<tr>
<td>4000 A or less</td>
<td>CT9557 + CT6865-05 x 4 or CT9557 + CT6846-05 x 4</td>
<td>CT7044/CT7045/CT7046</td>
<td>-</td>
</tr>
<tr>
<td>6000 A or less</td>
<td>-</td>
<td>CT7044/CT7045/CT7046</td>
<td>-</td>
</tr>
</tbody>
</table>

Key features

1. 4 built-in channels, standard. Simultaneously measure the I/O characteristics of power conditioners.
2. Current sensors can measure even large currents with high accuracy. Reliable confirmation of wiring with vector diagrams.
3. Measure the amount of power sold/purchased from power conditioner output on interconnected systems with a single unit.
4. DC mode integration function, which responds quickly to input fluctuations such as with solar power, built in.
5. Measure ripple factor, efficiency, loss, and all other parameters that are required for the measurement of power conditioners for solar power with a single unit.

±0.01 Hz’ Basic Accuracy for Voltage Frequency Measurements

Perform the frequency measurements that are required for various PCS tests with industry-leading accuracy and stability. Take highly accurate frequency measurements on up to 4 channels simultaneously, while also measuring other parameters at the same time.

Support for PCS Parameters

Simultaneously display the parameters required for PCS, such as efficiency, loss, DC ripple factor, and 3-phase unbalance rate. Easily check the required measured items for improved test efficiency. By matching the measurement synchronization source for both input and output, you can perform DC power measurements that are synchronized with the output AC as well as stable efficiency measurements.
Test Automobile Fuel Economy

Evaluate WLTP Mode Performance - A New Fuel Economy Standard

Taking fuel economy measurements that comply with WLTP standards requires the precise measurement of current integration and power integration for the recharging/discharging of each battery in the system. High accuracy clamp current sensors, the excellent DC accuracy of the PW3390, and the ability to integrate current and power at 50 ms intervals are extremely effective in meeting this application.

Key features
1. Accurately measure recharge and discharge power with excellent basic accuracy and DC accuracy.
2. 4 built-in channels, standard. Support for multiple recharge and discharge measurements, including auxiliary batteries.
3. Easily achieve highly accurate measurements with clamp sensors, which can be used in a wide range of operating temperatures.
4. Easily link with other measuring instruments through integration control with an external control interface.

Easily connect high accuracy clamp-type sensors without cutting the cables. Sensors operate over a temperature range of -40°C to 85°C (-40°F to 185°F), characteristics that enable highly accurate measurements even inside the engine room of a car.

Current and Power Integration Function by Polarity

DC integration measurement integrates the recharging power and discharging power by polarity for every sample at 500 kS/s, and measures positive-direction power magnitude, negative-direction power magnitude, and the sum of positive- and negative-direction power magnitude during the integration period. Accurate measurement of recharging power and discharging power is possible even if there is rapid repetition of battery recharging/discharging.

Link to Peripheral Devices via External Control

Use external control terminals to START/STOP integration and capture screen shots. This makes it easy to control operations from console switches and link to the timing of other instruments when measuring the performance of an actual automobile.
External Appearance

Software

"PW Communicator" PC Communication Software (Available soon)

PW Communicator is an application program for communicating between a PW3390 series power analyzer and a PC. It includes many useful functions, such as configuring PW3390 settings, monitoring measurement values, saving CSV data, and calculating efficiency.

Numerical value monitoring: Display the PW3390’s measurement values on the PC screen. You can freely select up to 32 values, such as voltage, current, power, and harmonics.

Waveform monitoring: Monitor the measured voltage, current, and waveforms on the PC screen.

Motor setting: Change the settings of the connected PW3390 from the PC screen.

Measure with multiple units: In addition to the PW3390, it is also possible to perform batch control of up to 8 devices from the HIOKI PW6001 Power Analyzer and the PW3335, PW3336, and PW3337 Power Meter series. You can also simultaneously record measured data to the PC, and perform efficiency calculations for measuring instruments.

Record in CSV format: Record measured data to a CSV file at regular time intervals. The minimum recording interval is 50 ms.

LabVIEW Driver (Available soon)

Obtain data and configure measurement systems with the LabVIEW driver.

* LabVIEW is a registered trademark of NATIONAL INSTRUMENTS.
## Specifications

### 1. Power Measurement Input Specifications

#### Measurement line type
- Single-phase 2-wire (1P2W), Single-phase 3-wire (1P3W), 3-phase 3-wire (3P3W/3A), 3-phase 4-wire (3P4W/3A), 3-phase 4-wire (3P4W/3A)

#### Input methods
- Voltage: Isolated inputs, resistive dividers
- Current: Dedicated custom connectors (Meditel19W)

#### Voltage range
- 15 V/30 V/60 V/150 V/300 V/600 V/1500 V

#### LPF OFF/500 Hz/5 kHz/10 kHz/20 kHz/50 kHz/100 kHz

#### Measurement method
- Simultaneous digital sampling of voltage and current, simultaneous synchronization

#### Power range
- Determined automatically by the combination of voltage range, current range, and sampling frequency

#### Warm-up time
- 30 min. or more

#### 0.5% f.s.
- ±0.05% rdg. ±0.07% f.s.
- ±0.06% rdg. ±0.08% f.s.
- ±0.09% rdg. ±0.10% f.s.

#### 0.5 Hz ≤ f ≤ 5 kHz
- ±0.05% rdg. ±0.08% f.s.
- ±0.06% rdg. ±0.09% f.s.
- ±0.08% rdg. ±0.10% f.s.

#### 5 kHz ≤ f ≤ 50 kHz
- ±0.08% rdg. ±0.10% f.s.
- ±0.10% rdg. ±0.12% f.s.
- ±0.12% rdg. ±0.14% f.s.

#### 50 kHz ≤ f ≤ 100 kHz
- ±0.08% rdg. ±0.10% f.s.
- ±0.10% rdg. ±0.12% f.s.
- ±0.12% rdg. ±0.14% f.s.

#### Accuracy
- DC ±0.05% rdg. ±0.07% f.s.
- ±0.06% rdg. ±0.08% f.s.
- ±0.09% rdg. ±0.10% f.s.
- ±0.10% rdg. ±0.12% f.s.
- ±0.12% rdg. ±0.14% f.s.

#### Display resolution
- 999,999 counts (other than the integrated value)
- 999,999 counts (Integrated value)

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### 2. Frequency Measurements

#### Measurement channels
- Select 0 or 1 for each measurement channel

#### Measurement method
- Basic specification: zero crossing sampling vector correction

#### Measuring range
- Synchronous range from 0.3 Hz to 3 kHz with (+10%)+f (Hz) 

#### Voltage input section
- 1000 V (50 Hz/60 Hz)

#### Power range
- ±0.01% rdg. ±0.07% f.s.
- ±0.06% rdg. ±0.08% f.s.
- ±0.09% rdg. ±0.10% f.s.

#### Display resolution
- 999,999 counts (other than the integrated value)
- 999,999 counts (Integrated value)
-3. Integration Measurement Specifications

**Measurement mode**: Selectable between RMS or DC for each wiring mode

**Measurement items**: Current integration (Iu, Iv, Iw, and I0), active power integration (Wp, Wv, and Ww) and terminal type, and in the International system for RMS mode measurements

**Measurement method**: Digital calculation from each current and active power phase (when averaging, calculates with previous average value).

In DC mode, calculates current value at every sample, and integrates instantaneous power independent of polarity. Calculates instantaneous current effective value between measurement channels, and polarity independent active power value

**Measurement interval**: 50 ms data update interval

**Measurement range**: Nominal value ±5% to ±9999.94 TAh/7Wh (integration time: no greater than 9999.95)

**Integration time accuracy**: ±0.1 ppm ±1 digit (±0.1% to ±0.4%)

**Integration accuracy**: ±1 current and active power accuracy, a integration time accuracy

**Backup function**: Integration automatically resumes after power outages.

-4. Harmonic Measurement Specifications

**Number of measurement channels**: 4 channels

**Harmonic measurements** not available for multiple systems with different frequencies.

**Measurement items**: Harmonic rms voltage, harmonic voltage percentage, harmonic voltage phase angle, harmonic current, harmonic current percentage, harmonic current phase angle, harmonic active power, harmonic power percentage, harmonic voltage current phase difference, total harmonic voltage distortion, total harmonic current distortion, voltage unbalance factor, current unbalance factor

**Measurement method**: Zero-crossing synchronous calculation (all channels in single window), gap fixed 500 k/s sampling, after digital anti-aliasing filter equal-thinning between zero crossings (with interpolation calculation).

**Harmonic synch source**: Ch 1 to Ch 4 (external with optional analysis and Ch B for pulse input, DC selectable (50 ms or 100 ms)

**FFT calculation word length**: 512 bits

**Anti-aliasing filter**: Digital filter (automatically set based on synchronization frequency)

**Windows**: Rectangular

**Synchronization range**: As specified for power measurements

**Data update interval**: 50 ms (measurement-frequency-dependent at 45 Hz and below)

**Phase zero adjustment**: Provided by key operation or external control command (only with external sync source), automatically set based on synchronization frequency

**Window**: Automatic filter (varies with sampling rate)

**FFT calculation word length**: 512 bits

**Window waveform**: Sine, Cosine, Hamming

**Active function**: Digital calculation (with averaging), Active Power (P)

**Frequency range**: 0.5 Hz ≤ f < 100 Hz

**Accuracy**

-0.5% ±0.1% f.s.

-0.5% ±0.2% f.s.

-0.5% ±0.5% f.s.

-0.5% ±1.0% f.s.

-0.5% ±2.0% f.s.

-0.5% ±4.0% f.s.

-0.5% ±10% f.s.

-0.5% ±20% f.s.

-0.5% ±50% f.s.

-0.5% ±100% f.s.

**THD calculation**

-0.5% ±0.1% f.s.

-0.5% ±0.2% f.s.

-0.5% ±0.5% f.s.

-0.5% ±1.0% f.s.

-0.5% ±2.0% f.s.

-0.5% ±4.0% f.s.

-0.5% ±10% f.s.

-0.5% ±20% f.s.

-0.5% ±50% f.s.

-0.5% ±100% f.s.

**Data output interval**: According to synchronization source

**Measurement interval**: 100 ms (in 50 Hz/60 Hz)

**Total display area**: 1 kHz to 9999.99 Hz

**Frequency range**: Select fc and fd for frequency range fc ± fd [Hz] (frequency measurement only)

**Pulse rate**: 1 ~ 9999

-5. Noise Measurement Specifications

**Calculation channels**: Select one from CH1 to CH4

**Calculation method**: Voltage noise Current noise

**Calculation type**: RMS spectrum

**Calculation method**: Feed 500 kHz sampling, sampling after digital anti-aliasing filter

**FFT calculation word length**: 512 bits

**FFT data points**: 1000/5000/10,000/50,000 (according to displayed waveform recording length)

**Anti-aliasing filter**: Automatic digital filter (within ±6000 divisions)

**Windows**: Hanning/Flattop

**Data update interval**: Determined by FFT points within approx. 400 ms, 1.2 s, or 15.2 s, and with gap

**Highest analysis frequency**: 100 kHz (50 Hz/60 Hz)/10 kHz (5 kHz)

**Frequency resolution**: 2 Hz to 500 Hz (Determined by FFT points and maximum analysis frequency)

**Noise amplitude measurement**: Measures the ten highest level and frequency voltage and current FFT peak values (local maximum), the lower limit noise frequency 1 kHz to 10 kHz

-6. Motor Analysis Specifications (Model PW3390-03)

**Number of channels**: 3 channels

**Calculation items**: CH A. Analog DC input/Frequency input (selectable) CH B. Analog DC input/Pulse input (selectable) CH 2. Pulse input

**Measurement input terminal type**: Insulated BNC jacks

**Input impedance (DC)**: 1MΩ ±10% ±10%

**Input method**: Isolated and differential inputs (not isolated between channels B and Z).

**Measurement items**: Frequency, torque, rotation speed, DC, and motor power

**Synchronization source**: CH 1 to CH 4 (with CH A set for pulse input), DC (30 ma/100 ms) Common to channels A and B

**Measurement frequency source**: 10 Hz for slip calculation

**Maximum input voltage**: 300 V (30 Hz/60 Hz)

**Maximum rated voltage to earth**: 50 V (50 Hz/60 Hz)

**(1) Analog DC Input (CH A/CH B)**

**Measurement range**: 0 ~ 50 V (when inputting analog DC)

**Valid input range**: 0% to 110% f.s.

**Sampling**: 10 kHz/16 bits

**Response time**: Measuring zero to full scale, with LPF (df)

**Measurement method**: Simultaneous digital sampling and zero-crossing synchronous calculation system (cumulative average of intervals between zero crossings)

**Measurement accuracy**: ±0.01% ±0.02% f.s.

**Temperature coefficient**: ±0.01% ±0.01% f.s.

**Effect of common mode voltage**: Not more than ±0.2% f.s. (at 50 V or 50 Hz/60 Hz)

**Effect of external magnetic field**: Not more than ±0.1% f.s. (at 400 A/m at 50 Hz/60 Hz)

**LPF**: OFF/ON (OFF: 4 kHz, ON: 1 kHz)

**Total display area**: Zero-suppression range setting ±100%

**Zero adjustment**: Zero-correction input offset of voltage ±0.1% f.s. or less

**Unit**: V: ±999.99 mV, kV: mV

-7. D/A Output Option Specifications (Models PW3390-02 and PW3390-03)

**Number of channels**: 16 channels

**Output contents**: CH1 to CH8: Selectable analog waveform outputs CH9 to CH16: Analog output

**Output items**: Analog output: Select a basic measurement item for each output channel. Waveform output: Output voltage or current measured waveforms.

**Output connector**: One 25-pin female D-sub (USB488h)

**IO conversion resolution**: 16 bits (potency = 10 bits)

**Output accuracy**: Analog output: Measurement accuracy ±0.1% f.s. (DC level)

Output waveform: Measurement accuracy ±0.5% f.s. (±2 V f.s.), ±1% f.s. (±1 V f.s.) (at 20 Hz, 5% full scale)

**Output voltage**: Analog output: ±15 V DC (ref. approx. ±2 V f.s. at ±10 V f.s.); ±1 V DC switchable, crest factor of 2.5 or greater

**Output impedance**: 100 kΩ ±10%

**Temperature coefficient**: ±20 ppm f.s. ±1°C

-8. Display Specifications

**Display type**: 7-inch TFT color LCD (800x480 dots)

**Display refresh interval**: Measurement value: 200 Hz (independent of internal data update interval) Waveform: FFT: screen refresh

-9. External Interface Specifications (1) USB Interface (Functions)

**Connector**: USB type A connection ×1

**USB mode**: Typical

**Compliance standard**: USB 2.0

**Class**: Individual (USB488h)

**Connection destination**: Computer (Windows10/Windows8/Windows7, 32bit/64bit)

**Function**: Data transfer and command control

-2. USB Memory Interface

**Connector**: USB type A connection ×1

**USB mode**: Typical

**USB power supply**: 500 mA maximum

**USB storage device**: USB Mass Storage Class

**Function**: Save and load settings files, Save waveform data

**Save displayed measurement values (CSV format)

**Copy measurement values and recorded data (from CF card)

**Save screen captures**

-3. LAN Interface

**Connector**: RJ45-connector ×1

**Compliance standard**: IEEE 802.3 compliant

**Transmission method**: 10BASE-T/100BASE-TX

**Auto detection**: TCP/IP

**Function**: HTTP server (remote operation), Dedicated port (data transfer and command control)
4. Control Functions

- AUTO/Range function
  - Automatically selects voltage and current ranges according to measured amplitude on each phase.
  - Operating states: Selectable on or off for each phase system.
  - Auto-ranging span: Wide/Normal (common to all wiring systems).

- Timing control function
  - Interval: 0.1 s, 0.01 s, 0.001 s, 0.0001 s.
  - Operating states: Selectable on or off for each phase system.
  - Auto-ranging span: Wide/Narrow (common to all wiring systems).

- Hold function
  - Stops all updating of displayed measurement values and waveforms, and holds current values.

- Peak hold function
  - All measurement values are updated to display the maximum value for each measurement.
  - Displayed waveform and integration values continue to be updated with instantaneous values.

- Scaling calculation
  - VT(PT) ratio and CT ratio: OFF/0.01 to 9999.99

- Efficiency and loss calculations
  - Efficiency (η) and Loss (W) are calculated from active power measured on each phase and system.
  - For PW3390-03, motor power (Pn) is also calculated as an application calculation. Maximum no. of simultaneous calculations: Efficiency and loss, by three formulas (Parameters are specified for Pn and Pin).

- l-y calculation
  - For 3P3W systems, converts between line-to-line voltage and phase voltage waveforms using a virtual center point.
  - All voltage parameters including harmonics such as true rms voltage are calculated as phase voltage waveforms.

- Selecting the calculation method
  - Type 1 and Type 2: (only valid when wiring is 3P3W).
  - Select the calculation method used to calculate the apparent power and reactive power during PS3W wiring.

- Current sensor phase correction calculations
  - Compensation by calculating the current sensor's harmonic phase characteristics and reference phase settings are done using frequency and phase difference (set separately for each wiring mode).
  - Frequency: 0.01 Hz to 999 999 Hz (in 0.01 Hz increments)
  - Phase difference: 0.00 to 90.00 degrees (in 0.01 degree increments). However, the difference calculated from the frequency phase difference is limited to a maximum of 0.00 1.0 s.

- Display Functions

- Wiring Check function
  - The wiring diagram and voltage/current vectors are displayed for the selected wiring systems.

- Independent line print display mode
  - Displays power and harmonic measurement values for channels 1 to 4.
  - A composite measurement line pattern is displayed for each system.

- Display Selections screen
  - Select the display: 4, 8, 16, or 32 parameters (4 patterns).

- Display of waveform screen
  - Efficiency and Loss screen
    - The efficiency and loss calculation formulas are displayed numerically. Three efficiency and three loss values.

5. Synchronous Control Function

- Function
  - Synchronous measurements are available by using sync cables to connect Model PW3390-03 (master) and PW3390-30 (slave).

- Interfacing signal
  - When internal settings match, auto-save is available while synchronized.
  - Cannot be used at the same time as synchronization control function.

- Event interface
  - Hold, manual save, screen capture

- Timing control
  - Interval: 0.1 s after power-on by a slave PW3390-30
  - Start/stop, data reset, certain events
  - Upon key press and communications operations on the master PW3390-30

- Sync display
  - Maximum 5 μs per capture. Maximum synchronization delay of an event is 50 μs.

6. Bluetooth® Logger Connectivity

- Function
  - Transfers measured values wirelessly to a logger by using a Bluetooth® serial conversion adapter.

- Sent data
  - Measured values assigned to the iDT, DTS, and DTH analog output parameters.

- Radar monitor
  - Real-time clock function
    - Auto-calendar, year-keeping correcting 24-hour clock
  - RTC accuracy
    - ±1 day per year (±0.001% per year)

7. Other Functions

- Display language selection
  - Japanese, English, Chinese

- standby OFF/ON

- Screen color schemes
  - COLOR1 (black/red), COLOR2 (blue/green), COLOR3 (gray/blue)

- Start-up screen selection
  - Wiring or Last-displayed screen (Measurement screen only)

- LCD backlight
  - ON1: 1 min/10 min/30 min/60 min

- Product format
  - 1 year

- Power-on reset
  - Power on settings all settings to factory defaults.

- File operations
  - Media context list display, format media, create folders, delete files and folders, copy between storage media.

General Specifications

- Operating environment
  - Temperature: Operating range: 0°C to 40°C (32°F to 104°F), Humidity: 40% or less (no condensation)
  - Storage temperature range: -25°C to 70°C (-13°F to 158°F), 85% RH or less (no condensation)

- Interface
  - USB (Bus Powered): Type A Connector

- Power supply
  - 100 V to 240 V AC, 50 Hz/60 Hz, Maximum rated current: 140 mA, Anticipated standby power consumption: 300 W

- Backup battery life
  - 10 years (15 years) backup power provided by the ESC key for three seconds.

- System reset
  - Returns all settings to default settings.

- Power-on reset
  - Power on settings all settings including language and communications settings, to factory defaults.

- File operations
  - Media content list display, format media, create folders, delete files and folders, copy between storage media.

- Wavelength & Noise screen
  - Voltage and current values are displayed on the wavelength & noise screen.

- Recording length
  - 1000/5000/10,000/50,000/100,000 (All voltage and current channels)
  - Compression ratio: 1.1/1.1/1.5/1.5/1.0/2.5 (peak-to-peak compression)
High Accuracy Sensor, Pass-Through Type

<table>
<thead>
<tr>
<th>Frequency band</th>
<th>AC/DC 20 A rms</th>
<th>AC/DC 20 A rms</th>
<th>AC/DC 50 A rms</th>
<th>AC/DC 100 A rms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Hz to 1 MHz</td>
<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
</tr>
<tr>
<td>1 MHz to 10 kHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
</tr>
<tr>
<td>10 kHz to 100 kHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
</tr>
<tr>
<td>100 kHz to 1 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basic accuracy</th>
<th>For DC, 10 Hz to 400 Hz</th>
<th>For DC, 10 Hz to 400 Hz</th>
<th>For DC, 45 Hz to 66 Hz</th>
<th>For DC, 45 Hz to 66 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency band</td>
<td>Amplitude: ±0.05% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.05% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.05% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.05% rdg. ±0.01% f.s.</td>
</tr>
<tr>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diameter of measurable conductors</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedthrough</td>
<td>φ 24 mm (0.94 in) or less</td>
<td>φ 24 mm (0.94 in) or less</td>
<td>φ 36 mm (1.42 in) or less</td>
<td>φ 36 mm (1.42 in) or less</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>70 mm (2.76 in) x 92 mm (3.62 in) x 53 mm (2.09 in)</th>
<th>70 mm (2.76 in) x 92 mm (3.62 in) x 53 mm (2.09 in)</th>
<th>150 mm (5.91 in) x 112 mm (4.41 in) x 50 mm (1.97 in)</th>
<th>150 mm (5.91 in) x 112 mm (4.41 in) x 50 mm (1.97 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>Approx. 340 g (12.1 oz)</td>
<td>Approx. 350 g (12.3 oz)</td>
<td>Approx. 160 g (5.67 oz)</td>
<td>Approx. 160 g (5.67 oz)</td>
</tr>
</tbody>
</table>

High Accuracy Sensor, Clamp Type

<table>
<thead>
<tr>
<th>Frequency band</th>
<th>AC/DC 20 A rms</th>
<th>AC/DC 50 A rms</th>
<th>AC/DC 100 A rms</th>
<th>AC/DC 20 A rms</th>
<th>AC/DC 50 A rms</th>
<th>AC/DC 100 A rms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Hz to 100 Hz</td>
<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
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<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
<td>DC to 1 MHz</td>
</tr>
<tr>
<td>100 Hz to 1 kHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
<td>DC to 2 MHz</td>
</tr>
<tr>
<td>1 kHz to 10 kHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
<td>DC to 5 MHz</td>
</tr>
<tr>
<td>10 kHz to 100 kHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
<td>DC to 10 MHz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basic accuracy</th>
<th>For DC, 10 Hz to 100 Hz</th>
<th>For DC, 45 Hz to 66 Hz</th>
<th>For DC, 45 Hz to 66 Hz</th>
<th>For DC, 45 Hz to 66 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency band</td>
<td>Amplitude: ±0.3% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.3% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.3% rdg. ±0.01% f.s.</td>
<td>Amplitude: ±0.3% rdg. ±0.01% f.s.</td>
</tr>
<tr>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td>Phase: ±0.2° No DC specifications</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diameter of measurable conductors</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
<th>±0.1% rdg. or less (DC to 100 Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedthrough</td>
<td>φ 20 mm (0.79 in) or less (insulated conductor)</td>
<td>φ 20 mm (0.79 in) or less (insulated conductor)</td>
<td>φ 20 mm (0.79 in) or less (insulated conductor)</td>
<td>φ 20 mm (0.79 in) or less (insulated conductor)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>153 mm (6.02 in) x 67 mm (2.64 in) x 25 mm (0.98 in)</th>
<th>153 mm (6.02 in) x 67 mm (2.64 in) x 25 mm (0.98 in)</th>
<th>153 mm (6.02 in) x 67 mm (2.64 in) x 25 mm (0.98 in)</th>
<th>238 mm (9.37 in) x 120 mm (4.72 in) x 67 mm (2.64 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>350 g (12.3 oz)</td>
<td>370 g (13.1 oz)</td>
<td>400 g (14.1 oz)</td>
<td>880 g (30.3 oz)</td>
</tr>
</tbody>
</table>

Custom cable lengths also available. Please inquire with your Hioki distributor.
### High Accuracy Sensor, Direct Wire Type

<table>
<thead>
<tr>
<th>AC/DC CURRENT BOX</th>
<th>AC/DC CURRENT BOX</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW9100-03</td>
<td>PW9100-04</td>
</tr>
</tbody>
</table>

**External Appearance**

- Number of current channels: 3ch
- Rated primary current: AC/DC 50 A rms
- Frequency band: DC to 3.5 kHz (-3 dB)
- Measurement terminals: Terminal block (with safety cover), M5 screws
- Basic accuracy: For 45 Hz to 65 Hz:
  - Amplitude: ±0.02% rdg. ±0.005% f.s. Phase: ±0.1°
- Frequency characteristics (Amplitude):
  - 0 Hz to 1 kHz:
    - ±0.1% rdg. ±0.02% f.s.
  - 1 kHz to 10 kHz:
    - ±0.1% rdg. ±0.02% f.s.
  - 10 kHz to 100 kHz:
    - ±0.2% rdg. ±0.05% f.s.
  - For DC:
    - ±0.02% rdg. ±0.007% f.s.
- Input resistance: 1.5 MΩ or less (50 Ω/80 Hz)
- Operating temperature range: 0°C to 40°C (32°F to 104°F)
- Effects of common-mode voltage (CMRR):
  - 50 Hz/60 Hz: ±30% rdg. ±0.1% f.s.
  - 500 Hz: ±0.5% rdg. ±0.02% f.s.
- Maximum rated voltage to ground: 1000 V (Measurement category III), 600 V (Measurement category II)
- Output connector: HIOKI ME15W
- Max. input current [A rms]: 400 A
- Max. rated power: 300 W
- Power supply: 100 to 240 V AC, 50/60 Hz
- Max. rated power when in combination with other units: 155 VA
- Power cord: PW9100-04

### Standard Sensor

**External Appearance**

- Rated primary current: AC/DC 2000 A rms
- Frequency band: DC to 10 kHz
- Diameter of measurable conductors: φ 55 mm (2.17 in) or less
- Basic accuracy: For AC/DC 6000 A rms:
  - ±0.5% rdg. ±0.25% f.s.
  - Phase: ±0.2°
- Frequency characteristics (Amplitude):
  - For DC:
    - 0 Hz to 1 kHz: ±0.5% rdg. ±0.05% f.s.
  - 1 kHz to 65 Hz: ±0.2% rdg. ±0.05% f.s.
- Operating temperature range:
  - -25°C to 65°C (-13°F to 149°F)
  - -25°C to 65°C (-13°F to 149°F)
- Effects of external magnetic fields:
  - In 400 A/m magnetic field (DC):
    - 0.2% f.s. or less
  - In 400 A/m magnetic field (50 Hz to 60 Hz):
    - 1.5% f.s. or less
- Output connector: HIOKI PL4
- Dimensions:
  - 84 mm (3.31 in) W x 195 mm (7.16 in) H x 35 mm (1.38 in) D
  - Cable length: 2.5 m (8.20 ft)
- Mass:
  - 510 g (18.0 oz)

**Derating Characteristics**

- Frequency [Hz]: 10 Hz to 65 Hz
- Amplitude: ±0.5% rdg. ±0.05% f.s. Phase: ±2°
- Frequency characteristics (Amplitude):
  - 0 Hz to 1 kHz:
    - ±0.5% rdg. ±0.05% f.s.
  - 1 kHz to 65 Hz:
    - ±0.2% f.s. or less
- Operating temperature range:
  - -25°C to 65°C (-13°F to 149°F)
- Effects of external magnetic fields:
  - In 400 A/m magnetic field (DC):
    - 0.2% f.s. or less
  - In 400 A/m magnetic field (50 Hz to 60 Hz):
    - 1.5% f.s. or less

### Current Summing

**External Appearance**

- Sensor unit: CT9557
- Connectable current sensor: Current sensor with HIOKI ME15SW (male) on the output connector
- Connectable current sensor: Current sensor with HIOKI PL4 (female) on the output connector
- Connectable current sensor: Current sensor with HIOKI PL4* (female) on the output connector
- Connectable current sensor: Current sensor with HIOKI PL4** (female) on the output connector
- Connectable current sensor: Current sensor with HIOKI PL4*** (female) on the output connector
- Connectable current sensor: Current sensor with HIOKI PL4**** (female) on the output connector

**Summation output accuracy**

- For all CONNECTABLE CURRENT SENSORS:
  - ±5.0% rdg. ±0.2% f.s. or less
- For HIOKI PL4:
  - ±0.5% rdg. ±0.05% f.s.

**Operating temperature range**

- -10°C to 50°C (14°F to 122°F)

**Power supply**

- AC ADAPTER Z1002
  - 100 to 240 V AC, 50/60 Hz
  - Max. rated power when in combination with other units: 155 VA
  - External power supply (50 to 30 V DC, Max. rated power: 60 VA)

**Output connector**

- HIOKI ME15SW (male)

* Requires EXTENSION CABLE CT9902

### High Accuracy Sensor, Direct Wire Type

**Newly developed DCCT method allows world-class measurement range and measurement accuracy at a rating of 50 A.**

**Wiring connection example 1 – Existing direct-input connection method**

For more reliable wideband high-accuracy measurements, use as an alternative to existing direct-input power meters.

**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 EXTENSION CABLE CT9902

**Shorter measurement wiring minimizes noise effects due to long wires**

---

*(5 A rating version also available. Please inquire with your Hioki distributor.)*

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*(CT9904 sold separately) is required to connect PW3390 to the sensor with HIOKI PL14 on the output connector.*
Model No. (Order Code) | D/A output | Motor analysis |
--- | --- | --- |
PW3390-01 | — | — |
PW3390-02 | ○ | — |
PW3390-03 | ○ | ○ |

Accessories: Instruction Manual x1, Measurement Guide x1, Power cord x1, USB cable x1, Input cord label x2, D-sub 25-pin connector x1 (PW3390-02, PW3390-03)

- The optional voltage cord and current sensor are required for taking measurements.
- Motor analysis and D/A output cannot be changed or added after delivery.

**Connection Options**

**Voltage Measurement Options**

<table>
<thead>
<tr>
<th>Name (Note)</th>
<th>Model No. (Order Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC/DC CURRENT SENSOR (50 A)</td>
<td>CT6665-05</td>
</tr>
<tr>
<td>AC/DC CURRENT SENSOR (200 A)</td>
<td>CT6666-05</td>
</tr>
<tr>
<td>AC/DC CURRENT SENSOR (500 A)</td>
<td>CT6667-05</td>
</tr>
<tr>
<td>AC/DC CURRENT PROBE (20 A)</td>
<td>CT6664-05</td>
</tr>
<tr>
<td>AC/DC CURRENT PROBE (200 A)</td>
<td>CT6663-05</td>
</tr>
<tr>
<td>AC/DC CURRENT PROBE (500 A, ø 20 mm (0.79 in))</td>
<td>CT6662-05</td>
</tr>
<tr>
<td>AC/DC CURRENT PROBE (1000 A)</td>
<td>CT6661-05</td>
</tr>
<tr>
<td>CLAMP ON SENSOR (AC 20A/200 A)</td>
<td>CT9901-05</td>
</tr>
<tr>
<td>AC/DC CURRENT BOX (50 A, 3 ch)</td>
<td>PW9100-03</td>
</tr>
<tr>
<td>AC/DC CURRENT BOX (50 A, 4 ch)</td>
<td>PW9100-04</td>
</tr>
<tr>
<td>AC/DC AUTO ZERO CURRENT SENSOR (2000 A)</td>
<td>CT7742</td>
</tr>
<tr>
<td>AC/DC CURRENT SENSOR (6000 A, ø 100 mm (3.94 in))</td>
<td>CT7642</td>
</tr>
<tr>
<td>AC FLEXIBLE CURRENT SENSOR (6000 A, ø 180 mm (7.09 in))</td>
<td>CT7643</td>
</tr>
<tr>
<td>AC FLEXIBLE CURRENT SENSOR (6000 A, ø 254 mm (10.00 in))</td>
<td>CT7644</td>
</tr>
</tbody>
</table>

**Built-To-Order (Current Measurement)**

<table>
<thead>
<tr>
<th>Model No. (Order Code)</th>
<th>Name (Note)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW9100-05</td>
<td>D/A output Motor analysis</td>
</tr>
<tr>
<td>CT6682-05</td>
<td>Voltage measurement and Motor analysis</td>
</tr>
<tr>
<td>CT6683-05</td>
<td>Voltage measurement and Motor analysis</td>
</tr>
</tbody>
</table>

**Current Measurement Options**

<table>
<thead>
<tr>
<th>Name (Note)</th>
<th>Model No. (Order Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSOR UNIT (Sensor power supply with 4 channel summing function)</td>
<td>CT9902</td>
</tr>
<tr>
<td><strong>CONVERSION CABLE CT9900</strong> is required to connect to PW3390. <strong>CONNECTION CABLE PW9001</strong> is required to connect to PW3390.</td>
<td></td>
</tr>
</tbody>
</table>

**Voltage Measurement Options**

**Other Options**

<table>
<thead>
<tr>
<th>Model No. (Order Code)</th>
<th>Name (Note)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW9100-03</td>
<td>D/A output Motor analysis</td>
</tr>
<tr>
<td>CT6680-05</td>
<td>Voltage measurement and Motor analysis</td>
</tr>
</tbody>
</table>

**Built-To-Order (Other)**

**Connection Options**

**EXTENSION CABLE SET L4931**

Red, black: 1 each, 1000 V specification, Cord length: 3 m (9.84 ft) CAT iv 600 V, CAT iii 1000 V

**RS-232C CABLE 9637**

Spin-Spin cross Cable length: 1.8 m (6.00 ft)

**PC CARD 512 MB 9728**

Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

**LAN CABLE 9642**

Supplied with straight to cross conversion connector, Cable length: 5 m (16.41 ft)

**CONVERSION CABLE CT9900**

Required to connect PW3390 to the current sensor with HIOKI PL23 on the output connector.

**CONVERSION CABLE CT9920**

Required to connect PW3390 to the current sensor with HIOKI PL14 on the output connector.

**CONNECTION CABLE CT9904**

Cable length: 1 m (3.28 ft). Required to connect the summing waveform output terminal of CT9557 to PW3390.

**PC CARD 1 GB 9729**

**PC CARD 2 GB 9830**

Please contact your Hioki distributor or subsidiary for more information.

**CARRYING CASE 9794**

Carring Case for PW3390 and 3390

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HIOKI USA CORPORATION

**HIKCI USA CORPORATION**

**HEADQUARTERS**

81 Koizumi, Ueda, Nagano, 386-1192, Japan

TEL +81-268-28-0562 FAX +81-268-28-0568

HIKCI E.E. CORPORATION

HIOKI (Shanghai) SALES & TRADING CO., LTD.

HIOKI (Shanghai) SALES & TRADING CO., LTD.

HIOKI SINGAPORE PTE. LTD.

HIOKI KOREA CO., LTD.

HIOKI (Shanghai) SALES & TRADING CO., LTD.

HIOKI USA CORPORATION

TEL +1-609-409-9109 FAX +1-609-409-9108

http://www.hioki.com / E-mail: info@hioki.com

http://www.hiokiusa.com / E-mail: hioki@hiokiusa.com

http://www.hioki.co.jp / E-mail: info-kr@hioki.co.jp

All information correct as of Mar. 7, 2017. All specifications are subject to change without notice.