Oscilloscope-like Waveform Observation, Plus Recording of RMS Variations - In a Single Device!

**RMS recording function** makes its debut on this device!

Enhancing the ultra-compact oscilloscope-functioning Hioki 8870, the new MR8870 features a new RMS recording mode and real-time save to a CF card.

- **Measure safely, with isolated input for all channels**
  Test commercial power lines with ease of mind thanks to isolated input for both channels

- **Monitor instantaneous waveforms on-site**
  High-speed waveform observation/recording with 1 M sampling, despite compact size

- **Monitor fluctuations in commercial power lines**
  Real-time recording of data to CF card with 1 ms recording interval in a compact package

- **Synchronize two HiCORDERs together to measure three-phase lines and other channels needing three or more channels**
  Bundled PC application enables integration/observation of synchronized data from two HiCORDERs on a single screen
An oscilloscope in the palm of your hand
Capture unpredictable phenomena using waveforms!

**Recording of EV and HEV starting current waveforms**
The MR8870 can be used with a clamp-on AC/DC current sensor to observe the current waveform at motor start. Hioki’s clamp-on sensor line covers a frequency band ranging from DC to frequencies of 10 kHz and higher.

**Check inverter output waveforms**
Inverter performance analysis requires simultaneous observation of the high frequency carrier signal and the low frequency fundamental waveform being switched. The combination of high-speed sampling capability and high-capacity memory make these observations possible. For current waveform observations, use Hioki clamp sensors capable of high-frequency measurements without direct electrical contact.

**Recording of motor rush current**
Motor power-on inrush current waveforms can be precisely recorded. The Clamp On Probe the 9018-50 is available for current measurement, as is the Clamp On Leak HiTester 3283. In addition, to measure direct current waveforms, a variety of Current meters such as the CLAMP ON AC/DC HITESTER 3284/3285 are available upon request.

**CB timing measurements**
Analyze the relationships of multi-point logic signals and analog waveforms to detect timing issues that can affect power supply circuit breakers. Use logic probes to record relay operations on up to four channels, or use the Differential Probe P9000 for three-phase 440 v power line measurements and for support of CAT III 600 V measurement categories.

**Recording of EV and HEV starting current waveforms**

**Check inverter output waveforms**

**Recording of motor rush current**

**CB timing measurements**

**Analysis of sequence controller issues**
When sequence controllers being used in applications such as production and testing lines stop due to errors or generate warning output, potential causes include momentary AC power interruptions and brownouts. The MR8870 is ideal for analyzing the operation of such systems since it can record the correlation of sequence relay signals, AC power circuits, and DC voltage circuits as waveforms using power supply anomalies as a trigger.
A pen-free recorder in the palm of your hand
Long-term RMS fluctuation recording!

Pen- and paper-free recording
A substitute for the Hioki Micro HiCorder

The photo above shows the Hioki 8205-10 and 8206-10 Micro HiCorders. These products are no longer available.

RMS value calculation method
RMS values for three AC waveform cycles are calculated 1,000 times every second (see figure below). Readings other than maximum and minimum values are eliminated based on the set recording interval, and the resulting data is displayed and saved.

Duration of 3 cycles
1/1000 sec

AC RMS data recording
Use the device in conjunction with an AC voltage input and a clamp current sensor to record RMS values for current. Input instantaneous waveforms are acquired via high-speed sampling at 200 μsec. RMS data is staggered at a rate of 1000 times per second as it is computed – not even abrupt fluctuations will escape notice.

RMS data recorded in internal memory
The RMS recorder can output data into the internal memory at rates of up to once per millisecond. Internal memory recordings of up to 10,000 div (1 million data items) are supported. Furthermore, if you set automatic saving to storage media, the device writes data to the media (at each recording interval) in real time as it makes measurements.

* A new data file is created for each 10,000 div worth of data.
* It is possible to save the data repeatedly up until the media’s full capacity is reached, but after that periods of dead time (when measurement is not possible) will occur every 10,000 div.
When powered on, the Settings screen appears along with the waveform monitor, and the new Setup Wizard blinks. By activating the Setup Wizard, you can easily navigate by following the simple instructions. Soon you will be operating the device like a seasoned professional.

The help text crawls along the bottom of the screen, describing the function of the setting at the blinking cursor. The enhanced “Waveform Monitor” window with level meter display facilitates changes to settings by simultaneously displaying real-time input waveforms.

No unnecessary fuss before you can start working. You select which measurement mode to use (memory recorder or RMS value recorder) when you switch on the device. Choose the mode once, and you’ll never need to select it again.
Data analysis in tandem with a PC
Dedicated PC application program bundled as standard accessory

- **Pseudo-real-time data recording to media (MEM data)**
  The memory recorder’s instantaneous waveform recording functionality automatically saves data to storage media in a way that minimizes the interval during which the instrument cannot perform measurement while data is being saved (so-called dead time). This approach allows the instrument to write data up to the set recording length to media in real time (for each sampling interval) while continuing measurement with a time axis setting of 50 ms/div. or slower.

- **Binary data (MEM/RMS data) loadable into PC**
  You can copy data saved on the CF card to a PC in two ways: via the card, or by connecting the MR8870 to the PC with a USB cable. The bundled PC application lets you display waveforms on the PC and print them out.
  * The MR8870 is not provided with a communication function for controlling it from a PC connected to it with a USB cable.

- **Synchronize two HiCorders together for 4ch recording! (MEM data)**
  For those times when 2-channels are just not enough, synchronize two MR8870’s using the external trigger I/O terminals (apply the trigger output from one to the external trigger input of the other). Then use synchronous start to automatically record four channels of measurement data to a CF card.

- **Use the bundled software to composite waveform files.**
  For example, to monitor the waveforms of a 3P 200 V line, you can use two HiCorders at the same time and view the waveforms of all 4 channels on the same screen on the PC.

- **Waveform display and printing, and CSV conversion with PC (MEM data, RMS data)**
  Open a data file with the dedicated Wave Processor (PC application program) for the MR8870/8870, to import and print waveforms with your own arrow and figure annotations. Of course, screen data can be copied and pasted into common Word and Excel documents to easily create reports.

- **Features of the Dedicated Wave Processor Program (supplied accessory)**
  - Designed especially for MEMORY HiCORDER MR8870/8870
    Application program displays and prints waveforms, and converts measurement data to CSV text files on a Windows PC.
  - Provides X-Y display capability not available on the HiCorder
  - Generate reports using templates, with figure annotations and entered comments
  - Multiple files can be batch-converted to CSV data
  - Use two HiCorders to monitor 3 or 4 channels of waveforms that are measured using the same time axis range on the same PC window.
Specifications

Basic specifications

- **Measurement functions**
  - Memory recorder (high-speed recording), RMS recorder (50/60 Hz, or DC only)

- **No. of channels**
  - 2 analog and 4 logic channels (For analog inputs, channels are isolated form each other and from frame GND. For logic terminals, all channels have common GND.)

- **Maximum sampling rate**
  - 1 MS/s (per channel, all channels simultaneously)

- **Memory capacity**
  - 12 bits × 2 M-Words

- **Removable storage**
  - CF Card Type I slot (standard equipment) → Up to 2 GB, supports FAT, or FAT-32 format

- **Backup function**
  - Memory items: Setting condition, measurement data (binary or text), screen shot, result of numerical calculation, reduced test saving data

- **Display terminal**
  - Clock and settings: 5 years or more (±2% 77°F)

- **Display function**
  - Waveform backup function: available when Battery pack 9780 is installed with charge remaining (or connected to 100 hours with fully charged battery pack)

- **Control terminals**
  - Terminal block: External trigger input, trigger output

- **External interface**
  - USB: USB 2.0, mini-B receptacle (1 port)

- **Display type**
  - 4.3-inch TFT color LCD (480 × 272 dots)

- **Display resolution**
  - Waveform section: 20 div (time axis) × 10 div (voltage axis)

- **Display languages**
  - MR8870-20: English, Japanese (Default settings: English)

- **Environmental conditions**
  - Operating: +40°C (5°F) to +5°C (47°F) (Accuracy at 23°F, 80% rh or less, after 30 minutes of warm-up time)

- **Compliance standard**
  - Safety: EN61010-1, EMC: EN61326, EN61000-3-2, EN61000-3-3

- **Power supply**
  - • AC Adapter Z1005: 100 to 240 V AC, 50/60 Hz
  - • Battery pack 9780: continuous operation times: approx. 2 hours (reference value at 27°C, waiting for trigger). AC adapter has priority when used in combination with battery pack
  - • DC power supply: 10 to 16 V DC (please contact your Hioki distributor for connection condition, max. 3 mA/s (400 μA):
  - • Charging time: about 200 minutes (reference value at 25°C/77°F)

- **Power consumption**
  - 30 VA max. (When using the AC adapter and charging internal battery pack 9780)
  - 10 VA max. (When using external DC power supply and charging internal battery pack 9780)
  - 3 VA max. (When using the battery pack 9780)

- **Charging functions**
  - The installed battery pack charges when the AC adapter is connected. Charging time is about 200 minutes (reference value at 27°C/77°F) (Note: Charging time depends on battery condition. Charging is disabled to protect the battery at ambient temperature outside of 5°C (41°F) to 30°C (86°F))

- **Dimensions and mass**
  - Approx. 176 mm (6.93 in) W × 101 mm (3.98 in) H × 41 mm (1.61 in) D, 600 g (21.2 oz) (with the Battery pack 9780 installed)

- **Accessories**
  - Instruction Manual 1, Measurement Guide 1, AC adapter Z1005 1, Strap 1, USB cable 1, Application Disk (Wave Processor Program for the 8870) 1, Protection Sheet 9069 1

- **Trigger functions**
  - **Trigger modes**
    - Single, continuous

  - **Trigger sources**
    - Two analog channels, four logic channels, external trigger (falls below 2.5 V, or shorted terminals), ON/OFF switching of each source, AND/OR between sources, manual triggering

  - **Trigger types (Analog)**
    - • Level: Triggering occurs when preset voltage level is crossed (upwards or downwards)
    - • Voltage drop: Triggering occurs when voltage drops below peak voltage setting (for 50/60 Hz, AC power lines only)
    - • Window: Triggering occurs when window defined by upper and lower limit is entered or exited

  - **Level setting resolution**
    - 0.5% F.S. (×10 divisions)

  - **Trigger types (Logic)**
    - 1, 0, or ×, Pattern setting

  - **Trigger filter**
    - Set by the number of samples, from 0 to 100 samples, in five steps

  - **Other functions**
    - Trigger output: open collector 5 voltage output, active low with at 0.5% f.s. (f.s.=10 divisions)

- **Analog Input**
  - Number of channels: 2, for voltage measurement

- **Input connectors**
  - Isolated BNC connector (input impedance 1 MΩ, input capacitance 7 pF)
  - Max. rated voltage to earth: 300 V AC, DC, CAT III (with isolated from the unit, the maximum voltage that can be applied between input channel and chassis and between input channels without damage)

- **Measurement range (at Memory recorder)**
  - 10 mV to 50 V/div, 12 ranges, full scale: 10 div, AC voltage for possible measurement/display using the memory function: 200 V rms, Low-pass filter: 5.0/50/500/50 kHz

- **Measurement resolution**
  - 1/500 measurement range (using 12-bit A/D conversion, measurement range is 200 divisions)

  - **Highest sampling rate**
    - 1 MS/s (10000 samples in 2 channels)

- **Accuracy**
  - ±0.5% F.S. (after zero-adjust, ±10 divisions)

- **Frequency characteristics**
  - DC to 50 kHz -3DB

- **Input coupling**
  - DC / GND

- **Max. allowable input**
  - 400 V DC (the maximum voltage that can be applied across input pins without damage)

- **Display function**
  - Numerical value display: instantaneous value, or RMS value (DC, or 50/60 Hz only) (cannot select an n measuring)
  - Waveform display: zoom at voltage axis ×2 to ×10, compression ×1.2, ×1.5 Note: X-Y display N/A (X-Y possible on PC screen by supplied software only)

Memory recorder (high-speed recording)

- **Measurement targets**
  - Instantaneous waveform of DC to AC waveform recording / monitor

  - **Time axis**
    - 100 μs to 5 min/div (100 samples/div) 20 ranges
    - Time axis zoom: ×2 to ×10 in 3 stages, compression: 1/2 to 1/1000 in 9 stages

  - **Sampling period**
    - 1/100 of time axis range (minimum 1 μs period)

  - **Recording length**
    - 20 to 20000 div, or continuous (available at 50 ms/div to 5 minutes only)
    - Note: limited by timebase, only the last 20000 div are saved

  - **Pre-trigger**
    - Record data from before the trigger point at 0 to 100% of the recording length in 13 stages

  - **Calculation functions**
    - • Numerical calculation: Up to four simultaneous calculations (common to all channels), calculation results are saved to CF card
    - • Calculation content: average, peak, peak, maximum and minimum values, RMS, period and frequency
    - • Calculation range: specified by A/B cursors or whole recording length
    - • Waveform processing: N/A

Recording time to internal memory using memory recorder mode (abridged)

- • If you set automatic saving of binary-format data to the CF card in the 50-μs/div-and-down range of the time axis, data is saved simultaneously with measurement. This considerably reduces the amount of dead time (the period from the completion of saving the internal memory data (of the applicable capacity below) to the CF card, when measurement/recording begins again). This is a new function – the MR8870 is the first in the series to feature it.

  - The possible length of a single measurement/recording is the length given below for the applicable time axis range.

  - • The maximum recording length is the same whether 1 or 2 channels are used.

  - • The internal memory capacity is 4 MB/channel. Media capacity depends on the card (for example, 512 MB)

<table>
<thead>
<tr>
<th>Time axis</th>
<th>Sampling period</th>
<th>Recording length 20,000 div Max. 1 div = 100 sampling data</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 μs/div</td>
<td>1 μs</td>
<td>2 s</td>
</tr>
<tr>
<td>1 ms/div</td>
<td>10 μs</td>
<td>20 s</td>
</tr>
<tr>
<td>10 μs/div</td>
<td>100 μs</td>
<td>3 min 20 s</td>
</tr>
<tr>
<td>100 μs/div</td>
<td>1 ms</td>
<td>3 min 20 s</td>
</tr>
<tr>
<td>1 s/div</td>
<td>10 ms</td>
<td>5 h 33 min 20 s</td>
</tr>
<tr>
<td>10 s/div</td>
<td>100 ms</td>
<td>2 d 07 h 33 min 20 s</td>
</tr>
<tr>
<td>1 min/div</td>
<td>600 ms</td>
<td>13 h 21 min 00 s</td>
</tr>
<tr>
<td>1 h</td>
<td>30 s</td>
<td>6 h 10 h 40 min 00 s</td>
</tr>
</tbody>
</table>

RMS recorder (high-speed recording)

- **Measurement targets**
  - Commercial power line (50 Hz [60 Hz]) ±1 Hz, DC
  - Note: Logic measurement N/A

- **Input ranges**
  - Selectable for each channel (AC voltage, DC voltage, AC current, DC current)

- **RMS accuracy**
  - ±3.0 % F.S. (after zero-adjustment, add current sensor accuracy in use)

- **Recording interval**
  - 1 ms to 1 minutes in 16 stages, Sampling period: 200 μs fixed (AC voltage / DC voltage: current accuracy 1000 RMS data/sec)

- **Other functions**
  - Time axis zoom/compression: 100 ms to 1 days/dive

Repeating functions

- Single / Repeat selectable
  - Note: external trigger terminal cannot use

Recording time to internal memory using RMS recorder mode (abridged)

- • If you set automatic saving of binary-format data to the CF card in the 50-μs/div-and-down range of the time axis, data is saved simultaneously with measurement. This considerably reduces the amount of dead time (the period from the completion of saving the internal memory data (of the applicable capacity below) to the CF card, when measurement/recording begins again). This is a new function – the MR8870 is the first in the series to feature it.

  - The possible length of a single measurement/recording is the length given below for the applicable time axis range.

  - • The maximum recording length is the same whether 1 or 2 channels are used.

  - • The internal memory capacity is 4 MB/channel. Media capacity depends on the card (for example, 512 MB)
**Software specifications (Bundled accessory)**

**Wave Processor Program for the 8870 (Bundled accessory)**

- **Supported measurement instruments**: MR8870-20, 8870-20
- **Operating environment**: Computer running under Windows 8/7 (32/64-bit), Vista (32-bit), XP
- **File loading**: Loadable data format: Memory function data (MEM extension) of the MR8870-20/8870-20 (subject to the capacity of the PC's operating environment)
- **Overwriting save**: Overwrites saved scaling and title/channel comments
- **Slide show display**: Sequentially displays waveform files in the same folder
- **Text conversion**: Data conversion format: Select from CSV, tab-separated or space-separated
- **Displaying**: Display language: English or Japanese (select during installation)
- **Display**: Waveform display: Scroll and magnify/resize the time axis of the displayed waveform data image, move the zero position of each channel, zoom and set the vertical axis of each channel independently (variable gain)
- **Printing**: Printer support: Color and monochrome printing on printers supported by the operating system

**Other functions**

- **Convenient functionality**: Setup Wizard – guides you through the settings
- **Saving to external memory**: Automatic saving of measurement data to CF card
- **Cursor readout function**: Readouts of potential at A/B cursor position, time since triggering, time difference and potential difference between A and B cursor positions
- **Scaling functionality**: Settable for individual channels
- **Other functions**: Comment entry, screen capture, gauges, start condition preservation, auto setup, waveform scrolling (possible during measurement)

**Waveform Composite Function**: Composite the waveforms of up to 8

- **Max. loadable file size**: The maximum size that can be stored by the loadable data format: Memory function data (MEM extension) of the
- **Print preview and waveform screen hard copy/logging print functions**: Print formats: Undivided, 2, 4, 8 divisions, 2, 4, 8 or 16 traces, 1, 2 or 4 XY screen, gain, channel comments, zero-position comments, and frequencies at their positions
- **Conversion methods**: Analog waveform data to voltage values, logic conversion
- **Comments**: RMS value recorder: For voltage: OFF, model setting. For current: OFF, model setting, conversion ratio setting, preservation, auto setup, waveform scrolling (possible during measurement)

**Operating environment**

- **Wave Processor Program for the 8870 (Bundled accessory)**
- **MR8870-20**: For waveform monitor output, Frequency characteristics: DC to 10 MHz (±3 dB), Amplitude accuracy: ±1 % of full scale (at max. 1000 V DC), ±3 % of full scale (at max. 200 V DC)
- **AC mode**: For detection of power line surge noise, Frequency characteristics: 1 kHz to 10 MHz (±3 dB)
- **RMS mode**: DC/AC voltage RMS output detection, Frequency characteristics: DC, 40 Hz to 100 kHz, Response speed: 200 ms or less (400 V AC, accuracy: ±1 % of full scale), DC, 40 Hz to 1 kHz, ±4 % of full scale (±3 dB), DC, 1kHz to 10 kHz, ±10 % of full scale (±3 dB), DC, 10 kHz to 100 kHz, ±20 % of full scale (±3 dB), DC, 100 kHz to 10 MHz, ±50 % of full scale (±3 dB)
- **Input**: Type: balanced differential input, Input impedance: 4.5 MΩ/20 pF, Maximum rated voltage to earth: when using grabber clip: 1500 V AC/DC (CAT IV), 600 V AC/DC (CAT III), when using alligator clip: 1000 V AC/DC (CAT IV), 600 V AC/DC (CAT III)
- **Maximum allowable input**: 500 Vrms (HIGH range), 150 Vrms (LOW range) (the maximum voltage that can be applied across input pins without damage)

**Differential Probe 9322**: (Accuracy guaranteed for 1 year)

- **Functions**: For high-voltage floating measurement, power line surge noise detection, RMS rectified output measurement
- **DC mode**: For waveform monitor output, Frequency characteristics: DC to 10 MHz (±3 dB), Amplitude accuracy: ±1 % of full scale at 1000 V DC, ±3 % of full scale at 200 V DC, ±10 % of full scale at 60 V DC
- **AC mode**: For detection of power line surge noise, Frequency characteristics: 1 kHz to 10 MHz (±3 dB)
- **RMS mode**: DC/AC voltage RMS output detection, Frequency characteristics: DC, 40 Hz to 100 kHz, Response speed: 200 ms or less (400 V AC, accuracy: ±1 % of full scale), DC, 40 Hz to 1 kHz, ±4 % of full scale (±3 dB), DC, 1 kHz to 10 kHz, ±10 % of full scale (±3 dB), DC, 10 kHz to 100 kHz, ±20 % of full scale (±3 dB), DC, 100 kHz to 10 MHz, ±50 % of full scale (±3 dB)
- **Input**: Type: balanced differential input, Input impedance: 4.5 MΩ/20 pF, Maximum rated voltage to earth: when using grabber clip: 1500 V AC/DC (CAT IV), 600 V AC/DC (CAT III), when using alligator clip: 1000 V AC/DC (CAT IV), 600 V AC/DC (CAT III)
- **Maximum allowable input**: 5000 V DC, 1000 V AC/DC (CAT IV), 600 V AC/DC (CAT III)
- **Output**: Voltage divider for 1/1000 of input, BNC connectors (output switchable for 2 modes DC, AC, RMS)
- **Power source**: Use the AC Adapter 9418-15, (power cannot be supplied from the logic terminals of the MR8870)

**Differential Probe P9000**: (Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year)

- **Measurement modes**: P9000-01: For waveform monitor output, Frequency properties: DC to 100 kHz, P9000-02: Switches between waveform monitor output/AC effective value output
- **DC output accuracy**: ±0.5 % FS, (±1.0 %, division ratio to 1000 Hz, ±1.5 %, division ratio 100X and division ratio 1000X)
- **Effective value measurement accuracy**: ±1 % FS (50 Hz to less than 1 kHz, sine wave), ±3 % FS (50 Hz to 50 kHz, sine wave)
- **Input resistance/capacitance**: 4-10 MΩ, 5-100 Ω
- **Maximum input voltage**: 1000 V AC, 600 V AC/DC
- **Maximum rated voltage to ground**: 1000 V AC, 600 V AC/DC (CAT III)
- **Operating temperature range**: -40°C to 80°C (-40°F to 176°F)
- **Power supply**: 1) AC adapter Z1008 (100 to 240 V AC, 50/60 Hz), 6 W (including AC adapter), 0.9 W (main unit only)
- 2) USB has power (5 V DC, USB-microB terminal), 0.8 W
- 3) External power source 2.7 V to 15 V DC, 1 VA
- **Accessories**: Instruction manual ×1, Alligator clip ×2, Carrying case ×1
**MR8870 Options in Detail**

**Model : MEMORY HICORDER MR8870**

- **Model No. (Order Code) (Note)**

** MR8870-20  (2ch, English models)**

*Text leads are not included. Purchase the leads appropriate for your application separately.*

### Options

- **Power supply**
  - **AC ADAPTER**
    - *Z1005* is a bundled accessory
    - *Z1008* is a bundled accessory

- **Storage media**
  - **PC CARD 1G**
    - *9729* (2 GB)

- **Converters**
  - **CONVERSION CABLE CT7763**
  - **CONVERSION CABLE CT7773**
  - **CONVERSION CABLE CT9555**

### Contact Pins

- **CONTACT PIN**
  - *9790-01* (Red/black set attaches to the ends of the cables L9790)
  - *9790-02* (Red/black set attaches to the ends of the cables L9790)

### Input Cables

- **INPUT CABLE (A)**
- **INPUT CABLE (D)**
- **INPUT CABLE (E)**

*Only the small terminal types can be used. The 9323 is not required for Logic Signals.*

### Logic Probes

- **LOGIC PROBE 9320-01**
- **LOGIC PROBE 9321**
- **LOGIC PROBE MR9321-01**

*Only the small terminal types can be used. The 9323 is not required for Logic Signals.*

### Differential Probes

- **DIFFERENTIAL PROBE P0000-01**
- **DIFFERENTIAL PROBE P0000-02**
- **AC ADAPTER Z1008**

*Voltage to ground in within this product’s specifications. Separate power source is also required.*

### AC Adapters

- **AC ADAPTER 9445-02**
- **AC ADAPTER 9445-03**

*Only the small terminal types can be used. The 9323 is not required for Logic Signals.*

### AC/DC Current Probes

- **AC/DC CURRENT PROBE CT6844-05**
  - For up to 1kV AC or 2kV DC, 500A, 20 to 1000 A AC range, output 0.2 V AC f.s.

### Contact Pins

- **CONTACT PIN**
  - *9790-03* (Red/black set attaches to the ends of the cables L9790)

### Logic Terminals

- **Small logic terminal models**

*Only the small terminal types can be used. The 9323 is not required for Logic Signals.*

### Current Transformers

- **AC ADAPTER**
  - *CT7742* (Auto zero)
  - *CT7731* (Auto zero)
  - *CT7763* (Auto zero)
  - *CT6844-05* (Auto zero)

### Power Supplies

- **AC ADAPTER**
  - *CT9900* (Auto zero)
  - *CT9555* (Auto zero)

### DC/AC Current Probes

- **AC/DC CURRENT SENSOR 9709-05**
  - DC, 1 Hz to 10 kHz (-3dB), 100 A, 1 mV/A output

### Additional Options

- **CARRYING CASE L9782**
- **PROTECTION SHEET LB970**
- **PROTECTOR SHEET SP9001**
- **SOFT CASE 9812**
- **CONNECTION CORD L9217**

### Notes

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All information correct as of July 6, 2018. All specifications are subject to change without notice.