



8205, 8206 MICRO HiCORDER

Recorders



Successor to the long-popular Model 8202 & 8203 MICRO HiCORDERs

True RMS Voltage and Current Recorders with Multimeter Operability!



ISO14001
JQA-E-90091



<http://www.hioki.co.jp/>

HIOKI company overview, new products, environmental considerations and other information are available on our website.

The 8205 and 8206 MICRO HiCORDERs incorporate the latest technology in HIOKI's best selling 8200 MICRO HiCORDER series. Maintaining the operational simplicity of an analog multimeter, these data recorders offer easy to use features such as;

- A fast LCD level meter vs. a stylus to quickly display the measured level
- True RMS rectification system to accurately read distorted waveforms
- Climate-resistant recording paper is easy to read and lasts longer!
- Sampling rate of 100 samples/second with selectable chart speeds

There are two models to choose from. The 8205 has one channel for recording either AC/DC voltage or AC current, while the 8206 has two channels for recording of AC voltage and AC current simultaneously, allowing it to be used for recording power line fluctuations. Packaged in a rugged case, the HIOKI MICRO HiCORDERs work where you work!

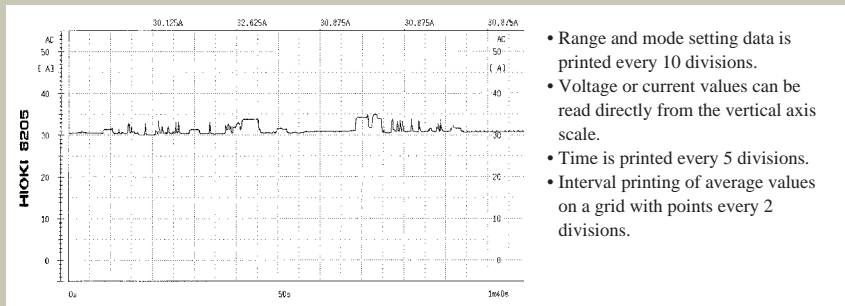
The Standard for Recorders

Depending on your application, select either the 8205 for general applications or the 8206 for power lines.

8205 : For Recording AC Voltage, DC Voltage, or AC Current on a Single Channel

The 8205 can be used for basic recording in a wide range of applications, with features such as a wide AC/DC measurement range of 0.1V to 500V, an analog level monitor function, and a special clamp-on probe for recording large currents.

- Range: AC/DC 0.1V to 500V (AC 10A to 500A when using the 9651) ●Input Channels: One, for voltage or current ●Paper Feed Speed: 20 cm/min to 2 cm/hr ●Sampling Frequency: 10 ms
- Rectification System: True RMS

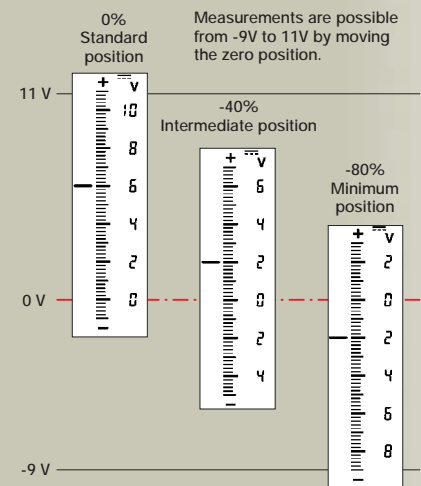


Easy viewing of the input level with a full-range level monitor.



For DC measurement, the zero position can be changed in steps that are -20% of the range, which is convenient for tasks such as recording both polarities.

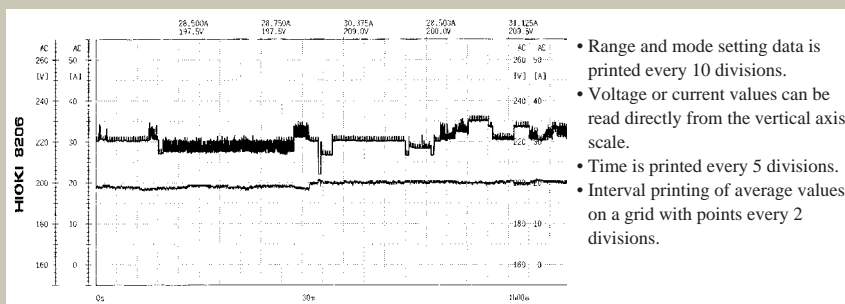
Example of a level display for the DC 10V range



8206 : For 2-Channel Special Purpose Recording of AC Voltage and Current from Power Lines

The 8206 provides simultaneous voltage and current measurement (a frequent requirement of power line management) along with a zoom function that allows 2X recording centered around the range value. Providing ranges that are expressly intended use with power lines, the instrument is capable of recording voltages of up to 600V.

- Range: AC 100V, 200V, or 500V (AC 10A to 500A when using the 9651) ●Input Channels: Two, for simultaneous recording of voltage and current ●Paper Feed Speed: 60 cm/hr to 2 cm/hr
- Sampling Frequency: 10 ms ●Rectification System: True RMS

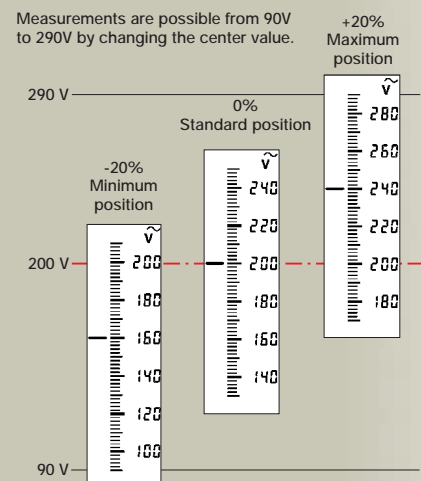


For voltage measurements, the display can be expanded from 25% to -35% around the center of the range. The center value can be changed in steps that are -10% of the range, which is convenient when



it is necessary to adjust the measurement position for electric circuits with different rated voltages.

Example of a level display for the 200V range



Simple Operation, Rugged Design and Quiet!

NEW MICRO HiCORDER

No.1 Operational simplicity with multimeter ease-of-use.



Intuitive analog dials are used to set the input range and paper feed speed. This makes the recorders as easy to operate as a multimeter.

No.2 The 8206 has two recording channels, one for voltage and one for current. (clamp on sensor sold separately)



With 2-channel recording, a single instrument can simultaneously record both voltage and current. This is ideal for management and testing of power lines.



No.3 Current recording is easy. (clamp on sensor sold separately)



The recorder provides selectable current ranges. Used together with a special clamp on sensor, this makes it possible to read values directly and eliminates the need for scaling conversion.

No.4 Sensitized recording paper provides clean, easy-to-read printouts.

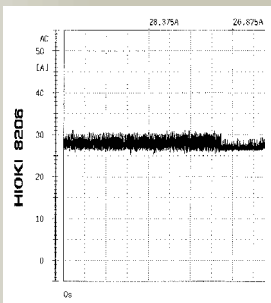


Sensitized recording paper is used, providing clean, quiet recording.

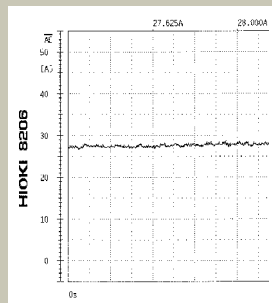


Easily Capture Operating Conditions during Current Variations and Power Outage Recording.

Standard/Average Print Modes



Standard Mode



Average Mode

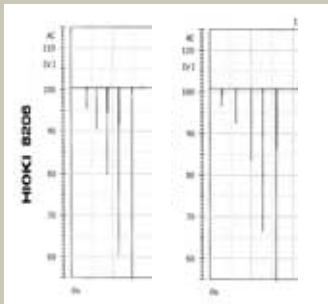
For printing, you can select standard mode or average mode.

● Standard mode prints values interpolated from the maximum and minimum values sampled every 10 ms. This is effective for recording widths of steep input signal changes, such as instantaneous power outages.

● Average mode prints the average value of the data during the print interval. This makes it possible to print something that is smooth and easy to see, at times when there are violent fluctuations.

* Switch to average mode by holding down the paper feed button when turning on the power.

Example of Instantaneous Power Outage Recording



50 Hz

60 Hz

This example shows recording of a simulated instantaneous power outage by the 8206, for AC 100V with frequencies of 50 Hz or 60 Hz and 0V durations of 0.5, 1, 2, 4, or 8 cycles.

Even for a 0.5 cycle instantaneous power failure, the high speed response can catch the line abnormality.

Also runs on DC Power!



In addition to a universal power AC supply of 100 to 240 V, the recorders can operate on 9.5 to 14 V DC power supplies. This is useful outdoors and in other field applications.

* Runs off either AC or DC. DC cannot be used as a backup power supply.

8205 and 8206 Common Specifications	
Recording method	60-mm (2.36 in) amplitude (1 division = 10 mm/0.39 in), heat-sensitive recording.
Display	Level meter and scaling values by LCD bar graph, plus other setting information.
Sampling rate	100 S/s (sampling frequency: 10 ms fixed).
Recording time axis accuracy	Within ±0.5%.
Environmental conditions (non-condensating)	Operating temperature and humidity ranges: 5 °C to 40 °C (41°F to 104°F), 35 % to 80 % rh
Applicable standards	[Safety]:EN61010:1993+A2:1995, CAT III, Pollution Degree 2 EN61010-2-031:1994, [EMC]:EN61326-1:1997+A1:1998, Class A, EN61000-3-2:1995+A1:1998+A2:1998, EN61000-3-3:1995
Power	100 to 240V AC (auto selecting) at 50/60 Hz, or 9.5 to 14V DC.
Maximum power consumption	30 VA maximum (AC or DC operation).
Included Accessories	9235 RECORDING PAPER (1roll), roll paper holder (2), power cord (1), 9257 CONNECTION CORD (1), 9344 CARRYING CASE (1).



External dimensions: Approx. 250 (9.4") W × 122 (4.8") H × 93.5 (3.66") D mm (inch).
mass: Approx. 1.2 kg (42.33 oz). (Both 8205 and 8206)
Accuracy at 23°C±5°C (73°F±9°F) and 35% to 80% rh

Individual Specifications	8205	8206																					
Input channels	One channel, AC or DC voltage, or one channel AC current. (Simultaneous recording not available, one channel may be either type, input is voltage isolated.)	One channel AC voltage and one channel AC current. (Simultaneous recording based on two channel alternating sampling, for commercial power lines, input is voltage isolated.)																					
Voltage measurement ranges * Resolution = 400 points / range	0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100, 200, or 500 V AC/DC. In DC mode, the zero position can be set in steps of 20% of the range. Maximum input voltage: 500 Vrms Accuracy: ±2% of the range. (ACV/45 Hz to 66 Hz) Frequency characteristic: +0.5 dB to -3 dB from 20 Hz to 30 kHz.	100, 200, or 500 V AC Maximum input voltage: 600 V rms. Magnified display from +25% to -35% of the range. Center position of the magnified display can be set in 10% steps from +20% to -20%. Accuracy: ±2% of the range. (45 Hz to 66 Hz) Frequency characteristic: +0.5 dB to -3 dB from 30 Hz to 30 kHz																					
Current measurement ranges * Resolution = 400 points / range	10, 20, 50, or 100 A AC (with 9650 CLAMP ON SENSOR). 10, 20, 50, 100, 200, or 500 A AC (with 9651 CLAMP ON SENSOR). Maximum input level is determined by the clamp on sensor. Bar graph displays from 0% to 110% of range. Frequency characteristic: +0.5 dB to -3 dB from 20 Hz to 20 kHz (Clamp-on probe frequency characteristic: ±3 dB from 40 Hz to 1 kHz).	<table border="1"> <thead> <tr> <th>Accuracy</th> <th>10 A</th> <th>20 A</th> <th>50 A</th> <th>100 A</th> <th>200 A</th> <th>500 A</th> </tr> </thead> <tbody> <tr> <td>9650</td> <td>±3.8 %</td> <td>±3.65 %</td> <td>±3.56 %</td> <td>±3.53 %</td> <td>-</td> <td>-</td> </tr> <tr> <td>9651</td> <td>±5.0 %</td> <td>±4.25 %</td> <td>±3.8 %</td> <td>±3.65 %</td> <td>±3.58 %</td> <td>±3.53 %</td> </tr> </tbody> </table> <p>*Combined accuracy of RECORDER and CLAMP ON SENSOR (can be applied in "full scale" only)</p>	Accuracy	10 A	20 A	50 A	100 A	200 A	500 A	9650	±3.8 %	±3.65 %	±3.56 %	±3.53 %	-	-	9651	±5.0 %	±4.25 %	±3.8 %	±3.65 %	±3.58 %	±3.53 %
Accuracy	10 A	20 A	50 A	100 A	200 A	500 A																	
9650	±3.8 %	±3.65 %	±3.56 %	±3.53 %	-	-																	
9651	±5.0 %	±4.25 %	±3.8 %	±3.65 %	±3.58 %	±3.53 %																	
Rectification system	True RMS.																						
Input resistance	Voltage: approx. 1 MΩ. Clamp input: 1 Ω ±10%.																						
Maximum voltage above ground	500 V AC/DC between voltage input channel and frame ground.	600 V AC/DC between voltage input channel and frame ground.																					

■ Paper Feed Speed and Recording Time *Time Axis Resolution = 80 points / DIV [1 DIV = 10 mm (0.39 in)]

Paper Feed Speed	8205	8206	9235 Standard Sensitized Paper (15 m (49 ft 2.5 in) Roll)	9236 Climate-Resistant Sensitized Paper (13.5 m (44 ft 3.5 in) Roll)
20 cm (7.9 in) /min	-	-	1 h 15 m	1 h 7 m 30 s
6 cm (2.36 in) /min	-	-	4 h 10 m	3 h 45 m
60 cm (23.8 in) /hr	60 cm (23.8 in) /hr	-	1 d 1 h	22 h 30 m
-	-	20 cm (7.9 in) /hr	3 d 3 h	2 d 19 h 30 m
10 cm (3.94 in) /hr	10 cm (3.94 in) /hr	-	6 d 6 h	5 d 15 h
-	-	6 cm (2.36 in) /hr	10 d 10 h	9 d 9 h
2 cm (0.79 in) /hr	2 cm (0.79 in) /hr	-	31 d 6 h	28 d 3 h

■ CLAMP ON SENSOR Specifications



Individual Specifications	9650	9651
Rated current	Primary: 100 A AC Secondary: 100 mA AC	Primary: 500 A AC Secondary: 500 mA AC
Secondary current amplitude accuracy	±1.5% rdg., ±0.03% f.s. (Combined accuracy with recorder depends on recorder accuracy.)	±1.5% rdg., ±0.03% f.s. (Combined accuracy with recorder depends on recorder accuracy.)
Frequency characteristic	±8% or better from 40 Hz to 1 kHz	±3% or better from 40 Hz to 1 kHz
Maximum input current	130 A continuous at 45 to 66 Hz	600 A continuous at 45 to 66 Hz
Application circuit voltage	300 V rms AC or less (insulated conductor)	600 V rms AC or less (insulated conductor)
Diameter of measurable conductor	ø15 mm (0.59 in)	ø46 mm (1.81 in)
Dimensions and mass	Approx. 46 W × 135 H × 21 D mm (Approx. 1.81 W × 5.32 H × 0.83 D inch) Cable length: 3 m (9.84 ft), mass: 230 g (8.1 oz)	Approx. 77 W × 151 H × 42 D mm (Approx. 3.03 W × 5.95 H × 1.65 D inch) Cable length: 3 m (9.84 ft), mass: 360 g (12.7 oz)

Ordering Information

- 8205 MICRO HiCORDER (1-channel recording)
- 8206 MICRO HiCORDER (2-channel simultaneous recording)

* The 9650 and 9651 CLAMP ON SENSOR for current measurement are not supplied with the 8205 and 8206 MICRO HiCORDERs. To measure current, an optional CLAMP ON SENSOR must be purchased separately.

● Options

- 9235 RECORDING PAPER (15-m (49 ft 2.5 in) roll, 10 rolls/set)
- 9257 CONNECTION CORD (Supplied as standard with 8205 and 8206)
- 9326 CONNECTION CORD (Special option for 8205 voltage input)
- 9344 CARRYING CASE (Supplied as standard with 8205 and 8206)
- 9650 CLAMP ON SENSOR (10 to 100 A AC)
- 9651 CLAMP ON SENSOR (10 to 500 A AC)



9344 Carrying case can hold everything, including optional accessories.



9257 (1.3m/51.18 in)/included



9326 (1.7m/66.93 in)



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