

# HIOKI

## AC/DC CURRENT SENSOR CT7000 Series DISPLAY UNIT CM7290,CM7291

**NEW**



Robust support for current measurement through outstanding interoperability with Memory HiCorders and data loggers

## Measurement

Extensive selection of sensors for new current measurement possibilities

## Display

Immediate confirmation of measured values in the field

## Output

Smooth configuration and setup

## Recording

Outputting of data to Memory HiCorders and data loggers for extended recording

## Analysis

Outputting of data to Memory HiCorders and data loggers for waveform observation



\*Only the Display Unit CM7290 / CM7291 features a drop-proof design.



## Current measurement

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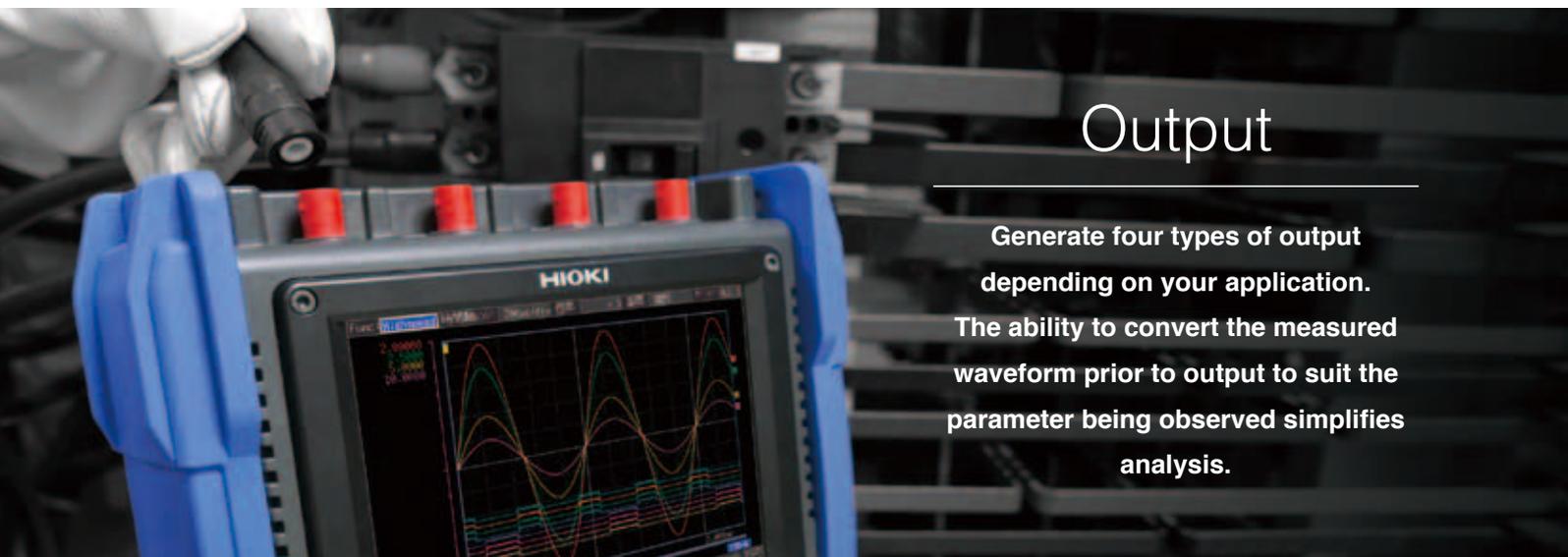
Choose from an extensive lineup of sensors designed for various applications. AC/DC auto-zero current sensors are ideal for long-term recording.



## Display

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Check measured values in the field with the Display Unit. It's also easy to output data to Memory HiCorders and data loggers.



## Output

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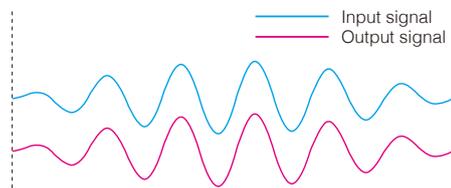
Generate four types of output depending on your application. The ability to convert the measured waveform prior to output to suit the parameter being observed simplifies analysis.

# Output measurement results to a Memory HiCorder or logger for analysis.



## WAVE: Waveform output

Output the waveform without modification.



Record the amount of current generated by solar panels in 1 week

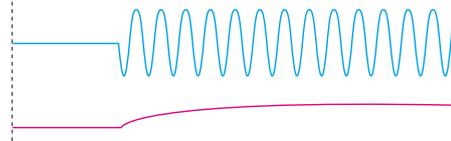
### Example devices used

- Display Unit CM7290
- AC/DC Auto-zero Current Sensor CT7731
- Output Cord L9095
- Memory HiCorder MR8870

## RMS: RMS output

Convert input to output as a series of RMS values.

FAST: 45 Hz or greater  
NORMAL: 10 Hz or greater  
SLOW: 3 Hz or greater



Record and monitor RMS current values at a manufacturing plant

### Example devices used

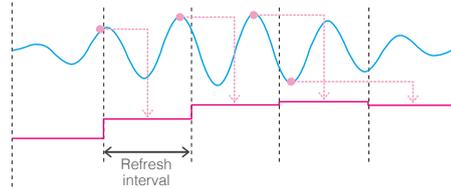
- Display Unit CM7290
- AC/DC Auto-zero Current Sensor CT7742
- Output Cord L9095
- Memory HiCorder MR8880

## PEAK: Peak output

Sample the waveform at the rate of 2 kS/s and output the peak value for each interval as an absolute value.

### Refresh intervals

FAST: 50 updates per sec. (0.02 sec.)  
NORMAL: 5 updates per sec. (0.2 sec.)  
SLOW: 1 update every sec. (1 sec.)



Measure and monitor the maximum power supply rating for a piece of equipment

### Example devices used

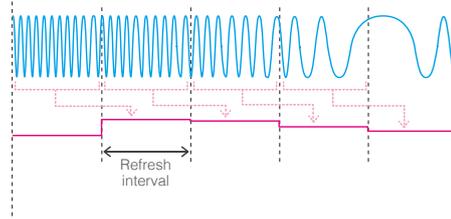
- Display Unit CM7290
- AC/DC Auto-zero Current Sensor CT7736
- Output Cord L9096
- Memory HiLogger LR8431

## FREQ: Frequency output

Count the frequency and output it for each interval.

### Refresh intervals

FAST: 5 updates per sec. (0.2 sec.)  
NORMAL: 5 updates per sec. (0.2 sec.)  
SLOW: 1 update every 3 sec.



Check the frequency of a compressor and motor

### Example devices used

- Display Unit CM7290
- AC/DC Current Sensor CT7631
- Output Cord L9096
- Memory HiLogger LR8431

# Extensive lineup of sensors designed for various applications

## AC/DC AUTO-ZERO CURRENT SENSOR

Frequency band: DC to 5 kHz

Make measurements over extended periods of time without the need to perform zero-adjustment, even in locations with temperature variations.



|  |   |   |
|--|---|---|
| <b>CT7731</b><br>AC/DC100A<br>φ33mm (1.3 in) | <b>CT7736</b><br>AC/DC 600A<br>φ33mm (1.3 in) | <b>CT7742</b><br>AC/DC 2000A<br>φ55mm (2.17 in) |
|--|---|---|



Perform measurement without shifts in the zero-point, even during extended waveform recording or in locations where the temperature varies during measurement.

## AC/DC CURRENT SENSOR (Standard sensor)

Frequency band: DC to 10 kHz

AC/DC current sensors for observing instantaneous waveforms



|  |   |   |
|--|---|---|
| <b>CT7631</b><br>AC/DC100A<br>φ33mm (1.3 in) | <b>CT7636</b><br>AC/DC 600A<br>φ33mm (1.3 in) | <b>CT7642</b><br>AC/DC 2000A<br>φ55mm (2.17 in) |
|--|---|---|



Use to observe instantaneous waveforms and make short-term measurement in locations without temperature variations.

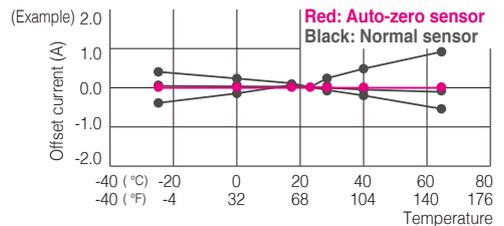
### AC/DC auto-zero current sensors

Take measurements without shifts in the zero-point, even during extended recording with temperature variations



Normal sensor

New auto-zero sensor

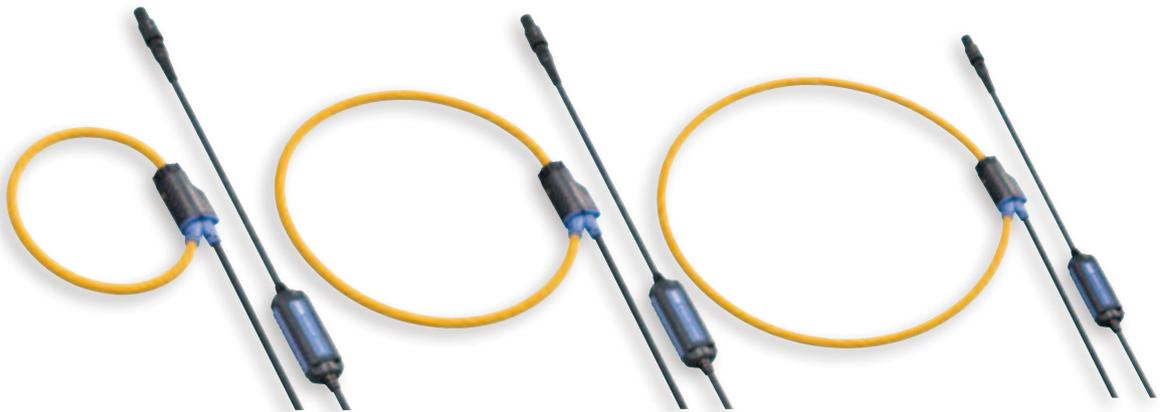


Because measured values acquired using standard sensors exhibit shifts in the zero-point caused by temperature variations, their use in recording data over extended periods of time has required regular zero-adjustment. This issue is caused by the effects of the Hall elements used in the sensor's detection circuitry. Hioki's new auto-zero sensors feature a new, switching-based offset cancellation circuit that was developed to address this issue. This circuit minimizes shifts in the zero-point to enable extended recording without constant zero-adjustment.

## AC FLEXIBLE CURRENT SENSOR

Frequency band: 10 Hz to 50 kHz

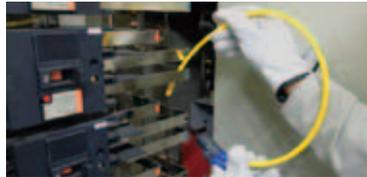
Easy to route through confined locations and around thick cables



**CT7044**  
600 A AC / 6000 A AC  
φ100 mm (3.93 in)

**CT7045**  
600 A AC / 6000 A AC  
φ180 mm (7.08 in)

**CT7046**  
600 A AC / 6000 A AC  
φ254 mm (10 in)



These sensors can be easily routed through confined locations and between cables. The tapered tip is designed so that it can be fed readily through tangled wires. In addition, a magnetic strap\* frees both hands for other tasks.

\*Magnetic strap sold separately.

## CT7000 series sensors: Featuring improved durability and ease of use



### Dustproof and waterproof performance

Measurement functionality continues to operate even when the sensor is exposed to fine particulate matter such as dust or water droplets.

\*Photograph depicts dust- and water-resistance testing.



### -25°C to 65°C (-13°F to 149°F)

A broader operating temperature range lets you use the sensors even in subfreezing temperatures and on hot summer days.



### CAT IV 600V

A maximum input-to-ground voltage of 600 V allows sensors to safely measure service drops and wires in distribution panels.



### Damage-resistant jaws, loops

The strength of the measurement portion of the sensor has been increased to accommodate 30,000 open-close cycles for jaws and 10,000 cycles for flexible loops.

\*Jaws (the current sensor portion) provide IP50 protection. Although water resistance allows retention of measurement functionality, use of the sensor while wet increases the risk of electric shock when measuring hazardous live contacts.

# Identify signal levels in the field

## Intuitive output settings



### Automatic sensor detection and configuration

When a sensor is connected to the connector, the display unit detects it and automatically sets the sensor type.



### Efficiency in the field

The separate, backlit display is easy to read, and a magnetic strap frees up both hands to perform other work.



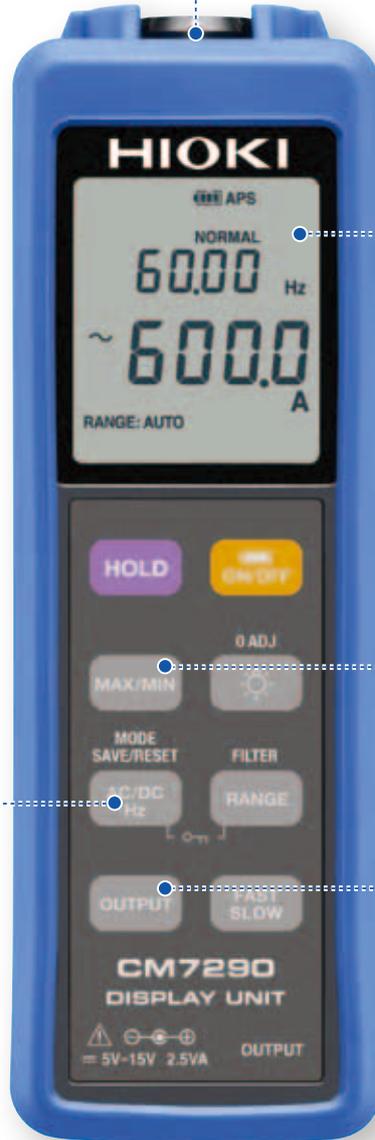
### Retention of measurement settings

The same settings will remain in effect when the unit is turned on next, streamlining work by letting you start measurement immediately.



### Convenient support for external power supplies for easy embedding

When power is supplied to the AC adapter, the unit is automatically ready to begin measurement.



### Dual-value display for at-a-glance confirmation

The unit displays the frequency and output rate along with the measured value, simplifying the process of setting the rate when outputting measurement data.

**WAVE**  
Waveform output

**RMS**  
RMS output

**PEAK**  
Peak output

**FREQ**  
Frequency output

### Single-touch selection of output format

The unit can generate four types of output for data loggers and Memory HiCorders. The format can be switched with a single button.



For use with BNC connectors

For use with terminal blocks

For use with banana terminals

### Simple output connectivity

Three output cords are available for use depending on the application, making it easy to connect the unit to a data logger or Memory HiCorder.



Single-button display switching

### Analysis display with maximum, minimum, and average values

When the analysis display is activated, the unit displays the maximum, minimum, and average values as well as the maximum and minimum crest values since the start of measurement.



### Battery power for convenient testing

The unit can be used with two AA alkaline batteries. This cord-free mode of operation delivers outstanding ease of use in the field.

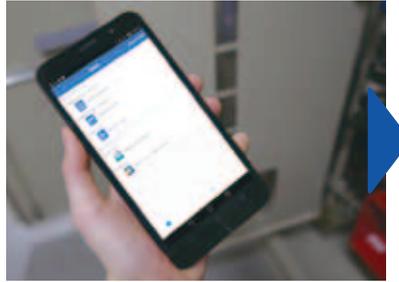
# Transfer data wirelessly for smoother measurement

Display Unit CM7291 only

Send measurement data to a smartphone or tablet using Bluetooth® wireless technology and use the GENNECT Cross dedicated app to display and review measured values and waveforms in real time.



Connect the sensor to the Display Unit CM7291 and clamp in around the cable to be measured.



Launch the GENNECT Cross dedicated app on a tablet.



Measurement results will be sent to the tablet wirelessly and displayed.

## Downloading and setting up the GENNECT Cross dedicated app

**STEP1**

ANDROID APP ON  
Google play

Download on the  
App Store

for free from Google Play™ or the App Store®.

**STEP2**

Configure settings: Home screen > Other > Instrument Settings.

**STEP3**

The app will automatically detect instruments performing measurement. Check the connection status.

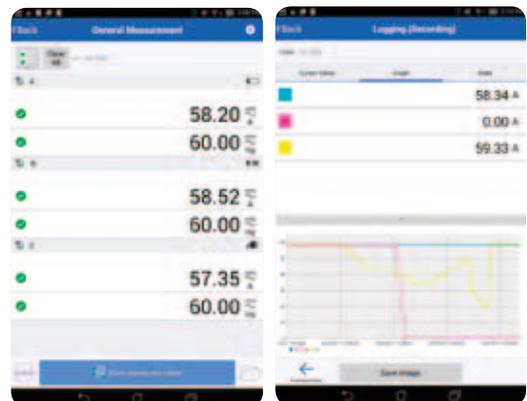
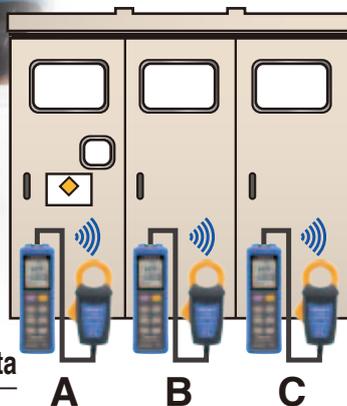
**STEP4**

**Home screen**

**Logging display**

**Standard measurement display**

Return to the home screen and select a measurement function to display the corresponding measured values.



Review + + measurement data on a tablet with the distribution panel closed. You can also collect and review data measured at multiple locations, for example A, B, and C in the figure above. The app also provides simple logging functionality.

\*The line-of-sight communications range is about 10 m. Communications conditions vary with the performance of the connected device and the quality of the connection.

# Display Unit Specifications

(Guaranteed accuracy period: 3 years; post-adjustment guaranteed accuracy period: 3 years)

## Input/output and measurement specifications

|                            |  |
|----------------------------|--|
| Measured parameters        | DC, AC, DC+AC, frequency (Hz)  |
| Measurement method         | True RMS measurement   |
| Output methods             | WAVE, RMS, PEAK, FREQ  |
| Output impedance           | 50 Ω (±5%)   |
| Input connector            | HIOKI PL14   |
| Display refresh times      | FAST: 0.2 sec. / NORMAL: 0.2 sec. / SLOW: 1.0 sec. (when using the Hz output method, SLOW: 3 sec.)   |
| Output refresh times       | <b>PEAK</b> ---FAST: 0.02 sec. / NORMAL: 0.2 sec. / SLOW: 1 sec. <b>FREQ</b> ---FAST: 0.2 sec. / NORMAL: 0.2 sec. / SLOW: 3.0 sec. (WAVE and RMS use analog output.) |
| Peak detection interval    | 2 ms or greater (with PEAK MAX, PEAK MIN, or PEAK output)  |
| Zero display range         | 29 count or less for AC and DC+AC RMS values   |
| Crest factor               | 3 at 5000 count or 2.5 at 6000 count for AC and AC+DC  |
| Typical accuracy (display) | <b>DC:</b> ±0.3% rdg. ±8 dgt. / <b>AC:</b> ±0.3% rdg. ±8 dgt. (RMS) / <b>DC+AC:</b> ±0.3% rdg. ±12 dgt. (RMS) / <b>Frequency:</b> ±0.1% rdg. ±0.01 Hz                |
| Typical accuracy (output)  | <b>DC:</b> ±0.5% rdg. ±0.8 mV / <b>Current:</b> ±0.5% rdg. ±0.8 mV / <b>DC+AC:</b> ±0.5% rdg. ±1.2 mV / <b>Frequency:</b> ±0.3% rdg. ±2.2 mV                         |

\*For range and output rates, see pages 10 and 11.

## General specifications

|  |  |
|--|--|
| Operating and storage temperature and humidity range | -25 °C to 65 °C ( -13 °F to 149 °F ) , 80% RH (non-condensing, with batteries removed)                               |
| Dust and water resistance                            | IP54 (with sensor connected and caps fitted to AC adapter and power connector)                                       |
| Standard compliance                                  | Safety: EN61010 EMC: EN61326, EN61000  |
| Power supply   | AA alkaline battery (LR6) × 2 / 5 V to 15 V external power supply  |
| Maximum rated output                                 | 2.5 VA   |
| Continuous operating time                            | Max. approx. 16 hours (with backlight off using WAVE or RMS output and CT7631, CT7636, or CT7642 sensor)             |
| External dimensions and mass                         | Approx. 52 mm (2 in) W × 163 mm (6.4 in) H × 37 mm (1.5 in) D, approx. 220 g (7.76 oz)(with protector and batteries) |
| Accessories  | AA alkaline battery (LR6) × 2, protector (attach to unit), instruction manual  |

## Functions

|                                     |  |                                    |     |
|-------------------------------------|--|------------------------------------|-----|
| <b>Auto-range function</b>          | Automatic configuration of optimal range (can also be set manually)  | <b>Display value hold function</b> | YES |
| <b>Zero-adjustment at power-on</b>  | Automatic zero-adjustment when powered on  | <b>Backlight</b>                   | YES |
| <b>Analysis display</b>             | Display of maximum, minimum, and average values as well as maximum and minimum crest values since activation of analysis display | <b>Auto-power off</b>              | YES |
| <b>Filter</b>                       | 180 Hz low-pass filter, on/off pass band setting   | <b>Configuration save function</b> | YES |
| <b>Output amplification</b>         | Output at ×10 normal level   | <b>Key lock function</b>           | YES |
| <b>Wireless data communications</b> | Wireless transmission of measurement data using Bluetooth® (CM7291 only)   |                                    |     |

## Bluetooth® specifications (CM7291 only)

|                               |  |
|-------------------------------|--|
| <b>Display</b>                | Display of measured values on an iOS or Android handset using Bluetooth® communications  |
| <b>Interface</b>              | Bluetooth® 4.0 LE  |
| <b>Communications range</b>   | 10 m, line of sight  |
| <b>Communications profile</b> | GATT(Generic Attribute Profile)  |
| <b>Supported devices</b>      | iOS (iPhone 5, third-generation iPad, iPad mini, iPad Pro, and fifth-generation iPod touch or later)<br>Android (Bluetooth® Smart-ready and Bluetooth® Smart-compatible models only) |
| <b>Supported OS</b>           | iOS 8 or later, Android™ 4.3 or later  |

## GENNECT Cross dedicated app specifications

|                                    |  |
|------------------------------------|--|
| <b>Interface</b>                   | Bluetooth® 4.0LE (Bluetooth® SMART)  |
| <b>Supported devices</b>           | iOS (iPhone®5, 3rd generation iPad®, iPad mini™, iPad Pro™, 5th generation iPod Touch® or later)<br>Android™ (Only for Bluetooth® SMART READY or Bluetooth® SMART model)   |
| <b>Supported OS</b>                | iOS 8 or later, Android™ 4.3 or later  |
| <b>No. of controllable devices</b> | For data logging, up to 8 devices can be connected (up to 8 measured values can be logged) at once<br>Only 1 device can be used at any one time when using the CM7291 as a current waveform monitor current waveform |

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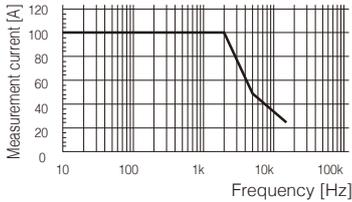
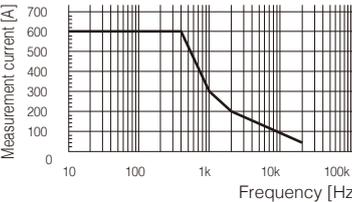
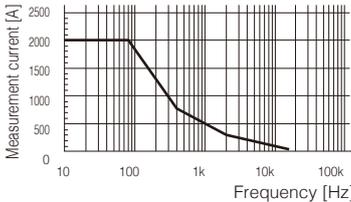
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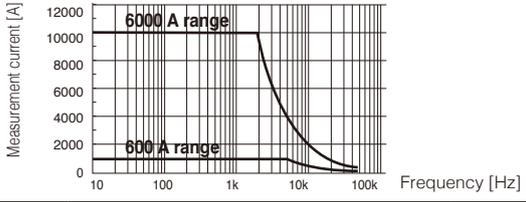
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# Sensor specifications

|  |                    | CT7631 / CT7731   | CT7636 / CT7736  | CT7642 / CT7742   |
|--|--------------------|---|--|---|
|  |                    |    |                      |        |
| Frequency band<br>CT7631, CT7636, CT7642: DC to 10 kHz (-3 dB) / CT7731, CT7736, CT7742: DC to 5 kHz (-3 dB) |                    |   |  |   |
| Rated measurement current  |                    | 100 A AC/DC   | 600 A AC/DC  | 2000 A AC/DC  |
| Measurable conductor diameter  |                    | ø 33 mm (1.3 in) or less  |  | ø 55 (2.17 in) mm or less   |
| Output connector   |                    | HIOKI PL14  |  |   |
| Maximum measurement current  | Frequency derating |    |                      |        |
|  | Peak value         | 150 A peak  | 900 A peak   | 2840 A peak   |
| Sampling frequency   |                    | 36.5 kHz ± 0.2 Hz (CT7731, CT7736, CT7742)  |  |   |
| Typical accuracy (continuous input)  |                    | ±1.0% rdg. ±0.5% f.s. (DC, 45 to 66 Hz)<br>±2.0% rdg. ±0.5% f.s. (66 Hz to 500 Hz)  | ±2.0% rdg. ±0.5% f.s. (DC, 45 to 66 Hz)<br>±3.0% rdg. ±0.5% f.s. (66 Hz to 1 kHz)                      | ±1.5% rdg. ±0.5% f.s. (DC, 45 to 66 Hz)<br>±2.5% rdg. ±1.0% f.s. (66 Hz to 1 kHz)         |
| Typical accuracy (phase)   |                    | ±1.8 deg. (up to 66 Hz)   | ±1.8 deg. (up to 66 Hz)  | ±2.3 deg. (up to 66 Hz)   |
| Operating and storage temperature and humidity range   |                    | -25°C to 65°C (-13 °F to 149 °F) , 80% RH (non-condensing)  |  |   |
| Dust and water resistance  |                    | IP40  | Jaws and barriers: IP50 / Grip: IP54 (when measuring insulated conductors only) (Do not use when wet.) |   |
| Standard compliance  |                    | Safety: EN61010 EMC: EN61326  |  |   |
| Maximum rated input-to-ground voltage <sup>1</sup>   |                    | 600 V AC/DC (CAT IV)  | 1000 V AC/DC (CAT III) / 600 V AC/DC (CAT IV)  |   |
| External dimensions and mass <sup>2</sup>  |                    | Approx. 58 mm (2.28 in) Wx132 mm (5.19 in) Hx18 mm (0.7 in) D<br>Approx. 250 g (8.8 oz)   | Approx. 64 mm (2.51 in) Wx160 mm (6.29 in) Hx34 mm (1.33 in) D<br>Approx. 320 g (11.2 oz)              | Approx. 64 mm (2.51 in) Wx195 mm (7.67 in) Hx34 mm (1.33 in) D<br>Approx. 510 g (17.9 oz) |
| Jaw dimensions   |                    | Approx. 66 mm (2.6 in) W x 13 mm (0.5 in) D   | Approx. 69 mm (2.7 in) W x 14 mm (0.6 in) D  | Approx. 92 mm (3.6 in) W x 18 mm (0.7 in) D   |
| Cable length   |                    | Approx. 2.5 m (8.2 ft) (extensible to max. of 100 m (328 ft) with optional products; subject to limits imposed by connected device) |  |   |

\*1: Anticipated transient overvoltage: 8000 V \*2: Not including dimensions of protruding parts, lever, or jaws. (Guaranteed accuracy period: 3 years; post-adjustment guaranteed accuracy period: 3 years)

|   |                    | CT7044  | CT7045   | CT7046   |
|---|--------------------|---|--|--|
|   |                    |    |                         |                       |
| Frequency band<br>10 Hz to 50 kHz (Within ±3 dB)  |                    |   |  |  |
| Rated measurement current<br>AC 6000 A  |                    |   |  |  |
| Measurable conductor diameter   |                    | ø 100 mm (3.93 in) or less  | ø 180 mm (7.08 in) or less   | ø 254 mm (10 in) or less   |
| <b>Available ranges*1</b><br>600 A AC / 6000 A AC *Range selection is controlled by a supported instrument. |                    |   |  |  |
| Output connector  |                    | HIOKI PL14  |  |  |
| Maximum measurement current   | Frequency derating |   |  |  |
|   | Peak value         | 1500 A peak (600 A range) / 15000 A peak (6000 A range)   |  |  |
| Typical accuracy (continuous input)   |                    | ±1.5% rdg. ±0.25% f.s. (f.s. is determined by the internal range) (45 to 66 Hz, in center of flexible loop)   |  |  |
| Typical accuracy (phase)  |                    | Within ±1.0° (45 to 66 Hz)  |  |  |
| Operating and storage temperature and humidity range  |                    | -25°C to 65°C (-13 °F to 149 °F)<br>Humidity: Under 40°C, 80% RH or less; from 40°C to 65°C, maximum relative humidity reduces linearly from 80% RH at 40°C to 25% RH at 65°C (non-condensing). |  |  |
| Dust and water resistance   |                    | IP54 (when connected to a supported instrument) (Do not make measurements when wet.)  |  |  |
| Standard compliance   |                    | Safety : EN61010 EMC : EN61326  |  |  |
| Maximum rated input-to-ground voltage <sup>2</sup>  |                    | 1000 V AC (CAT III) AC 600 V AC (CATIV)   |  |  |
| Dimensions (circuit box) and weight   |                    | Approx. 25 mm (0.98 in) Wx72 mm (2.83 in) Hx20 mm (0.78 in) D<br>Approx. 160 g (5.64 oz)  | Approx. 25 mm (0.98 in) Wx72 mm (2.83 in) Hx20 mm (0.78 in) D<br>Approx. 174 g (6.13 oz)                   | Approx. 25 mm (0.98 in) Wx72 mm (2.83 in) Hx20 mm (0.78 in) D<br>Approx. 186 g (6.56 oz)                   |
| Flexible loop length and cross-sectional diameter   |                    | Approx. 390 mm (15.3 in)<br>Cross-section : Approx. ø7.4mm (0.29 in)<br>Tip cap : Approx. ø9.9mm (0.38 in)  | Approx. 630 mm (24.8 in)<br>Cross-section : Approx. ø7.4mm (0.29 in)<br>Tip cap : Approx. ø9.9mm (0.38 in) | Approx. 870 mm (34.2 in)<br>Cross-section : Approx. ø7.4mm (0.29 in)<br>Tip cap : Approx. ø9.9mm (0.38 in) |
| Cable length  |                    | Approx. 2300 mm (90.5 in) (between flexible loop and circuit box) Approx. 210 mm (8.26 in) (output cable)   |  |  |

\*1 : Sensor alone \*2 : Anticipated transient overvoltage: 8000 V (Guaranteed accuracy period: 3 years; post-adjustment guaranteed accuracy period: 3 years)

# Combined accuracy

## CT7631 / CT7731 + CM7290 or CM7291

### Display accuracy

| CM7290 range | Amplitude |                  | DC function        | AC function        | AC + DC function   |                    |
|--------------|-----------|------------------|--------------------|--------------------|--------------------|--------------------|
|              | DC        | AC / AC+DC       | DC                 | 45 Hz ≤ f ≤ 66Hz   | DC                 | 45 Hz ≤ f ≤ 66Hz   |
| 60.00 A      | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±1.3% rdg. ±0.58 A | ±1.3% rdg. ±0.58 A | ±2.5% rdg. ±0.65 A | ±1.3% rdg. ±0.62 A |
| 100.0 A      | I ≤ 100 A | 30 A ≤ I ≤ 100 A | ±1.3% rdg. ±1.3 A  | ±1.3% rdg. ±1.3 A  | ±2.5% rdg. ±2.0 A  | ±1.3% rdg. ±1.7 A  |

### Output accuracy

| CM7290 range<br>(Output rate) | Amplitude |                  | DC function        | AC function                |                    |
|-------------------------------|-----------|------------------|--------------------|----------------------------|--------------------|
|                               |           |                  | WAVE output        | WAVE output                | RMS output         |
|                               | WAVE      | RMS              | DC                 | 45 Hz ≤ f ≤ 66Hz           |                    |
| 60.00 A<br>(10 mV / A)        | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±1.5% rdg. ±5.8 mV | ±1.5% rdg. ±5.8 mV (±2.0°) | ±1.8% rdg. ±5.8 mV |
| 100.0 A<br>(1 mV / A)         | I ≤ 100 A | 30 A ≤ I ≤ 100 A | ±1.5% rdg. ±1.3 mV | ±1.5% rdg. ±1.3 mV (±2.0°) | ±1.8% rdg. ±1.3 mV |

| CM7290 range<br>(Output rate) | Amplitude |                  | AC + DC function    |                            |                    |                    |
|-------------------------------|-----------|------------------|---------------------|----------------------------|--------------------|--------------------|
|                               |           |                  | WAVE output (phase) |                            | RMS output         |                    |
|                               | WAVE      | RMS              | DC                  | 45 Hz ≤ f ≤ 66Hz           | DC                 | 45 Hz ≤ f ≤ 66Hz   |
| 60.00 A<br>(10 mV / A)        | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±2.5% rdg. ±6.2 mV  | ±1.5% rdg. ±6.2 mV (±2.0°) | ±2.7% rdg. ±6.2 mV | ±1.8% rdg. ±6.2 mV |
| 100.0 A<br>(1 mV / A)         | I ≤ 100 A | 30 A ≤ I ≤ 100 A | ±2.5% rdg. ±1.7 mV  | ±1.5% rdg. ±1.7 mV (±2.0°) | ±2.7% rdg. ±1.7 mV | ±1.8% rdg. ±1.7 mV |

## CT7636 / CT7736 + CM7290 or CM7291

### Display accuracy

| CM7290 range | Amplitude |                  | DC function        | AC function        | AC + DC function   |                    |
|--------------|-----------|------------------|--------------------|--------------------|--------------------|--------------------|
|              | DC        | AC / AC+DC       | DC                 | 45 Hz ≤ f ≤ 66Hz   | DC                 | 45 Hz ≤ f ≤ 66Hz   |
| 60.00 A      | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±2.3% rdg. ±3.08 A | ±2.3% rdg. ±3.08 A | ±3.5% rdg. ±3.15 A | ±2.3% rdg. ±3.12 A |
| 600.0 A      | I ≤ 600 A | 30 A ≤ I ≤ 600 A | ±2.3% rdg. ±3.8 A  | ±2.3% rdg. ±3.8 A  | ±3.5% rdg. ±4.5 A  | ±2.3% rdg. ±4.2 A  |

### Output accuracy

| CM7290 range<br>(Output rate) | Amplitude |                  | DC function         | AC function                 |                     |
|-------------------------------|-----------|------------------|---------------------|-----------------------------|---------------------|
|                               |           |                  | WAVE output         | WAVE output                 | RMS output          |
|                               | WAVE      | RMS              | DC                  | 45 Hz ≤ f ≤ 66Hz            |                     |
| 60.00 A<br>(10 mV / A)        | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±2.5% rdg. ±30.8 mV | ±2.5% rdg. ±30.8 mV (±2.0°) | ±2.8% rdg. ±30.8 mV |
| 600.0 A<br>(1 mV / A)         | I ≤ 600 A | 30 A ≤ I ≤ 600 A | ±2.5% rdg. ±3.8 mV  | ±2.5% rdg. ±3.8 mV (±2.0°)  | ±2.8% rdg. ±3.8 mV  |

| CM7290 range<br>(Output rate) | Amplitude |                  | AC + DC function    |                             |                     |                     |
|-------------------------------|-----------|------------------|---------------------|-----------------------------|---------------------|---------------------|
|                               |           |                  | WAVE output (phase) |                             | RMS output          |                     |
|                               | WAVE      | RMS              | DC                  | 45 Hz ≤ f ≤ 66Hz            | DC                  | 45 Hz ≤ f ≤ 66Hz    |
| 60.00 A<br>(10 mV / A)        | I ≤ 60 A  | 3 A ≤ I ≤ 60 A   | ±3.5% rdg. ±31.2 mV | ±2.5% rdg. ±31.2 mV (±2.0°) | ±3.7% rdg. ±31.2 mV | ±2.8% rdg. ±31.2 mV |
| 600.0 A<br>(1 mV / A)         | I ≤ 600 A | 30 A ≤ I ≤ 600 A | ±3.5% rdg. ±4.2 mV  | ±2.5% rdg. ±4.2 mV (±2.0°)  | ±3.7% rdg. ±4.2 mV  | ±2.8% rdg. ±4.2 mV  |

## CT7642 / CT7742 + CM7290 or CM7291

### Display accuracy

| CM7290 range | Amplitude  |                     | DC function        | AC function        | AC + DC function   |                    |
|--------------|------------|---------------------|--------------------|--------------------|--------------------|--------------------|
|              | DC         | AC / AC+DC          | DC                 | 45 Hz ≤ f ≤ 66Hz   | DC                 | 45 Hz ≤ f ≤ 66Hz   |
| 600.0 A      | I ≤ 600 A  | 30 A ≤ I ≤ 600 A    | ±1.8% rdg. ±10.8 A | ±1.8% rdg. ±10.8 A | ±3.0% rdg. ±11.5 A | ±1.8% rdg. ±11.2 A |
| 2000 A       | I ≤ 2000 A | 300 A ≤ I ≤ 1800 A  | ±1.8% rdg. ±18 A   | ±1.8% rdg. ±18 A   | ±3.0% rdg. ±25 A   | ±1.8% rdg. ±22 A   |
|              |            | 1800 A < I ≤ 2000 A |                    | ±2.3% rdg. ±18 A   |                    | ±2.3% rdg. ±22 A   |

### Output accuracy

| CM7290 range<br>(Output rate) | Amplitude                         |                     | DC function         | AC function                 |                     |
|-------------------------------|-----------------------------------|---------------------|---------------------|-----------------------------|---------------------|
|                               |                                   |                     | WAVE output         | WAVE output (phase)         | RMS output          |
|                               | WAVE                              | RMS                 | DC                  | 45 Hz ≤ f ≤ 66Hz            |                     |
| 600.0 A<br>(1 mV / A)         | I ≤ 600 A                         | 30 A ≤ I ≤ 600 A    | ±2.0% rdg. ±10.8 mV | ±2.0% rdg. ±10.8 mV (±2.5°) | ±2.3% rdg. ±10.8 mV |
| 2000 A<br>(0.1 mV / A)        | I ≤ 1800 A<br>1800 A < I ≤ 2000 A | 300 A ≤ I ≤ 1800 A  | ±2.0% rdg. ±1.8 mV  | ±2.0% rdg. ±1.8 mV (±2.5°)  | ±2.3% rdg. ±1.8 mV  |
|                               |                                   | 1800 A < I ≤ 2000 A |                     | ±2.5% rdg. ±1.8 mV (±2.5°)  | ±2.8% rdg. ±1.8 mV  |

\*For full combination accuracy tables, see the product page on the Hioki website

| CM7290 range<br>(Output rate) | Amplitude           |                     | AC + DC function    |                             |                     |                    |
|-------------------------------|---------------------|---------------------|---------------------|-----------------------------|---------------------|--------------------|
|                               |                     |                     | WAVE output (phase) |                             | RMS output          |                    |
|                               | WAVE                | RMS                 | DC                  | 45 Hz ≤ f ≤ 66Hz            | DC                  | 45 Hz ≤ f ≤ 66Hz   |
| 600.0 A<br>(1 mV / A)         | I ≤ 600 A           | 30 A ≤ I ≤ 600 A    | ±3.0% rdg. ±11.2 mV | ±2.0% rdg. ±11.2 mV (±2.5°) | ±3.2% rdg. ±11.2 mV | ±2.3% rdg. 11.2 mV |
| 2000 A<br>(0.1 mV / A)        | I ≤ 1800 A          | 300 A ≤ I ≤ 1800 A  | ±3.0% rdg. ±2.2 mV  | ±2.0% rdg. ±2.2 mV (±2.5°)  | ±3.2% rdg. ±2.2 mV  | ±2.3% rdg. ±2.2 mV |
|                               | 1800 A < I ≤ 2000 A | 1800 A < I ≤ 2000 A |                     | ±2.5% rdg. ±2.2 mV (±2.5°)  |                     | ±2.8% rdg. ±2.2 mV |

## CT7044 / CT7045 / CT7046 + CM7290 (CM7291)

### Display accuracy

| CM7290 range | Amplitude          | AC function        |
|--------------|--------------------|--------------------|
|              |                    | 45 Hz ≤ f ≤ 66Hz   |
| 60.00 A      | 3 A ≤ I ≤ 60 A     | ±1.8% rdg. ±1.58 A |
| 600.0 A      | 30 A ≤ I ≤ 600 A   | ±1.8% rdg. ±2.3 A  |
| 6000 A       | 300 A ≤ I ≤ 6000 A | ±2.3% rdg. ±23 A   |

### Output accuracy

| CM7290 range<br>(Output rate) | Amplitude  |                    | AC function                 |                     |
|-------------------------------|------------|--------------------|-----------------------------|---------------------|
|                               |            |                    | WAVE output (phase)         | RMS output          |
|                               | WAVE       | RMS                | 45 Hz ≤ f ≤ 66Hz            |                     |
| 60.00 A<br>(10 mV / A)        | I ≤ 60 A   | 3 A ≤ I ≤ 60 A     | ±2.0% rdg. ±15.8 mV (±1.2°) | ±2.3% rdg. ±15.8 mV |
| 600.0 A<br>(1 mV / A)         | I ≤ 600 A  | 30 A ≤ I ≤ 600 A   | ±2.0% rdg. ±2.3 mV (±1.2°)  | ±2.3% rdg. ±2.3 mV  |
| 6000 A<br>(0.1 mV / A)        | I ≤ 6000 A | 300 A ≤ I ≤ 6000 A | ±2.0% rdg. ±2.3 mV (±1.2°)  | ±2.3% rdg. ±2.3 mV  |

## Basic conditions for accuracy specifications

|   | Display Unit CM7290/CM7291  |                   |                   |
|---|---|-------------------|-------------------|
| Accuracy guarantee conditions                               | Accuracy guarantee period: 3 years; post-adjustment accuracy guarantee period: 3 years; accuracy guarantee temperature and humidity range: 23°C ±5°C, 80% RH or less; after performing zero-adjustment  |                   |                   |
| Temperature coefficient                                     | Within the operating temperature range, add (0.1 × accuracy specifications/°C) (at temperatures other than 23°C ±5°C).  |                   |                   |
| AC accuracy guarantee conditions                            | Sine wave input   |                   |                   |
| Effects of radiative radiofrequency electromagnetic fields  | 15% f.s. at 10 V/m  |                   |                   |
| Effects of conductive radiofrequency electromagnetic fields | 10% f.s. at 3 V   |                   |                   |
|   | CT7631/CT7731   | CT7636/CT7736     | CT7642/CT7742     |
| Accuracy guarantee conditions                               | Accuracy guarantee period: 3 years; post-adjustment accuracy guarantee period: 3 years; number of jaw open-close cycles: 30,000 or less; accuracy guarantee temperature and humidity range: 23°C ±5°C, 80% RH or less; after performing zero-adjustment on the connected instrument; for AC accuracy, using sine wave input |                   |                   |
| Temperature coefficient                                     | Within the operating temperature range, add (0.1 × accuracy specifications/°C) (at temperatures other than 23°C ±5°C).  |                   |                   |
| Offset drift*   | CT7731: within ±0.5% f.s.; CT7736: within ±0.1% f.s.; CT7742: within ±0.1% f.s.   |                   |                   |
| Effects of radiative radiofrequency electromagnetic fields  | 15% f.s. at 10 V/m  |                   |                   |
| Effects of conductive radiofrequency electromagnetic fields | 10% f.s. at 3 V   |                   |                   |
| Effects of conductor position (deviation from center)       | Within ±1.5%  | Within ±2.0%      | Within ±1.0%      |
| Effects of external magnetic fields (400 A/m, DC)           | Within ±1.5% f.s.   | Within ±0.5% f.s. | Within ±0.2% f.s. |
| Maximum cord length   | 100 m (subject to connected instrument specifications)  |                   |                   |
|   | CT7044  | CT7045            | CT7046            |
| Accuracy guarantee conditions                               | Accuracy guarantee period: 1 year; post-adjustment accuracy guarantee period: 1 year; number of jaw open-close cycles: 10,000 or less; accuracy guarantee temperature and humidity range: 23°C ±5°C, 80% RH or less (assuming no elongation, damage, or deformation of cross-sectional profile of flexible loop)            |                   |                   |
| Temperature coefficient                                     | Within the operating temperature range, add (0.05 × accuracy specifications/°C) (at temperatures other than 23°C ±5°C).   |                   |                   |
| Effects of conductor position (deviation from center)       | Within ±3.0%  |                   |                   |
| Effects of external magnetic fields (400 A/m, 50 Hz/60 Hz)  | 1.25% f.s. or less  |                   | 1.5% f.s. or less |
| Offset voltage  | ±1 mV or less   |                   |                   |

\*Using 23°C as the reference temperature; within the temperature range of -25°C to 65°C.

# Lineup

## DISPLAY UNIT



**CM7290**

Accessories: AA alkaline battery (LR6) × 2, protector (attached to unit), instruction manual

**CM7291**

## AC/DC AUTO-ZERO CURRENT SENSOR

Frequency band: DC to 5 kHz (-3 dB)



**CT7731**

100 A AC/DC  
ø33 mm  
(1.3 in)



**CT7736**

600 A AC/DC  
ø33 mm  
(1.3 in)



**CT7742**

2000 A AC/DC  
ø55 mm  
(2.17 in)

## AC/DC CURRENT SENSOR

Frequency band: DC to 10 kHz (-3 dB)



**CT7631**

100 A AC/DC  
ø33 mm  
(1.3 in)



**CT7636**

600 A AC/DC  
ø33 mm  
(1.3 in)



**CT7642**

2000 A AC/DC  
ø55 mm  
(2.17 in)

## AC FLEXIBLE CURRENT SENSOR

Frequency band: 10 Hz to 50 kHz (within ±3 dB)



**CT7044**

600 A/6000 A AC  
ø100 mm (3.9 in)  
cable diameter ø7.4 mm (0.29 in)



**CT7045**

600 A/6000 A AC  
ø180 mm (7.0 in)  
cable diameter ø7.4 mm (0.29 in)



**CT7046**

600 A/6000 A AC  
ø254 mm (10 in)  
cable diameter ø7.4 mm (0.29 in)

Use an AC/DC Auto-zero Current Sensor or AC/DC Current Sensor with the Display Unit and Output Cord to generate output for a Memory HiCorder, data logger, or other instrument.

## OUTPUT CORD

For use with the Display Unit

## PL 14 EXTENSION CABLE

For extending the sensor cable to the Display Unit



**L9094**  
For use with banana terminals  
Cable length : Approx. 1.5 m (4.92ft)



**L9095**  
For use with BNC connectors  
Cable length : Approx. 1.5 m (4.92ft)



**L9096**  
For use with terminal blocks  
Cable length : Approx. 1.5 m (4.92ft)



**L0220-01** 2 m (6.6 ft)  
**L0220-02** 5 m (16.4 ft)  
**L0220-03** 10 m (32.8 ft)  
**L0220-04** 20 m (65.6 ft)  
**L0220-05** 30 m (98.4 ft)  
**L0220-06** 50 m (164 ft)  
**L0220-07** 100 m (328 ft)

## Other options



**AC ADAPTER**  
9445-02



**AC ADAPTER**  
9445-03



**CARRYING CASE**  
C0220

Stores one sensor, one Display Unit, an AC adapter, and an output cord.



**CARRYING CASE**  
C0221

Stores three sensors, one Display Unit, an AC adapter, an output cord, and an extension cable of up to 30 m (98.4 ft) in length.



**MAGNETIC STRAP**  
Z5004

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