

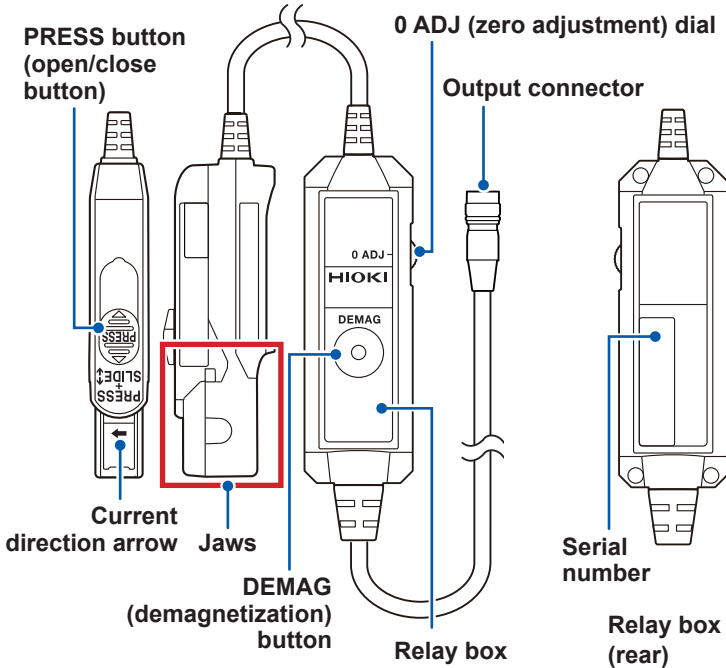
The device is classified as a Class A product under the EN 61326 standard. Use of the device in a residential setting may interfere with reception of radio and television broadcasts. If this occurs, take appropriate steps to counteract the issue.

Symbols on equipment



Indicates that the device can only be used at a location on an insulated wire with sufficient insulation for the circuit voltage.

Part Names



Maintenance and Service

If the device malfunctions, contact your authorized Hioki distributor or reseller.

CAUTION

Observe the following when shipping the device.

- **Remove optional equipment from the device.**
- **When requesting repair, include a description of the malfunction.**
- **Double-pack the device.**
Failure to do so could cause damage during shipment.

Cleaning

CAUTION

- **If the device becomes dirty, wipe it clean with a soft cloth moistened with water or a neutral detergent.**
Never use solvents such as benzene, alcohol, acetone, ether, ketone, thinners, or gasoline, and do not wipe with excessive force. Doing so could cause deformation or discoloration of the device.

Calibration

The appropriate schedule for calibration depends on factors such as the operating conditions and environment. Determine the appropriate calibration interval based on your operating conditions and environment and have Hioki calibrate it accordingly.

Measuring Current

Inspecting the device before use

Before use, check the device for malfunctions or damage and check its operation. If you find any malfunction or damage, contact your authorized Hioki distributor or reseller.

Inspection item	Solution
Damage to cable insulation	If there is any damage to the cable insulation, request repair and do not use the device. Doing so could cause an electric shock.
Jaw crack or damage	

CAUTION

- **Do not place any conductor that can carry a current with a frequency of 10 kHz or higher near the jaws.**

- ⊘ Even if the device is not clamped around a conductor, a nearby conductor carrying a high frequency current may cause the temperature of the jaws to rise and damage the device due to self-heating.

The signal output circuit of the device includes protective resistance (output resistance). Use a measuring instrument, such as a digital multimeter, with high input resistance to monitor the output signal. (1 MΩ or more is recommended.)

Option

The optional equipment listed below is available for the device. To purchase optional equipment, please contact your authorized Hioki distributor or reseller. Option is subject to change. Check Hioki's website for the latest information.

CT9902 Extension Cable (up to two cables can be connected together)

Phase Compensation Values

For phase compensation of the PW6001 or PW3390, enter the following compensation values (typical):

	Frequency	Phase compensation value
CT6830	10 kHz	-6.9°
CT6831	10 kHz	-4.4°

The PW8001 automatically sets the phase compensation value, so it does not need to be entered manually.

Included accessories	Color labels (for channel identification), carrying case, Instruction Manual, Current Sensor Operating Precautions (0990A901)
Option	See "Option".
Rated current	CT6830: 2 AAC/DC, CT6831: 20 AAC/DC
Maximum input current	CT6830: 3 A rms continuous (± 4.3 Ap) CT6831: 30 A rms continuous (± 43 Ap) Not exceeding frequency derating curve shown in Figure 1
Output voltage	CT6830: 1 V/A, CT6831: 0.1 V/A
Measurement method	Flux-gate-type zero-flux current sensor
Output resistance	50 Ω \pm 10 Ω
Measurable conductor diameter	ϕ 5 mm (0.2 in.) or less
0 ADJ dial range	CT6830: ± 8 mV typ. (± 8 mA typ. when converted to input current) CT6831: ± 0.8 mV typ. (± 8 mA typ. when converted to input current)
DEMAG function	Operation time approx. 1 second
Accuracy guarantee conditions	Accuracy guarantee duration: 1 year or 10000 cycles of opening and closing, whichever comes first Accuracy guarantee temperature and humidity range: 0°C to 40°C (32°F to 104°F), 80% RH or less No warmup required. Input: sine wave or DC; connected to a measuring instrument with an input resistance of 1 M Ω \pm 10%; line-to-ground voltage: 0 V; no external magnetic field; a conductor located at the aperture center

Measurement accuracy

Frequency	Amplitude \pm [(% of reading) + (% of full scale)]		Phase
	CT6830	CT6831	
DC	0.3% + 0.10%	0.3% + 0.10%	—
DC < f \leq 66 Hz	0.3% + 0.05%	0.3% + 0.01%	$\pm 0.1^\circ$
66 Hz < f \leq 500 Hz	0.3% + 0.05%	0.3% + 0.02%	$\pm 0.7^\circ$
500 Hz < f \leq 1 kHz	0.5% + 0.05%	0.5% + 0.05%	$\pm 2.0^\circ$
1 kHz < f \leq 5 kHz	1.0% + 0.10%	1.0% + 0.10%	$\pm 7.0^\circ$
5 kHz < f \leq 10 kHz	5.0% + 0.10%	5.0% + 0.10%	$\pm 15.0^\circ$
10 kHz < f \leq 100 kHz	30.0% + 0.10%	30.0% + 0.10%	—

- DC accuracy is defined after the offset voltage has been regulated at ± 0.5 mV or less and after zero adjustment has been performed on the measuring instrument.
- The amplitude and phase accuracy are defined for an input current not more than a current of 110% of full scale and within the derating range (Fig. 1). However, the design value is defined for the frequency range of DC < f < 10 Hz.
- An offset voltage of $\pm 0.005\%$ of the full scale per degree Celsius is added from the ambient temperature during zero adjustment (CT6830 only)

Output noise	CT6830: 5 mV rms or less (5 mA rms or less when converted to input current), \leq 100 kHz CT6831: 5 mV rms or less (50 mA rms or less when converted to input current), \leq 100 kHz
Effects of temperature	The following values are added to the measurement accuracy if operating temperatures are outside the guaranteed accuracy temperature range. Sensor: Ambient temperature -40°C to 0°C or 40°C to 85°C Relay box: Ambient temperature -25°C to 0°C or 40°C to 50°C Amplitude: $\pm 0.01\%$ of reading per degree Celsius Offset: CT6830: $\pm 0.05\%$ of full scale per degree Celsius CT6831: $\pm 0.01\%$ of full scale per degree Celsius
Effects of magnetization	CT6830: 1 mV or less (1 mA or less when converted to input current, after input of 2 A DC) CT6831: 0.2 mV or less (2 mA or less when converted to input current, after input of 20 A DC)
Common-mode voltage rejection ratio (CMRR)	DC to 100 Hz: 140 dB or more 100 Hz to 1 kHz: 130 dB or more
Effects of conductor position	DC to 100 Hz: $\pm 0.1\%$ of reading or less (CT6830: 2 A input, CT6831: 20 A input) For a conductor 2 mm in diameter
Effects of external magnetic fields	CT6830: 20 mV or less (20 mA or less when converted to input current, DC or 60 Hz magnetic field of 400 A/m) CT6831: 2 mV or less (20 mA or less when converted to input current, DC or 60 Hz magnetic field of 400 A/m)
Effects of radiated radio-frequency electromagnetic field	30% of full scale at 10 V/m
Effects of conducted radio-frequency electromagnetic field	30% of full scale at 10 V/m

Function specifications

	Combined accuracy and conditions
Options	CT9902 Extension Cable <ul style="list-style-type: none"> • Up to two cables can be connected together. Accuracy is not guaranteed if additional cables are connected. • Add the following accuracy per cable. Amplitude accuracy: $\pm 0.1\%$ of reading (DC \leq f \leq 1 kHz) $\pm 0.5\%$ of reading (1 kHz < 10 kHz) Phase accuracy: $\pm(0.1 \times f \text{ kHz})^\circ$ (1 kHz < 10 kHz) f = frequency
Compatible instrument	PW8001 Power Analyzer Combined accuracy (I, P, θ) = PW8001 (U7001/U7005) accuracy + sensor accuracy CT6830: 40 mA, 80 mA, 200 mA, 400 mA, 800 mA, 2 A (range) CT6831: 400 mA, 800 mA, 2 A, 4 A, 8 A, 20 A (range) Full-scale error calculated based on sensor rating. Defined after zero adjustment. Phase compensation function with memory function is available. PW6001 Power Analyzer Combined accuracy (I, P, θ) = PW6001 accuracy + sensor accuracy CT6830: 40 mA, 80 mA, 200 mA, 400 mA, 800 mA, 2 A (range) CT6831: 400 mA, 800 mA, 2 A, 4 A, 8 A, 20 A (range) Full-scale error calculated based on sensor rating. Defined after zero adjustment. Upgrade to V3.04 or later is required when using CT6830. PW3390 Power Analyzer Combined accuracy (I, P, θ) = PW3390 accuracy + sensor accuracy CT6830: 40 mA, 80 mA, 200 mA, 400 mA, 800 mA, 2 A (range) CT6831: 400 mA, 800 mA, 2 A, 4 A, 8 A, 20 A (range) Full-scale error calculated based on sensor rating. Defined after zero adjustment. Upgrade to V2.10 or later is required when using CT6830. CT9555, CT9556, CT9557 Sensor Unit Combined accuracy (wave output) = sensor accuracy Add the sensor accuracy to the accuracy of sensor unit when RMS or total output is used. The accuracy addition under each condition as defined in the specifications of the measuring instrument and the sensor will also apply. U8977 3CH Current Unit Combined accuracy = U8977 accuracy + sensor accuracy No wave output or additional accuracy The accuracy addition under each condition as defined in the specifications of the Memory HiCorder and sensor will also apply. Recorder must be CT6830-compatible.

Fig. 1. Frequency derating curve.

