HIOKI

CT6833
CT6833-01
CT6834
CT6834-01

AC/DC CURRENT PROBE

Instruction Manual

EN

Nov. 2024 Edition 1
CT6833A960-00

Contents

Introduction

Thank you for choosing the Hioki CT6833, CT6833-01, CT6834, CT6834-01 AC/DC Current Probe. To ensure that you get the most out of this device over the long term, please read this manual carefully and keep it available for future reference.
Please review the separate Current Sensor Operating Precautions before using this device.
The main differences between model names are as follows.

Model name	Rated current	Output cable length
CT6833	200 A AC/DC	Approx. 5 m (196.9 in.)
CT6833-01	200 A AC/DC	Approx. 10 m (393.7 in.)
CT6834	500 A AC/DC	Approx. 5 m (196.9 in.)
CT6834-01	500 A AC/DC	Approx. 10 m (393.7 in.)

Target audience

This manual has been written for use by individuals who use the product or provide information about how to use the product.
In explaining how to use the product, it assumes electrical knowledge (equivalent of the knowledge possessed by a graduate of an electrical program at a technical high school).

Checking Package Contents

When you receive the device, inspect it to confirm that no damage occurred during shipment. If you find any damage or discover that the device does not perform as indicated in the specifications, please contact your authorized Hioki distributor or reseller.

Device

☐ CT6833, CT6833-01, CT6834, or CT6834-01 AC/DC Current Probe

Included accessories

☐ Color labels (for channel identification)
☐ Carrying case
☐ Instruction manual (this manual)
☐ Current Sensor Operating Precautions (0990A901)

Option

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

☐ CT9902 Extension Cable (5 m [196.9 in.])

- The output cable of the device can be extended by 5 m (196.9 in.) with one extension cable, and up to a maximum length of 10 m (393.7 in.) by using two extension cables.
- Up to two extension cables can be used.
  The device cannot deliver its performance if three or more cables are used.
- When this cable is connected between the device and either the PW8001 or PW6001, the accuracy can be guaranteed only with the LPF set to 500 kHz.
- The following values are added to the specifications of the device for each extension cable.

Amplitude accuracy:	±0.05% of reading (DC ≤ f_1 ≤ 1 kHz)
	±(0.5 + 0.01 × f_1 kHz)% of reading (1 kHz < f_1)
Phase accuracy:	±(0.1 × f_1 kHz) ° (1 kHz < f_1)
Output noise:	(500 × f_2 MHz) µV (1 MHz ≤ f_2)

f_1: frequency, f_2: frequency band of measuring instrument

Symbols and Abbreviations

Safety

This manual classifies seriousness of risks and hazard levels as described below.

⚠ DANGER	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury or potential risks of damage to the supported product (or to other property).
IMPORTANT	Indicates information or content particularly important for operating or maintaining the product.
	Indicates a high-voltage hazard. Failure to verify safety or improper handling of the product will lead to an electric shock, a burn, an injury, or a death.
	Indicates a powerful magnet hazard. Pacemakers and other such electronic medical equipment may not operate properly in the vicinity of this magnet.
	Indicates a prohibited action.
	Indicates a mandatory action.

Symbols on the product

	Indicates the presence of a potential hazard. See the “Precautions for Use” (p. 7) and safety notes listed at the beginning of each operating instruction in the instruction manual and the accompanying document entitled Current Sensor Operating Precautions.
	Indicates that the device can only be used at a location on an insulated wire with sufficient insulation for the circuit voltage.

Symbols for various standards

	Indicates that the product is subject to the Directive on Waste Electrical and Electronic Equipment (WEEE) in EU member nations. Dispose of the product by local regulations.
CE	Indicates that the product complies with standards imposed by EU directives.

Others

*	Indicates that an explanation is given below the location of the asterisk.
p.	Indicates the page number to reference.

Accuracy labeling

The accuracy of a measuring instrument is indicated by defining limit values for errors as percentages of the reading, range, and full scale.

Reading (display value)	Indicates the value displayed on the measuring instrument. Limit values for reading errors are expressed as a percentage of the reading (% of reading or % rdg).
Range	Indicates the measurement range of the measuring instrument. Limit values for range errors are expressed as a percentage of the range (% of range or % rng).
Full scale (rated current)	Indicates the rated current. Limit values for full-scale errors are expressed as a percentage of the full scale (% of full scale or % f.s.).

Safety Information

This instrument has been designed to conform to the international standard, IEC 61010, and thoroughly tested for safety before shipment. However, using the instrument in a way not described in this manual may negate the provided safety features.
Carefully read the following safety notes before use.

⚠ DANGER

- **Familiarize yourself with the contents of this manual before use.**

  Otherwise, the instrument will be misused, resulting in serious bodily injury or damage to the instrument.

⚠ WARNING

- **If you have not previously used electrical measuring instruments, ensure adequate supervision by a technician who has experience in electrical measurement.**

  Failure to do so may cause the operator to experience an electric shock. It may also cause serious events such as heat generation, fire, or arc flash due to a short-circuit.

Precautions for Use

Observe the following precautions to ensure safe use of the device and effective use of its functions.

⚠ WARNING

■ **Do not use the device in locations such as the following:**

- In locations where it would be subject to direct sunlight or high temperatures
- In locations where it would be exposed to corrosive or explosive gases
- In locations where it would be exposed to powerful electromagnetic radiation or close to objects carrying an electric charge
- Close to inductive heating devices (such as high-frequency inductive heating devices and IH cooktops)
- In locations characterized by a large amount of mechanical vibration
- In locations where it would be exposed to water, oil, chemicals, or solvents
- In locations with high humidity or where condensation forms
- In locations with an excessive amount of dust
- In unstable or tilted locations

Doing so could damage the instrument or cause it to malfunction, resulting in bodily injury.

■ **Do not stack relay boxes.**

■ **Do not cover the relay box with cloth or something similar.**

Doing so may cause the internal temperature of the relay box to increase, resulting in bodily injury, fire, or damage to the device.

Handling the device

⚠ DANGER

■ **Do not use the device to measure bare conductors.**

■ **Only perform measurement of insulated wires where there is sufficient insulation for the circuit voltage.**

Failure to do so can cause serious bodily injury or a short-circuit.

⚠ DANGER

■ **People using pacemakers and other such electronic medical equipment must not use the device.**

■ **Do not bring the device close to your body.**

Doing so may impair proper operation of medical equipment, possibly resulting in death.

■ **Do not measure any current in excess of the maximum rated current.**

Doing so may cause overheating of the sensor, resulting in bodily injury, fire, or damage to the device.

CT6833, CT6833-01: With direct current and a frequency of 60 Hz or less, the maximum rated current is 300 A.

CT6834, CT6834-01: With direct current and a frequency of 500 Hz or less, the maximum rated current is 500 A.

With frequencies other than those listed here, the measurable current is limited. Maximum input current values can be confirmed from the “Maximum rated current” (p. 18).

⚠ WARNING

■ **Do not use the instrument for measurements on circuits that exceed the ratings or specifications of the instrument.**

Doing so could cause damage to the instrument or overheating, resulting in serious bodily injury.

■ **Do not allow the cable to come into contact with the line under measurement.**

Doing so could damage the instrument or cause the circuit under measurement to short-circuit, resulting in bodily injury.

■ **Check that the cable insulation is not damaged and that the conductors in the cables are not exposed before use.**

Use with a damaged cable may lead to serious bodily injury. Contact your authorized Hioki distributor or reseller.

⚠ CAUTION

■ **Do not touch the cores while the jaws are open.**

If static electricity is discharged into the cores, the device may be damaged.

■ **Do not leave the carrying case in vehicles and other such locations where it would be subject to direct sunlight or high temperatures.**

In a high-temperature environment, the internal mechanisms of the case may deform.

■ **Do not subject the device to vibration or mechanical shock while transporting or handling it.**

Doing so may damage the device.

■ **Do not bend or pull on a cable at temperatures of 0°C (32°F) or lower.**

Low temperature conditions can cause a cable to harden. Bending or pulling a cable under these conditions may damage the insulation or cause a wire break, resulting in an electric shock.

■ **Keep the jaws locked when the device is not in use.**

Leaving the jaws unlocked may allow dust or dirt to settle on the facing core surfaces, resulting in failure of the device.

■ **Check that there is no overcurrent.**

Current that significantly exceeds the maximum input current of the device may flow when the equipment being measured is turned on and off, resulting in failure of the device.

■ **Wear personal protective equipment (PPE) when using the device in an environment with a temperature of 40°C (104°F) or higher.**

An operator not wearing PPE may be burned as the temperature of the enclosure of the device increases.

■ **Do not bring the device close to magnetic media such as magnetic cards, prepaid cards, and tickets.**

■ **Do not bring the device close to precision electronic equipment such as PCs, television screens, and electronic wristwatches.**

Doing so may corrupt data or damage the equipment.

IMPORTANT

- Do not place any foreign object between the facing core surfaces of the jaw tips or insert any foreign object into the gap of the jaws. Also, do not touch the jaws with your fingers. Doing so may adversely affect the measurement accuracy and the opening and closing of the jaws.
- If debris affixes to the facing core surfaces of the jaw tips, gently wipe them with a soft, dry cloth. Failure to do so may adversely affect the measurement accuracy.
- Do not drop the device or subject it to mechanical shock. Doing so could damage the facing core surfaces of the jaws, and adversely affect measurement.

Shipping precautions

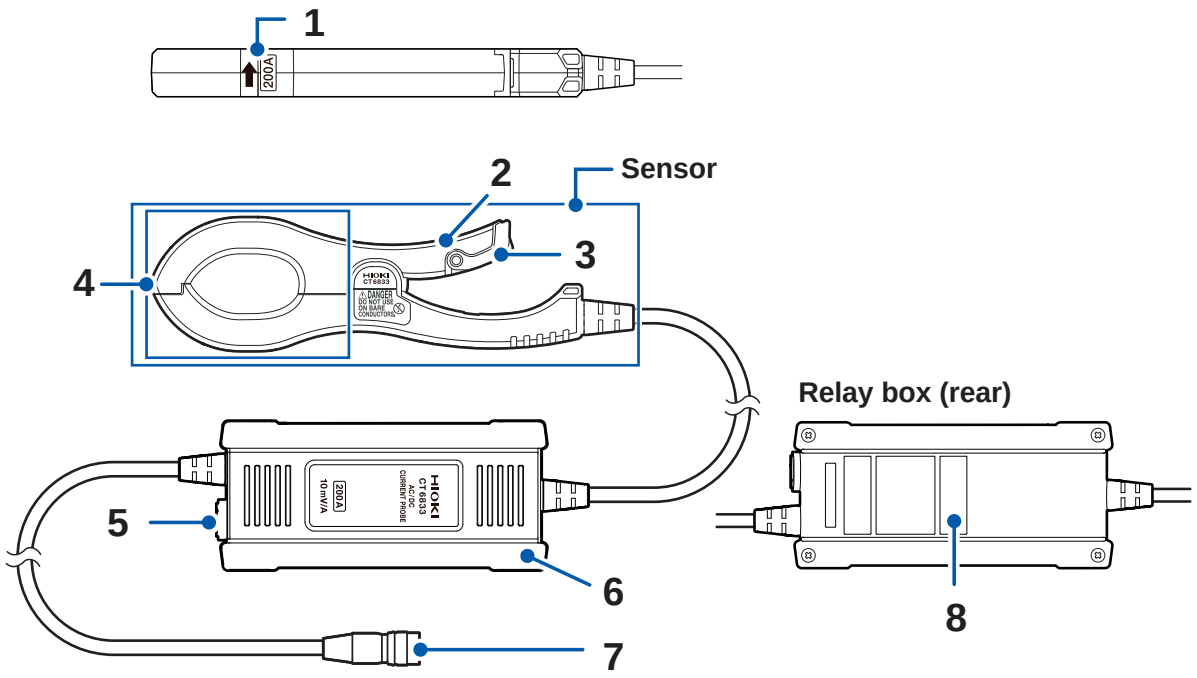
Store the packaging material after unpacking the instrument. Use the original packaging when shipping the instrument.

Overview

Product overview

The CT6833 and CT6833-01 as well as the CT6834 and CT6834-01 are clamp current sensors that can perform highly precise measurements of AC and DC currents of up to 200 A and 500 A, respectively. Both devices have excellent frequency (amplitude and phase) and temperature (sensitivity and offset) characteristics, and can be used for current measurement and high-precision power measurement.

Part names



1	Current direction arrow, rated current
2	Open/close lever
3	Lock
4	Jaws

5	Zero adjustment dial
6	Relay box
7	Output connector
8	Serial number

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, 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.

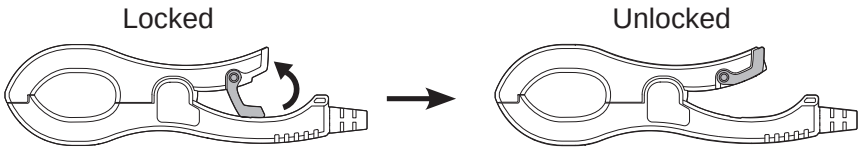
■ **Do not connect the device to a measuring instrument that is powered on.**

Doing so may cause the device to malfunction or may prevent its specifications from being met.

The signal output circuit of the device includes protective resistance (output resistance). Use a measuring instrument with high input resistance to input the output of the device to a digital multimeter. (1 MΩ ± 10% is recommended.)

Measurement procedure

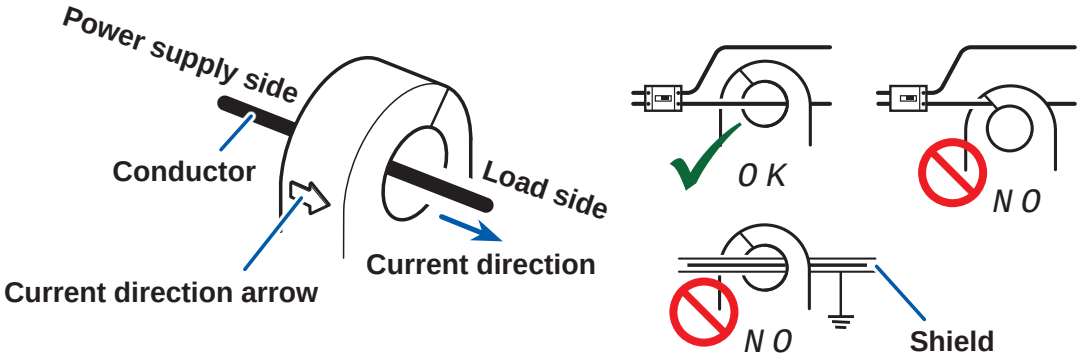
1. **Connect the device to a measuring instrument that is powered off.**
2. **Turn on the measuring instrument.**
3. **Perform demagnetization (DEMAG) and zero adjustment (0 ADJ).**
   See: “Demagnetization (DEMAG) and zero adjustment (0 ADJ)” (p. 15)
4. **Unlock and open the jaws.**



5. **Clamp the device around only one conductor to measure, and then close the jaws.**

> **IMPORTANT**
> Clamp the device around only one conductor. Clamping the device around two or more conductors in a bundle prevents the device from measuring current, regardless of whether the measurement target is a single-phase or three-phase circuit.

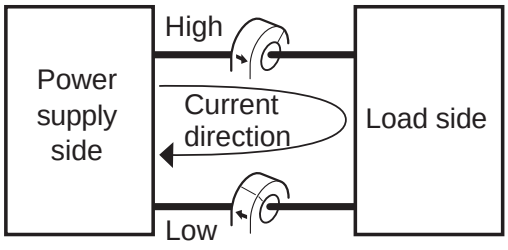
- Check that the jaw tips are securely engaged.
- Clamping the device with the current direction arrow pointing to the source side will reverse the polarity of the output signal.



6. **Lock the jaws, and then start measurement.**
7. **Remove the device from the conductor after measurement has finished.**
8. **Turn the measuring instrument off and disconnect the device from the measuring instrument.**

- When measuring a DC or low-frequency (1 kHz or less) small current, the sensitivity of the device can be increased with the following method.
  1. Wrap one conductor under measurement, creating multiple loops each having a diameter of 200 mm or more.
  2. Bundle the loops together, and then clamp the sensor on this bundle. Continuously pass one conductor under measurement greater than the number of loops through the sensor window.
  3. Arrange the loops in a radial pattern.
  4. Measure the current.

- Measurement of high-frequency current is susceptible to common-mode noise if the device is clamped to the high-potential side of a circuit. If common-mode noise occurs, clamp the device to the low-potential side of the circuit.



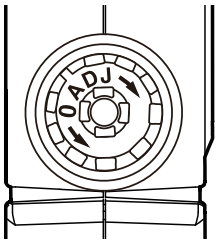
- When measuring a high-frequency (1 kHz or more) large current, the conductor position may increase measurement errors or distort the waveform. Place the conductor to be measured as close as possible to the center of aperture of the jaws. Nearby conductors other than the one around which the device is clamped that are carrying high-frequency (200 A or more or 1 kHz or more) large currents may increase measurement errors or distort the waveform. Keep the device as far away as possible from other conductors during measurement.

Demagnetization (DEMAG) and zero adjustment (0 ADJ)

Immediately after the device is turned on or if an overcurrent exceeding the rated current is input, the device will output an offset. The offset will cause an error in DC current measurement, so perform demagnetization and zero adjustment as follows:

When connected to the CT9555, CT9556, or CT9557

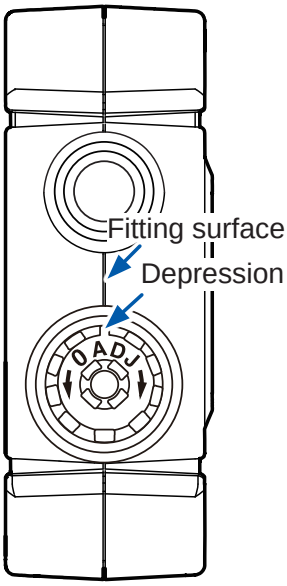
1. **Lock the jaws, and then press the demagnetization (DEMAG) button on the CT9555 series.**
2. **Unlock the jaws, open and close them multiple times, and check that the display on the measuring instrument is stable.**
3. **Lock the jaws.**
4. **Turn the zero adjustment dial (0 ADJ) on the relay box. Check the offset output displayed on the measuring instrument and make adjustments until the value is within ±0.1 mV.**



When connected to equipment with a zero adjustment function

See: p. 22 (connectable devices)

1. **Lock the jaws.**
2. **Align the depression on the zero adjustment dial (0 ADJ) with the fitting surface on the relay box.**
3. **Execute the zero adjustment from the measuring instrument.**



- Zero adjustment cannot be performed while a current is being input.
- The offset output varies depending on the surrounding environment, such as the temperature, terrestrial magnetism, and equipment that generates magnetic fields.
- Perform zero adjustment with the device at the location where you will measure current.
- Mechanical shocks such as dropping the device may cause the offset to shift.
- If zero adjustment is unsuccessful, perform demagnetization (DEMAG) several times.

Phase compensation values

For phase compensation of the PW6001 or PW3390, enter the following compensation values (typical):
Frequency: 1 kHz, phase difference: −0.64°
Devices with a memory function automatically set the phase compensation value, so it does not need to be entered manually.

Specifications

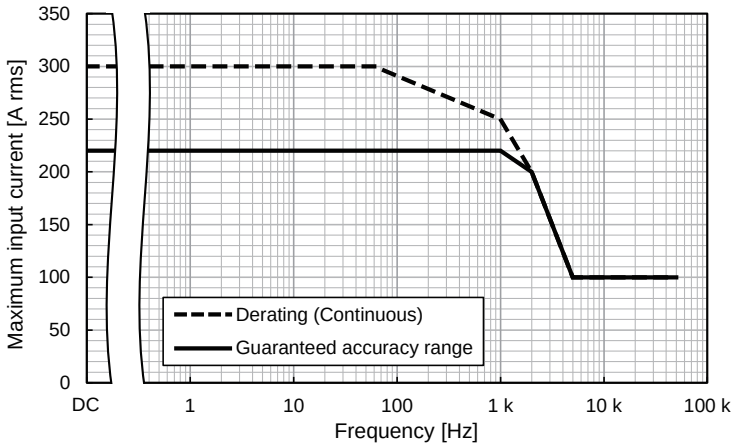
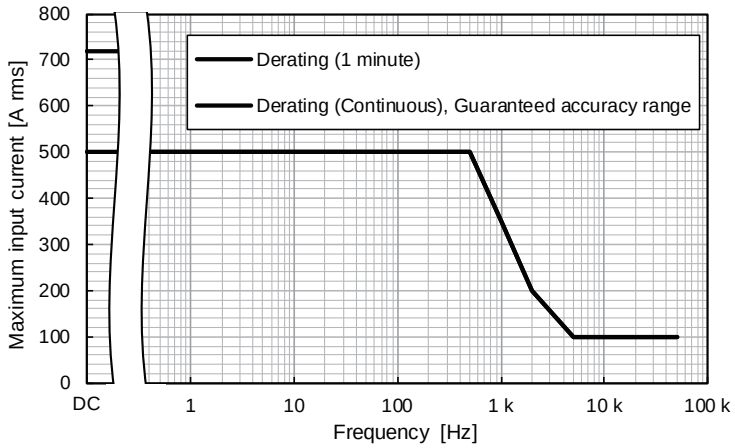
Any specifications where the model name is not listed apply to all four models. Typical values are typical characteristic values of the device under the prescribed specifications. They are not guaranteed values.

General specifications

Operating environment	Indoor use, pollution degree 2, altitude up to 2000 m (6562 ft.)	
Operating temperature and humidity range	Sensor, cable:	−40°C to 85°C (−40°F to 185°F), 80% RH or less (non-condensing)
	Relay box:	−25°C to 50°C (−13°F to 122°F), 80% RH or less (non-condensing)
	(Also includes temperature increase of line under measurement)	
Storage temperature and humidity range	−25°C to 50°C (−13°F to 122°F), 80% RH or less (non-condensing)	
Standards	Safety: EN 61010	
	EMC: EN 61326	
Withstand voltage	1 kV AC/DC (sensitivity current: 1 mA), 50 Hz/60 Hz, 1 minute Between jaws and output terminal (when attached to line under measurement)	
Power supply	Power supplied from Hioki instruments with an ME15W connector	
	Rated supply voltage ±11.5 V to ±12.5 V (tracking)	
CT6833 CT6833-01	Maximum rated current	±220 mA (While measuring ±300 A DC or 300 A AC with 55 Hz, when ±12.5 V power is supplied)
	Maximum rated power	5.6 VA (While measuring ±300 A DC or 300 A AC with 55 Hz, when ±12.5 V power is supplied)
	Normal consumption current	±180 mA (While measuring ±200 A DC or 200 A AC with 55 Hz, when ±12 V power is supplied)
	Normal power consumption	4.4 VA (While measuring ±200 A DC or 200 A AC with 55 Hz, when ±12 V power is supplied)
CT6834 CT6834-01	Maximum rated current	±280 mA (While measuring ±500 A DC or 500 A AC with 55 Hz, when ±12.5 V power is supplied)
	Maximum rated power	7.1 VA (While measuring ±500 A DC or 500 A AC with 55 Hz, when ±12.5 V power is supplied)
	Normal consumption current	±280 mA (While measuring ±500 A DC or 500 A AC with 55 Hz, when ±12 V power is supplied)
	Normal power consumption	6.8 VA (While measuring ±500 A DC or 500 A AC with 55 Hz, when ±12 V power is supplied)
Interface	Dedicated interface (ME15W)	
Dimensions	Sensor:	Approx. 149W × 46H × 16.5D mm (5.9W × 1.8H × 0.6D in.)
	Relay box:	Approx. 126W × 57H × 20.5D mm (5.0W × 2.2H × 0.8D in.)
	(excluding protrusions and cable)	
Dimensions of jaws	Approx. 46H × 16.5D mm (1.8H × 0.6D in.)	

Output cable length	CT6833, CT6834:	Approx. 5 m ([196.9 in.] including relay box)
	CT6833-01, CT6834-01:	Approx. 10 m ([393.7 in.] including relay box)
Weight	CT6833, CT6834:	Approx. 500 g (17.6 oz.)
	CT6833-01, CT6834-01:	Approx. 710 g (25.0 oz.)
Product warranty duration	1 year	
Included accessories	See: p. 4	
Option	See: p. 4	
Memory function	Instruments with a memory function can load the sensor information of the device. Compatible models: PW8001, M7103	

Measurement specifications

Measurement method	Flux-gate-type zero-flux	
Rated current	CT6833, CT6833-01:	200 A AC/DC
	CT6834, CT6834-01:	500 A AC/DC
Maximum rated current (CT6833, CT6833-01)	Not exceeding frequency derating curve shown in following figure 	
Maximum rated current (CT6834, CT6834-01)	Not exceeding frequency derating curve shown in following figure 	

Maximum peak current	Up to the following values are permitted at a temperature of 40°C (104°F) or less and within 1 period of a periodic waveform of 10 ms or more (design value, outside of accuracy guarantee range)	
	CT6833, CT6833-01:	±600 A peak
	CT6834, CT6834-01:	±800 A peak
Measurable conductor diameter	ø20 mm or less	
Output voltage	CT6833, CT6833-01:	10 mV/A
	CT6834, CT6834-01:	4 mV/A
Output resistance	50 Ω ± 10 Ω	
Offset adjustment range	±1 mV Typical	
Demagnetization (DEMAG) function	Available (however, operation is executed from the measuring instrument)	

Accuracy specifications

Accuracy guarantee conditions	Accuracy guarantee duration:	1 year
	Opening and closing:	10,000 cycles or less
	Accuracy guarantee temperature and humidity range:	23°C ± 5°C (73°F ± 9°F), 80% RH or less
	Warm-up time:	30 minutes or more
	Input waveform:	DC or sine wave
	Input resistance:	1 MΩ ± 10% measuring instrument
	Line-to-earth voltage:	0 V
	External magnetic field:	None
	Conductor position:	Center
	Demagnetization:	Post execution
	Offset voltage:	Post adjustment to ±0.1 mV or less
	Power supply:	Use Hioki instruments with an ME15W connector
	Accuracy guarantee range:	Not exceeding accuracy guarantee range shown in frequency derating curve (however DC < f <10 Hz is a design value)

Measurement accuracy

Frequency	Amplitude ± [(% of reading) + (% of full scale)]	Phase
DC	0.07% + 0.01%	–
DC < f < 16 Hz	0.15% + 0.01%	±0.1°
16 Hz ≤ f ≤ 66 Hz	0.07% + 0.007%	±0.1°
66 Hz < f ≤ 100 Hz	0.07% + 0.007%	±0.15°
100 Hz < f ≤ 500 Hz	0.1% + 0.01%	±(1.5 × f)°
500 Hz < f ≤ 1 kHz	0.25% + 0.02%	
1 kHz < f ≤ 20 kHz	(0.25 × f)% + 0.02%	
Frequency band	50 kHz (−3 dB, Typical)	–

- The unit for f in the accuracy equations is kHz.
- If the input current (Ip) is in the following range, the following value is added to the amplitude accuracy (for the CT6833 and CT6833-01).
  200 A < Ip ≤ 220 A: ±0.01% of reading

Linearity error*1 *2	±10 ppm Typical (23°C [73°F])	
Amplitude error*3 *4	10 Hz to 100 Hz:	±50 ppm Typical
	100 Hz to 500 Hz:	±0.04% Typical
	500 Hz to 1 kHz:	±0.08% Typical
	1 kHz to 20 kHz:	±(0.1 × f)% Typical

*1. Defined with the difference between the calculated regression line and the measured point when the output voltage is measured with the input current (DC) changed as follows.
CT6833, CT6833-01: +200 A → 0 A → −200 A → 0 A → +200 A at intervals of 40 A
CT6834, CT6834-01: +500 A → 0 A → −500 A → 0 A → +500 A at intervals of 100 A
*2. Defined with the rated current ratio.
*3. Defined with the variation from the measured point at 55 Hz.
*4. The unit for f in the equations is kHz.

Output noise	100 µV rms or less (≤ 100 kHz)	
Common-mode voltage rejection ratio (CMRR)	DC to 1 kHz:	150 dB or more
	1 kHz to 10 kHz:	130 dB or more
	10 kHz to 50 kHz:	120 dB or more
Temperature coefficient	The following numerical values are added to the measurement accuracy according to the temperature difference with the upper and lower limits of the guaranteed accuracy temperature range (18°C or 28°C [64°F or 82°F]) if operating temperatures are outside the guaranteed accuracy temperature range (23°C ± 5°C [73°F ± 9°F]).	

Sensor	Amplitude accuracy	±4 ppm of reading/°C	±0.8 ppm of reading/°C Typical
	Offset voltage	±3 ppm of full scale/°C	±0.5 ppm of full scale/°C Typical
Relay box	Amplitude accuracy	±15 ppm of reading/°C	±5 ppm of reading/°C Typical
	Offset voltage	±1 ppm of full scale/°C	±0.3 ppm of full scale/°C Typical

Effects of conductor position (For a conductor with an outer diameter of 10 mm)

DC	±0.03% of reading or less (100 A input)	±0.01% of reading Typical (100 A input)
50 Hz/60 Hz	±0.04% of reading or less (100 A input)	±0.015% of reading Typical (100 A input)
1 kHz	±0.1% of reading or less (100 A input)	±0.04% of reading Typical (100 A input)
10 kHz	±1% of reading or less (10 A input)	±0.3% of reading Typical (10 A input)

Effects of magnetization

CT6833, CT6833-01	10 mA or less (converted to input current, after input of 200 A DC)	1.5 mA Typical (converted to input current, after input of 200 A DC)
CT6834, CT6834-01	25 mA or less (converted to input current, after input of 500 A DC)	4 mA Typical (converted to input current, after input of 500 A DC)

Effects of external magnetic field	Sensor: 25 mA or less, 8 mA Typical (converted to input current, DC or 60 Hz magnetic field of 400 A/m)
Effects of radiated radio-frequency electromagnetic field	3% of full scale or less at 10 V/m
Effects of conducted radio-frequency electromagnetic field	3% of full scale or less at 10 V

Combined accuracy and conditions with connectable products

- The accuracy addition under each condition as defined in the specifications of the measuring instrument and sensor will also apply.
- Defined after zero adjustment (excluding the CT9555, CT9556, and CT9557 Sensor Units).

(1) PW8001 Power Analyzer

U7001

Frequency	Current	Active power	Phase
	± [(% of reading) + (% of range)]		
DC	0.09% + 0.06%	0.09% + 0.06%	U7001 accuracy + sensor accuracy
45 Hz ≤ f ≤ 66 Hz	0.09% + 0.057%	0.09% + 0.057%	
Band other than DC or 45 Hz ≤ f ≤ 66 Hz	U7001 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings)		

U7001 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings) for other measurement items

U7005

Frequency	Current	Active power	Phase
	± [(% of reading) + (% of range)]		
DC	0.09% + 0.04%	0.09% + 0.04%	U7005 accuracy + sensor accuracy
45 Hz ≤ f ≤ 66 Hz	0.08% + 0.027%	0.08% + 0.027%	
Band other than DC or 45 Hz ≤ f ≤ 66 Hz	U7005 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings)		

U7005 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings) for other measurement items

(2) PW6001 Power Analyzer

Frequency	Current	Active power	Phase
	± [(% of reading) + (% of range)]		
DC	0.09% + 0.04%	0.09% + 0.06%	PW6001 accuracy + sensor accuracy
45 Hz ≤ f ≤ 66 Hz	0.09% + 0.027%	0.09% + 0.037%	
Band other than DC or 45 Hz ≤ f ≤ 66 Hz	PW6001 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings)		

PW6001 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings) for other measurement items

(3) PW3390 Power Analyzer

Frequency	Current	Active power	Phase
	± [(% of reading) + (% of range)]		
DC	0.12% + 0.08%	0.12% + 0.08%	PW3390 accuracy + sensor accuracy
45 Hz ≤ f ≤ 66 Hz	0.11% + 0.057%	0.11% + 0.057%	
Band other than DC or 45 Hz ≤ f ≤ 66 Hz	PW3390 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings)		

PW3390 accuracy + sensor accuracy (full-scale errors also take into account sensor ratings) for other measurement items

(4) CT9555, CT9556, CT9557 Sensor Unit

- Apply sensor accuracy (defined with an output coaxial cable length of 1.6 m [63.0 in] or less).
- Connect function ground terminal to ground terminal of measuring instrument.
- Add the accuracy of sensor unit when RMS or total output is used.

(5) U8977 3CH Current Unit

- U8977 accuracy + sensor accuracy

(6) M7103 Power Measurement Module

- M7103 accuracy + sensor accuracy

Maintenance and Service

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

⚠ 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.

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.

Calibration

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

Disposal

Dispose of the product by local regulations.

Warranty Certificate

HIOKI

Model	Serial number	Warranty period One (1) year from date of purchase (___ / ___)

Customer name: _____

Customer address: _____

Important

- Please retain this warranty certificate. Duplicates cannot be reissued.
- Complete the certificate with the model number, serial number, and date of purchase, along with your name and address. The personal information you provide on this form will only be used to provide repair service and information about Hioki products and services.

This document certifies that the product has been inspected and verified to conform to Hioki's standards.
Please contact the place of purchase in the event of a malfunction and provide this document, in which case Hioki will repair or replace the product subject to the warranty terms described below.

Warranty terms

1. The product is guaranteed to operate properly during the warranty period (one [1] year from the date of purchase). If the date of purchase is unknown, the warranty period is defined as one (1) year from the date (month and year) of manufacture (as indicated by the first four digits of the serial number in YYMM format).
2. If the product came with an AC adapter, the adapter is warrantied for one (1) year from the date of purchase.
3. The accuracy of measured values and other data generated by the product is guaranteed as described in the product specifications.
4. In the event that the product or AC adapter malfunctions during its respective warranty period due to a defect of workmanship or materials, Hioki will repair or replace the product or AC adapter free of charge.
5. The following malfunctions and issues are not covered by the warranty and as such are not subject to free repair or replacement:
   -1. Malfunctions or damage of consumables, parts with a defined service life, etc.
   -2. Malfunctions or damage of connectors, cables, etc.
   -3. Malfunctions or damage caused by shipment, dropping, relocation, etc., after purchase of the product
   -4. Malfunctions or damage caused by inappropriate handling that violates information found in the instruction manual or on precautionary labeling on the product itself
   -5. Malfunctions or damage caused by a failure to perform maintenance or inspections as required by law or recommended in the instruction manual
   -6. Malfunctions or damage caused by fire, storms or flooding, earthquakes, lightning, power anomalies (involving voltage, frequency, etc.), war or unrest, contamination with radiation, or other acts of God
   -7. Damage that is limited to the product's appearance (cosmetic blemishes, deformation of enclosure shape, fading of color, etc.)
   -8. Other malfunctions or damage for which Hioki is not responsible
6. The warranty will be considered invalidated in the following circumstances, in which case Hioki will be unable to perform service such as repair or calibration:
   -1. If the product has been repaired or modified by a company, entity, or individual other than Hioki
   -2. If the product has been embedded in another piece of equipment for use in a special application (aerospace, nuclear power, medical use, vehicle control, etc.) without Hioki's having received prior notice
7. If you experience a loss caused by use of the product and Hioki determines that it is responsible for the underlying issue, Hioki will provide compensation in an amount not to exceed the purchase price, with the following exceptions:
   -1. Secondary damage arising from damage to a measured device or component that was caused by use of the product
   -2. Damage arising from measurement results provided by the product
   -3. Damage to a device other than the product that was sustained when connecting the device to the product (including via network connections)
8. Hioki reserves the right to decline to perform repair, calibration, or other service for products for which a certain amount of time has passed since their manufacture, products whose parts have been discontinued, and products that cannot be repaired due to unforeseen circumstances.

HIOKI E.E. CORPORATION

HIOKI

CT6833
CT6833-01
CT6834
CT6834-01

AC/DC 电流探头
AC/DC CURRENT PROBE

使用说明书

保留备用

CN

Nov. 2024 Edition 1
CT6833A960-00

目　录

目　录

前言

感谢您选择 HIOKI CT6833、CT6833-01、CT6834、CT6834-01 AC/DC 电流探头。为了您能充分而持久地使用本产品，请妥善保管使用说明书。
在使用本仪器前请认真阅读另附的“电流传感器 使用注意事项”。
根据型号的不同，主要区别如下。

型号	额定电流	输出电缆长度
CT6833	AC/DC 200 A	约5 m
CT6833-01	AC/DC 200 A	约10 m
CT6834	AC/DC 500 A	约5 m
CT6834-01	AC/DC 500 A	约10 m

使用说明书的目标受众

本使用说明书面向产品的使用者及产品使用方法的指导者。
以具备电学知识（工业学校电气类专业毕业水平）为前提，对产品的使用方法进行说明。

包装清单的确认

本仪器送到您手上时，请在检查是否发生异常或损坏后再使用。万一有损坏或不能按照参数规定工作时，请与代理店或最近的HIOKI营业据点联系。

本仪器

☐ CT6833、CT6833-01、CT6834或CT6834-01 AC/DC 电流探头

附件

☐ 彩色标签（通道识别用）
☐ 携带箱
☐ 使用说明书（本手册）
☐ 电流传感器 使用注意事项 (0990A901)

选件

本仪器可选购下述选件。购买时，请与代理店或最近的HIOKI营业据点联系。选件可能会变更，恕不事先通告。请通过本公司网站确认最新信息。

☐ CT9902 延长线 (5 m)

- 通过1根延长线，本仪器的输出电缆可延长5 m，最多延长10 m
- 最多可使用2根
  如果超过2根，则无法保证本仪器的性能。
- 连接PW8001或PW6001使用时，可将LPF设为500 kHz以保证精度。
- 每使用1根电缆，需在本仪器的规格基础上加上以下数值
  振幅精度：　±0.05% of reading (DC ≦ f_1 ≦ 1 kHz)
  　　± (0.5 + 0.01 × f_1 kHz) % of reading (1 kHz < f_1)
  相位精度：　± (0.1 × f_1 kHz) ° (1 kHz < f_1)
  输出噪音：　(500 × f_2 MHz) μV (1 MHz ≦ f_2)
  f_1：频率、f_2：所连设备的频段

关于标记

关于安全的标记

本说明书中将风险等级做出如下区分、标记。

⚠危 险	表示紧急危险情况，如不规避，将导致死亡或重度伤害。
⚠警 告	表示潜在危险情况，如不规避，可能导致死亡或重度伤害。
⚠注 意	表示潜在危险情况或潜在风险，如不规避，可能导致轻度或中度伤害，亦或对象产品（或其他财产）造成损坏。
重要事项	表示在操作及维护作业中需要特别了解的信息和内容。

	表示存在高压危险。 如果疏于安全确认或操作不当，可能会导致触电、烧伤或死亡。
	表示存在强磁场危险。 可能会干扰起搏器等医用电子仪器的正常运行。
	表示禁止行为。
	表示必要行为。

仪器上的符号

	表示存在潜在危险。请参阅使用说明书中的“使用注意事项” (p. 6)及各使用说明开头部分记载的警告信息，以及随附的“电流传感器使用注意事项”。
	表示只能用于相对于电路电压确切绝缘的电线。

关于标准的符号

	表示产品需遵守欧盟的《报废电子电气设备指令》（WEEE指令）。请根据所在地区的规定进行处理。
	表示符合欧盟指令中规定的条例。

其他标记

*	表示底部有说明。
p.	表示参照页面的页码。

精度标记

通过使用读数 (reading) 百分比、量程 (range) 百分比以及满量程 (full scale) 百分比规定误差极限值来表示测量仪器的精度。

读数 （显示值）	表示测量仪器当前显示的值。用“% of reading (% rdg)”来表示读数误差极限值。
量程	表示测量仪器的量程。用“% of range (% rng) ”来表示量程误差极限值。
满量程 （额定电流）	表示额定电流。用“% of full scale (% f.s.) ”来表示满量程误差极限值。

关于安全

本仪器的设计符合国际标准IEC 61010，已经过出货检验确认其安全性。但是，如果不遵守本使用说明书中的记载事项，可能会影响本仪器的安全性。
在使用本仪器前请认真阅读以下安全相关事项。

⚠危 险

■ **充分理解使用说明书中的内容后再使用本仪器。**

如果使用方法有误，可能会导致重大人身事故或本仪器损坏。

⚠警 告

■ **如果是初次使用电气测量仪器，则请在资深电气测量人员的监督下进行测量。**

否则可能会导致使用人员触电。另外，也可能会导致发热、火灾以及因短路而导致的电弧放电等。

使用注意事项

为了您能安全地使用本仪器，并充分运用其功能，请遵守以下注意事项。

⚠警 告

■ **请勿在以下场所使用本仪器。**

- 阳光直射或高温场所
- 会产生腐蚀性或爆炸性气体的场所
- 会产生强电磁辐射的场所、带电物体附近
- 感应加热装置（高频感应加热装置、电磁加热厨具等）附近
- 频繁发生机械性振动的场所
- 涉及水、油、化学制剂、溶剂等的场所
- 潮湿或易结露的场所
- 多尘场所
- 不稳定或倾斜的场所

本仪器破损或误操作，可能会导致人身事故。

■ **不要堆放接线盒。**

■ **不要用布等覆盖继电器盒。**

接线盒内的温度可能会升高，导致人身事故、火灾或设备损坏。

本仪器的使用

⚠危 险

■ **请勿将本仪器用于裸导体测量。**

■ **请在相对于电路电压具有适当绝缘性的绝缘电线位置上进行测量。**

否则可能会导致重大人身事故或短路事故。

■ **起搏器等医用电子仪器的佩戴者请勿使用本仪器。**

■ **身体请勿靠近本仪器。**

否则可能会影响医用仪器的正常运行，危及生命。

■ **请勿测量超出最大额定电流的电流。**

否则可能会导致传感器发热，造成人身事故、火灾或本仪器损坏。

CT6833、CT6833-01：直流及频率小于等于60 Hz时的最大额定电流为300 A

CT6834、CT6834-01：直流及频率小于等于500 Hz时的最大额定电流为500 A

非上述频率会限制可测量的电流值。请通过“最大额定电流” (p.14)确认电流值。

⚠警 告

■ **请勿在本仪器的额定值范围外或规格范围外使用。**

本仪器损坏或发热，可能会导致重大人身事故。

■ **请勿使电缆接触被测线路。**

本仪器损坏或被测电路短路，可能会导致人身事故。

■ **使用之前，请确认电缆的外皮有无破损或电缆内部金属部分有无露出。**

如果使用破损的电缆，则可能会导致重大人身事故。请与代理店或最近的HIOKI营业据点联系。

⚠注 意

■ **请勿在打开钳口的状态下触摸芯体部分。**

如果芯体部分遇到静电，则可能会导致本仪器损坏。

■ **请勿将携带箱放置于阳光直射场所、高温场所或车内。**

处于高温环境可能会导致携带箱内部发生变形。

■ **搬运或使用本仪器时，请勿向本仪器施加振动或冲击。**

否则可能会导致本仪器损坏。

■ **请勿在0°C或0°C以下的环境中弯曲或拉拽电缆。**

电缆会变硬。可能会导致电缆断线、外皮损坏或使用人员触电。

■ **不使用本仪器时，请锁定钳口。**

如果解除钳口的锁定状态，对接面上则可能会附着垃圾或灰尘，造成本仪器故障。

■ **确认有无过电流。**

进行被测对象设备的电源ON/OFF操作时，可能会出现流过电流大幅度超出本仪器最大输入电流的情况，导致本仪器故障。

■ **如果在40°C及以上的环境中使用，请穿戴防护设备。**

仪器外部温度会升高，可能会导致使用人员烧伤。

■ **请将本仪器远离磁卡、储值卡或车票等磁性记录介质。**

■ **请将本仪器远离电脑、电视屏幕、电子手表等精密电子设备。**

否则可能会导致数据或此类设备损坏。

重要事项

- 请勿使钳口顶端的对接部分夹入或插入异物。另外，请勿用手指触碰。否则可能会对测量精度及开闭操作造成不利影响。
- 如果钳口顶端的对接部分附着垃圾等，请用干燥柔软的布轻轻擦拭干净。否则可能会对测量精度造成不利影响。
- 请勿使本仪器掉落或承受碰撞。否则可能会导致钳口对接面损伤，对测量产生恶劣影响。

运输时的注意事项

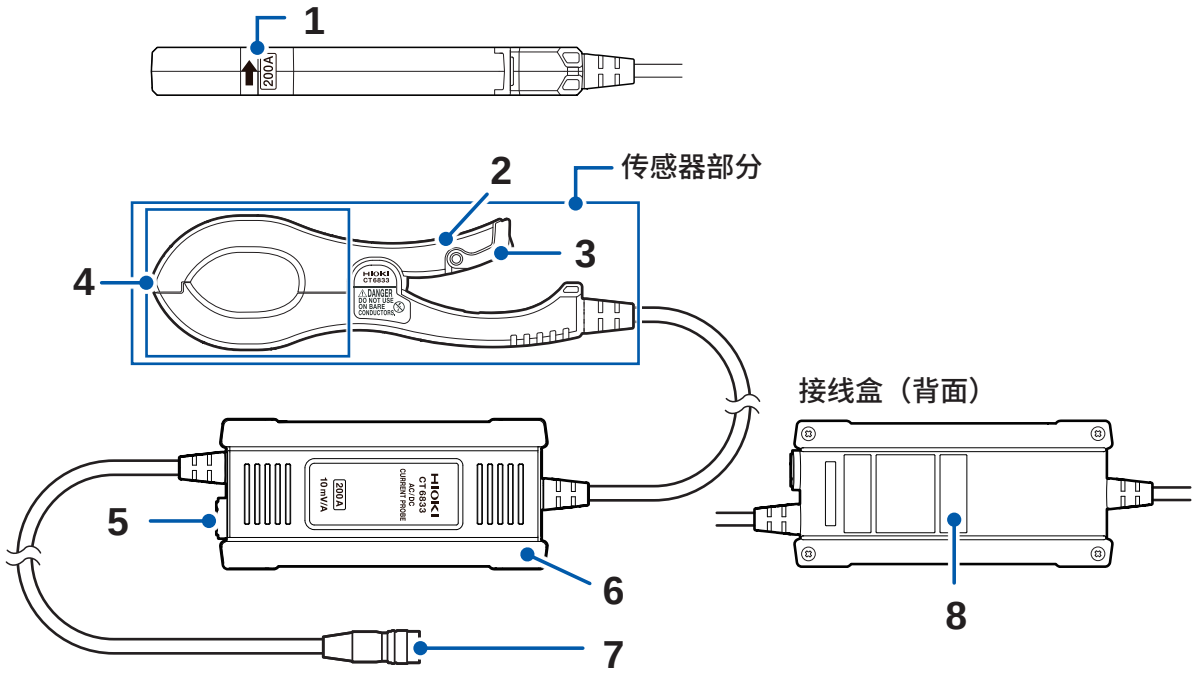
开箱后，请保留包装材料。运输本仪器时，请使用交货时的包装材料。

概要

产品概要

CT6833、CT6833-01、CT6834和CT6834-01是用于高精度测量AC/DC电流的可开闭式钳型电流传感器。CT6833和CT6833-01最大可测200 A，CT6834和CT6834-01最大可测500 A。具有良好的频率特性（振幅、相位）与温度特性（灵敏度、偏移量），不仅可用于电流测量，也可用于高精度的功率测量。

各部分的名称



1	电流方向标记、额定电流值
2	打开/关闭手柄
3	锁扣
4	钳口

5	调零旋钮
6	接线盒
7	输出连接器
8	序列号

测量

使用前的检查

使用之前，请检查有无故障或损坏并确认其运作。如果有故障或损坏，请与代理店或最近的HIOKI营业据点联系。

检查项目	处理方法
电缆外皮没有破损。	有损伤时不要使用，请委托修理。 否则会导致触电事故。
钳口没有裂纹和损坏。	

⚠注 意

■ **请勿将流过频率大于等于10 kHz的电流的导体配置在钳口附近。**

即使未将本仪器夹在导体周边而配置在导体附近，也可能会因电流流过导体产生的自身发热造成钳口温度上升，从而导致本仪器损坏。

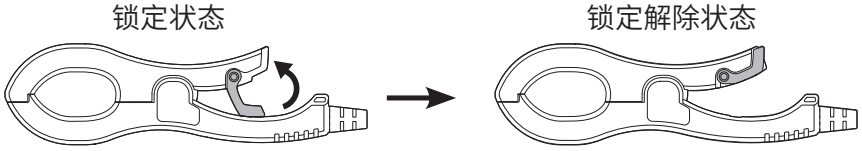
■ **请勿在电源处于开启状态的连接设备上连接本仪器。**

否则可能会导致本仪器故障或不符合规格。

在本仪器的信号输出电路中插入了保护用电阻（输出电阻）。将本仪器输出的信号输入数字万用表等时，请使用输入电阻较大的设备。（推荐1 MΩ ±10%）

测量步骤

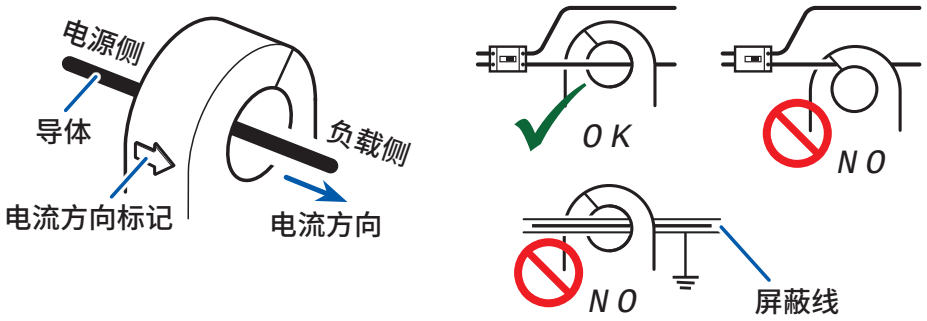
1. **在连接设备（电源关闭状态）上连接本仪器。**
2. **接通连接设备的电源。**
3. **进行消磁 (DEMAG) 与调零 (0 ADJ)。**
   参照：“消磁 (DEMAG) 与调零 (0 ADJ)” (p.12)
4. **解除钳口的锁定状态，打开钳口。**



5 **将本仪器夹在1根测量导体周边，关闭钳口。**

重要事项
请将本仪器夹在1根导体上。不论单相还是三相，同时夹住2根或2根以上的线时，不能测量电流。

- 请确认钳口顶端是否牢牢啮合。
- 如果将电流方向标记朝向相反侧，来自本仪器的输出信号则会反转。



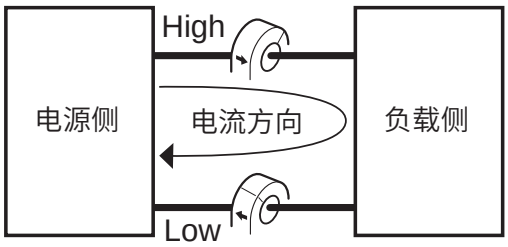
6 **锁定钳口，开始测量。**

7 **测量结束之后，从导体上拆下本仪器。**

8 **切断连接设备的电源，从连接设备上拆下本仪器。**

- 测量直流或低频（小于等于1 kHz）的低电流时，采用以下方法可相对地提高电流检测的灵敏度。
  1. 缠绕1根被测导体，绕出几个直径大于等于200 mm的线圈。
  2. 将线圈捆扎成束，并将传感器夹在线圈束周边。
     使数量较线圈数多1根的被测导体连续通过传感器窗口。
  3. 将线圈排列成放射状。
  4. 测量电流。

- 如果在高频范围内将本仪器夹在电路的高电位侧（High侧），则可能会受到共模噪声的影响。请根据需要夹在低电位侧（Low侧）。



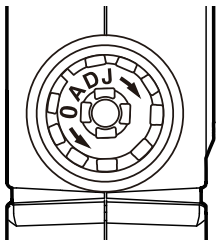
- 测量大于等于1 kHz的高频大电流时，可能会受导体位置影响而产生误差增加、波形失真等情况。请将导体尽可能配置在中心位置。另外，本仪器未夹住的导体流过大于等于200 A或大于等于1 kHz的高频大电流时，如果配置在钳口附近，也可能会产生误差增加、波形失真等情况。进行测量时，让本仪器未夹住的导体尽可能地远离钳口。

消磁 (DEMAG) 与调零 (0 ADJ)

刚接通电源或输入超出额定电流的过电流时，会输出偏移值。由于在DC电流测量状态下，偏移值属于误差，因此，请按下述方法进行消磁与调零。

连接CT9555、CT9556或CT9557进行使用时

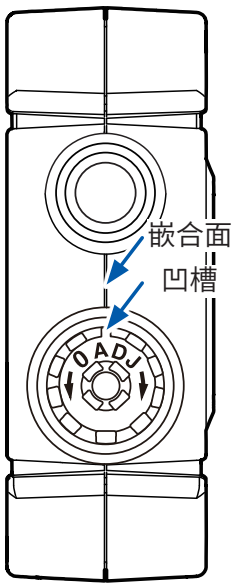
1. 锁定钳口，按下CT9555系列的消磁 (DEMAG) 按钮。
2. 解除钳口的锁定状态，重复开合几次钳口，确认连接设备的显示是否稳定。
3. 锁定钳口。
4. 旋转接线盒的调零旋钮 (0 ADJ) 。
   请在连接设备上观测偏移输出，并将其调整到±0.1 mV范围内。



连接具有调零功能的设备进行使用时

参照：p.16（可连接的设备）

1. 锁定钳口。
2. 将调零旋钮 (0 ADJ) 的凹槽对准接线盒的嵌合面。
3. 从所连设备执行调零。



- 不能在电流输入状态下进行调零。
- 偏移输出因周围环境（温度、地磁、磁场发生设备）而异。
- 请在将本仪器设置于实际测量场所的状态下实施调零。
- 可能会因掉落等碰撞而发生偏移。
- 无法进行调零时，请实施几次消磁 (DEMAG) 。

相位补偿值

利用PW6001或PW3390进行相位补偿时，请输入下述补偿值（典型值）。
频率：1 kHz、相位差值：−0.64°
支持存储功能的设备会自动设置相位补偿值，因此无需输入补偿值。

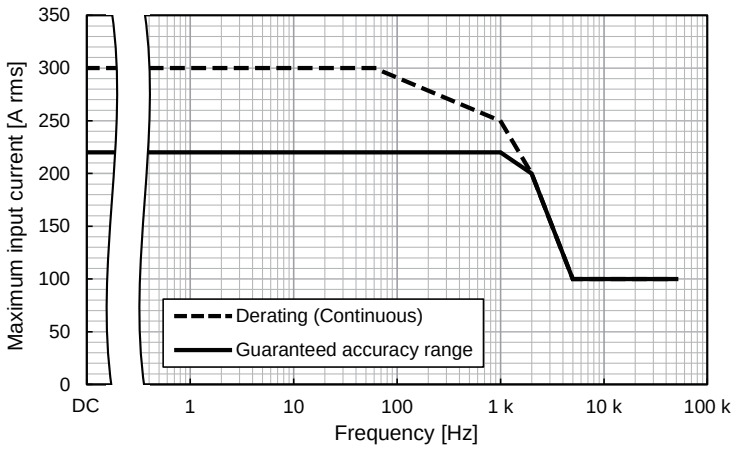
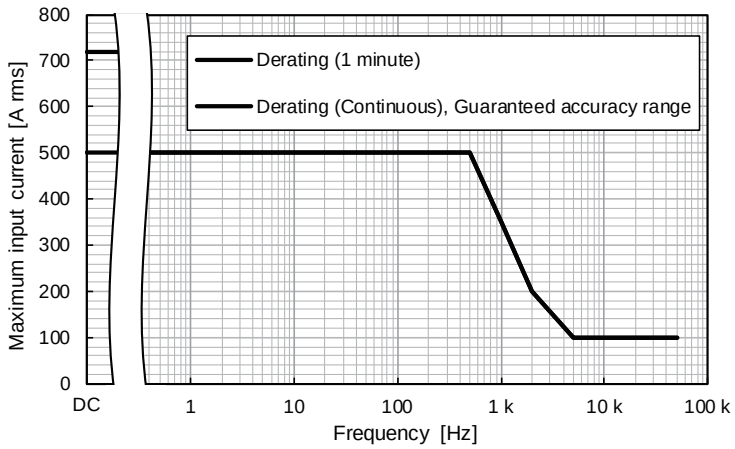
规格

未标注型号的项目为4种型号的通用规格。
典型值（Typical）：仪器在指定规格中的典型特性值。 与保证值不同。

一般规格

使用场所	室内使用、污染度2、海拔高度不超过2000 m	
使用温湿度范围	传感器部分、电缆： -40°C～85°C、小于等于80% RH（没有结露） 接线盒：-25°C～50°C、小于等于80% RH（没有结露） （包含被测线缆的温度上升）	
存放温湿度范围	-25°C～50°C、小于等于80% RH（没有结露）	
适用标准	安全性：EN 61010 EMC：EN 61326	
耐压	AC/DC 1 kV（灵敏度电流1 mA）、50 Hz/60 Hz、1分钟 钳口 – 输出端子之间（连接到被测线路的状态下）	
电源	从HIOKI生产的ME15W设备供电	
	额定电源电压	±11.5 V～±12.5 V（跟踪）
CT6833、CT6833-01	最大额定电流	±220 mA（300 A（±DC、55 Hz）测量、±12.5 V电源时）
	最大额定功率	5.6 VA（300 A（±DC、55 Hz）测量、±12.5 V电源时）
	通常消耗电流	±180 mA（200 A（±DC、55 Hz）测量、±12 V电源时）
	通常功耗	4.4 VA（200 A（±DC、55 Hz）测量、±12 V电源时）
CT6834、CT6834-01	最大额定电流	±280 mA（500 A（±DC、55 Hz）测量、±12.5 V电源时）
	最大额定功率	7.1 VA（500 A（±DC、55 Hz）测量、±12.5 V电源时）
	通常消耗电流	±280 mA（500 A（±DC、55 Hz）测量、±12 V电源时）
	通常功耗	6.8 VA（500 A（±DC、55 Hz）测量、±12 V电源时）
接口	专用接口 (ME15W)	
外形尺寸	传感器部分：约149W × 46H × 16.5D mm 接线盒：约126W × 57H × 20.5D mm （不含突起部分及电缆）	
钳口尺寸	约46H × 16.5D mm	
输出电缆长度	CT6833、CT6834：	约5 m（含接线盒）
	CT6833-01、CT6834-01：	约10 m（含接线盒）
重量	CT6833、CT6834：	约500 g
	CT6833-01、CT6834-01：	约710 g
产品保修期	1年	
附件	参照：p.4	
选件	参照：p.4	
存储功能	可在支持存储功能的设备上读出传感器信息 支持机型：PW8001、M7103	

测量规格

测量方式	磁通门型 零磁通方式
额定电流	CT6833、CT6833-01： AC/DC 200 A
	CT6834、CT6834-01： AC/DC 500 A
最大额定电流 (CT6833、CT6833-01)	在下图的频率降额范围内。 
最大额定电流 (CT6834、CT6834-01)	在下图的频率降额范围内。 
最大峰值电流	如果在不超过40°C且大于等于10 ms的周期波形的1个周期内，容许峰值如下（设计值，不保证精度）
	CT6833、CT6833-01： ±600 A peak
	CT6834、CT6834-01： ±800 A peak
可测量导体直径	ϕ20 mm以下
输出电压	CT6833、CT6833-01： 10 mV/A
	CT6834、CT6834-01： 4 mV/A
输出电阻	50 Ω ±10 Ω
偏移调整范围	±1 mV Typical
消磁 (DEMAG) 功能	有（但是从所连设备执行操作）

精度规格

精度保证条件	精度保证期间：	1年
	打开/关闭次数：	1万次以内
	精度保证温湿度范围：	23°C ±5°C、小于等于80% RH
	预热时间：	30分钟以上
	输入波形：	直流或正弦波
	输入电阻：	1 MΩ ±10%的测量仪器
	对地电压：	0 V
	外部磁场：	无
	导体位置：	中心
	消磁：	实施后
	偏移电压：	调整为小于等于±0.1 mV后
	电源：	使用HIOKI生产的ME15W设备
	精度保证范围：	在频率降额图的精度保证范围内 （但是，DC < f < 10 Hz为设计值）

测量精度

频率	振幅 ± (% of reading + % of full scale)	相位
DC	0.07% + 0.01%	–
DC < f < 16 Hz	0.15% + 0.01%	±0.1°
16 Hz ≦ f ≦ 66 Hz	0.07% + 0.007%	±0.1°
66 Hz < f ≦ 100 Hz	0.07% + 0.007%	±0.15°
100 Hz < f ≦ 500 Hz	0.1% + 0.01%	±(1.5 × f)°
500 Hz < f ≦ 1 kHz	0.25% + 0.02%	
1 kHz < f ≦ 20 kHz	(0.25 × f)% + 0.02%	
频段	50 kHz (−3 dB、Typical)	–

- 精度公式中f的单位为kHz。
- 如果输入电流 (Ip) 在下述范围内，则在振幅精度中加上以下值 (CT6833、CT6833-01) 。
  200 A < Ip ≦ 220 A：±0.01% of reading

线性误差*1 *2	±10 ppm Typical (23°C)	
振幅误差*3 *4	10 Hz～100 Hz：	±50 ppm Typical
	100 Hz～500 Hz：	±0.04% Typical
	500 Hz～1 kHz：	±0.08% Typical
	1 kHz～20 kHz：	±(0.1 × f)% Typical

*1. 通过按照下述改变输入电流 (DC) 、测量输出电压后算出的回归直线与测量点之间的差来规定。
CT6833、CT6833-01：以间隔40 A，+200 A → 0 A → −200 A → 0 A → +200 A
CT6834、CT6834-01：以间隔100 A，+500 A → 0 A → −500 A → 0 A → +500 A
*2. 通过额定电流比来规定。
*3. 通过与55 Hz测量点的偏差来规定。
*4. 公式中f的单位为kHz。

输出噪音	小于等于100 µV rms (≦100 kHz)

共模抑制比 (CMRR)	DC～1 kHz：	大于等于150 dB
	1 kHz～10 kHz：	大于等于130 dB
	10 kHz～50 kHz：	大于等于120 dB

温度系数 在超出精度保证温度 (23°C ±5°C) 范围的使用温度下，根据与精度保证温度上下限 (18°C或28°C) 的温度差，在测量精度中加上下述数值。

传感器部分	振幅精度	±4 ppm of reading/°C	±0.8 ppm of reading/°C Typical
	偏移电压	±3 ppm of full scale/°C	±0.5 ppm of full scale/°C Typical
接线盒	振幅精度	±15 ppm of reading/°C	±5 ppm of reading/°C Typical
	偏移电压	±1 ppm of full scale/°C	±0.3 ppm of full scale/°C Typical

导体位置的影响 （使用外径为ϕ10 mm的线材时）

DC	±0.03% of reading或以下（100 A输入）	±0.01% of reading Typical（100 A输入）
50 Hz/60 Hz	±0.04% of reading或以下（100 A输入）	±0.015% of reading Typical（100 A输入）
1 kHz	±0.1% of reading或以下（100 A输入）	±0.04% of reading Typical（100 A输入）
10 kHz	±1% of reading或以下（10 A输入）	±0.3% of reading Typical（10 A输入）

磁化的影响

CT6833、CT6833-01	小于等于10 mA （输入换算值、输入DC 200 A之后）	1.5 mA Typical （输入换算值、输入DC 200 A之后）
CT6834、CT6834-01	小于等于25 mA （输入换算值、输入DC 500 A之后）	4 mA Typical （输入换算值、输入DC 500 A之后）

外部磁场的影响 传感器部分：小于等于25 mA、8 mA Typical （输入换算值、400 A/m、DC或60 Hz的磁场中）

放射性无线频率电磁场的影响 10 V/m时小于等于3% of full scale

传导性无线频率电磁场的影响 10 V时小于等于3% of full scale

与可连接产品的组合精度

- 也适用根据连接设备规格及传感器规格的各条件的精度加算
- 在执行调零之后规定（CT9555、CT9556、CT9557 传感器单元除外）

(1) PW8001 功率分析仪

U7001

频率	电流	有功功率	相位
	± (% of reading + % of range)		
DC	0.09% + 0.06%	0.09% + 0.06%	U7001精度 + 传感器精度
45 Hz ≦ f ≦ 66 Hz	0.09% + 0.057%	0.09% + 0.057%	
DC、45 Hz ≦ f ≦ 66 Hz以外的频段	U7001精度 + 传感器精度 （full scale 误差亦需考虑传感器额定值）		

关于其他测量项目，U7001精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）

U7005

频率	电流	有功功率	相位
	± (% of reading + % of range)		
DC	0.09% + 0.04%	0.09% + 0.04%	U7005精度 + 传感器精度
45 Hz ≦ f ≦ 66 Hz	0.08% + 0.027%	0.08% + 0.027%	
DC、45 Hz ≦ f ≦ 66 Hz以外的频段	U7005精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）		

关于其他测量项目，U7005精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）

(2) PW6001 功率分析仪

频率	电流	有功功率	相位
	± (% of reading + % of range)		
DC	0.09% + 0.04%	0.09% + 0.06%	PW6001精度 + 传感器精度
45 Hz ≦ f ≦ 66 Hz	0.09% + 0.027%	0.09% + 0.037%	
DC、45 Hz ≦ f ≦ 66 Hz以外的频段	PW6001精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）		

关于其他测量项目，PW6001精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）

(3) PW3390 功率分析仪

频率	电流	有功功率	相位
	± (% of reading + % of range)		
DC	0.12% + 0.08%	0.12% + 0.08%	PW3390精度 + 传感器精度
45 Hz ≦ f ≦ 66 Hz	0.11% + 0.057%	0.11% + 0.057%	
DC、45 Hz ≦ f ≦ 66 Hz以外的频段	PW3390精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）		

关于其他测量项目，PW3390精度 + 传感器精度（full scale 误差亦需考虑传感器额定值）

(4) CT9555、CT9556、CT9557 传感器单元

- 适用传感器精度（输出同轴电缆长度在1.6 m以内时规定）
- 将功能接地端子连接到所连设备的接地端子上
- 为RMS输出、TOTAL OUTPUT输出时，将加上传感器单元精度

(5) U8977 3通道电流单元

- U8977精度 + 传感器精度

(6) M7103 功率测量模块

- M7103精度 + 传感器精度

维护和服务

确认为有故障时，请与代理店或最近的HIOKI营业据点联系。

⚠注 意

■ **去除本仪器的脏污时，请用柔软的布蘸少量的水或中性洗涤剂之后，轻轻擦拭。**

如果使用汽油、酒精、丙酮、乙醚、甲酮、稀释剂以及含汽油类的洗涤剂等或用力擦拭，则可能会导致本仪器变形或变色。

运输本仪器时，请遵守下述事项。

■ **从本仪器上拆下选件。**

■ **委托修理时，请同时写明故障内容。**

■ **进行双重包装。**

否则可能会在运输期间导致本仪器等损坏。

校正

校正周期因客户的使用状况或环境等而异。请客户根据使用状况或环境确定校正周期，并委托本公司定期进行校正。

废弃

废弃本仪器时，请根据所在地区的规定进行处理。

保修证书

HIOKI

型号名称	序列号	保修期 自购买之日　　年　　月起 1 年

客户地址：_____

姓名：_____

要求

· 保修证书不补发，请注意妥善保管。

· 请填写“型号名称、序列号、购买日期”以及“地址与姓名”。

※ 填写的个人信息仅用于提供修理服务以及介绍产品。

本产品为已按照我司的标准通过检查程序证明合格的产品。本产品发生故障时，请与经销商联系。会根据下述保修内容修理本产品或更换为新品。联系时，请提示本保修证书。

保修内容

1. 在保修期内，保证本产品正常动作。保修期为自购买之日起 1 年。如果无法确定购买日期，则此保修将视为自本产品生产日期（序列号的左 4 位）起 1 年有效。
2. 本产品附带 AC 适配器时，该 AC 适配器的保修期为自购买日期起 1 年。
3. 在产品规格中另行规定测量值等精度的保修期。
4. 在各保修期内本产品或 AC 适配器发生故障时，我司判断故障责任属于我司时，将免费修理本产品 /AC 适配器或更换为新品。
5. 下述故障、损坏等不属于免费修理或更换为新品的保修对象。
   -1. 耗材、有一定使用寿命的部件等的故障或损坏
   -2. 连接器、电缆等的故障或损坏
   -3. 由于产品购买后的运输、摔落、移设等所导致的故障或损坏
   -4. 因没有遵守使用说明书、主机注意标签 / 刻印等中记载的内容所进行的不当操作而引起的故障或损坏
   -5. 因疏于进行法律法规、使用说明书等要求的维护与检查而引起的故障或损坏
   -6. 由于火灾、风暴或洪水破坏、地震、雷击、电源异常（电压、频率等）、战争或暴动、辐射污染或其他不可抗力导致的故障或损坏
   -7. 产品外观发生变化（外壳划痕、变形、褪色等）
   -8. 不属于我司责任范围的其它故障或损坏
6. 如果出现下述情况，本产品将被视为非保修对象。我司可能会拒绝进行维修或校正等服务。
   -1. 由我司以外的企业、组织或个人对本产品进行修理或改造时
   -2. 用于特殊的嵌入式应用（航天设备、航空设备、核能设备、生命攸关的医疗设备或车辆控制设备等），但未能提前通知我司时
7. 针对因使用产品而导致的损失，我司判断其责任属于我司时，我司最多补偿产品的采购金额。不补偿下述损失。
   -1. 因使用本产品而导致的被测物损失引起的二次损坏
   -2. 因本产品的测量结果而导致的损坏
   -3. 因连接（包括经由网络的连接）本产品而对本产品以外的设备造成的损坏
8. 因距产品生产日期的时间过长、零部件停产或不可预见情况发生等原因，我司可能会拒绝维修、校正等服务。

HIOKI E.E. CORPORATION

20-08 CN-1

电器电子产品有害物质限制使用管理办法-对应

HIOKI

产品中有害物质的名称及含量

【AC/DC 电流探头 CT683X, CT683X-XX AC/DC 电流传感器 CT7812, CT7822】 "X" 代表任意0-9的

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6})	多溴联苯 (PBB)	多溴联苯醚 (PBDE)
主机						
实装电路板	×	O	O	O	O	O
其它						
转换线 CT990X	×	O	O	O	O	O
延长线 L0220-0X	×	O	O	O	O	O

本表格依据SJ/T11364的规定编制
O：表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572 规定的限量要求以下。
×：表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572 规定的限量要求。

环境保护使用期限 10

CT6830A998-01 24-09

HIOKI 产品合格证

日置电机株式会社总公司

QC PASSED

HIOKI

2103 JA

編集・発行　日置電機株式会社　Printed in Japan

・CE 適合宣言は弊社ウェブサイトからダウンロードできます。
・本書の記載内容を予告なく変更することがあります。

HIOKI

HIOKI E.E. CORPORATION

2402 EN

Edited and published by HIOKI E.E. CORPORATION　Printed in Japan

・Contents subject to change without notice.

HIOKI

2401 CN

日置电机株式会社编辑出版　日本印刷

・可从本公司主页下载CE认证证书。
・本书的记载内容如有更改，恕不另行通知。