HIOKI

CT7044
CT7045
CT7046

AC FLEXIBLE CURRENT SENSOR

Instruction Manual

EN

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HIOKI

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- Regional contact information
- The latest revisions of instruction manuals and manuals in other languages.
- Declarations of Conformity for instruments that comply with CE mark requirements.

Warranty Certificate

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Model	Serial No.	Warranty period One (1) year from date of purchase (___ / ___)

This product passed a rigorous inspection process at Hioki before being shipped.

In the unlikely event that you experience an issue during use, please contact the distributor from which you purchased the product, which will be repaired free of charge subject to the provisions of this Warranty Certificate. This warranty is valid for a period of one (1) year from the date of purchase. If the date of purchase is unknown, the warranty is considered valid for a period of one (1) year from the product's date of manufacture. Please present this Warranty Certificate when contacting the distributor.
Accuracy is guaranteed for the duration of the separately indicated guaranteed accuracy period.

1. Malfunctions occurring during the warranty period under conditions of normal use in conformity with the Instruction Manual, product labeling (including stamped markings), and other precautionary information will be repaired free of charge, up to the original purchase price. Hioki reserves the right to decline to offer repair, calibration, and other services for reasons that include, but are not limited to, passage of time since the product's manufacture, discontinuation of production of parts, or unforeseen circumstances.
2. Malfunctions that are determined by Hioki to have occurred under one or more of the following conditions are considered to be outside the scope of warranty coverage, even if the event in question occurs during the warranty period:
   a. Damage to objects under measurement or other secondary or tertiary damage caused by use of the product or its measurement results
   b. Malfunctions caused by improper handling or use of the product in a manner that does not conform with the provisions of the Instruction Manual
   c. Malfunctions or damage caused by repair, adjustment, or modification of the product by a company, organization, or individual not approved by Hioki
   d. Consumption of product parts, including as described in the Instruction Manual
   e. Malfunctions or damage caused by transport, dropping, or other handling of the product after purchase
   f. Changes in the product's appearance (scratches on its enclosure, etc.)
   g. Malfunctions or damage caused by fire, wind or flood damage, earthquakes, lightning, power supply anomalies (including voltage, frequency, etc.), war or civil disturbances, radioactive contamination, or other acts of God
   h. Damage caused by connecting the product to a network
   i. Failure to present this Warranty Certificate
   j. Failure to notify Hioki in advance if used in special embedded applications (space equipment, aviation equipment, nuclear power equipment, life-critical medical equipment or vehicle control equipment, etc.)
   k. Other malfunctions for which Hioki is not deemed to be responsible

*Requests
- Hioki is not able to reissue this Warranty Certificate, so please store it carefully.
- Please fill in the model, serial number, and date of purchase on this form.

16-01 EN

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Introduction

Thank you for purchasing the Hioki CT7044, CT7045, CT7046 AC Flexible Current Sensor. To obtain maximum performance from the device, please read this manual first, and keep it handy for future reference.

Be sure to also read the separate booklet "Current Sensor Operating Precautions" before use.

Use Environment of the Device

⚠ WARNING

Although part of this device is designed to resist the ingress of dust and dripping water, it is not entirely waterproof or dustproof, so to avoid electric shock or damage, do not use it in a wet or dusty environment.

Troubleshooting

If the device seems to be malfunctioning, contact your authorized Hioki distributor or reseller.

Overview

This device measures large currents of up to 6000 A AC. The air core coil makes the sensor unit highly flexible, allowing it to be used for clamping in narrow spaces with crowded wiring.
This current sensor has a Hioki PL14 output connector, enabling it to be automatically recognized when connected to a compatible instrument for simple setup.

Specifications

General Specifications

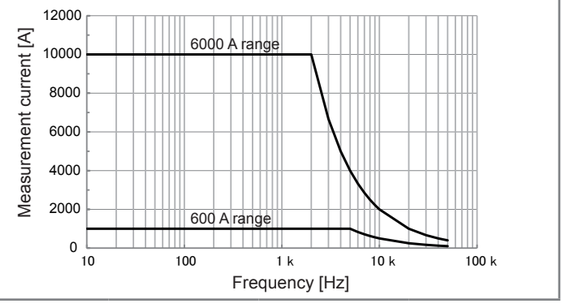
	CT7044	CT7045	CT7046
Operating environment	Indoors, pollution degree 2, altitude up to 2000 m (6562 ft.)		
Operating temperature and humidity			
Temperature	−25°C to 65°C (−13°F to 149°F)		
Humidity	Less than 40°C (104°F): 80% RH or less		
	From 40°C to 65°C (104°F to 149°F): Maximum relative humidity declining linearly from 80% RH at 40°C (104°F) to 25% RH at 65°C (149°F)		
	(no condensation)		
Storage temperature and humidity	−30°C to 70°C (−22°F to 158°F), 80% RH or less		
	(no condensation)		
Dustproof and waterproof	IP54 (EN60529) (when sensor is connected to a compatible instrument)		
Standards	Safety: EN61010 EMC: EN61326		
Dielectric strength	8.54 kV AC rms for 1 minute (at 50 Hz/ 60 Hz) (between flexible loop and output connector)		
Power consumption category	Sensor power consumption category: 1 (See the continuous operating time for the instrument to which the device is to be connected.)		
Dimensions (circuit box)	Approx. 25W × 72H × 20D mm (0.98″W × 2.83″H × 0.79″D) (excluding protruding parts)		
Mass	Approx. 160 g (5.6 oz.)	Approx. 174 g (6.1 oz.)	Approx. 186 g (6.6 oz.)
Cable length	Approx. 2300 mm (90.55″) (between flexible loop and circuit box) Approx. 200 mm (7.87″) (output cable)		
Flexible loop length	Approx. 390 mm (15.35″)	Approx. 630 mm (24.80″)	Approx. 870 mm (34.25″)
Flexible loop cross-sectional diameter	Approx. ϕ7.4 mm (ϕ0.29″)		
Flexible loop end cap diameter	Approx. ϕ9.9 mm (ϕ0.39″)		
Product warranty period	1 year		
Accessories	• Instruction Manual • Current Sensor Operating Precautions		

Input Specifications, Output Specifications, and Measurement Specifications

(1) Basic specifications

	CT7044	CT7045	CT7046
Output connector	Hioki PL14		
Rated measurement current	6000 A AC		
Internal ranges	600 A AC / 6000 A AC *Range can be controlled from a connected instrument.		
Maximum measurement current	RMS value, continuous: see "Frequency derating" below.		
	Peak value: 1500 A peak (600 A range) : 15000 A peak (6000 A range) under the RMS value conditions described below. 1000 A or less and 5×10^6 A·Hz or less (600 A range) 10000 A or less and 2×10^7 A·Hz or less (6000 A range)		
Frequency band	10 Hz to 50 kHz (within ±3 dB)		
Measurable conductor diameter	ϕ100 mm (ϕ3.94″) or less	ϕ180 mm (ϕ7.09″) or less	ϕ254 mm (ϕ10.00″) or less
Maximum rated voltage to earth	1000 V AC (Measurement category III) 600 V AC (Measurement category IV) (Anticipated transient overvoltage: 8000 V)		

Frequency derating (continuous, design values)



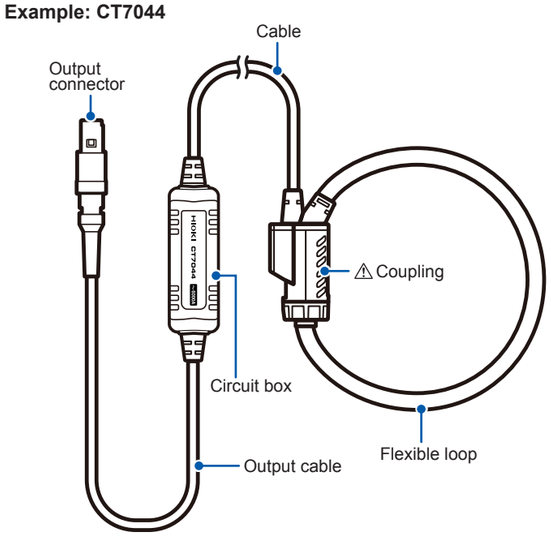
(2) Accuracy specifications

f.s. (range): The currently selected range.
rdg. (reading or displayed value): The value currently being measured and indicated on the measuring instrument.

	CT7044	CT7045	CT7046
Conditions of guaranteed accuracy	Guaranteed accuracy period: 1 year		
	Guaranteed accuracy period after adjustment made by Hioki: 1 year		
	Opening and closing of the flexible loop: 10000 times or less		
	Accuracy guarantee for temperature and humidity: 23°C±5°C (73°F±9°F), 80% RH or less		
	(With no flexible loop stretching, damage, or cross-sectional deformation in shape)		
Measurement accuracy			
Amplitude accuracy	±1.5% rdg. ±0.25% f.s. (Full-scale value is determined by the selected internal range.) (at 45 Hz to 66 Hz, at flexible loop center)		
Phase accuracy	Within ±1.0° (at 45 Hz to 66 Hz)		
Temperature coefficient	In the operating temperature range, add 0.05 × specified accuracy/°C (at temperatures other than 23°C±5°C).		
Effect of conductor position	Within ±3.0% (deviation from center)		
Effect of external magnetic field	1.25% f.s. or less.		1.5% f.s. or less.
	(400 A/m, 50 Hz/ 60 Hz)		
Offset voltage	±1 mV or less		

Parts Names

Example: CT7044



Measurement Methods

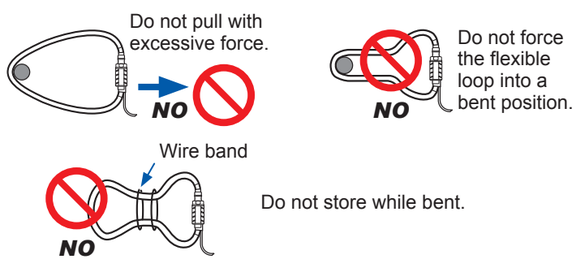
Inspection Before Use

Verify that the device operates normally to ensure that no damage occurred during storage or shipping. If you find any damage, contact your authorized Hioki distributor or reseller.

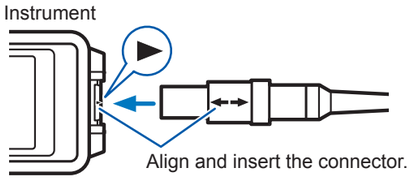
Check Items	Remedy
Is the flexible loop or cable insulation torn, or is any metal exposed?	Device damage may result in electric shock. Contact your authorized Hioki distributor or reseller.
Is there a broken connection involving the connector or sensor base?	Broken connections will make proper measurement impossible. Discontinue use and contact your authorized Hioki distributor or reseller.

- Attach the clamp around only one conductor. If you clamp single-phase (2-wire) or three-phase (3-wire) conductors together, the device will not be able to make a measurement.

- Be aware of the following precautions to avoid damage to the device:

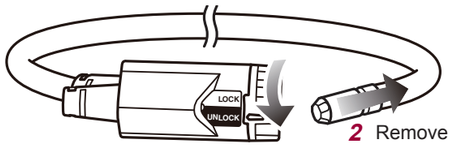


1 Connect the output connector to the connected instrument



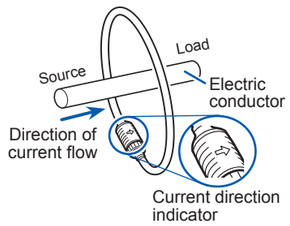
Align the arrow on the device's output connector with the ▶ on the connected instrument's sensor input connector and insert the connector.

2 Disconnect the flexible loop from the coupling



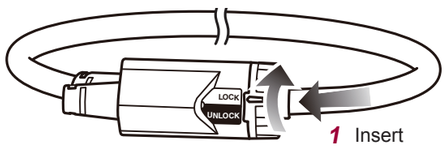
1 Rotate the dial until the blue ⬭ mark is in the **UNLOCK** position.

3 Clamp the conductor



Clamp only the conductor you wish to measure with the current direction indicator pointing toward the load side.
(To ensure that the measured current and sensor output have the same phase.)

4 Connect the flexible loop to the coupling



2 Rotate the dial until the blue ⬭ mark is in the **LOCK** position.

Pulling on the flexible loop with a large amount of force while in the locked state may cause it to become disconnected from the coupling.

5 Once measurement is complete, remove the device from the conductor and disconnect it from the instrument.

When disconnecting the device from the instrument, grip the tip of the output connector (the part with the arrow) and pull the connector straight out.

Pulling forcibly on the base of the connector may damage the device.

Memo