

**CT9667-01  
CT9667-02  
CT9667-03**

**AC FLEXIBLE  
CURRENT SENSOR**

**Instruction Manual**

**EN**

June 2015 Edition 1  
Printed in Japan  
CT9667B981-00 15-06H



**HIOKI**

HIOKI E. E. CORPORATION

**HEADQUARTERS**

81 Koizumi, Ueda, Nagano 386-1192, Japan  
TEL +81-268-28-0562 FAX +81-268-28-0568  
os-com@hioki.co.jp **www.hioki.com**  
(International Sales Department)

1502EN

Please visit our website at [www.hioki.com](http://www.hioki.com) for the following:

- 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**

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.

- 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.
- 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:
  - Damage to objects under measurement or other secondary or tertiary damage caused by use of the product or its measurement results
  - Malfunctions caused by improper handling or use of the product in a manner that does not conform with the provisions of the Instruction Manual
  - Malfunctions or damage caused by repair, adjustment, or modification of the product by a company, organization, or individual not approved by Hioki
  - Consumption of product parts, including as described in the Instruction Manual
  - Malfunctions or damage caused by transport, dropping, or other handling of the product after purchase
  - Changes in the product's appearance (scratches on its enclosure, etc.)
  - 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
  - Damage caused by connecting the product to a network
  - Failure to present this Warranty Certificate
  - 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.)
  - 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.

13-09

**HIOKI E.E. CORPORATION**  
81 Koizumi, Ueda, Nagano 386-1192, Japan  
TEL: +81-268-28-0555  
FAX: +81-268-28-0559

**Introduction**

Thank you for purchasing the Hioki CT9667-01, CT9667-02, CT9667-03 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**



**Although part of this device (the flexible loop part only) 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, confirm that the batteries are not discharged before contacting your authorized Hioki distributor or reseller.

**Overview**

This device measures large currents of up to 5000 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.

**Specifications**

**General Specifications**

	CT9667-01	CT9667-02	CT9667-03
<b>Operating environment</b>	Indoors, pollution degree 2, altitude up to 2000 m (6562 ft.)		
<b>Operating temperature and humidity</b>			
<b>Temperature</b>	-25°C to 65°C (-13°F to 149°F)	-10°C to 50°C (14°F to 122°F)	
<b>Humidity (no condensation)</b>	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)	From 40°C to 50°C (104°F to 122°F): Maximum relative humidity declining linearly from 80% RH at 40°C (104°F) to 50% RH at 50°C (122°F)	
(When using batteries, AC adapter, or external power supply, depends on the power supply's specifications.)			
<b>Storage temperature and humidity</b>	-30°C to 70°C (-22°F to 158°F), 80% RH or less (no condensation)	-20°C to 60°C (-4°F to 140°F), 80% RH or less	

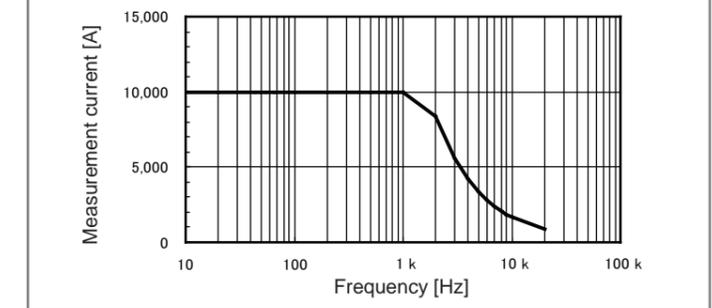
	CT9667-01	CT9667-02	CT9667-03
<b>Dustproof and waterproof</b>	IP54 (EN60529) (Flexible loop only)		-
<b>Standards</b>	Safety: EN61010 EMC: EN61326, EN61000-3-2, EN61000-3-3		
<b>Dielectric strength</b>	8.54 kV AC rms for 1 minute (at 50 Hz/ 60 Hz) (between flexible loop and output connector)		
<b>Power supply</b>	<ul style="list-style-type: none"> <li>• LR6 (AA size) alkaline battery × 2 Rated supply voltage: 1.5 V DC × 2 Maximum rated power: 35 mVA</li> <li>• 9445-02, 9445-03 (for EU), Z1012 AC adapter (option) Rated supply voltage: 100 V to 240 V AC (Voltage fluctuations of ±10% from the rated supply voltage are taken into account.) Rated supply frequency: 50 Hz/60 Hz Anticipated transient overvoltage: 2500 V</li> <li>• External power supply Rated supply voltage: 5 V to 15 V DC Maximum rated power: 0.2 VA</li> </ul>		
<b>Continuous operating time</b>	When LR6 (AA size) alkaline battery × 2 are used (at 23°C) Approx. 168 hours (7 days)		
<b>Dimensions (circuit box)</b>	Approx. 35W × 120.5H × 34D mm (1.38"W × 4.74"H × 1.34"D) (excluding protruding parts)		
<b>Mass</b>	Approx. 280 g (9.9 oz.)	Approx. 470 g (16.6 oz.)	
(Flexible loop + circuit box, including batteries)			
<b>Cable length</b>	Approx. 2 m (78.74") (between flexible loop and circuit box) Approx. 1 m (39.37") (output cable)		
<b>Flexible loop length</b>	Approx. 390 mm (15.35")	Approx. 630 mm (24.80")	Approx. 930 mm (36.61")
<b>Flexible loop cross-sectional diameter</b>	Approx. φ7.4 mm (0.29")		Approx. φ13 mm (0.51")
<b>Flexible loop end cap diameter</b>	Approx. φ9.9 mm (0.39")		Approx. φ20 mm (0.79")
<b>Product warranty period</b>	1 year		
<b>Accessories</b>	<ul style="list-style-type: none"> <li>• LR6 (AA size) alkaline battery × 2</li> <li>• Instruction Manual</li> <li>• Current Sensor Operating Precautions</li> </ul>		
<b>Options</b>	<ul style="list-style-type: none"> <li>• 9445-02 AC Adapter</li> <li>• 9445-03 AC Adapter (for EU)</li> <li>• Z1012 AC Adapter (Operating temperature: -40°C to 70°C [-40°F to 158°F])</li> <li>• 9704 Conversion Adapter (BNC female to banana male)</li> </ul>		

**Input Specifications, Output Specifications, and Measurement Specifications**

**(1) Basic specifications**

	CT9667-01	CT9667-02	CT9667-03
<b>Output connector</b>	BNC		
<b>Rated measurement current</b>	500 A AC (500 A range) 5000 A AC (5000 A range)		
<b>Output rate</b>	1 mV/A (500 A range) 0.1 mV/A (5000 A range)		
<b>Maximum measurement current</b>	RMS value, continuous: see "Frequency derating" below. Peak value: under the RMS value conditions described above. 1500 A peak (500 A range) 15000 A peak (5000 A range)		
<b>Frequency band</b>	10 Hz to 20 kHz (within ±3 dB)		
<b>Output impedance</b>	50 Ω (±5%)		
<b>Measurable conductor diameter</b>	φ100 mm (3.94") or less	φ180 mm (7.09") or less	φ254 mm (10.00") or less
<b>Maximum rated voltage to earth</b>	1000 V AC (Measurement category III) 600 V AC (Measurement category IV) (Anticipated Transient Overvoltage: 8000 V)		

**Frequency derating (continuous, design values)**



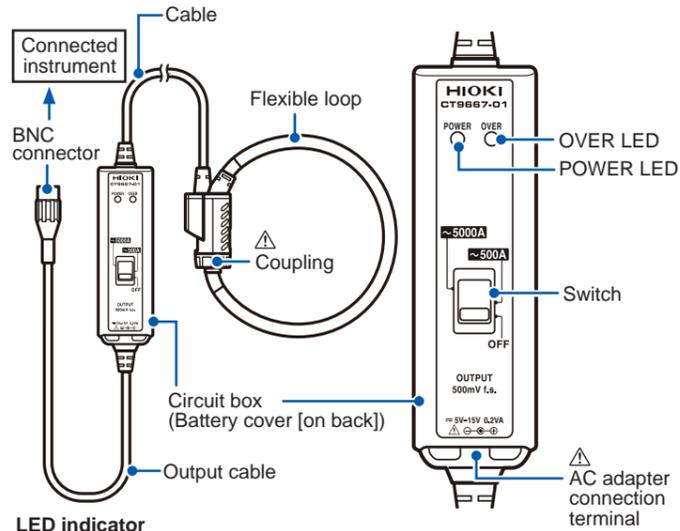
**(2) Accuracy specifications**

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

	CT9667-01	CT9667-02	CT9667-03
<b>Conditions of guaranteed accuracy</b>	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)		
<b>Measurement accuracy</b>			
<b>Amplitude accuracy</b>	±2% rdg. ±0.3% f.s. (at 45 Hz to 66 Hz, at flexible loop center)		
<b>Phase accuracy</b>	Within ±1.0° (at 45 Hz to 66 Hz)		
<b>Temperature coefficient</b>	In the operating temperature range, add 0.05 × specified accuracy/°C (at temperatures other than 23°C ±5°C).		
<b>Effect of conductor position</b>	Within ±3% (deviation from center)		
<b>Effect of external magnetic field</b>	1.5% f.s. or less. (400 A/m, 50 Hz/ 60 Hz)		
<b>Offset voltage</b>	±1 mV or less		

# Parts Names

Example: CT9667-01

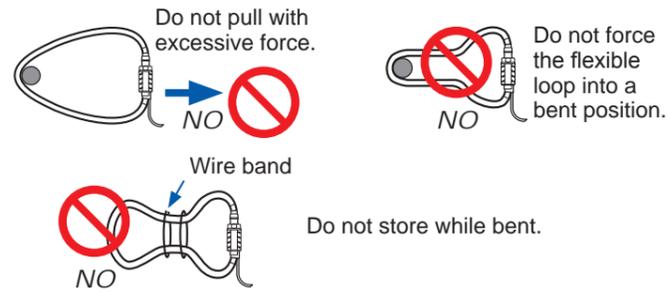


## LED indicator

	Lights up (Green)	Lights up (Red)	Turns off
POWER LED	Power on.	Battery life is low.*	There is no battery life remaining*, or power off.
OVER LED	-	Range exceeded (peak value of at least 3 x range).	Normal measurement, or power off.

\* When using battery power.

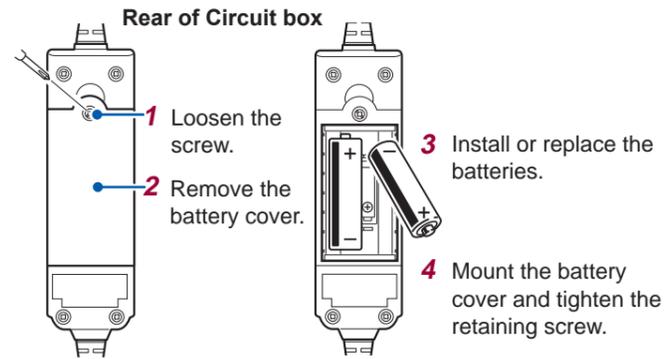
- When using an AC adapter, always use the optional AC adapter.
- When using the AC adapter and batteries at the same time, the AC adapter takes precedence. Switching power supplies during measurement may introduce noise into the device's output.
- When using the AC adapter for continuous monitoring, we recommend that you also use batteries to prevent interruptions due to instantaneous power outages.
- After use, always turn off the power.
- Be aware of the following precautions to avoid damage to the device:



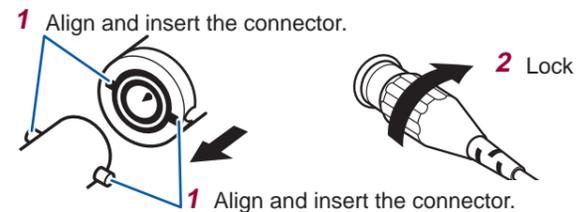
## 1 Insert/ Replace batteries

Necessary tool: • Two LR6 (AA size) alkaline batteries  
• Phillips screwdriver

Turn off the switch on the circuit box and then disconnect the AC adapter.

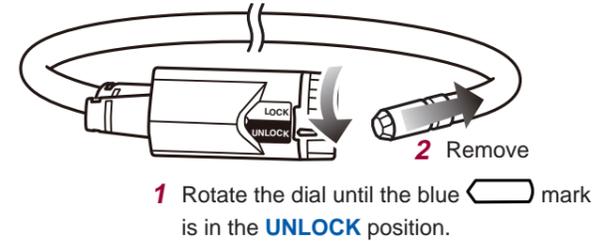


## 2 Connect the BNC connector to the connected instrument

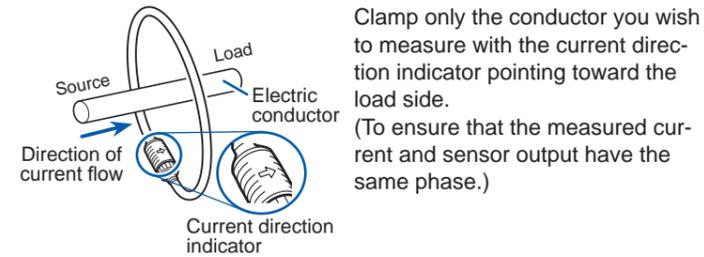


## 3 Disconnect the flexible loop from the coupling

Example: CT9667-01, CT9667-02

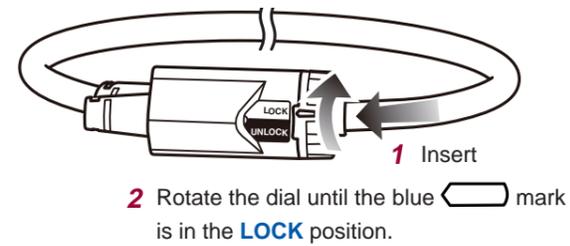


## 4 Clamp the conductor



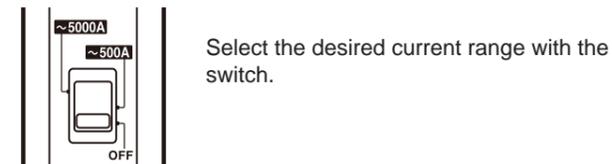
## 5 Connect the flexible loop to the coupling

Example: CT9667-01, CT9667-02



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.

## 6 Select the range depending on the current value to be measured



# 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.
When the switch is placed in any position other than OFF, does the POWER LED turn green?	Lights up (red): Battery life is low. → Replace the batteries soon. Turns off: There is no battery life remaining. → Replace the batteries immediately.

- 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.



# Memo