

HIOKI

CT6830 CT6831 AC/DC CURRENT PROBE

Instruction Manual

EN

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Warranty

Malfunctions occurring under conditions of normal use in conformity with the Instruction Manual and Product Precautionary Markings will be repaired free of charge. This warranty is valid for a period of three (3) years from the date of purchase. Please contact the distributor from which you purchased the product for further information on warranty provisions.

Introduction

Thank you for choosing the Hioki CT6830, CT6831 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.

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.

Overview

The CT6830 and CT6831 are clamp current sensors that can perform highly precise measurements of AC and DC currents of up to 2 A and 20 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.

Precautions

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

⚠ DANGER

- Do not cause a short-circuit between the two wires in the measurement line with the metallic part of the tip of the sensor. Doing so may cause an arc flash, resulting in serious bodily injury or damage to the device or other equipment.
- Do not measure any current in excess of the maximum input current.
- Do so may cause overheating of the sensor, resulting in bodily injury, fire, or damage to the device. Maximum input current values can be confirmed from the Frequency derating curve (Fig. 1).
- 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.
- 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 for repair.

⚠ 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.



⚠ CAUTION

- Do not step on cables or allow them to become caught between other objects. Doing so may damage the insulation, and cause the operator to experience an electric shock.
- Do not touch the cores while the jaws are open. If the cores are subject to static electricity, the device may be damaged.
- Do not touch the jaws during the measurement. Even when the jaws are closed, if static electricity is applied, it could cause the device to malfunction.
- Do not connect or disconnect connectors while the device being connected is powered on. Doing so may damage this device or the connected device.
- Do not apply current to the device while it is turned off. Doing so may damage the device.
- Do not subject the device to vibration or mechanical shock while transporting or handling it.
- Do not drop the device. Doing so may damage the device.
- Do not bend or pull on a cable at temperatures of 0°C 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.

IMPORTANT

- Do not place any foreign object between the jaw tips or insert any foreign object into the gap of the jaws. Failure to do so may cause the sensor characteristics to worsen or lead to problems with clamp opening/closing operation.
- 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.

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.

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.
Jaw crack or damage	Doing so could cause an electric shock.

⚠ 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). Using 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.

