HIOKI

9669

CLAMP ON SENSOR

Instruction Manual

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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

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 one (1) year 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 purchasing the HIOKI 9669 CLAMP ON SENSOR. To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

Initial Inspection

When you receive the product, inspect it carefully to ensure that no damage occurred during shipping. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Preliminary Checks

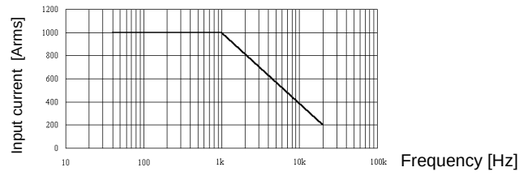
Before using the product the first time, verify that it operates normally to ensure that the no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.
Before using the product, make sure that the insulation on the cables is undamaged and that no bare conductors are improperly exposed. Using the product in such conditions could cause an electric shock, so contact your dealer or Hioki representative for repair.

Maintenance and Service

- To clean the product, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline, as they can deform and discolor the case.
- If the product seems to be malfunctioning, contact your dealer or Hioki representative.

Specifications

Rated primary current	1000 A AC
Output voltage	0.5 mV AC/A
Amplitude accuracy	±1.0% rdg.±0.01%f.s. (f.s.:1000 A, 45Hz to 66Hz, at core center)
Phase accuracy	Within ±1° (at 45 Hz to 5 kHz)
Conditions of guaranteed accuracy	Temperature and humidity for guaranteed accuracy : 23±5°C (73±41°F), 80%RH or less (non-condensating) Endurance number of the core opening and closing part : 10,000 times Guaranteed accuracy period: 1 year Guaranteed accuracy period from adjustment made by Hioki : 1 year
Amplitude frequency characteristics	Within ±2% at 40 Hz to 5 kHz (deviation from accuracy)
Effect of conductor position	Within ±1.5% (deviation from center)
Effect of external electromagnetic field	1 A equivalent or less (in an AC electromagnetic field of 400 A/m)
Maximum input current	1000 A rms continuous (within the operating temperature and humidity, depending on the frequency derating)



Temperature coefficient	±0.02%rdg/°C
Dielectric strength	7060 V AC for 1 minute (between cable output connector and core, between core and case)
Maximum permitted circuit voltage	600 V AC rms or less
Operating Temperature &Humidity	0°C to 50°C (32°F to 122°F), 80%RH or less (non-condensating)
Storage Temperature &Humidity	-10°C to 60°C (14°F to 140°F), 80%RH or less (non-condensating)
Operating Environment	Indoors, <2000m (6562-ft.) ASL
Standards applying	Safety EN61010 Measurement Category III, Pollution Degree 2 (Anticipated Transient Overvoltage: 6000 V) EMC EN61326
Measurable conductor diameter	ϕ55 mm (2.17") or less 80 X 20 mm, Buss bars
Cable length	Approx. 3 m (118.11")
Size	Approx. 99.5W X 188H X 42D mm (3.92W" X 7.4H" X 1.65D") (excluding protrusions)
Weight	Approx. 590 g (20.8 oz.)
Accessory	Instruction Manual
Product warranty period	1 year

f.s.: maximum display value or scale length (This is usually the maximum value of the currently selected range.)
rdg.: reading value (The value currently being measured and indicated on the measuring product)

Safety

Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

DANGER

This product is designed to conform to IEC 61010 Safety Standards, and has been thoroughly tested for safety prior to shipment. However, mishandling during use could result in injury or death, as well as damage to the product. Be certain that you understand the instructions and precautions in the manual before use. We disclaim any responsibility for accidents or injuries not resulting directly from product defects.

Safety Symbol

⚠	In the manual, the ⚠ symbol indicates particularly important information that the user should read before using the product. The ⚠ symbol printed on the product indicates that the user should refer to a corresponding topic in the manual (marked with the ⚠ symbol) before using the relevant function.
⧈	Indicates a double-insulated device.
~	Indicates AC (Alternating Current).
⚡	Indicates that the instrument may be connected to or disconnected from a live circuit.

Symbols for Various Standards

CE	Indicates that the product conforms to regulations set out by the EC Directive.

The following symbols in this manual indicate the relative importance of cautions and warnings.

DANGER Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.

WARNING Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.

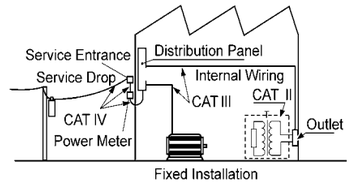
CAUTION Indicates that incorrect operation presents a possibility of injury to the user or damage to the product

NOTE Advisory items related to performance or correct operation of the product.

Measurement categories

This product complies with CAT III safety requirements. To ensure safe operation of measurement products, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT II to CAT IV, and called measurement categories.

CAT II: Primary electrical circuits in equipment connected to an AC electrical outlet by a power cord (portable tools, household appliances, etc.)
CAT II covers directly measuring electrical outlet receptacles.
CAT III: Primary electrical circuits of heavy equipment (fixed installations) connected directly to the distribution panel, and feeders from the distribution panel to outlets.
CAT IV: The circuit from the service drop to the service entrance, and to the power meter and primary overcurrent protection device (distribution panel).



Using a measurement product in an environment designated with a higher-numbered category than that for which the product is rated could result in a severe accident, and must be carefully avoided.
Use of a measurement instrument that is not CAT-rated in CAT II to CAT IV measurement applications could result in a severe accident, and must be carefully avoided.

Usage Notes

This manual contains information and warnings essential for safe operation of the product and for maintaining it in safe operating condition. Before using the product, be sure to carefully read the following safety notes.

DANGER

- **To avoid short circuits and potentially life-threatening hazards, never attach the product to a circuit that operates at more than the 600 V AC.**
- **This product should only be connected to the secondary side of a breaker, so the breaker can prevent an accident if a short circuit occurs. Connections should never be made to the primary side of a breaker, because unrestricted current flow could cause a serious accident if a short circuit occurs.**
- **To avoid electric shock, do not touch the portion beyond the protective barrier during use.**

WARNING

- **To avoid electric shock, do not allow the product to get wet, and do not use it when your hands are wet.**
- **To avoid electric shock when measuring live lines, wear appropriate protective gear, such as insulated rubber gloves, boots and a safety helmet.**
- **Note that the product may be damaged if current exceeding the selected measurement range is applied for a long time.**

CAUTION

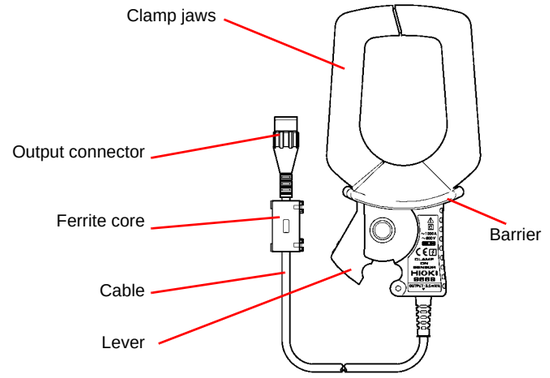
- Do not store or use the product where it could be exposed to direct sunlight, high temperature or humidity, or condensation. Under such conditions, the product may be damaged and insulation may deteriorate so that it no longer meets specifications.
- Be careful to avoid dropping the products or otherwise subjecting them to mechanical shock, which could damage the mating surfaces of the clamp jaws and adversely affect measurement.
- Keep the clamp jaws and core slits free from foreign objects, which could interfere with clamping action.
- Measurements are degraded by dirt on the mating surfaces of the clamp jaws, so keep the surfaces clean by gently wiping with a soft cloth.
- Avoid stepping on or pinching the cable, which could damage the cable insulation.
- To avoid damaging the cables, do not bend or pull the cables.

NOTE

Accurate measurement may be impossible in the presence of strong magnetic fields, such as near transformers and high-current conductors, or in the presence of strong electromagnetic fields such as near radio transmitters.

Parts Names

The 9669 is a voltage-output-type clamp-on sensor.



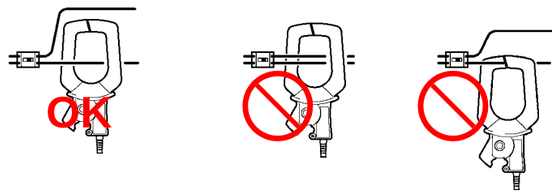
Measurement Procedures

CAUTION

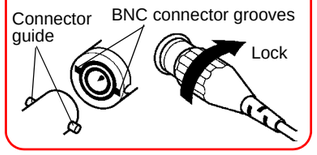
- When disconnecting the BNC connector, be sure to release the lock before pulling off the connector. Forcibly pulling the connector without releasing the lock, or pulling on the cable, can damage the connector.
- To prevent damage to connected instruments, never connect or disconnect the sensor while the power is on.

NOTE

Attach the clamp around only one conductor. Single-phase (2-wire) or three-phase (3-wire) cables clamped together will not produce any reading.

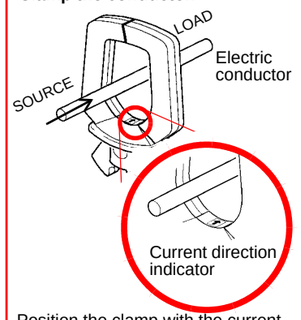


Connect the BNC connector.



1. Engage the BNC connector grooves with the connector-guide projections, and turn the connector clockwise to lock the components.

Clamp the conductor.



Position the clamp with the current direction indicator pointing toward the load side. (If installed in the opposite direction,the phase deviates 180 degrees.)

2. Open the clamp jaws and hold only one conductor at the clamp jaws center with the current direction indicator pointing toward the load side.

3. Make sure the clamp jaws are closed.

To remove the BNC connector, turn the connector counter-clockwise and pull it out.