HIOKI

9555-10

SENSOR UNIT

Instruction Manual

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The Declaration of Conformity for instruments that comply to CE mark requirements may be downloaded from the HIOKI website.

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 Model 9555-10 SENSOR UNIT. To obtain maximum performance from the device, please read this manual first, and keep it handy for future reference.

Overview

With this device, you can use the Model 9270, 9271, 9272, 9277, 9278, 9279, 9709, 9272-10, CT6862, CT6863 current sensors as separate units. It is equipped with a high-performance sensor for easy current waveform measurement.
Use it as input unit for various current measurement applications combined with a recorder, oscilloscope, voltmeter, etc.

Inspection and Maintenance

Initial Inspection

When you receive the device, inspect it carefully to ensure that no damage occurred during shipping. In particular, check the accessories, panel switches, and connectors. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Maintenance and Service

- To clean the device, 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 device seems to be malfunctioning, confirm that the batteries are not discharged, and that the test leads, probes and fuse are not open circuited before contacting your dealer or Hioki representative.

NOTE

Pack the device so that it will not sustain damage during shipping, and include a description of existing damage. We cannot accept responsibility for damage incurred during shipping.

Safety

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

⚠DANGER

This device is designed to comply with 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 device. 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 device defects.

Safety Symbols

⚠	In the manual, the ⚠ symbol indicates particularly important information that the user should read before using the device. The ⚠ symbol printed on the device indicates that the user should refer to a corresponding topic in the manual (marked with the ⚠ symbol) before using the relevant function.
⎓	Indicates DC (Direct Current).

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 device.
NOTE	Indicates advisory items related to performance or correct operation of the device.

Other Symbol

⃠	Indicates a prohibited action.

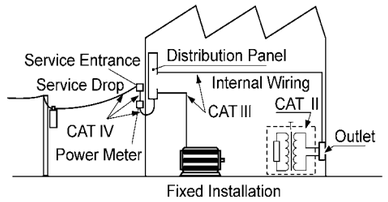
Measurement categories

To ensure safe operation of measurement devices, 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 device in an environment designated with a higher-numbered category than that for which the device 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.



Instrument Installation

Operating temperature and humidity: 0 to 40°C, 80%RH or less (non-condensation)

Avoid the following locations that could cause an accident or damage to the device.

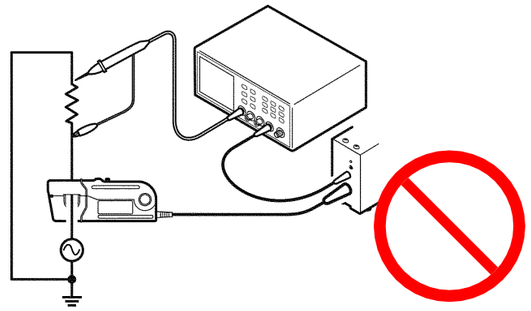
Exposed to direct sunlight Exposed to high temperature	In the presence of corrosive or explosive gases
Exposed to water, oil, other chemicals, or solvents Exposed to high humidity or condensation	Exposed to strong electromagnetic fields Near electromagnetic radiators
Exposed to high levels of particulate dust	Subject to vibration

Usage Notes

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

⚠DANGER

- Be sure to observe all operating precautions for the waveform monitoring instrument (oscilloscope or recorder) and other measurement instruments to which the CURRENT SENSOR (refer to Specifications) is connected using with this device.
- When using a measurement instrument that does not provide isolation between its input terminals and chassis or other input terminals, please pay attention to the following points.
  If a signal is applied to an input terminal other than that to which the CURRENT SENSOR is connected, do not connect the ground-side terminal to any non-ground potential. Otherwise, short-circuit current will flow through the CURRENT SENSOR or this device from the ground terminal, which could cause an electrical accident or damage.



Never connect the tester as shown in the figure.

⚠WARNING

- Before turning the device on, make sure the supply voltage matches that indicated on the its power connector. Connection to an improper supply voltage may damage the device and present an electrical hazard.
- Use only the supplied Model 9418-15 AC ADAPTER. AC adapter input voltage range is 100 to 240 VAC (with ±10% stability) at 50/60 Hz. To avoid electrical hazards and damage to the device, do not apply voltage outside of this range.

⚠CAUTION

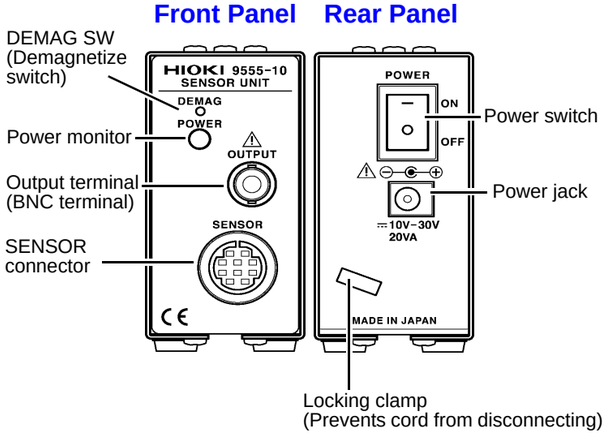
- Be careful to avoid connecting voltage improperly, as the internal circuitry may be destroyed.
- Turn off the power before disconnecting the power cord.
- To avoid damage to the device, do not short the output terminal and do not input voltage to the output terminal.
- Because ± 12 V is output from the connector on the equipment to provide power to the sensor, do not plug anything into this connector except for the sensor connector.
- To prevent damage to the connected instruments and the sensor, never connect or disconnect a sensor while the power is on, or while the sensor is clamped around a conductor.
- To avoid damaging the power cord, grasp the plug, not the cord, when unplugging it from the power outlet.
- When the power is turned off, do not apply voltage or current to the clamp sensor. Doing so may damage the device.
- To avoid damage to the device, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.
- Do not store or use the device where it could be exposed to direct sunlight, high temperature or humidity, or condensation. Under such conditions, the device may be damaged and insulation may deteriorate so that it no longer meets specifications.
- Avoid stepping on or pinching cables, which could damage the cable insulation.
- Keep the cables well away from heat sources, as bare conductors could be exposed if the insulation melts.
- Use the 9217 CONNECTION CORD (resin) when connecting to insulated BNC terminal, and the 9165 CONNECTION CORD (metal) when connecting to metallic BNC terminal. If you connect metal BNC cable to insulated BNC terminal, the insulated BNC terminal can be damaged and the connection equipment may be damaged.

NOTE

- Correct 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.
- This device may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

Names of Parts

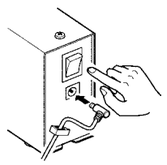
Front Panel Rear Panel



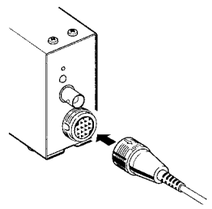
Measurement Procedure

Preliminary Checks

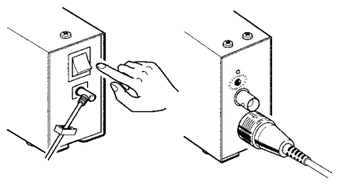
Before using the device the first time, verify that it operates normally to ensure that the no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.



1. Confirm that the power switch is OFF, then connect the AC ADAPTER and the power cord.
Be sure to run the AC ADAPTER cord through the locking clamp as shown in the diagram left to prevent disconnection.

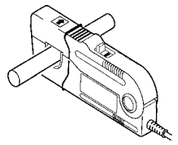


2. Connect the clamp sensor to the sensor connector.



3. Turn the power switch ON and confirm that the power monitor lights.

When using 9277, 9278 or 9279, you can enact demagnetization by pressing DEMAG SW.



4. Clamp the subject conductor and perform the measurement.

NOTE

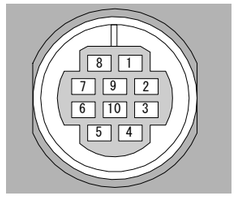
- Use a measuring instrument with an input resistance of 1 MΩ or more.
- If the power monitor does not light when the power switch is turned on, it is likely the device has damaged.
- Also refer to the clamp sensor instruction manual.

Specifications

1. General Specifications

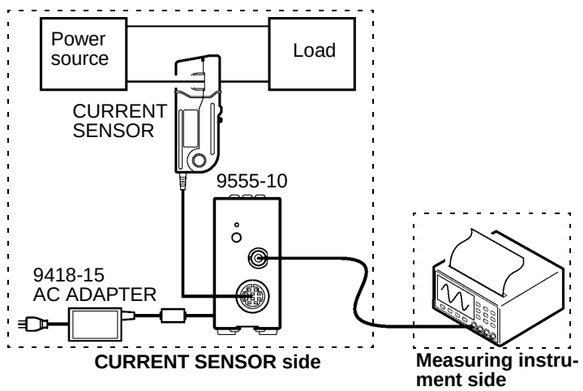
Operating environment	Indoors, Up to 2000 m (6562ft) ASL
Operating temperature and humidity	0°C to 40°C (32 to 104°F), 80%RH max. (no condensation)
Storage temperature and humidity	-10°C to 50°C (14 to 122°F), 80%RH max. (no condensation)
Applicable Standards	EN61010 Pollution degree 2 EN61326 Class A EN61000-3-2 EN61000-3-3
Accessories	Instruction manual Model 9418-15 AC ADAPTER (with a power cord) Rated supply voltage: AC100 to 240 V (Voltage fluctuations of ±10% from the rated supply voltage are taken into account.) Rated supply frequency: 50/60 Hz Rated output voltage: DC 12 V

2. Specifications

Applicable current sensors	Model 9270, 9271,9272, 9277, 9278, 9279, 9709, 9272-10,CT6862,CT6862-10,CT6863,CT6863-10, CT6865
Output terminal	BNC terminal Accuracy and other characteristics depend on the connected sensor.
Output supply voltage	±12 V ±0.5 V, 0.5 Amax
Rated supply voltage	+10 V to +30 V (The supplied AC ADAPTER supplies +12 V.)
Maximum rated power	20 VA
Dimensions (Not including protrusions)	Approx. 42W×82H×132D mm Approx. 1.65"W×3.24"H×5.20"D
Mass	Approx. 600 g (21.2 oz.)
SENSOR connector	RM515ERB-10SD(HIROSE ELECTRIC CO., LTD.) Connector Pin Configuration 1. GND 2. +12 Vout 3. -12 Vout 4. GND 5. Signal input 6. GND 7. DEMAG 8. NC 9. NC 10. GND  Compatible Connector RM515EPA-10PC(HIROSE ELECTRIC CO., LTD.)
SW for DEMAG	Pressing SW shorts the circuit from 7-10.

Application Example

If the distance between the location of the current to be measured and the measuring instrument is greater than the length of the CURRENT SENSOR cable, measurement is possible by extending from the 9555-10 analog output. Note that there may be effects such as noise.



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