HIOKI

Instruction Manual

3272

POWER SUPPLY

HIOKI E. E. CORPORATION

December 2014 Revised edition 12 3272A981-12 14-12H

Contents

Introduction

Thank you for purchasing the HIOKI "Model 3272 POWER SUPPLY."
To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

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.

Supplied accessories

Power cord	1
Instruction manual	1
Spare fuse	1

100 V, 120 V: F1.0 AL/250 V, 20 mm x 5 mm dia.
220 V, 240 V: F0.5 AL/250 V, 20 mm x 5 mm dia.

Notes on Safety

⚠ WARNING

This product 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 product. Using the product in a way not described in this manual may negate the provided safety features.
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 Symbols

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

	• 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. • In the manual, the ⚠ symbol indicates particularly important information that the user should read before using the product.
	Indicates a grounding terminal.
	Indicates a fuse.
	Indicates AC (Alternating Current).
	Indicates the ON side of the power switch.
	Indicates the OFF side of the power switch.

The following symbols are used in this Instruction Manual to 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	Indicates advisory items related to performance or correct operation of the product.

Measurement categories

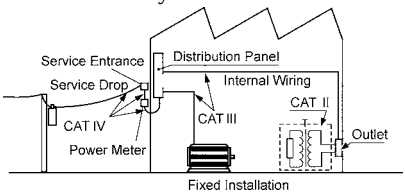
To ensure safe operation of measurement products, IEC 61010 establishes safety standards for various electrical environments, categorized as CAT II to CAT IV, and called measurement categories.

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.



Precautions

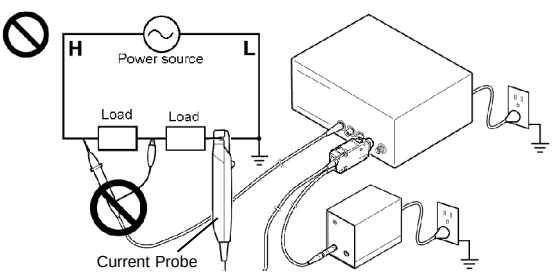
Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

Preliminary Check

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

⚠ DANGER

- **To avoid accidents, when using other measurementdevices with this one, observe the usage precautions described for each 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 probe is connected, do not connect the ground-side terminal to any non-ground potential. Otherwise, short-circuit current will flow through the current probe or this device from the ground terminal, which could cause an electrical accident or damage.**



⚠ WARNING

To avoid electrical accidents and to maintain the safety specifications of this instrument, connect the power cord only to a 3-contact (two-conductor + ground) outlet.

⚠ CAUTION

- To avoid damage to the product, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.
- 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.
- To avoid damaging the power cord, grasp the plug, not the cord, when unplugging the cord from the power outlet.
- This product is not designed to be entirely water- or dust-proof. Do not use it in an especially dusty environment, nor where it might be splashed with liquid. This may cause damage.

Maintenance & 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.
- When sending the product for repair, pack carefully to prevent damage in transit. Include cushioning material so the instrument cannot move within the package. Be sure to include details of the problem.
- Hioki cannot be responsible for damage that occurs during shipment.

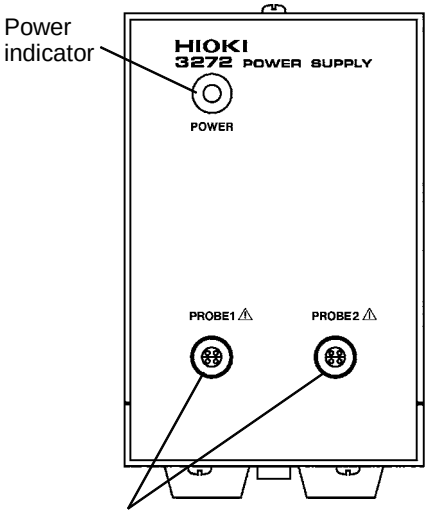
Chapter 1 Overview

1.1 Product Overview

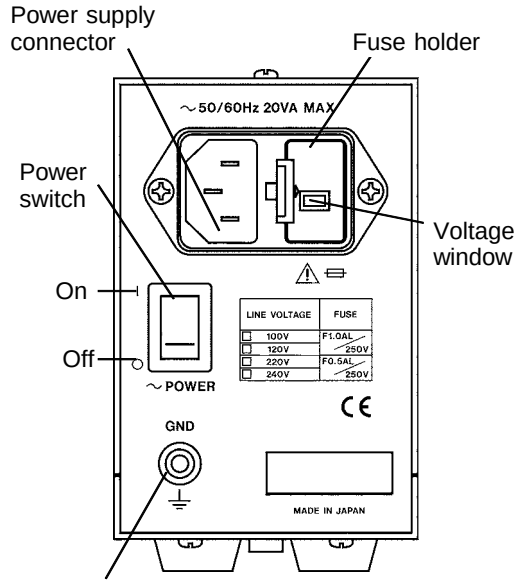
This unit is the power supply dedicated to Models 3273-50, 3273, 3274, 3275, and 3276 Clamp on Probe (hereafter referred to as the " current probe "), as well as Models CT6700 and CT6701 Current Probe.

1.2 Names of Parts

External view



Front view


Power supply connector
Fuse holder
~50/60Hz 20VA MAX
Power switch
Voltage window
On
Off
~POWER
LINE VOLTAGE
FUSE
100V
120V
220V
240V
F1.0AL 250V
F0.5AL 250V
GND
MADE IN JAPAN
Grounding terminal

Rear view

Chapter 2
Specifications

2.1 Product Specifications

Compatible sensors	3273-50, 3273, 3274, 3275, 3276 Clamp On Probe and CT6700, CT6701 Current Probe
Number of power supply connectors	2
Output voltage	±12 V ±0.5 V
Rated output current	600 mA (sum total of all channels and all output voltages)
Ripple voltage	3 mVp-p or less (at rated output current)
Load influence	Within output voltage limits indicated above for current output in the range 0 to 600 mA.
Temperature influence	Within output voltage limits indicated above for ambient temperature in the range 0 to 40°C (32 to 104°F).
Power supply voltage influence	Within output voltage limits indicated above for the rated power supply voltage, ±10%.
Operating temperature and humidity range	0 to 40°C (32 to 104°F), 80% RH or less (no condensation)

Storage temperature and humidity range	-10 to 50℃ (14 to 122℉), 80% RH or less (no condensation)
Location for use	Indoor,altitude up to 2000 m (6562 feet)
Rated supply voltage	100 V AC (120, 220, and 240 V require specification) (Voltage fluctuation of 10% from the rated supply voltage are taken into account.)
Rated supply frequency	50/60 Hz
Maximum rated power	20 VA
External dimensions	Approx. 73W x 110H x 186D mm Approx. 2.87"W x 4.33"H x 7.32"D
Mass	Approx. 1.1 kg Approx. 38.8 oz.
Accessories	Power cord, Instruction manual, Spare fuse F1.0 AL/250 V, 20 mm x 5 mm dia. (for 100 V and 120 V models) or F0.5 AL/250 V, 20 mm x 5 mm dia. (for 220 V and 240 V models)

2.2 Standards Applying

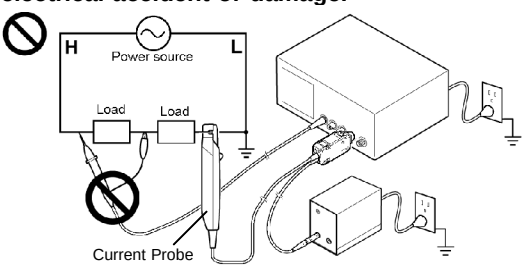
Safety	EN61010, Pollution Degree 2
EMC	EN 61326 EN 61000-3-2 EN 61000-3-3

Chapter 3 Measurement Procedure

3.1 Preparations

⚠ DANGER

- **To avoid accidents, when using other measurementdevices with this one, observe the usage precautions described for each 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 probe is connected, do not connect the ground-side terminal to any non-ground potential. Otherwise, short-circuit current will flow through the current probe or this device from the ground terminal, which could cause an electrical accident or damage.**



⚠ WARNING

Before turning the product on, make sure the supply voltage matches that indicated on its power connector. Connection to an improper supply voltage may damage the product and present an electrical hazard.

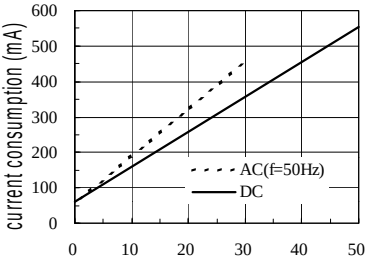
(1) Turn the power switch off and connect the power cord.
(2) Connect the power plug of the sensor to be used to the power receptacle of the 3272.
(3) Turn the 3272 power switch on, and check that the front panel power indicator lights.

3.2 Measurement Procedure

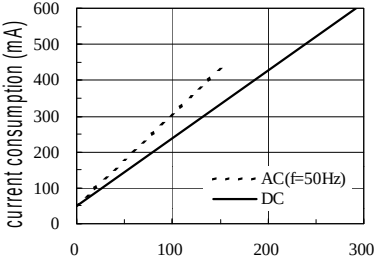
See the 3273-50, 3273, 3274, 3275, 3276, CT6700 or CT6701 instruction manual.

NOTE

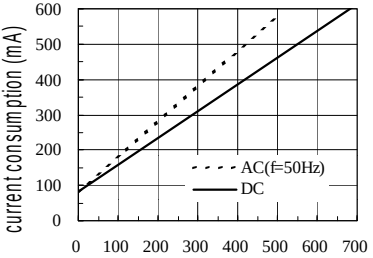
- Make sure the sum of the current consumption of the connected current probe does not exceed the rated output current of the 3272 (See Fig.1).
- When using the 3272 with Model 3273-50, 3273, 3274, 3275, 3276, CT6700 or CT6701 in general only one current probe may be connected.
- However, depending on the current level of the object under test, two current probes may be connected simultaneously.
- The current consumption of a current probe is dependent upon the current level of the object under test.



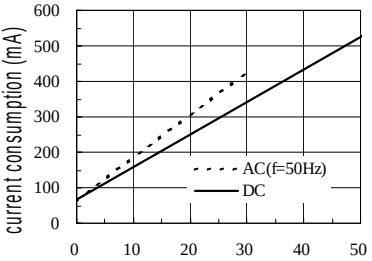
(1) 3273-50 current (A)



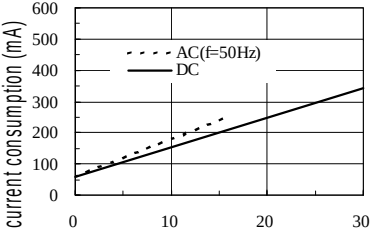
(2) 3274 current (A)



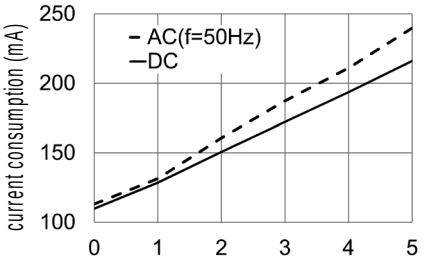
(3) 3275 current (A)


600
500
400
300
200
100
0
current consumption (mA)
AC(f=50Hz)
DC
0
10
20
30
40
50
current (A)

(4) 3276


600
500
400
300
200
100
0
current consumption (mA)
AC(f=50Hz)
DC
0
10
20
30
current (A)

(5) 3273



(6) CT6700, CT6701

Fig.1

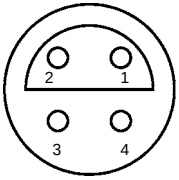
Current consumption* vs. current to be measured(typical)

*The sum total of a positive and negative current consumption

Chapter 4
Description of Parts

4.1 Power Supply Receptacle

The pin assignment of the receptacle is shown in the following.



1 Not used
2 Ground
3 -12 V
4 +12 V

4.2 How to Change the Power Supply Fuse and Change the Power Supply Voltage

The power supply fuse for the 3272 unit, and the power supply voltage selector, are housed in the power input socket on the rear panel.

⚠ WARNING

- **To avoid electric shock, turn off the power switch and disconnect the current probe before replacing the fuse.**
- **Replace the fuse only with one of the specified characteristics and voltage and current ratings. Never use unspecified fuses and never use the product after the fuse holder has shorted. This will damage the product and cause injury.**
  Supply voltage
  100 V, 120 V : F1.0 AL/250 V 20 mm x 5 mm dia.
  220 V, 240 V : F0.5 AL/250 V 20 mm x 5 mm dia.

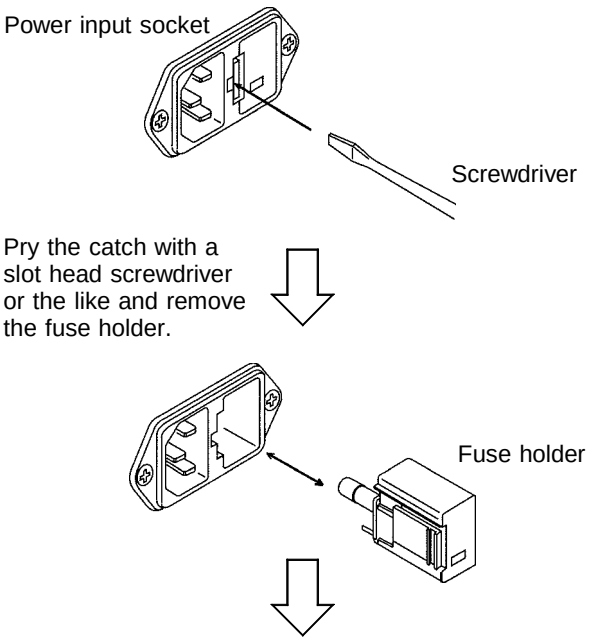
To change the fuse, or to alter the power supply voltage setting, use the following procedure with reference to the figures.

1. Turn the power switch off, and then remove the power cord.
2. Using a slot head screwdriver or the like, bias sideways the catch which holds the fuse holder into the power input socket as shown in the figure, and then remove the fuse holder.
3. When changing the power supply fuse:
   Change the power supply fuse for a new one of the same rating and specification.
   When altering the power supply voltage setting:
   (1) Remove the voltage selector from the fuse holder, and reinsert it after having rotated it so that the desired new power supply voltage

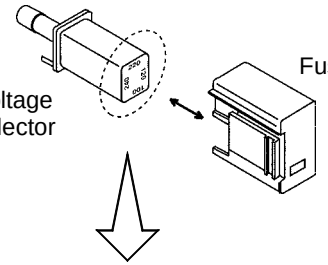
setting appears in the voltage window as shown in the figure.
Then recheck the setting value shown in the voltage window. (The voltage display is upside down and backwards.).

(2) Change the power supply fuse for a new one whose rating and specification are appropriate for the new power supply setting.

4. Replace the fuse holder by reinserting it into the power input socket.

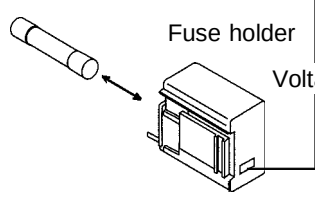


When altering the power supply voltage setting:



Remove the voltage selector, rotate it so that the figures which will appear in the voltage window represent the voltage of the power supply which will now be used, and then replace it.

When changing the power supply fuse:



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.

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.

13-09

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