

INSTRUCTION MANUAL

**3272**

**POWER SUPPLY**

HIOKI E. E. CORPORATION

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## 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.

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## 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







**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. 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.

	<ul style="list-style-type: none"><li>• 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.</li><li>• In the manual, the  symbol indicates particularly important information that the user should read before using the product.</li></ul>
	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.

	Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.
	Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.
	Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.
	Indicates advisory items related to performance or correct operation of the product.



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## Measurement categories (Overvoltage categories)

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

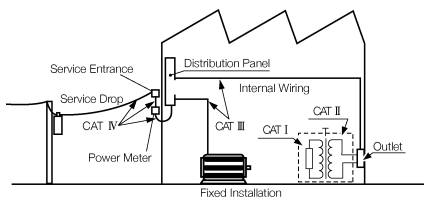
- CAT I : Secondary electrical circuits connected to an AC electrical outlet through a transformer or similar device.
- CAT II : Primary electrical circuits in equipment connected to an AC electrical outlet by a power cord (portable tools, household appliances, etc.)
- CAT III : Primary electrical circuits 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).

Higher-numbered categories correspond to electrical environments with greater momentary energy. So a measurement device designed for CAT III environments can endure greater momentary energy than a device designed for CAT II.

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.

Never use a CAT I measuring product in CAT II, III, or IV environments.

The measurement categories comply with the Overvoltage Categories of the IEC60664 Standards.





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## **Precautions**

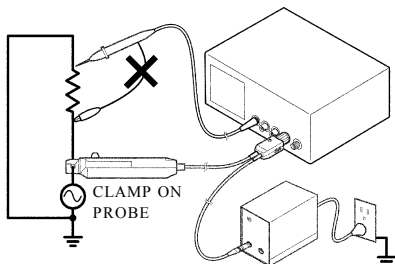
Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

### **Preliminary Check**

Before using the product 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**

- Be sure to observe all operating precautions for the waveform monitoring instrument (oscilloscope or recorder) and other measurement instruments to which the CLAMP ON PROBE (refer to P5 Compatible sensors) 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 CLAMP ON PROBE is connected, do not connect the ground-side terminal to any non-ground potential. Otherwise, short-circuit current will flow through the CLAMP ON 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.

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# Chapter 1 Overview

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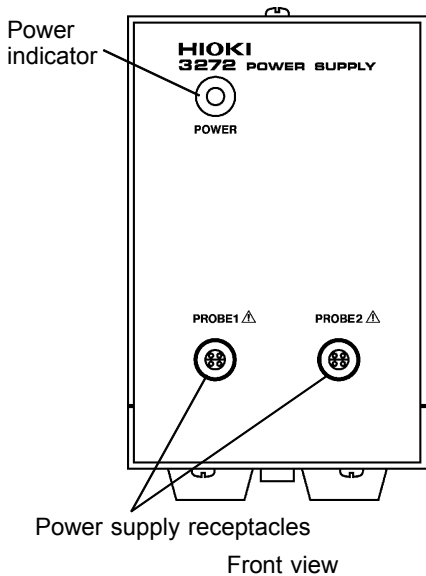
## 1.1 Product Overview

This unit is a special-purpose power supply for the 3273-50, 3273, 3274, 3275, and 3276 CLAMP ON PROBE.

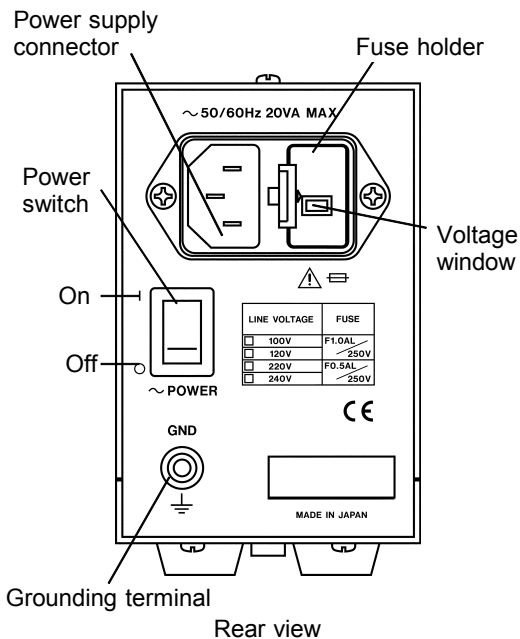
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## 1.2 Names of Parts

### External view









# Chapter 2

## Specifications

### 2.1 Product Specifications

Compatible sensors	3273-50, 3273, 3274, 3275, 3276 CLAMP ON PROBE
Number of power supply connectors	2
Output voltage	$\pm 12\text{ V} \pm 0.5\text{ V}$
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, $\pm 10\%$ .
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°C (14 to 122°F), 80% RH or less (no condensation)

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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)

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## 2.2 Standards Applying

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Safety	EN61010-1:2001, Pollution Degree 2
EMC	EN 61326:1997 +A1:1998+A2:2001+A3:2003 EN 61000-3-2:2000 EN 61000-3-3:1995+A1:2001

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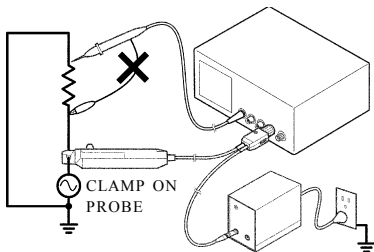
# **Chapter 3 Measurement Procedure**

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## 3.1 Preparations

### **⚠ DANGER**

- Be sure to observe all operating precautions for the waveform monitoring instrument (oscilloscope or recorder) and other measurement instruments to which the CLAMP ON PROBE (refer to P5 Compatible sensors) 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 CLAMP ON PROBE is connected, do not connect the ground-side terminal to any non-ground potential. Otherwise, short-circuit current will flow through the CLAMP ON 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 source voltage matches that indicated on the rear panel of the product. 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.

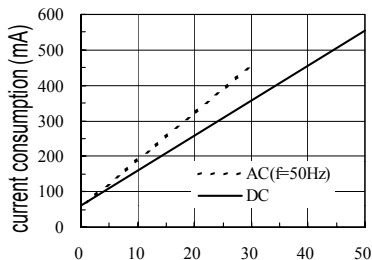
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## 3.2 Measurement Procedure

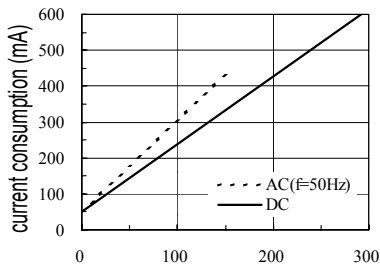
See the 3273-50, 3273, 3274, 3275, or 3276 instruction manual.

**NOTE**

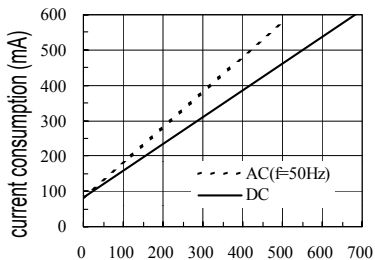
- Make sure the sum of the current consumption of the connected CLAMP ON PROBE(s) does not exceed the rated output current of the 3272 (See Fig.1).
- When using the 3272 with Model 3273-50, 3274, 3275 or 3276 CLAMP ON PROBE, in general only one CLAMP ON PROBE may be connected.
- However, depending on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



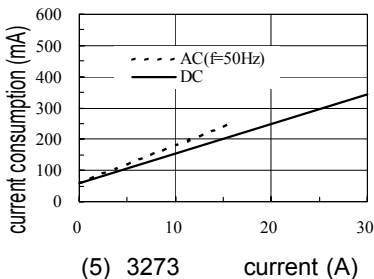
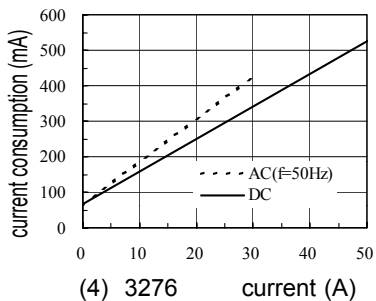


Fig.1

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

\*The sum total of a positive and negative current consumption





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## Chapter 4

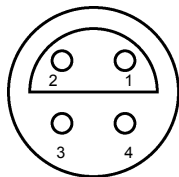
# Description of Parts

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### 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

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### 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 clamp on probe before replacing the fuse.**
- **Replace the fuse only with one of the specified characteristics and voltage and current ratings. Using a non-specified fuse or shorting the fuse holder may cause a life-threatening hazard.**

**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:

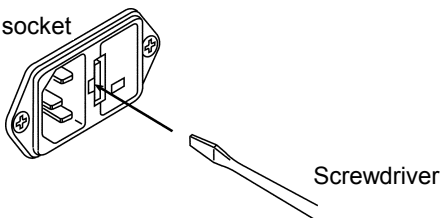
- (1) Remove the voltage selector from the fuse holder, and reinsert it after having rotated it so that the desired new power supply voltage setting appears in the voltage window as shown

in the figure.

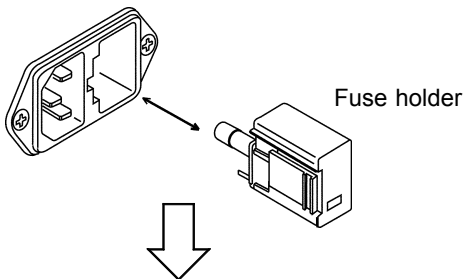
Then recheck the setting value shown in the voltage window. (The voltage display is upside down and backwards.).

- (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.

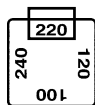
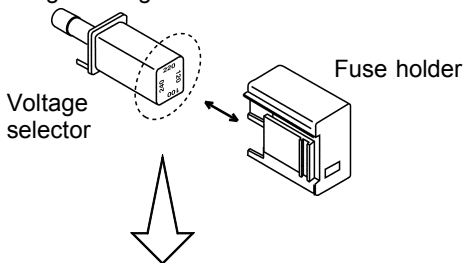
Power input socket



Pry the catch with a slot head screwdriver or the like and remove the fuse holder.

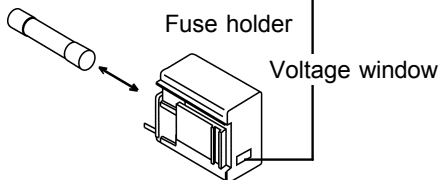


When altering the power supply voltage setting:



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:



**HIOKI**

**DECLARATION OF CONFORMITY**

Manufacturer's Name: HIOKI E.E. CORPORATION  
Manufacturer's Address: 81 Koizumi, Ueda, Nagano 386-1192, Japan  
Product Name: POWER SUPPLY  
Model Number: 3272

The above mentioned product conforms to the following product specifications:

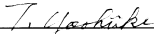
Safety: EN61010-1: 2001  
EMC: EN61326:1997+A1:1998 +A2:2001+A3:2003  
ClassB equipment  
Minimum immunity test requirement  
EN61000-3-2:2000  
EN61000-3-3:1995 +A1:2001

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

HIOKI E.E. CORPORATION

5 September 2006

  
\_\_\_\_\_  
Tatsuyoshi Yoshiike  
President

3272A999-01





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- All reasonable care has been taken in the production of this manual, but if you find any points which are unclear or in error, please contact your supplier or the International Sales and Marketing Department at HIOKI headquarters.
  - In the interests of product development, the contents of this manual are subject to revision without prior notice.
  - Unauthorized reproduction or copying of this manual is prohibited.
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