

# HIOKI L2102, L2103

## PIN TYPE LEAD

### Instruction Manual

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L2102A980-02 20-06H

EN

# HIOKI

<http://www.hioki.com>



All regional contact information

**HEADQUARTERS**  
81 Koizumi  
Ueda, Nagano 386-1192 Japan

**HIOKI EUROPE GmbH**  
Rudolf-Diesel-Strasse 5  
65760 Eschborn, Germany  
hioki@hioki.eu

1906 EN

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## Introduction

Thank you for purchasing the HIOKI Model L2102, L2103 PIN TYPE LEAD. To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

## Overview

The conductive-tip contact pin of the model L2102 has a four-terminal structure that is developed for inspection of small devices, such as a terminal of a button cell battery. Use of the coaxial pin with an outside diameter of 1.8 mm makes it easy to contact an object to be measured, ensuring correct resistance measurement.

The conductive-tip contact pin of the model L2103 has a four-terminal structure that is developed for inspection of through holes, pads and surface mounted devices on a PCB. Parallel pins 0.2 mm apart are used and the tip is a four-sided pyramid. These make it easy to contact very small objects under measurement, and help measure a through hole efficiently.

## Inspection and Maintenance

### 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.

### 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.
- Pack the product 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 product and for maintaining it in safe operating condition. Before using it, be sure to carefully read the following safety precautions.

### **DANGER**

Mishandling this product 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. |
|  | Indicates DC (Direct Current).                                                                                              |
|  | Indicates that the product conforms to regulations required by the EU Directive.                                            |

The following symbols in this manual 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 possibility of injury to the user or damage to the product.               |
|  | Indicates advisory items related to performance or correct operation of the product.                                    |

## Usage Notes



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

### **DANGER**

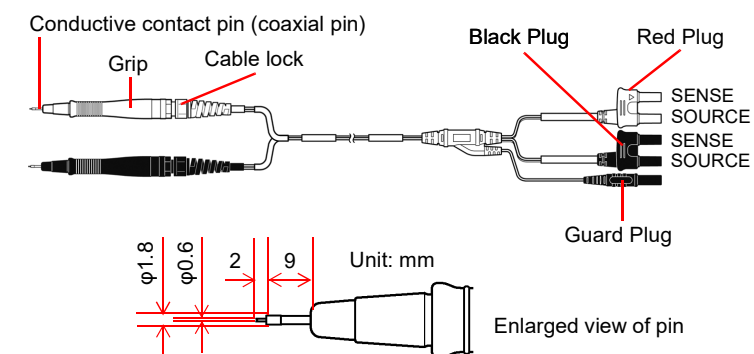
- To avoid electrical shock, be careful to avoid shorting live lines with the Pin type leads.
- The maximum rated voltage between input terminals and ground is 30 V rms, 42.4 Vp AC and 60 V DC. Attempting to measure voltages exceeding these limits with respect to ground could damage the product and result in personal injury.
- The maximum input current is as follows;  
The model L2102: 3 A AC/DC  
The model L2103: 2 A AC/DC  
Never exceed this limit, as doing so could result in destruction of the instrument and personal injury or death.
- To avoid shock and short circuits, turn off all power before connecting leads.

### **CAUTION**

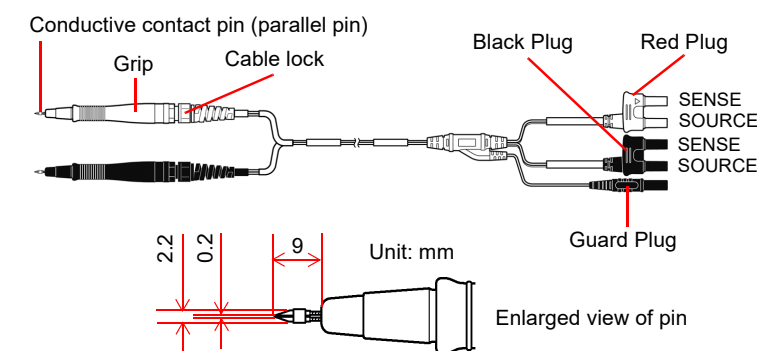
- To avoid damage to the product, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.
- To avoid damage to the product, do not use the product where it may be exposed to oil, chemicals, or solvents.
- To avoid breaking the leads, do not bend or pull them.
- Avoid stepping on or pinching cables, which could damage the cable insulation.
- Do not curl the cable near the cable lock.
- It may damage the core wire or the covering.
- Do not bend it continuously.
- The ends of the leads are sharp. Be careful to avoid injury. Fit the protective pin cap when the product is not in use.

## Parts Names

### The model L2102 PIN TYPE LEAD



### The model L2103 PIN TYPE LEAD



## Procedure

### Preliminary Checks

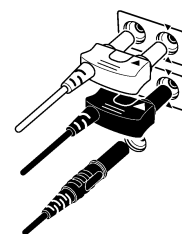
Before using the product the first time, verify that it operates normally to ensure that no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.

### **DANGER**

Before using the product, make sure that the insulation on the test leads 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.

#### Conductive contact pin (coaxial)

1. Make sure that power of the device to connect the pin type lead to is off.
2. Connect the pin type lead to the input terminal of the device.



Plug the ▲ mark on the red lead into the red ▲ marked jack on the instrument, and plug the ▲ mark on the black lead into the black ▲ marked jack on the instrument.

3. Connect the model L2102 / L2103 to a sample.

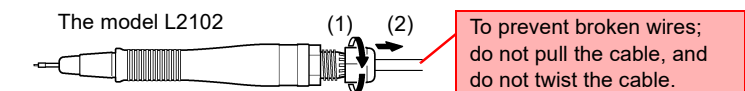
### NOTE

- Zero adjustment cannot be performed with the model L2102, L2103. Use the model L2101 clip type lead for zero adjustment. For details on zero adjustment, please refer to the instruction manuals of the connecting devices.
- Fit the cap after use.

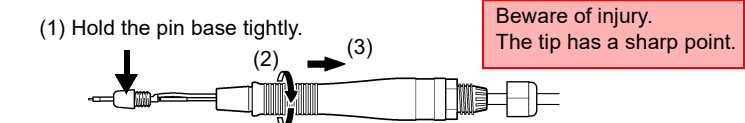
## Replacing the Pin

The conductive-tip contact pin is replaceable. Replace the pin with a new one if it is broken or worn. One-piece conductive-tip contact pins with a plastic pin base are available separately.

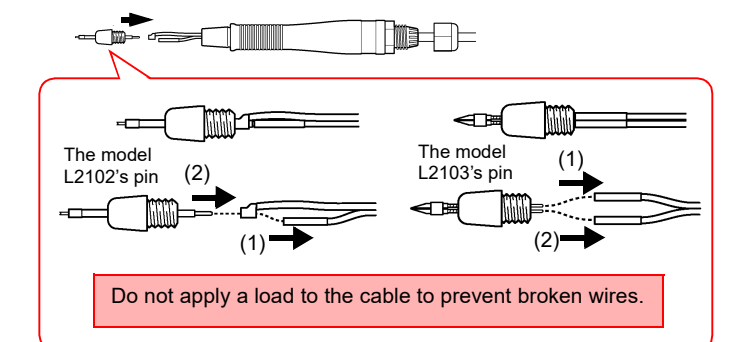
1. Turn off power of the device before connecting the pin type lead.
2. Unscrew the cable lock to unlock the cable.  
(The cable is locked by screwing the cable lock.)



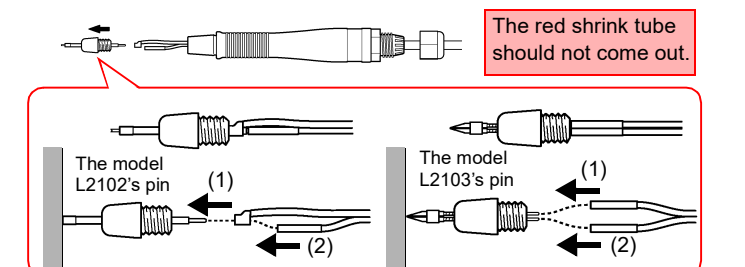
3. Hold the pin base so that the cable won't rotate, and then rotate the grip to loosen it.



4. Pull off the connector and remove the pin.



5. Fasten a new pin. Press the tip of the pin against a desk so that the pin won't spring out, and push the connector onto the pin.



6. Assemble the pin type lead in the reverse order of disassembling. Do not pull or twist the cable.
7. To avoid broken wires and contact failures, after tightening the cable lock, gently tug and twist the cable to check it is firmly held.
8. Check the performance. Measure an object with a known resistance. Make sure that the measured resistance is correct before using the pin type lead.

## Specifications

|                                    |                                                                        |
|------------------------------------|------------------------------------------------------------------------|
| Maximum rated voltage to earth     | 30 V rms or less, 42.4 Vp AC or less and 60 V DC or less               |
| Maximum input current              | Model L2102: AC/DC 3 A continuous<br>Model L2103: AC/DC 2 A continuous |
| Operating temperature and humidity | 0°C to 40°C (32°F to 104°F), 80%RH or less (no condensation)           |
| Storage temperature and humidity   | -10°C to 50°C (14°C to 122°C), 80%RH or less (no condensation)         |
| Operating Environment              | Altitude up to 2000 m (6562 feet), Indoor<br>Pollution Degree 2        |
| Size&Weight                        | Approx. 1500 mm (59.06 ") / Approx. 180 g (6.3 oz.)                    |
| Accessories                        | Instruction manual                                                     |