

# HIOKI

## 9770, 9771

### PIN TYPE LEAD

#### INSTRUCTION MANUAL

July 2005 Revised edition 1 Printed in Japan  
9770A980-01 05-07H

#### HIOKI E. E. CORPORATION

**HEAD OFFICE**  
81 Koizumi, Ueda, Nagano 386-1192, Japan  
TEL +81-268-28-0562 / FAX +81-268-28-0568  
E-mail: os-com@hioki.co.jp URL http://www.hioki.co.jp/  
**HIOKI USA CORPORATION**  
6 Corporate Drive, Cranbury, NJ 08512, USA  
TEL +1-609-409-9109 / FAX +1-609-409-9108

#### Introduction

Thank you for purchasing the HIOKI "Model 9770, 9771 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 9770 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 9771 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.

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.
- 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.

#### 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 33 Vrms, 46.7 Vp AC and 70 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 9770: 3 A AC/DC  
The model 9771: 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**

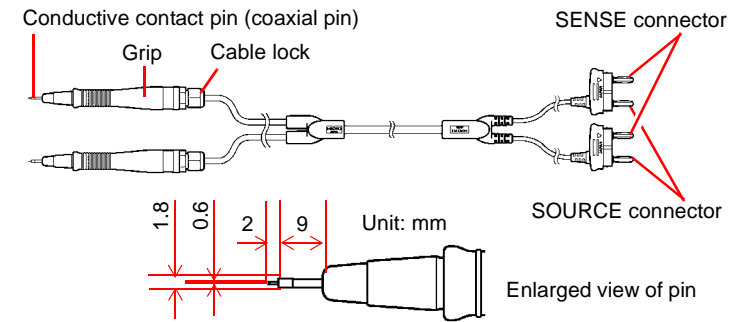
- To avoid damage to the product, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.
- To avoid breaking the leads, do not bend or pull them.
- The ends of the leads are sharp. Be careful to avoid injury. Fit the protective pin cap when the product is not in use.

##### **NOTE**

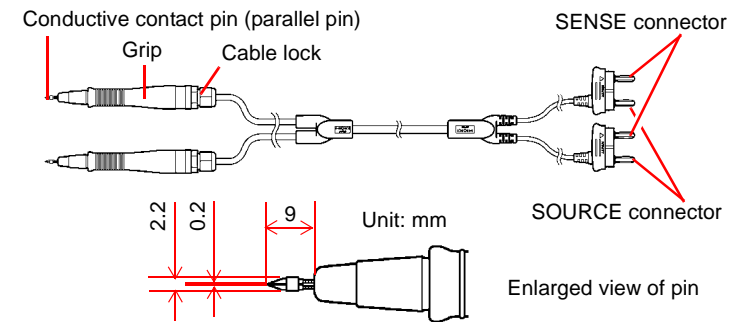
A cap are placed on pin for protection during transport. Remove the cap before use.

#### Parts Names

##### The model 9770 PIN TYPE LEAD



##### The model 9771 PIN TYPE LEAD



#### Procedure

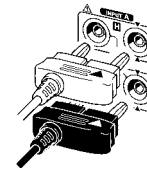
##### Preliminary Checks





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**

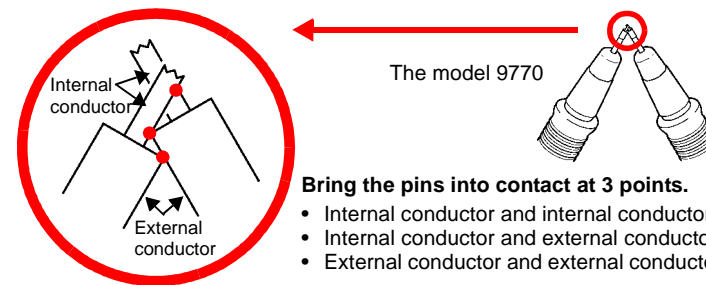
Before using the product, make sure that the insulation on the test leads is undamaged and that no bare conductors are improperly exposed. Using the product in such conditions could cause an electric shock, so contact your dealer or Hioki representative for repair.

- Make sure that power of the device to connect the pin type lead to is off.
- 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.

- Perform zero adjustment. Short-circuit the pins of the pin type lead in the specified method and perform zero adjustment. See the instruction manual for details of connectable devices.



**Bring the pins into contact at 3 points.**

- Internal conductor and internal conductor
- Internal conductor and external conductor
- External conductor and external conductor

The internal conductor shall contact the external conductor at one point.

- Connect the model 9770/9771 to a sample.

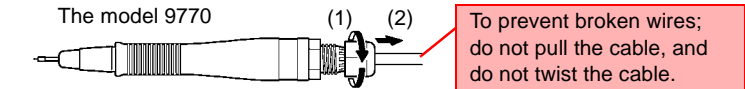
##### **NOTE**

- Zero adjustment cannot be performed with the model 9771. Use the model 9287-10 clip type lead for zero adjustment.
- Fit the cap after use.

#### Replacing the Pin

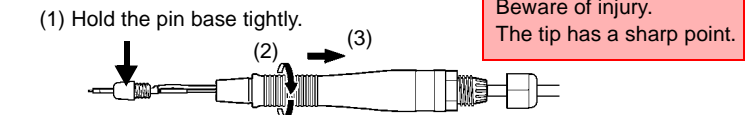
The conductive-tip contact pin is replaceable. Replace the pin with a new one if it is broken or worn. One-piece conductive-tip contact pins with a plastic pin base are available separately.

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



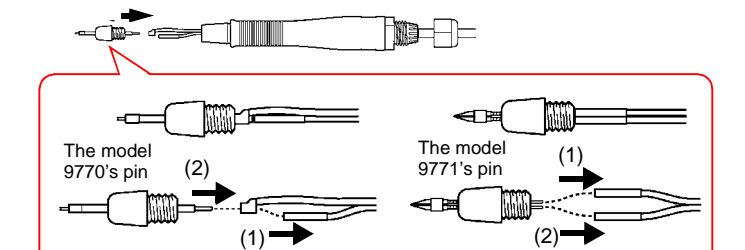
To prevent broken wires, do not pull the cable, and do not twist the cable.

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



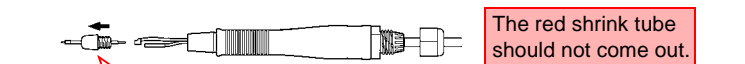
Beware of injury. The tip has a sharp point.

- Pull off the connector and remove the pin.

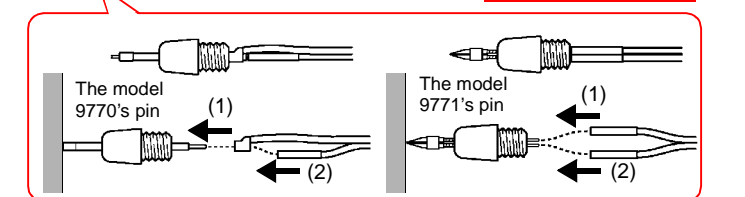


Do not apply a load to the cable to prevent broken wires.

- 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.



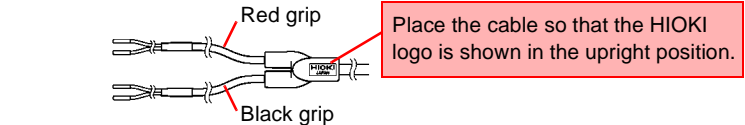
The red shrink tube should not come out.



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

##### **NOTE**

If the grips are detached, reassemble by referring to the picture below.



Place the cable so that the HIOKI logo is shown in the upright position.

#### Specifications

Maximum rated voltage to earth	33 Vrms or less, 46.7 Vp AC or less and 70 V DC or less
Maximum input current	Model 9770: AC/DC 3 A continuous Model 9771: 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), Indoors
Size&Weight	Approx. 860 mm (33.86")/ Approx. 110 g (3.9 oz.)
Accessories	Instruction manual