

# HIOKI

## 9081

### EXTERNAL SHUNT Instruction Manual

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9081A980-03 05-11H

#### Introduction

Thank you for purchasing the HIOKI "Model 9081 EXTERNAL SHUNT" To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

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#### Specifications

Rated current	10 A
Rated voltage drop	100 mV
Accuracy	± 1% of indicated value (does not include meter error)
Guaranteed accuracy period	1 year
Dimensions (shunt)	Approx. 110W x 20H x 16D mm (excluding protrusions)
(lead)	Approx. 1030 mm
Mass (shunt)	Approx. 65 g
(lead)	Approx. 36 g

Please check a HIOKI catalog for products to which this product can be connected.

#### Overview

Even 10 ADC can be measured by using this HIOKI "9081 EXTERNAL SHUNT" if there is a voltage measurement that can measure 100 mVDC.

#### 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.

##### 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.

##### Maintenance and Service

- If the product seems to be malfunctioning, contact your dealer or Hioki representative. Pack the product carefully so that it will not be damaged during shipment, and include a detailed written description of the problem. Hioki cannot be responsible for damage that occurs during shipment.

#### Safety

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

##### ⚠ WARNING

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.

##### ⚠ 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

Advisory items related to performance or correct operation of the product.



#### Usage Notes

##### ⚠ DANGER

- For safety, this product connections must always be made at the secondary side of a circuit breaker.
- The maximum input current is 10 A. Attempting to measure current in excess of the maximum input current could destroy the product and result in personal injury or death.
- The maximum rated voltage between input terminals and ground is 70 VDC/33 Vrms. Attempting to measure voltages exceeding 70 VDC/33 Vrms with respect to ground could damage the product and result in personal injury.

##### ⚠ WARNING

- Do not allow the product to get wet, and do not take measurements with wet hands. This may cause an electric shock.
- Do not use the product where it may be exposed to corrosive or combustible gases. The product may be damaged or cause an explosion.
- In order to prevent electric shock and short-circuit accidents, shut off the power to the line to be measured before connecting the this product.
- To avoid electrical accidents, confirm that all connections are secure. The increased resistance of loose connections can lead to overheating and fire.
- When using an external shunt, be careful not to touch the shunt or allow the cable to come into contact with the shunt to avoid circuit short.

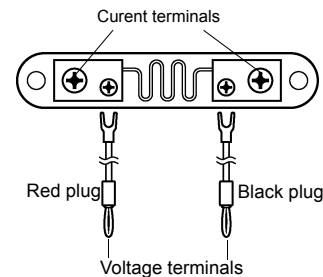
##### ⚠ CAUTION

- 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.
- Do not use the product in any way such that the ventilation holes in the top and bottom of the case are obstructed. This can cause the internal temperature to rise, and lead to fire or malfunction.
- Do not install the product with any side except the bottom facing down. This may cause a fire or other malfunction in the product.
- 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.
- To avoid damage to the product, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.

##### 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.

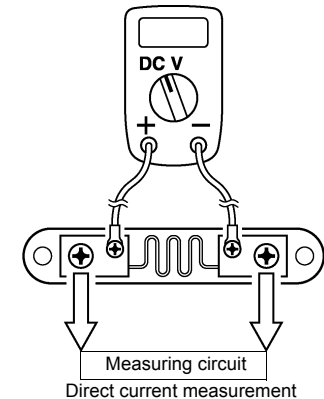
#### Parts Names



#### Measurement Procedures

1. Set the instrument at the voltage range suitable for measuring 100 mV.
2. The red plug connected to the 9081 voltage terminal is the "+" terminal, the black plug is the "-" terminal or "- COM" terminal.
3. The 9081 current terminals are connected into the measuring circuit. The leads for making the connection between the 9081 current terminals and the measuring circuit should be selected to keep the voltage drop negligible. If this voltage drop is large, the influence on the measurement will not permit accuracy to be obtained in the measuring circuit. Also, the leads must be securely attached to the current terminals.
4. Because the current value measured is a conversion from the voltage (mV), care should be taken with respect to the location of the decimal point and the unit values of voltage (mV).

Example:	Measured current	Indication
	10 A	100.0 mV
	5 A	50.0 mV
	1 A	10.0 mV



##### NOTE

- If the selector switch is set to AC, alternating current can be checked.
- After using the shunt for a long continuous period, it will tend to become warm, and care should be taken in handling it.