

HIOKI

8993

DIGITAL I/O UNIT

Instruction Manual

Printed in Japan

Introduction

Thank you for purchasing the Hioki 8993 DIGITAL I/O UNIT. To obtain maximum performance from the instrument, please read this manual first, and keep it handy for future reference.

The 8993 DIGITAL I/O UNIT is an optional unit for use with the Hioki MEMORY HiLOGGERS. Make sure you connect it to the MEMORY HiLOGGER before use.

HIOKI

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Initial Inspection

When you receive the instrument, 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 instrument, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinner or gasoline, as they can deform and discolor the case.
- If the product seems to be malfunctioning, Contact your dealer or Hioki representative. When transporting the product, use the original packing materials in which it was shipped, and pack in a double carton. Damage occurring during transportation is not covered by warranty.

Safety

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

⚠ DANGER

This device is designed to conform to 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 instrument. 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.

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.
⚠ WARNING	Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.

Be sure to read the Danger, Warning, Caution and Notes information in the instruction manual supplied with the Memory HiLogger, and always follow the included precautions.

For the measurement category, refer to the instruction manual of the Memory HiLogger.

Specifications

Input Specifications

Input channels	16 channels (Each input channel and the HiLogger chassis share common ground)
Maximum input voltage	50 VDC
Detection levels	High = 2.5 V or more, Low = 0 to 1.5 V
Input resistance	1.1 MΩ±5%
Transfer rate	Once per recording interval

Output Specifications

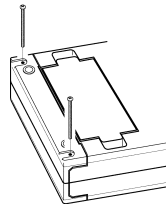
Input type	No-voltage contact (normally open), open collector or voltage input
Output channels	16 channels Outputs can be set to correspond to any of the 32 analog input channels, 4 pulse input channels, or one 16-bit digital channel. (Each output channel is isolated from the others and from the HiLogger chassis ground.)
Maximum rated voltage to ground (output only)	30 Vrms AC, 60 VDC (between each output channel and the HiLogger, and between each output channel)
Withstand voltage	350 VAC for 1 minute (between each output channel and the HiLogger, and between each output channel)
Output circuit	Open collector output (active low)
Maximum switching capacity	5 to 60 VDC, 10 mA
Output updating	Once each recording interval

General Specification

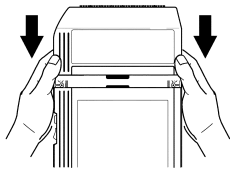
Compatible models	HIOKI Memory HiLoggers
Operating environment	Indoors, <2000 m (6562 feet) ASL
Operating temperature and humidity	0 to 40°C (32 to 104°F) at 30 to 80% RH (non-condensating)
Storage temperature and humidity	-10 to 50°C (14 to 122°F) at 30 to 80% RH (non-condensating)
Size (without protrusions)	Approx. 92W×170H×52D mm (3.62"W×6.69"H×2.05"D)
Weight	Approx. 0.3 kg (1.1 oz.) (without battery) Approx. 0.55 kg (1.9 oz.) (within battery)
Accessories	Instruction Manual
Options	9447 BATTERY PACK The HiLogger can be powered by installing a supplemental Model 9447 BATTERY PACK (which must be charged in the HiLogger or Hioki 9643 CHARGE STAND).
Standards applying	Determined by specification of the connected Memory HiLogger

Connecting the Unit

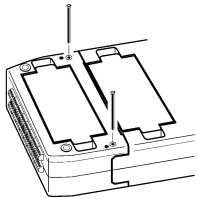
Before connecting or disconnecting the unit, make sure the power switch is off. When the unit is not connected, be sure the cover is installed.



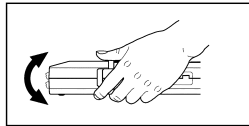
1. Using a plastic-handled screwdriver, remove the two screws that secure the unit's rear cover, and lift it off.



2. Insert the 8993 DIGITAL I/O UNIT.

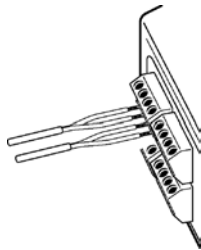


3. Secure with the two screws provided.



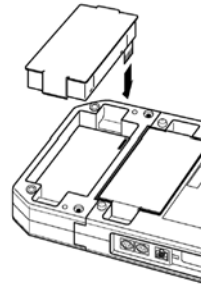
If the connector does not mate easily, rock the Digital I/O unit slightly as shown while pressing the units together.

Alarm Outputs



The alarm outputs are on the upper half of the terminal block. Sixteen alarm output (active-low) channels are provided. Loosen the screw on the terminal block using the screwdriver supplied with the instrument. Insert the wires in each + and - terminal, and tighten the screws. For descriptions of the alarm output settings, refer to the Memory HiLogger Instruction Manual.

Battery Pack Installation

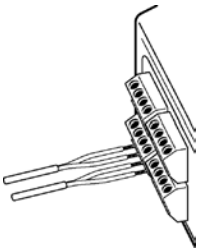
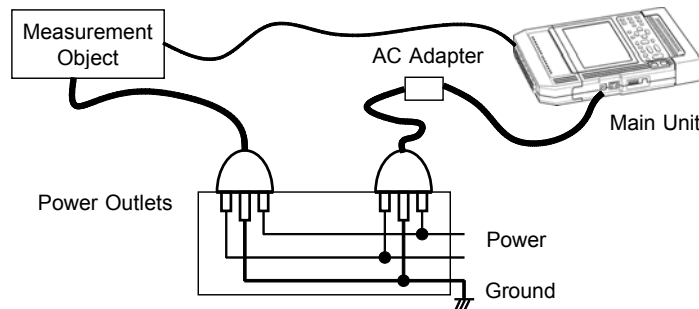


Another Hioki 9447 BATTERY PACK can be installed in the Digital I/O unit to supplement the battery pack in the instrument, approximately doubling the operating time. For details of battery pack installation, refer to the Memory HiLogger Instruction Manual.

Logic Inputs

⚠ WARNING

The logic inputs share common ground with the instrument. Therefore, electric shock or damage to the instrument could result if the source of power supplied to the instrument by the AC adapter is not the same as that supplied to the measurement object. Even if power is supplied from the same source, potential difference can result from wiring conditions, resulting in unintended current flow through the measurement lead and measurement object which could damage the instrument. To avoid such hazards, use only power cords with two power conductors plus a ground conductor for both the measurement object and the instrument, and connect both cords to the same mains outlet before connecting the leads to the measurement object.



The logic inputs are on the lower half of the terminal block. Sixteen logic input channels are provided.

Loosen the screw on the terminal block using the screwdriver supplied with the main unit. Insert the wires in each + and - terminal, and tighten the screws.

For descriptions of the logic input settings, refer to the Memory HiLogger Instruction Manual.