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Model IM48/IM48s
High-Voltage Isolation Module
Operating Instructions

Astro-Med Inc. 600 East Greenwich Avenue • West Warwick RI 02893
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Introduction

The High-Voltage Isolation Modules IM48 and IM48s are four-channel isolation amplifiers meant to extend the measurement range of general-purpose chart recorders such as Astro-Med's Dash IV and Dash 8. Both models IM48 and IM48s are free-standing and battery-powered.

The IM48 has a 1000:1 divider in front of the isolation amplifier so that the output of the module is 1 millivolt for each volt input. Interpretation is thus simplified, since the recorder can be set to the millivolt range and the calibration units can be read directly as volts.

The IM48s does not have a front-end divider; it is a straight-through unity-gain isolation amplifier meant for applications that have low differential voltages but high common mode voltages. For example, current shunts may require full-scale measurements of about 100 to 200 millivolts floating at 800 or 900 volts. It is important to note, however, that the maximum measurement range of the IM48s is only 5 volts full scale. Higher inputs may damage the amplifier, although there is no safety hazard up to the rated common mode voltage.

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Operation

Both modules operate from an internal 12-volt NiCAD battery pack, with sufficient capacity to operate the amplifier for at least 10 hours before recharging is required. If possible, it is recommended that the module be connected to the Dash IV or Dash 8 through the external DC banana jacks located on the rear of the module. The recorder can then supply power to both run the amplifier and keep the battery pack fully charged through the built-in battery charger. Alternatively, any 11- to 18-volt DC power supply may be used to operate and/or charge the module.

Both modules are wired for operation in the same way:

1. Connect the IM48/IM48s to the recorder with the short dual-banana-plug assemblies included with the module. Note that the module outputs are completely isolated and special interconnect wiring is not required, nor are isolated inputs required on the Dash 8 or Dash IV.

2. Connect the signal source to the IM48/IM48s by the included high-voltage connectors and cable.

3. Turn the power switch on and operate.

No particular power-up sequence is required. The operation of the module is extremely simple and is described graphically by the front-panel overlay.

A FEW HINTS:

- With the IM48, set the recorder to mV and read in volts.
- With the IM48s, set the recorder to the actual values.
- The high impedance of the IM48s may contribute to noise pick-up. Connecting the black DC input jack on the rear panel to ground or to the Dash 8/Dash IV power-out jack may help.

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Specifications

	IM48	IM48s
Input Impedance	20 megohm	> 100 megohm @ DC
Input to Output	1000:1	1:1
Maximum Measurement Voltage	1500 V Peak 1000 V RMS	5 V Peak 3.5 V RMS
Maximum Common Mode Voltage	1500 V Peak	1500 V Peak
Input to Input Isolation	1500 V DC (4000 V test)	1500 V DC (4000 V test)
Input to Output Isolation	1500 V DC (4000 V test)	1500 V DC (4000 V test)
IMR	N/A	100 dB @ 60 Hz
Frequency Response	-3 dB @ 700 Hz	-3 dB @ 700 Hz
Noise (additive to recorder)	0.3 div	1 div

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