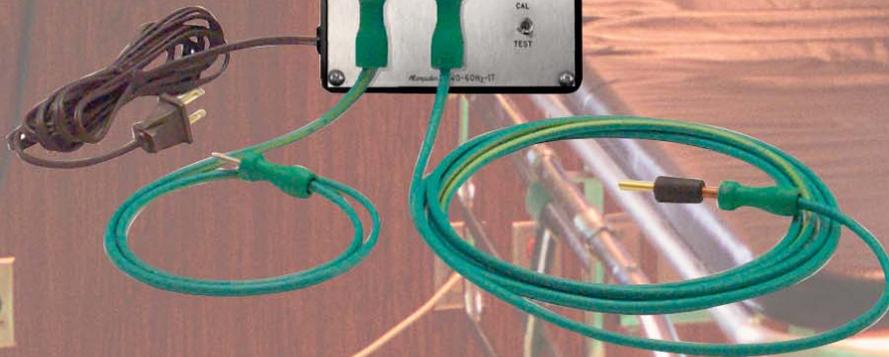


# HOSPITAL EQUIPOTENTIAL EQUIPMENT



**Hamden**<sup>®</sup>  
ENGINEERING CORPORATION



**A Simple & Convenient Method for Assuring Proper Grounding Systems and Checking Impedance Ratings of New & Existing Construction**

**MVO-1-PB Ground Integrity Tester**

Hampden's **Model MVO-1-PB** Ground Integrity Tester is available either wall-mounted or portable and is designed to be operated in either of two modes, OHMS or MILLIVOLTS.

Green and red segments on a large (3" effective length) scale separate permissible values of ohms and millivolts from those considered too high. Internal power is supplied by a standard 9-volt battery. (Model **MVO-1-PB-AC** is hard-wired to 120V AC.)

Two test leads are provided. An OHMS test lead which is touched to grounded surfaces during tests and a COMMON test lead which plugs into the reference grounding receptacle. The unit is easily zeroed and calibrated in both OHMS and MILLIVOLTS modes by means of the selector switch and potentiometers on the instrument's front panel.

**MILLIVOLTS MODE** - In the MILLIVOLTS mode, the **MVO-1-PB** is used to measure the difference in potential between the reference grounding point and exposed conductive surfaces in a patient's vicinity. The potential difference shall not exceed:

- \* New Construction 20mV
- \*\* Critical Care Areas 40mV
- \*\* General Care Areas 500mV

**OHMS MODE** - In the OHMS mode, the **MVO-1-PB** is used to measure the resistance between the reference grounding point and the ground contact of each receptacle in the patient's vicinity. The resistance limit shall not exceed:

- \* New Construction 0.1 Ohm
- \*\*\* Appliance Grounding 0.5 Ohm
- \*\*\*\* Existing Construction 0.15 Ohm

\* E.g.: refer to paragraph 4.3.3.1.6 of NFPA No. 99-2002  
 \*\* E.g.: refer to paragraph 8.5.2.1.4 of NFPA No. 99-2002  
 \*\*\* E.g.: refer to paragraph 8.4.1.3.2 of NFPA No. 99-2002  
 \*\*\*\* E.g.: refer to paragraph A.4.3.3.1.1 of NFPA No. 99-2002

**MVO-60HZ-IT Impedance Tester Option**

The Hampden **MODEL MVO-60HZ-IT** 60 Hertz Impedance Tester provides a simple and convenient method of Grounding System Testing as recommended in paragraph 4.3.3.1.4 of NFPA Health Care Facilities Standard Number 99, as stated below:

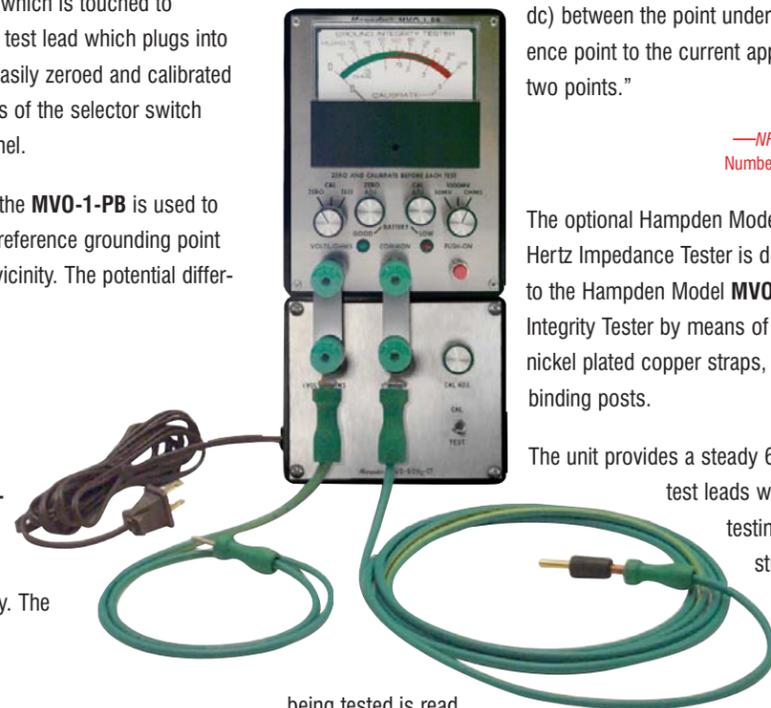
"For new construction, the impedance measurement shall be made between the reference point and the grounding contact of 10 percent of all receptacles in each patient care vicinity. The impedance measurement shall be the ratio of voltage developed (either 60 Hz or dc) between the point under test and the reference point to the current applied between these two points."

—NFPA Health Care Facilities, Number 99, Paragraph 4.3.3.1.4

The optional Hampden Model **MVO-60HZ-IT** 60 Hertz Impedance Tester is designed to couple to the Hampden Model **MVO-1-PB** Ground Integrity Tester by means of hook-on bright nickel plated copper straps, secured under the binding posts.

The unit provides a steady 60 Hz signal to the test leads which is needed for testing existing construction impedance measurements. The impedance of the circuit

being tested is read directly on the ohms scale of the integral meter of the **MVO-1-PB** Ground Integrity Tester. For the test, the **MVO-60HZ-IT** supplies less than 20 millivolts across the ground circuit at 0.1 ohm. The 60 Hertz open circuit voltage of the **MVO-60HZ-IT** is less than 185 millivolts.



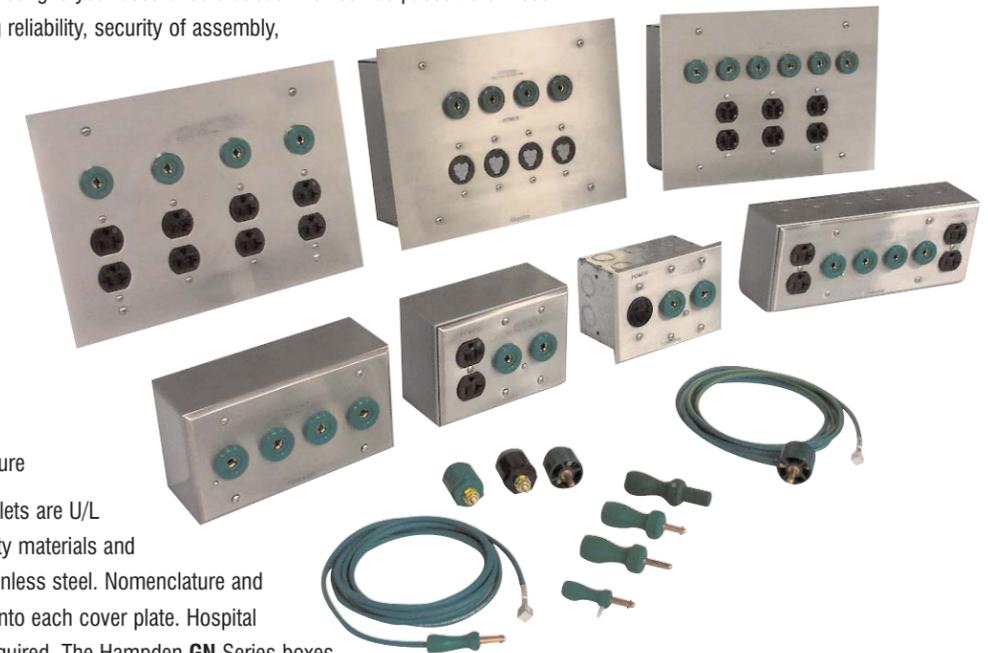
**Quick, Reliable and Secure Ground and Power Connections**

**Hampden Ground and Power Outlets**

Hampden Ground and Power Outlets are specifically designed to provide maximum safety and withstand severe abuse in hospitals and heavy-duty industrial applications. The UL hospital grade listing is your assurance that each device has passed the most stringent requirements for grounding reliability, security of assembly, strength and durability.

UL test requirements include, but are not limited to:

- Abrupt Removal of Plug
- Ground Pin Retention
- Terminal Strength
- Assembly Security
- Face Impact
- Fault Current Test
- Ground Contact Temperature



All Hampden Ground and Power Outlets are U/L Approved and made from high quality materials and components: 302 non-magnetic stainless steel. Nomenclature and operating instructions are stamped into each cover plate. Hospital grade power devices are used as required. The Hampden **GN** Series boxes are manufactured of code gauge painted steel and have internal ground bus terminals for no. 14 to no. 6 conductors including six spares.

**Ground Cord Systems and Hospital Plug and Receptacle Components**

Hampden Grounding Cord Sets are available with SLP-3PR Pin Plugs (UL Listed) and ALP-3P Angle-Cap Plugs in a variety of lengths. They are widely used in hospitals, particularly in electrically susceptible patient locations, such as Intensive Care Units, to assure that all conductive surfaces within reach of the patient (or anyone who may touch the patient) are at a common electrical potential.

**F3V-6B3 Instrument Ground Panel**

This unit is a 3-gang flush vertical mounted instrument ground panel. Mounted on its engraved aluminum plate are six (6) green Hampden HB-3M 5-way binding posts. The binding posts are tied together using bus bar. A lug is provided to connect a ground wire.



# HOSPITAL TIMERS

*Use Wherever Accurate Measurements  
of Elapsed Time are Critical*

## H-DIT-2A Digital Interval Timer



The Hampden **Model H-DIT-2A** Digital Interval Timer is used to display time-of-day and to measure and display elapsed time in hours, minutes and seconds. The easy-to-read 0.8 inch high LED numerals are clearly legible from distances up to 35 feet. Elapsed time is measured on a 24-hour basis. Time of day may be shown in 12-hour segments (for which 01:00:00 follows 12:59:59), or on a 24-hour basis (for which 00:00:00 follows 23:59:59). The **Model H-DIT-2A** contains a battery that assures the keeping of correct time when AC power is removed. When required, the Digital Interval Timer may be automatically reset to 00:00:00 and started by a CODE BLUE signal.

The **Model H-DIT-2A** may be used wherever accurate measurements of elapsed time is important. Hospital applications include the following areas:

- Operating Rooms
- Intensive Care Units
- Coronary Care Units
- Delivery Rooms
- Dialysis Units
- X-Ray Laboratories
- Any areas where timed procedures occur



Hampden is committed to providing industry-leading technology.

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