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Phone: (877) 544-2291

HVGM-1

High Voltage Ground Monitor
P/N: 1100-1100



Operation Manual and Data sheet

HVGM-1 High-Voltage Ground Monitor

The HVGM-1 is an impedance-type Ground Monitor (GM) designed to monitor the integrity of the grounding conductor between a power source and equipment being powered.

When properly installed, the HVGM-1 continuously monitors the impedance of the ground conductor. If this impedance increases by 3 ohms from its calibrated level, the HVGM-1 will trip, indicating a grounding problem.

The HVGM-1 is designed for use in power systems in High-Voltage (HV) systems (over 1000V). For LV or MV systems (under 1000V), IE recommends the GLT-500 ground monitor (IE P/N 1100-1000).

Features:

- Analog current meter makes calibration simple and intuitive.
- Polarity switch allows optimal setting to prevent nuisance trips.
- Latching circuit-breaker trip indicator indicates when a grounding issue has occurred, even if the problem is intermittent.
- Test button allows test of the GM function.
- UVR mode (selectable via a protected rear-panel switch): The GM will trip if a bad ground is detected or if control voltage is lost. This mode is fail-safe.
- Non-UVR mode (selectable via a protected rear-panel switch): The GM will trip if a bad ground is detected. This mode is not fail-safe.
- Lockout mode (selectable via protected rear panel switch): The GM will stay tripped until the latching circuit breaker trip indicator is manually reset.
- Non-Lockout Mode (selectable via protected rear panel switch): The GM will automatically reset if the ground issue that caused the trip is cleared. However, the latching circuit-breaker trip indicator will continue to indicate that a trip occurred until it is manually reset.
- Impedance Range Switch (protected on rear panel) allows selection of 16 or 50 ohm impedance ranges. This allows up to 50 ohms of pilot/ground impedance, but improves calibration for more common, lower impedance, systems.
- Full chassis to improve reliability and to improve safety.
- Standard panel mount / pinout makes the HVGM-1 an easy upgrade for legacy products.

Specifications:

Input voltage	120 VAC, +/- 15%
Power Draw:	55 VA
Pilot Output:	16VAC Max, up to 1.5A
Weight:	5.5 lbs / 2.5 kg



II: Controls & Connections

Figure 1: Front Panel



- **Latching Circuit Breaker Trip Indicator:** This breaker acts as a latching trip indicator. When a grounding problem is detected, this indicator trips, and stays tripped until manually reset.
- **Current Meter:** Measures test current in the pilot-ground loop. Used to calibrate the HVGM-1.
- **UVR & NON-UVR Indicators:** One of these will be lit to indicate which mode (UVR or Non-UVR) the HVGM-1 is set for.
- **Control A & Control B:** These knobs are used to calibrate the HVGM-1 for the system in which it is installed.
- **Polarity Switch:** This switch can be set to prevent nuisance trips caused by current surges (such as when power is applied to equipment being powered). Set the switch so that current surges increase, rather than decrease the current, as indicated on the Current Meter.
- **Fuse Holder:** Replace fuse only with a fuse of the same rating.
- **Test Button:** Pressing this button inserts four ohms into the pilot-ground loop to test the GM function. When working properly, this should cause a trip.
- **Calibration Instructions:** Follow these instructions to calibrate the HVGM-1 after installation. Unit should be re-calibrated any time a modification, such as cable change, is made to the system.
 1. ROTATE CONTROL A AND CONTROL B FROM GROUNDING AND TRIP THE TRIP INDICATOR.
 2. IF AMMETER READS OVER 1A, PRESS TEST AND ROTATE CONTROL B UNTIL THE TRIP INDICATOR TRIPS. OR, IF AMMETER READS LESS THAN 1A, PRESS TEST AND ROTATE CONTROL A UNTIL TRIP INDICATOR TRIPS.
 3. RESET THE TRIP INDICATOR. THE GROUND MONITOR WILL TRIP WHEN PILOT-TO-GROUND IMPEDANCE INCREASES BY 1 OHM.
 4. SET POLARITY SWITCH SO THAT CURRENT SURGES INCREASE CURRENT READING ON AMMETER.

Figure 2: Rear Panel



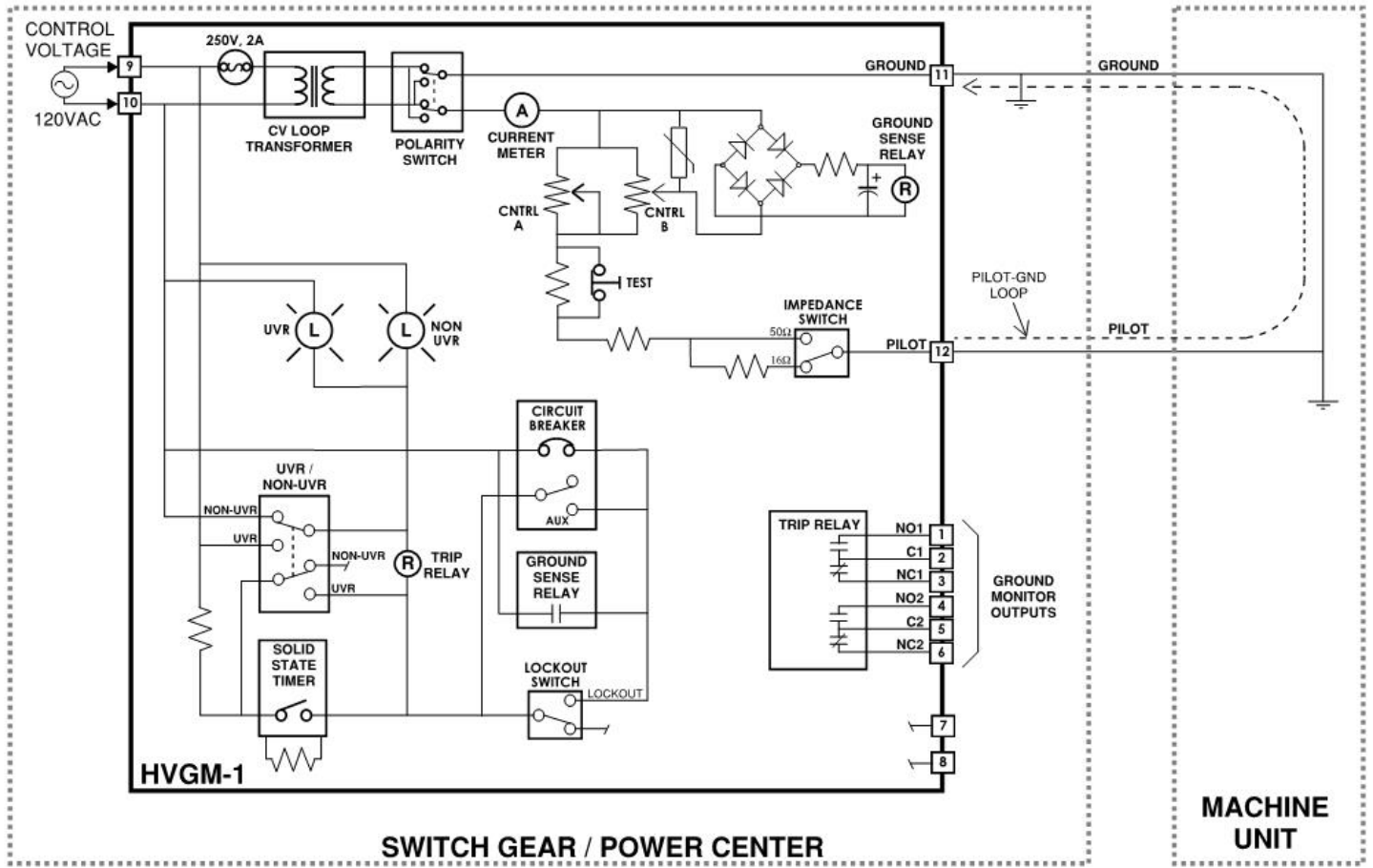
- **Mode switch cover:** Prevents accidental changes to mode settings. Loosen the screw on right side and rotate the cover to expose switches.
- **UVR / Non-UVR Mode Switch:** Selects between UVR and Non-UVR Modes.
- **Impedance Range Switch:** Selects between high-impedance range (50 ohms) and low impedance range (16 ohms). For most precise calibration, use the 16 ohm setting when the high impedance range is not needed.
- **Lockout Mode Switch:** Enables or disables Lockout Mode.
- **I/O Connector:** Includes all necessary inputs / outputs:

Table 1: I/O Connector Pin-out

Pin	Purpose
1-3	C-form contacts (NO / C / NC), set 1
4-6	C-form contacts (NO / C / NC), set 2
7-8	Unused
9-10	Control Voltage input (120V AC)
11	Ground Input
12	Pilot Output



Figure 3: HVGM-1 Block Diagram



Mechanical Dimensions

