# Ground Hub Continuous Monitor Operation, Installation and Maintenance

Made in America




*Figure 1. Desco 19219 Ground Hub Continuous Monitor*




*Figure 2. Desco 19224 Ground Hub Continuous Monitor*

## Description

The Desco Ground Hub Continuous Monitor confirms the integrity of the resistance path from the common ground point to electrical ground. It is designed in accordance with ESD TR 12-01 to "monitoring equipment ground connections."

When the Ground Hub Continuous Monitor is plugged into an AC outlet, the green LED illuminates when both the outlet's wiring is correct and the path to equipment ground via the equipment grounding conductor is intact. The monitor provides 12 verified ground points when in PASS condition. The red LED illuminates when either the outlet's wiring is incorrect or the path to equipment ground is defective.

The outlet ground line is tested by measuring voltage between it and the neutral line. It is normal to have a few volts of AC induced on the neutral line. If the Ground Hub Continuous Monitor measures only a few volts, the ground line to neutral impedance is low and the ground line would make a suitable ESD ground point. If the monitor measures more than just a few volts between ground and neutral, this indicates either that they are not referenced to each other or that the outlet and associated wiring should be checked for loose connections. In this case, the Ground Hub Continuous Monitor will sound a warning alarm and display a red FAIL indication and should not be used for an ESD grounding point until corrected.

Use the Ground Hub Continuous Monitor to fulfill the ANSI/ESD S6.1 section 6.3.1 requirement. "The hot, neutral and equipment grounding conductor shall be verified to be in the proper wiring orientation in accordance with the National Electric Code (ANSIINFPA-70)."

The Ground Hub Continuous Monitor is available in the following models:

| Item | Voltage | Plug |
|---|---|---|
| 19219 | 120VAC | N. America |
| 19224 | 220VAC | Asia / UK |

## Packaging

1 Ground Hub Monitor
6 10-32 x 1/4" Screws
6 #10 Split Washers

## Features and Components

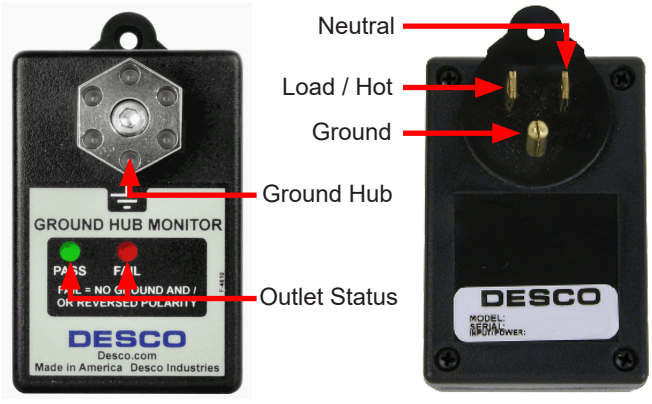



*Figure 3. Desco 19219 Ground Hub Continuous Monitor features and components*

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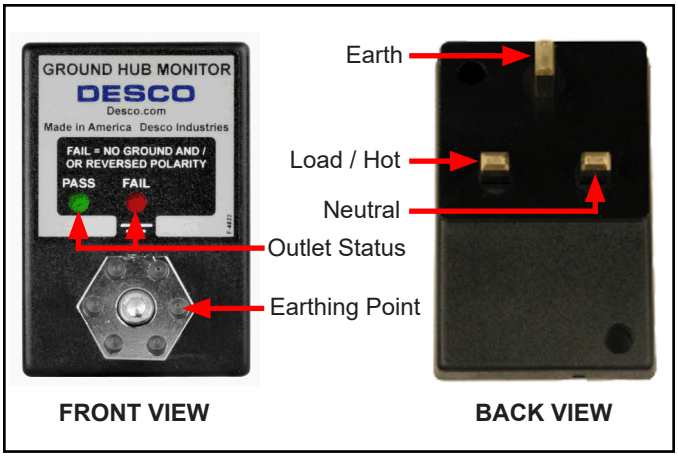



*Figure 4. Desco 19224 Ground Hub Continuous Monitor features and components*

## Operation

Plug the Ground Hub Monitor into an outlet to see if the green PASS LED illuminates. This signifies that the outlet is correctly wired and the path to equipment ground is intact. The screw that holds the outlet cover on may be used to secure the Ground Hub Monitor so that it cannot be unplugged. Use the included screws and split washers to connect ring terminals (not included) to the Ground Hub or the banana jacks (not included) to connect banana plugs (see Figure 5).

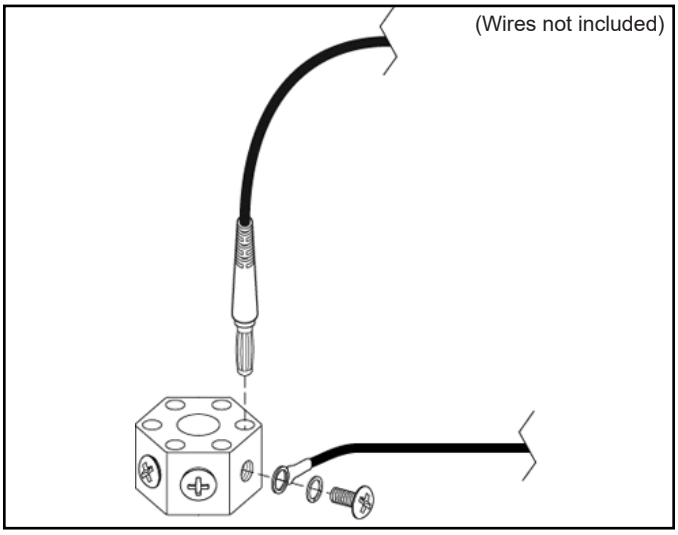



*Figure 5. Installing ring terminals and banana plugs to the Ground Hub*

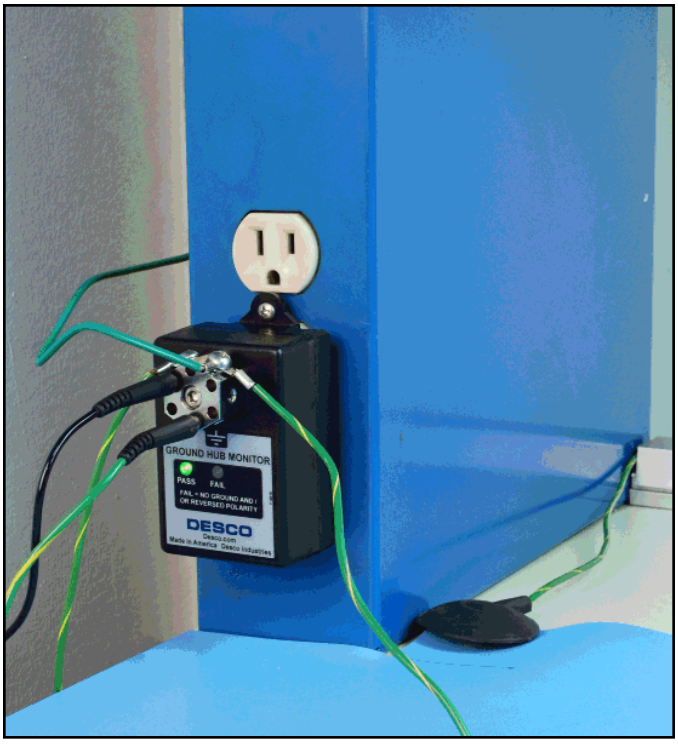



*Figure 6. Ground Hub Continuous Monitor in-use photo*

### TESTING THE GROUND HUB MONITOR

NOTE: The following procedure should only be done by someone familiar with voltage hazards. This procedure will work for 220VAC as long as the neutral and ground are referenced. 220VAC produced with out of phase 110VAC-Ground-110VAC will produce a FAIL result.

Isolate the ground plug from the Ground Hub Monitor by inserting the monitor into a 3 to 2 plug adapter.

**A. PASS OUTLET -** Connect a 5 kilohm resistor @ 5% tolerance between the supply ground and tester ground. The PASS LED should remain illuminated until the resistor is removed. This test confirms the PASS point for the neutral-to-ground resistance.

**B. FAIL OUTLET -** Connect a 12.5 kilohm resistor @ 5% tolerance between the supply ground and tester ground. The FAIL LED should remain illuminated until the resistor is removed. This test confirms the FAIL point for the neutral-to-ground resistance.

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## Specifications

**Input Voltage:**
120VAC ±15%  (Item 19219)
220VAC ±15%  (Item 19224)

**Current Drain:**
< 10mA

**Equipment Ground Conductor Resistance Limits:**
10 kilohms (nominal) (19219 only)

**Dimensions:**
2.0" x 3.0" x 1.3"  (5.1cm x 7.6cm x 3.2cm)  (Item 19219)
2.0" x 3.0" x 2.0"  (5.1cm x 7.6cm x 5.1cm)  (Item 19224)

**Operating Temperature:**
0° - 40°C

**Limited Warranty**
Desco expressly warrants that for a period of one (1) year from the date of purchase Desco Continuous Monitors will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of replacement Desco Continuous Monitors, or, at Desco's option, the Continuous Monitor will be repaired or replaced free of charge. If product credit is issued, the amount will be calculated by multiplying the unused portion of the expected one year life times the original unit purchase price. Call Customer Service at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for Return Material Authorization (RMA) and proper shipping instructions and address. Include a copy of your original packing slip, invoice, or other proof of date of purchase. Any unit under warranty should be shipped prepaid to the Desco factory. Warranty replacements will take approximately two weeks.

If your unit is out of warranty, Desco will quote repair charges necessary to bring your unit up to factory standards.  Call Customer Service at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for a Return Material Authorization (RMA) and proper shipping instructions and address.

**Warranty Exclusions**
THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

**Limit of Liability**
In no event will Desco or any seller be responsible or liable for any injury, loss or damage, direct or consequent, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.

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