

# System Ground Monitor Operation and Maintenance



Figure 1. Statguard Flooring System Ground Monitor, Item No. 46100

### Description

The Statguard Flooring 46100 System Ground Monitor is a versatile, low-cost test instrument which confirms the resistance and integrity of the path-to-ground from the operator to ground via the Flooring - Footwear System. This product can be used as one of the tools to fulfill the ANSI ESD S20.20 paragraph 6.1.3.2 "Compliance Verification Plan. Verification should include routine checks of the Technical Requirements of the Plan." By touching the test button on the System Ground Monitor, a person can quickly and easily ensure that his/her foot grounding system contains recommended current limiting resistance and that there is continuity from skin to ground. In addition, the Monitor is designed to continuously check the integrity of the ground connection from the floor to electrical ground.

### Features

- Tests ESD shoes (Ref: ANSI-Z41 Standard)
- Tests foot grounders
- Fast response - detects intermittent failures in floor system
- 30 VDC test voltage
- Verifies electrical outlets polarity and ground integrity
- Audible and visual indication

The Model 46100 includes a number of innovations:

- **Outlet Wiring Verification:** When plugged into an AC outlet the yellow lamp lights if the polarity is correct and the path-to-ground via equipment ground (green or green and yellow wire) is intact. If either condition isn't met, the alarm sounds continuously.
- **Floor Grounding verification:** With the unit plugged in and the flooring-to-ground resistance of 1 megohm (nominal)- the blue LED will remain on.
- **30 VDC Test Voltage:** This is sufficient to overcome the inaccuracies of 9 volt battery-powered wrist strap testers and high enough to comply with the ANSI-Z41 standard for Static Dissipative Shoes.
- **Transient and Noise Immunity:** Circuitry is impedance protected from line conducted voltage and current transients and surges.

### Installation

- Mount the System Ground Monitor at a height convenient for testing and observing results.
- Run AC power cord to a grounded outlet. It is recommended that the outlet be checked first by a qualified electrician for proper wiring.
- Route supplied "Floor System" cord down wall and embed 8-10" of the braided section in the conductive adhesive under the floor tile.

- This completes the installation. The System Ground Monitor is now ready to use.

### General Instructions

In the following test configurations, the 46100 tests foot grounders or ESD shoes while they are worn.

### TESTING ESD FOOTWEAR WITH MODEL 46100

ESD shoes or foot grounders should be worn on both feet. Test each foot separately to ensure each resistance path. Per ESD Handbook TR 20.20 paragraph 5.3.3.3.4 Proper Usage "ESD protective footwear is designed to reduce body charge levels by supplying a conductive path from the body to the floor material. Heel and Toe grounders should be worn on both feet to insure effective use."

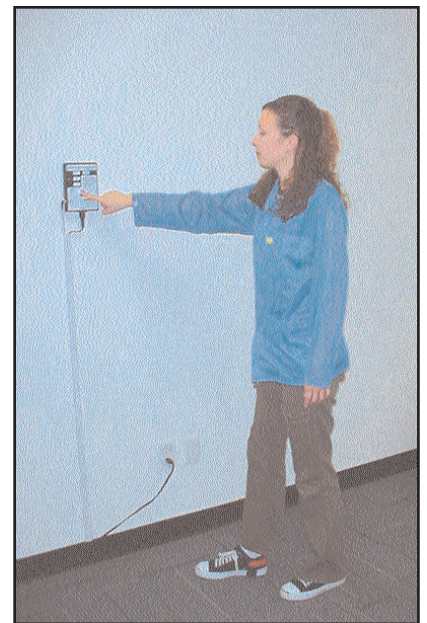


Figure 3. Testing foot grounding devices with the 46100

- Stand on one foot with ESD footwear in contact with ESD floor area to be tested.
- Touch the test button so that the unit activates. Hold down for 2-3 seconds.

C. Lighting of the green "PASS" LED indicates that the resistance path from foot grounder, ESD floor, and person is within proper limits.

D. If either "Fail LO" or "Fail HI" LEDs light, the wearer should investigate the cause of the failure.

E. Repeat steps A through D standing on the other foot.

#### Specifications:

##### Operating Voltage

100-240 VAC 50/60 Hz

##### Current Drain

<20mA

##### Test Voltage, Open Circuit

30 VDC

##### Floor Ground Resistance Limit

10 megohms or less pass

20 megohms or greater fail

##### Resistance Limits, Foot Strap

750 kilohms to 35 megohms,  
±10%

##### Size

1 x 5 x 7" (2.54 x 12.7 x 17.78cm)

##### Weight

1 lb

##### Line Cord

5' long, 18-3 AWG

##### Calibration

The model 46100 is calibrated to NIST traceable standards. We recommend that calibration is performed annually to ensure that the Tester is operating within limits. Contact the factory for additional information on calibration.

**NOTE:** Per ANSI/ESD S20.20 Paragraph 6.2.2.2 Personnel Grounding Guidance, "ESD protective flooring, used with approved footwear, may be used as an alternative to the wrist strap system for standing operations." And Paragraph 6.2.2.2 Personnel Grounding Guidance "A log should be maintained which verifies that personnel have tested their personal grounding devices."  
Per ESD Handbook TR20.20 paragraph 5.2.3 "If the contact area between the bottom of the foot and the floor is not continuous, charge generation may occur especially when a person is walking. Heel straps must be worn on both feet to minimize the amount of time that the body of the person is isolated from ground while walking."

#### Limited Warranty

Statguard Flooring expressly warrants that for a period of one (1) year from the date of purchase, Statguard Flooring monitors will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a unit will be tested, repaired or replaced at our option, free of charge. Call Customer Service at (781) 821-5609 for a Return Material Authorization (RMA) shipping instructions and address. You should include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the Statguard Flooring factory. Warranty repairs will take approximately two weeks.

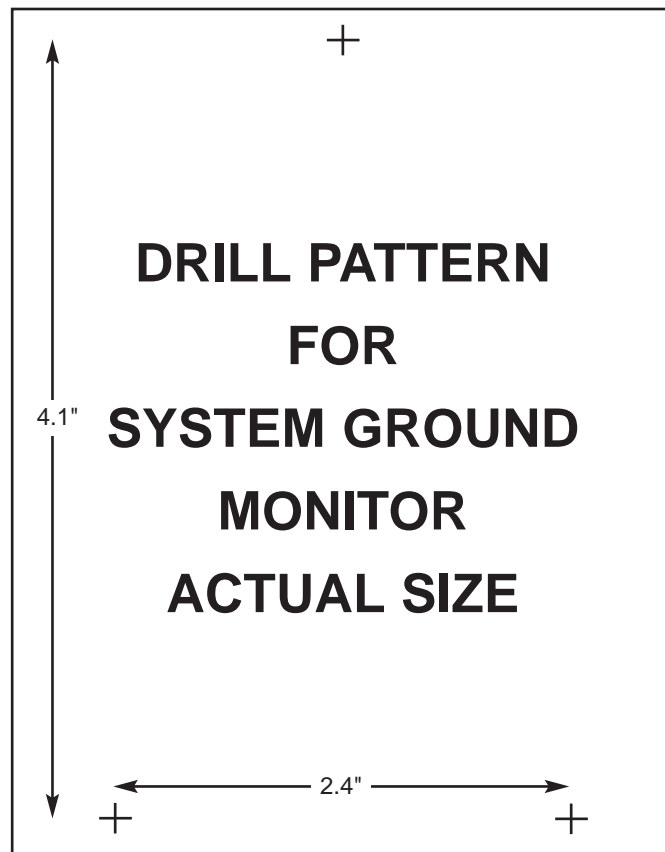
If your material is out of warranty, Statguard Flooring will quote repair charges necessary to bring your unit up to factory standards. Call Customer Service at (781) 821-5609 for a Return Material Authorization (RMA) shipping instructions and address. Ship your material prepaid.

#### 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 Statguard Flooring or any seller be responsible or liable for any injury, loss or damage, direct or consequential, 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.



**STATGUARD FLOORING**

90 HUDSON ROAD  
CANTON, MA 02021  
PHONE (781) 821-5609  
FAX (781) 575-0172  
StatguardFlooring.com

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