

# WRIST STRAP TESTER

## Model 250



## Operating Instructions

4/09



**electro-tech systems, inc.**

[www.electrotechsystems.com](http://www.electrotechsystems.com)

3101 Mt. Carmel Avenue, Glenside, PA 19038 • Tel: (215) 887-2196 • Fax: (215) 887-0131

## 1.0 APPLICATION

The Model 250 Wrist Strap Tester shown in Figure 1.0 is a precision portable test instrument designed to test virtually all types of personnel grounding cable/wrist strap assemblies having a nominal grounding resistance of 1 Megohm. It can be used to test the strap assembly alone or the complete cable/wrist strap system while on the user's wrist.



Figure1.0-1: Model 250 Wrist Strap Tester

## 2.0 OPERATION

### 2.1 Testing cable and wrist strap only

Test limits are 750kOhms - 1.25 MegOhms

- a. Place the Wrist Strap Tester Select Switch in STRAP ONLY position.
- b. Connect the grounding end of the cable to the appropriate mating banana jack or snap located on the front of the unit. If a clip connection is used, then attach the clip to one of the snaps.
- c. Touch the main ground point on the Test Button and depress the Test Button.
- d. If the cable/wrist strap assembly resistance is between 750K and 1.25 Megohms (assembly good), the Red FAIL light will flash and the Beeper will sound momentarily then the Green PASS indicator will light continuously indicating that the strap is good.
- e. If the assembly resistance is below 750K ohms (shorted resistor) or above 1.25 Megohms (broken resistor, wire, or connection) the Red FAIL light will continue to flash and the beeper will continue to sound indicating a defective cable/wrist strap assembly.

- f. The cable or wrist strap portion of the assembly that contains the limiting resistor can be tested separately by following the procedure in a through e above.

## **2.2 Testing Cable/Wrist Strap On Wearer's Wrist**

Test limits are 750kOhms to 10 MegOhms.

- a. Place the Wrist Strap Tester select switch in the STRAP & WEARER position.
- b. Connect the grounding end of the cable to the appropriate mating banana jack or snap located on the front of the unit. If a clip connection is used, then attach the clip to one of the snaps. Attach the strap to the wrist in the normal manner.
- c. Depress the PUSH TO TEST button and observe the PASS/FAIL indicators.
- d. If the total system resistance (cable-strap-wearer) is between 750K and 10 MegOhms (system good), the Red FAIL light will flash and the Beeper will sound momentarily then the Green PASS indicator will light, continuously indicating that the cable-strap-wearer system is good.
- e. If the total system resistance is below 750K ohms (shorted resistor) or above 10 Megohms (broken resistor and/or wire, open connection or poor contact between the strap and wearer) the Red FAIL LED will light and the beeper will continue to sound indicating a defective cable-strap-wearer system.
- f. If the cable-strap-wearer system fails then check the cable/strap assembly alone as described in Section 1 above. If the cable/strap assembly checks good then the problem is excessive contact resistance between the wearer and the wrist strap assembly.

## **3.0 AUTOMATIC FUNCTIONS**

### **3.1 Battery Low:**

The Model 250 operates from a single 9-volt battery that is easily accessible by sliding the battery compartment lid, located on the bottom side, toward the rear of the unit. When the battery approaches the end of its useful life, the Wrist Strap Tester will abruptly cease to function. When the TEST Button is depressed and the battery voltage is low, neither indicator will light nor will the Beeper sound. Replace the battery with an Ever Ready type 522, Ray-O-Vac type A-1604, Duracell type MN/1604 or any other 9-volt rectangular alkaline battery equivalent to these types.

### 3.2 System Self-Test:

The Tester contains a FAIL-SAFE measurement system that checks the system each time the TEST button is depressed. This system is designed such that the Red FAIL indicator MUST ALWAYS FLASH (at least for an instant) each time the Test Button is pushed even if the cable-wrist strap assembly is good. Should the Wrist Strap Tester fail to give this indication (even if it gives a PASS indication) a malfunction in the tester should be suspected. DO NOT USE The Wrist Strap Tester unless it is functioning as described herein. If in doubt, contact Electro-Tech Systems, Inc. at 215-887-2196 so that repairs, if required, can be made.

**NOTE:** The Model 250 Wrist Strap Tester is designed to verify the proper functioning of a cable/wrist strap assembly only. IT DOES NOT TEST FOR A PROPER CONNECTION FROM THE CABLE TO EARTH OR HOUSE GROUND. Proper grounding from the wearer to earth ground is essential to insure adequate user/ESD protection.

The actual connection to ground can be checked using an ETS Model 255 Resistance To Ground Tester shown in Figure 3.2-1. This instrument checks RTG of either 1 or 2 Ohms.



Figure 3.2-1: Model 255 Resistance To Ground Tester

## 4.0 WARRANTY

Electro-Tech Systems, Inc. warrants its equipment, accessories and parts of its manufacture to be and remain free from defects in material and workmanship for a period of one (1) year from date of invoice. It will, at its discretion, either replace or repair without charge, F.O.B. Glenside, similar equipment or a similar part to replace any equipment or part of its manufacture which, within the above stated time, is proved to have been defective at the time it was sold. All equipment claimed defective must be returned properly identified to the Seller (or presented to one of its agents for inspection). This warranty only applies to equipment operated in accordance with Seller's operating instructions.

Seller's warranty with respect to those parts of the equipment that are purchased from other manufacturers shall be subject only to that manufacturer's warranty.

The Seller's liability hereunder is expressly limited to repairing or replacing any parts of the equipment manufactured by the manufacturer and found to have been defective. The Seller shall not be liable for damage resulting or claimed to result from any cause whatsoever.

This warranty becomes null and void should the equipment, or any part thereof, be abused or modified by the customer or if used in any application other than that for which it was intended. This warranty to replace or repair is the only warranty, either expressed or implied or provided by law and is in lieu of all other warranties. The Seller denies any other promise, guarantee or warranty with respect to the equipment or accessories. In particular, as to its or their suitability for the purposes of the buyer or its or their performance, either quantitatively or qualitatively or as to the products that it may produce and the buyer is expected to expressly waive rights to any warranty other than that stated herein.

ETS must be notified before any equipment is returned for repair. ETS will issue an RMA (Return Material Authorization) number for return of equipment.

Equipment should be shipped prepaid and insured in the original packaging. If the original packaging is not available, the equipment must be packed in a sufficiently large box (or boxes if applicable) of double wall construction with substantial packing around all sides. The RMA number, description of the problem along with the contact name and telephone number must be included in formal paperwork and enclosed with the instrument. Round trip freight and related charges are the owner's responsibility.