

Limit Comparator Operation Instructions



Made in the
United States of America



Figure 1. EMIT 50422 Limit Comparator

Description

Frequency of recalibration should be based on the critical nature of those ESD sensitive items handled and the risk of failure for the ESD protective equipment and materials. In general, EMIT recommends that calibration be performed annually.

Use the EMIT 50422 Limit Comparator to perform periodic testing (once every 6-12 months) of the SmartLog V4 Tester and Dual Independent Testers. The Limit Comparator can be used on the shop floor within a few minutes virtually eliminating downtime, verifying that the tester is operating within tolerances.

The EMIT 50422 Limit Comparator is to be used with the following items:

Item	Description
50741	SmartLog V4, North America
50743	SmartLog V4, Asia
50747	SmartLog V4, Europe
50751	SmartLog V4, 10mm Adapter, Europe
50404	Dual Independent Footwear Tester, North America
50412	Dual Independent Footwear Tester, No Power Adapter
50407	Dual Independent Footwear and Wrist Strap Tester, North America
50413	Dual Independent Footwear and Wrist Strap Tester, No Power Adapter
50562	Dual Independent Footwear and Wrist Strap Tester, Europe

Packaging

- 1 Limit Comparator
- 2 Test Leads with Banana Plug Terminals
- 1 Certificate of Calibration

Tester Configuration

The resistance limits for footwear and wrist strap tests are controlled by the DIP switches located on the left side of the tester. Use the following tables for the DIP switch settings and their corresponding test values.



Figure 2. Locating the DIP switch on the tester

FOOTWEAR RESISTANCE

DIP switches 1 and 2 control the HIGH test limit.

Switch 1	Switch 2	HIGH Limit Resistance
ON	ON	10 Megohms (1 x 10E7)
OFF	OFF	35 Megohms (3.5 x 10E7)
ON	OFF	100 Megohms (1 x 10E8)
OFF	ON	1 Gigohm

DIP switches 3 and 4 control the LOW test limit.

Switch 3	Switch 4	LOW Limit Resistance
ON	OFF	100 Kilohms (1 x 10E5)
OFF	ON	1 Megohm (1 x 10E6)

default setting

NOTE: At 1 Gigohm high limit resistance, a dirty foot plate could result in a false pass. Be sure to keep the foot plate clean particularly when using this setting. This setting is not suitable for relative humidity greater than 50%.

WRIST STRAP RESISTANCE

DIP switches 5 and 6 control the HIGH test limit.

Switch 5	Switch 6	HIGH Limit Resistance
OFF	OFF	wrist strap test disabled
ON	OFF	35 Megohms (3.5 x 10E7)
ON	ON	10 Megohms (1 x 10E7)

default Europe & Asia setting

default USA setting

DIP switch 5 must be ON (default setting) for the wrist strap test to be active. The wrist strap test will be disabled if DIP switch 5 is set to OFF.

The LOW limit for the wrist strap test is set to 1 Megohm and cannot be modified by the user.

Operation

TESTING THE WRIST STRAP CIRCUIT

1. Plug the two included test leads into each yellow banana jack located at the top of the Limit Comparator.
2. Connect one of the test leads from the Limit Comparator to the "SINGLE-WIRE" jack located on the face of the tester. Connect the other lead from the Limit Comparator to the ground jack located on the bottom of the tester.
3. Select "1M LOW" with the Limit Comparator's rotary switch.
4. Touch and hold the test plate of the tester until the test is completed. The tester should indicate a wrist strap FAIL LOW condition.
5. Select "1M PASS" on the Limit Comparator and repeat the test. The tester should indicate a wrist strap PASS condition.
6. Select either the "10M PASS" or "35M PASS" setting, whichever one is appropriate, on the Limit Comparator and repeat the test. The tester should indicate a wrist strap PASS condition.
7. Select either the "10M HIGH" or "35M HIGH" setting, whichever one is appropriate, on the Limit Comparator and repeat the test. The tester should indicate a wrist strap FAIL HIGH condition.

TESTING THE FOOTWEAR CIRCUIT

1. Insert the Limit Comparator's stereo plug into the jack labeled "FOOT PLATE" on the bottom of the tester.
2. Select the appropriate FAIL LOW setting on the Limit Comparator.
3. Touch and hold the test plate of the tester until the test is completed. The tester should indicate a FAIL LOW condition for both feet.

4. Select the appropriate PASS LOW setting on the Limit Comparator and repeat the test. The tester should indicate a PASS condition for both feet.
5. Select the appropriate PASS HIGH setting on the Limit Comparator and repeat the test. The tester should indicate a PASS condition for both feet.
6. Select the appropriate FAIL HIGH setting on the Limit Comparator and repeat the test. The tester should indicate a FAIL HIGH condition for both feet.

Specifications

Dimensions:

3.8" L x 2.4" W x .9" H
(9.7 cm x 6.1 cm x 2.3 cm)

Weight:

.2 lbs
(.1 kg)

Resistance Values:

These resistance values may be verified using a digital voltmeter by setting it to read Ohms (Ω). Connect your voltmeter's test leads into each of the Limit Comparator's yellow banana jacks. If any value is out of specification, the Limit Comparator must be returned to the manufacturer for repair.

Setting	Nominal Resistance	% Tolerance of Nominal Resistance
100K LOW	90K	±2%
100K PASS	110K	±2%
750K LOW	675K	±2%
750K PASS	825K	±2%
1M LOW	909K	±2%
1M PASS	1.10M	±2%
10M PASS	9.09M	±2%
10M HIGH	11.09M	±2%
35M PASS	31.09M	±2%
35M HIGH	37.89M	±2%
100M PASS	90.9M	±5%
100M HIGH	112.9M	±5%
1G PASS	812.9M	±5%
1G HIGH	1.213G	±5%

Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions

See EMIT's Warranty -

<http://emit.descoindustries.com/Warranty.aspx>