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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# Limit Comparator Operation Instructions



Made in the  
United States of America



Figure 1. SCS [770751](#) 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, SCS recommends that calibration be performed annually.

Use the SCS [770751](#) Limit Comparator to perform periodic verification (once every 6-12 months) of the SCS [770750](#) Dual Combination Tester. The Limit Comparator can be used to check the test limits of the Dual Combination Tester without removing it from the factory floor.

## 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.

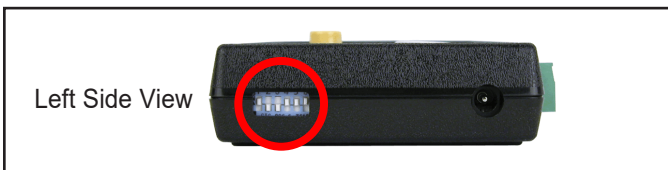


Figure 2. Locating the DIP switch on the Dual Combination Tester

## FOOTWEAR RESISTANCE

DIP switches 1 and 2 control the HIGH test limit.

Switch 1	Switch 2	HIGH Limit Resistance
ON	ON	10 Megohms ( $1 \times 10^7$ )
OFF	OFF	35 Megohms ( $3.5 \times 10^7$ )
ON	OFF	100 Megohms ( $1 \times 10^8$ )
OFF	ON	1 Gigohm ( $1 \times 10^9$ )

DIP switches 3 and 4 control the LOW test limit.

Switch 3	Switch 4	LOW Limit Resistance
ON	OFF	100 Kilohms ( $1 \times 10^5$ )
OFF	ON	750 Kilohms ( $7.5 \times 10^5$ )

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	ON	10 Megohms ( $1 \times 10^7$ )
ON	OFF	35 Megohms ( $3.5 \times 10^7$ )

default 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 750 Kilohms 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 "750K LOW" with the Limit Comparator's rotary switch.
4. Touch and hold the test switch on the tester until the test is completed. The tester should indicate a wrist strap FAIL LOW condition.
5. Select "750K 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 switch on 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

Resistance Values:

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	±5%
10M HIGH	11.09M	±5%
35M PASS	31.09M	±5%
35M HIGH	37.89M	±5%
100M PASS	90.9M	±5%
100M HIGH	112.9M	±5%
1G PASS	812.9M	±10%
1G HIGH	1.213G	±10%

These resistance values may be verified using a digital voltmeter by setting it to read Ohms ( $\Omega$ ). 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.

Operating Temperature	41°F to 85°F (5°C to 30°C)
Environmental Requirements	Indoor use only at altitudes less than 6500 ft. (2 km) Maximum relative humidity of 80% up to 85°F (30°C)
Dimensions	3.8" L x 2.4" W x .9" H (10 cm x 6 cm x 2 cm)
Weight	.2 lbs (.1 kg)

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

See the SCS Warranty - <http://staticcontrol.descoindustries.com/Limited-Warranty.aspx>