

## Limit Comparator for Dual-Wire Monitors Operation Instructions



Made in the  
United States of America



Figure 1. EMIT 50524 Limit Comparator

### Description

The EMIT 50524 Limit Comparator is used to perform periodic testing of Desco Dual-Wire Continuous Monitors. The Limit Comparator allows the customer to perform NIST traceable calibration verifying that the continuous monitor is operating within tolerances. Using the 50524 takes only a few minutes and is designed to be used on the shop floor at the workstation to virtually eliminate downtime. 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.

The EMIT 50424 Limit Comparator is compatible with the following items:

- 19662 Dual-Wire Dual Operator Monitor
- 19668 Zero Volt Monitor

### Packaging

- 1 Limit Comparator

### Operation

#### Zero Volt Monitor



Figure 2. Desco 19668 Zero Volt Monitor

1. Insert the Limit Comparator's stereo plug into the monitor's operator 1 remote jack.
2. Select "1.91M LOW" with the Limit Comparator's rotary switch. The monitor's yellow OPERATOR 1 LOW LED should illuminate, and the buzzer should sound.
3. Select "1.91M PASS" with the Limit Comparator's rotary switch. The monitor's green OPERATOR 1 PASS LED should illuminate, and the buzzer should not sound.
4. Select "10M PASS" with the Limit Comparator's rotary switch. The monitor's green OPERATOR 1 PASS LED should illuminate, and the buzzer should not sound.
5. Select "10M HIGH" with the Limit Comparator's rotary switch. The monitor's red OPERATOR 1 HIGH LED should illuminate, and the buzzer should sound.
6. Repeat steps 1-5 for the monitor's second remote.

## Dual-Wire Dual-Operator Programmable Monitor



Figure 3. Desco 19662 Dual-Wire Dual Operator Monitor

1. Insert the Limit Comparator's stereo plug into the monitor's operator 1 remote jack.
2. Select "1.91M LOW" with the Limit Comparator's rotary switch. The monitor's yellow OPERATOR 1 LOW LED should illuminate, and the buzzer should not sound.
3. Select "1.91M PASS" with the Limit Comparator's rotary switch. The monitor's green OPERATOR 1 PASS LED should illuminate, and the buzzer should not sound.
4. Select "35M PASS" with the Limit Comparator's rotary switch. The monitor's green OPERATOR 1 PASS LED should illuminate, and the buzzer should not sound.
5. Select "35M HIGH" with the Limit Comparator's rotary switch. The monitor's red OPERATOR 1 HIGH LED should illuminate, and the buzzer should sound.
6. Repeat steps 1-5 for the monitor's second remote.

## Installing Custom Low and High Limit Resistances

Two positions on the Limit Comparator are left vacant for a custom resistance limit that can be installed at the discretion of its owner. Use the following procedure to install desired resistance values.

1. Use a hex wrench to remove the Limit Comparator's rotary switch knob, and use a screwdriver to remove the two screws located on the back to open the enclosure.
2. Two resistance values must be installed to test a limit: one for PASS and one for FAIL. These two resistance values should be  $\pm 10\%$  of desired resistance limit.

For example:

Calibration Limit	FAIL LOW Resistance Value [1M - (1M x 10%)]	PASS Resistance Value [1M + (1M x 10%)]
1 megohm	900 kilohms	1.1 megohms

3. The following table shows which PCB reference designations correspond to the vacant rotary switch positions. Solder the appropriate resistors in these locations.

Rotary Switch Position	PCB Ref Des
1	R1, R1A (connected in series)
2	R2, R2A (connected in series)

NOTE: The R1 / R1A and R2 / R2A resistor locations are connected in series should two resistors be needed to achieve the desired resistance value. Solder a shorting wire across the resistor locations that are not used.

4. Re-assemble the Limit Comparator, and mark the new resistance values on the label.
5. Verify the resistance values by applying an ohmmeter across the Limit Comparator's stereo plug.

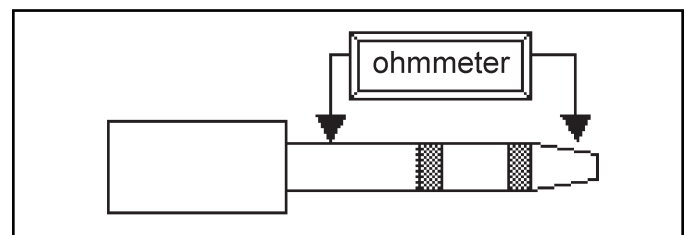


Figure 4. Measuring the resistance from the Limit Comparator

# Specifications

Resistance Values:

Setting	Nominal Resistance	% Tolerance of Nominal Resistance
1.91M LOW	1.7M	±2%
1.91M PASS	2.1M	±2%
10M PASS	9.1M	±2%
10M HIGH	11.0M	±2%
35M PASS	32.0M	±2%
35M HIGH	38.5M	±2%

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

Operating Temperature	50 to 95°F (10 to 35°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) decreasing linearly to 50% @ 85°F (30°C)
Dimensions	3.8" L x 2.4" W x 0.9" H (97 mm x 61 mm x 23 mm)
Weight	0.2 lbs (0.1 kg)
Country of Origin	United States of America

The EMIT 50524 Limit Comparator may also be used with the following discontinued items:

Zero Volt Monitor	50528, 50537, 50538
Zero Volt Monitor Solo	50576, 50577, 50579
Dual-Wire Dual Operator Monitor	19665, 50515, 50522
Ultra Low Voltage Monitor	50580
Mini Zero Volt Monitor	19101, 19102

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

See the EMIT Warranty - [DescoEMIT.com/Warranty.aspx](http://DescoEMIT.com/Warranty.aspx)