

Monitor Calibration Unit Operation Instructions



Figure 1. EMIT [50512](#) Monitor Calibration Unit

Description

The EMIT [50512](#) Monitor Calibration Unit is designed to simplify the process of calibrating Workstation Continuous Monitors. The unit allows the user to quickly and easily verify whether a tester is operating within specifications. The Monitor Calibration Unit is a passive device and requires no power source.

Packaging

- 1 Monitor Calibration Unit
- 1 Alligator Clip
- 1 Stacking Snap Banana Jack Adapter
- 1 Certificate of Calibration

Calibration Test Procedures

The Monitor Calibration Unit was specifically designed for use in calibration of EMIT and Desco brand equipment. The following step by step procedures will cover calibration for specific test units. The procedures will not cover adjustment of the test equipment. For detailed information regarding adjustment of specific EMIT brand testers contact our Customer Service Department at 909-627-8178 (Chino, CA) or 01892 665313 (Crowborough, U.K.).

Calibrating the Full Time Continuous Monitor

The Full Time Continuous Monitor is available as following item numbers:

Item	Brand	Voltage
50514	EMIT	120 VAC
50519	EMIT	220 VAC
19225	Desco	120 VAC

TESTING THE OPERATOR CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground. Do not plug the ground lead from the Calibration Unit to the monitor's common point ground banana jack. There is a 47 kilohm resistance to ground.

Step 2: Insert the Calibration Unit's banana plug labeled "OPERATOR" into the jack labeled "OPERATOR" on the Full Time Continuous Monitor (see Figure 2).

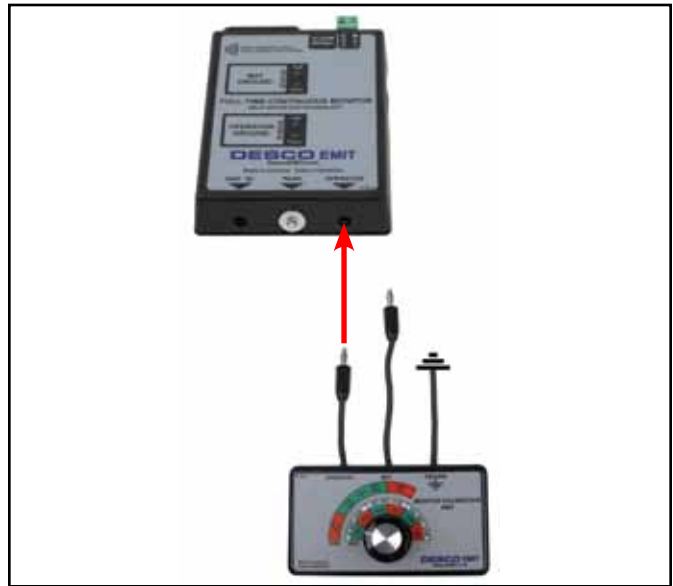


Figure 2. Connecting the OPERATOR test lead from the Monitor Calibration Unit to the Full Time Continuous Monitor

Step 3: Start the Calibration Unit's selector knob at the full counter-clockwise position. When testing the OPERATOR circuit, test only the first four limits on the Calibration Unit. Rotate the selector knob to the "LOW FAIL" position; the red "OPERATOR GROUND" LED on the monitor should illuminate and alarm.

Step 4: Rotate the selector knob clockwise to the "LOW LIMIT" position of the green pass sector. The monitor's green "OPERATOR GROUND" LED should illuminate.

Step 5: Rotate the selector knob clockwise to the "HIGH PASS" position at the end of the green pass sector. The monitor's green "OPERATOR GROUND" LED should remain illuminated.

Step 6: Rotate the selector knob clockwise to the "HIGH FAIL" position. The green "OPERATOR GROUND" LED should turn off and the red LED should illuminate and the alarm should sound.

Step 7: Disconnect the Monitor Calibration Unit from the monitor.

TESTING THE MAT CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Connect a tinned wire to the Calibration Unit's banana plug labeled "MAT." Insert the other end of the wire to the monitor's green terminal block labeled "MAT" (see Figure 3).



Figure 3. Connecting the MAT test lead from the Monitor Calibration Unit to the Full Time Continuous Monitor

Step 3: Rotate the Calibration Unit's knob switch to the MAT FAIL 10M position. The monitor's red "MAT GROUND" LED should illuminate and the alarm should sound.

Step 4: Rotate the selector knob counter-clockwise to the MAT PASS 10M position. The monitor's "MAT GROUND" green LED should illuminate.

Calibrating the Dual Operator Continuous Monitor with Two Satellites

The Dual Operator Continuous Monitor with Two Satellites is available as following item numbers:

Item	Brand	Voltage
50516	EMIT	120 VAC
50517	EMIT	220 VAC
19232	Desco	120 VAC
19233	Desco	220 VAC

TESTING THE OPERATOR CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Insert the Calibration Unit's banana plug labeled "OPERATOR" into the jack labeled "OPERATOR" on the satellite remote (see Figure 4).

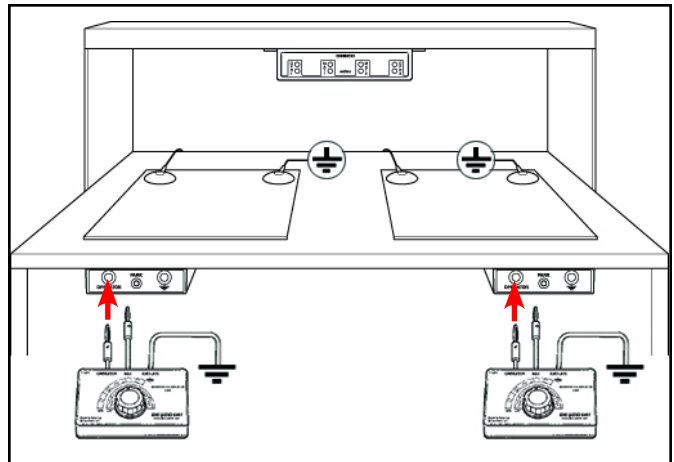


Figure 4. Connecting the OPERATOR test lead from the Monitor Calibration Unit to the satellite remote

Step 3: Start the Calibration Unit's selector knob at the full counter-clockwise position. When testing the OPERATOR circuit, test only the first four limits on the Calibration Unit. Rotate the selector knob to the "LOW FAIL" position; the corresponding operator red LED on the monitor should illuminate and alarm.

Step 4: Rotate the selector knob clockwise to the "LOW LIMIT" position of the green pass sector. The monitor's corresponding green "OPR1" or "OPR2" LED should illuminate.

Step 5: Rotate the selector knob clockwise to the "HIGH PASS" position at the end of the green pass sector. The monitor's corresponding green "OPR1" or "OPR2" LED should remain illuminated.

Step 6: Rotate the selector knob clockwise to the "HIGH FAIL" position. The monitor's corresponding green "OPR1" or "OPR2" LED should turn off and the red LED should illuminate and the alarm should sound.

Step 7: Disconnect the Monitor Calibration Unit from the satellite remote.

Step 8: Repeat this procedure for the remaining satellite remote.

TESTING THE MAT CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Connect the included stacking snap to the banana plug labeled "MAT" on the Calibration Unit. Disconnect the satellite remote from its mat connection and re-install it to the Calibration Unit's stacking snap (see Figure 5).

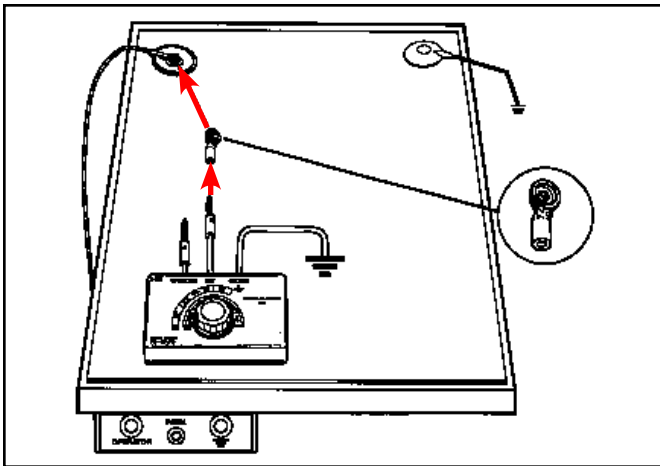


Figure 5. Connecting the MAT test lead from the Monitor Calibration Unit to the satellite remote

Step 3: Rotate the Calibration Unit's knob switch to the MAT FAIL 10M position. The monitor's corresponding red "MAT1" or "MAT2" LED should illuminate and the alarm should sound.

Step 4: Rotate the selector knob counter-clockwise to the MAT PASS 10M position. The monitor's corresponding "MAT1" or "MAT2" green LED should illuminate.

Note: During FAIL LOW and FAIL HIGH, the monitor will continuously alarm until the banana lead is removed from the satellite remote. The alarm will shut off approximately 8-10 seconds after the removal of the banana lead.

Step 5: Repeat this procedure for the remaining satellite remote.

Calibrating the Jewel® Workstation Continuous Mini Monitor

The Jewel® Workstation Continuous Mini Monitor is available as following item numbers:

Item	Brand	Voltage
50502	EMIT	120 VAC
50503	EMIT	220 VAC
19212	Desco	120 VAC

TESTING THE OPERATOR CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Insert the Calibration Unit's banana plug labeled "OPERATOR" into the jack labeled "OPERATOR" on the Jewel® Workstation Continuous Mini Monitor (see Figure 6).

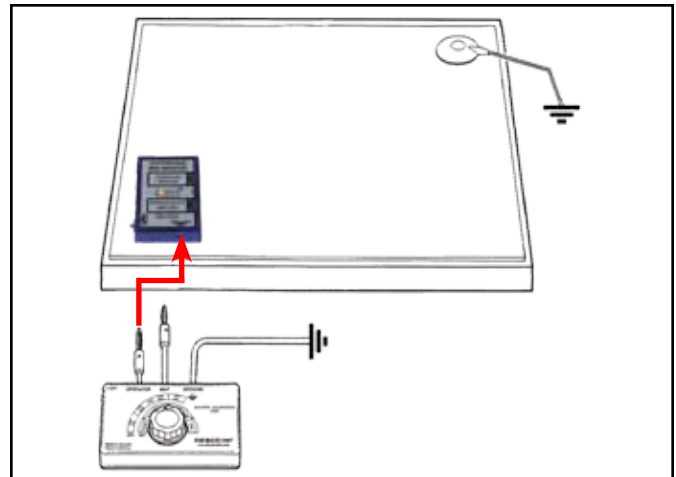


Figure 6. Connecting the OPERATOR test lead from the Monitor Calibration Unit to the Jewel® Workstation Continuous Mini Monitor

Step 3: Start the Calibration Unit's selector knob at the full counter-clockwise position. When testing the OPERATOR circuit, test only the first four limits on the Calibration Unit. Rotate the selector knob to the "LOW FAIL" position; the red "OPERATOR GROUND" LED on the monitor should illuminate and alarm.

Step 4: Rotate the selector knob clockwise to the "LOW LIMIT" position of the green pass sector. The monitor's green "OPERATOR GROUND" LED should illuminate.

Step 5: Rotate the selector knob clockwise to the "HIGH PASS" position at the end of the green pass sector. The monitor's green "OPERATOR GROUND" LED should remain illuminated.

Step 6: Rotate the selector knob clockwise to the "HIGH FAIL" position. The green "OPERATOR GROUND" LED should turn off and the red LED should illuminate and the alarm should sound.

Step 7: Disconnect the Monitor Calibration Unit from the monitor.

TESTING THE MAT CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Connect the included stacking snap to the banana plug labeled "MAT" on the Calibration Unit. Detach the monitor from its mat connection and re-install its snap located underneath the status LEDs to the Calibration Unit's stacking snap (see Figure 7).

Note: The stacking snap must be isolated from the grounded mat.

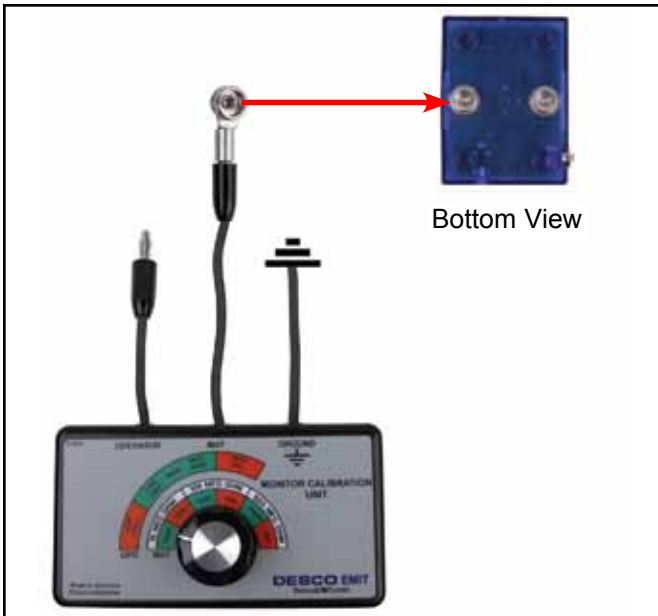


Figure 7. Connecting the MAT test lead from the Monitor Calibration Unit to the Jewel® Workstation Continuous Mini Monitor

Step 3: Rotate the Calibration Unit's knob switch to the MAT FAIL 500M position. The monitor's red "WORKSURFACE GROUND" LED should illuminate and the alarm should sound.

Step 4: Rotate the selector knob counter-clockwise to the MAT PASS 500M position. The monitor's "WORKSURFACE GROUND" green LED should illuminate.

Note: During FAIL LOW and FAIL HIGH, the monitor will continuously alarm until the banana lead is removed from the satellite remote. The alarm will shut off approximately 8-10 seconds after the removal of the banana lead.

Calibrating the Multi-Mount Continuous Monitor

The Multi-Mount Continuous Monitor is available as following item numbers:

Item	Brand	Voltage
50390	EMIT	120 VAC
50391	EMIT	220 VAC
19226	Desco	120 VAC
19227	Desco	220 VAC

TESTING THE OPERATOR CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Insert the Calibration Unit's banana plug labeled "OPERATOR" into the jack labeled "OPR" on the Multi-Mount Continuous Monitor (see Figure 8).



Figure 8. Connecting the OPERATOR test lead from the Monitor Calibration Unit to the Multi-Mount Continuous Monitor

Step 3: Start the Calibration Unit's selector knob at the full counter-clockwise position. When testing the OPERATOR circuit, test only the first four limits on the Calibration Unit. Rotate the selector knob to the "LOW FAIL" position; the red "OPERATOR GROUND" LED on the monitor should illuminate and alarm.

Step 4: Rotate the selector knob clockwise to the "LOW LIMIT" position of the green pass sector. The monitor's green "OPERATOR GROUND" LED should illuminate.

Step 5: Rotate the selector knob clockwise to the "HIGH PASS" position at the end of the green pass sector. The monitor's green "OPERATOR GROUND" LED should remain illuminated.

Step 6: Rotate the selector knob clockwise to the "HIGH FAIL" position. The green "OPERATOR GROUND" LED should turn off and the red LED should illuminate and the alarm should sound.

Step 7: Disconnect the Monitor Calibration Unit from the monitor.

TESTING THE MAT CIRCUIT

Step 1: Connect the Calibration Unit's banana plug wire labeled "GROUND" to a known ground.

Step 2: Connect a tinned wire to the Calibration Unit's banana plug labeled "MAT." Insert the other end of the wire to the monitor's green terminal block labeled "MAT" (see Figure 9).

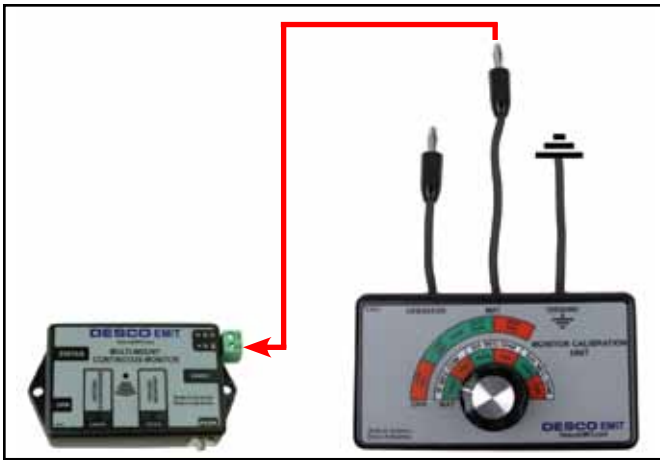


Figure 9. Connecting the MAT test lead from the Monitor Calibration Unit to the Multi-Mount Continuous Monitor

Step 3: Rotate the Calibration Unit's knob switch to the MAT FAIL 10M position. The monitor's red "WORKSURFACE GROUND" LED should illuminate and the alarm should sound.

Step 4: Rotate the selector knob counter-clockwise to the MAT PASS 10M position. The monitor's "WORKSURFACE GROUND" green LED should illuminate.

Specifications

Weight: 6.8 oz.
192 g

Dimensions: 4.5" x 2.5" x 1.2"
11.4 cm x 6.4 cm x 3.0 cm

Calibration

Required Test Equipment: RLC Bridge

Settings:

For 50 Hz Frequency = 1000Hz (20*50), The 20th Harmonic

For 60 Hz Frequency = 1020Hz (17*60), The 17th Harmonic
Set Function Switch to Read "Equivalent Parallel Circuit"

Additional Required Test Equipment for 50512 MAT

Resistance Measurement:

Megger If Megger set V Compliance = 50 or less Volts
or

DMM 50 Volt Power Supply

Record Data for:

Serial #	Low Pass		Low Fail		High Pass		High Fail	
	Cp	Dis	Cp	Dis	Cp	Dis	Cp	Dis

If [50512](#), then also Record:

Serial#	Mat Pass	Mat Fail	(Megohms@ 50V)

Compare with Specs Below:

Model [50512](#) Calibration Verification Unit Specifications

	Equiv. Parallel C	Dissipation Factor
Low Fail	138.9 pF	0.158
Low Pass	118.6 pF	0.367
Hi Pass	49.0 pF	0.445
Hi Fail	44.7 pF	0.192

Tolerance = +/- 10%

Mat

	Pass Megs	Fail Megs	(V Measure~50)
10 Mat	8	12	
100 Mat	80	120	
500 Mat	400	600	

Tolerance = +/- 4%

Limited Warranty

EMIT expressly warrants that for a period of five (5) years from the date of purchase, EMIT Monitor Calibration Units will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of replacement EMIT products, or, at EMIT's option, the product will be repaired or replaced free of charge. If product credit is issued, the amount will be calculated by multiplying the unused portion of the expected five year life times the original unit purchase price. Call our Customer Service Department at 909-664-9980 (Chino, CA) or 01892 665313 (Crowborough, U.K.) for a Return Material Authorization (RMA) and proper shipping instructions and address. Please include a copy of your original packing slip, invoice, or other proof of date of purchase. Any unit under warranty should be shipped prepaid to the EMIT factory. Warranty replacements will take approximately two weeks.

If your unit is out of warranty, call our Customer Service Department at 909-664-9980 (Chino, CA) or 01892 665313 (Crowborough, U.K.) for a Return Material Authorization (RMA) and proper shipping instructions and address. EMIT will quote repair charges necessary to bring your unit up to factory standards.

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 EMIT 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.