



Made in America

Ultra Low Voltage Monitor Installation, Operation and Maintenance



Figure 1. Desco EMIT 50580 Ultra Low Voltage Monitor and Remotes

Description

The Desco EMIT Ultra Low Voltage Monitor provides continuous ground monitoring of two operators, two supervisors, two workstations and two tool grounded stations using patented dual polarity resistive loop technology. This technology allows the operator to typically be near zero volts with respect to Earth ground. The Ultra Low Voltage Monitor is also unaffected by capacitance variations associated with personnel and environmental conditions. This monitor also has two charge detection indicators that monitor voltage on the operators' circuits.

Continuous Monitors pay for themselves improving quality, productivity, eliminating wrist strap daily testing and test result logging. Per ANSI/ESD-S1.1 paragraph 6.1.3 Frequency of Functional Testing "The wrist strap system should be tested daily to ensure proper electrical value. Daily testing may be omitted if constant monitoring is used." Per ESD Handbook ESDTR 20.20 paragraph 5.3.2.4.4 "Typical Test programs recommend that wrist straps that are used daily should be tested daily. However, if the products that are being produced are of such value that knowledge of a continuous, reliable ground is needed, and then continuous monitoring should be considered or even required."

Packaging

- 1 Ultra Low Voltage Monitor
- 2 Remotes
- 1 Power Adapter (12 VDC @ 500 mA, center positive)
- 1 Snap Kit
- 2 Operator Modular Cables (Grey)
- 2 Mat Ground Cords (Black and White)
- 2 Tool Ground Cords (Black and White)
- 1 Monitor Ground Cord (Green with Yellow Stripe)
- 1 Certificate of Calibration

Features and Components

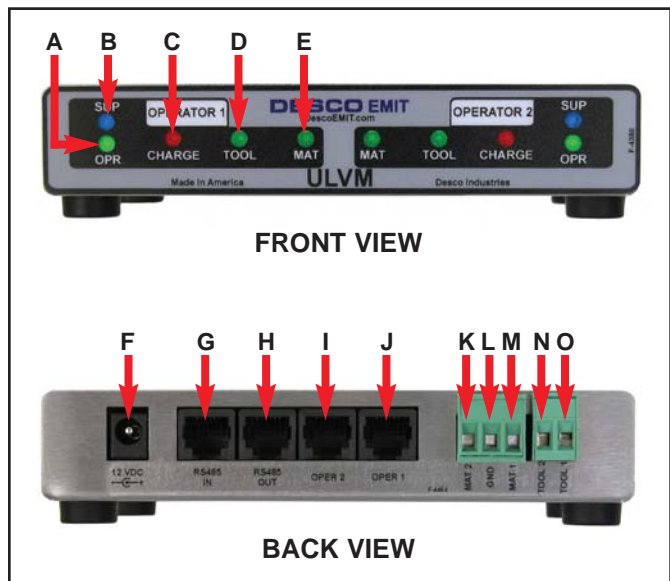


Figure 2. Ultra Low Voltage Monitor features and components

ULTRA LOW VOLTAGE MONITOR (See Figure 2)

Note: The following features apply to both the OPERATOR 1 and OPERATOR 2 circuits of the monitor.

A. Operator LED: When the LED is illuminated green, the operator is properly grounded. When the LED is illuminated red and the alarm sounds, the operator is not properly grounded. The LED illuminates orange when the wrist cord is properly parked onto the remote's parking station.

B. Supervisor LED: Will only illuminate when the corresponding operator is properly grounded and connected to the remote. When the LED is illuminated a continuous blue, the supervisor is properly grounded. When the LED flashes and the alarm sounds, the supervisor is not properly grounded.

C. Charge LED: When the LED is off, the charge is within the set limit. When the LED is illuminated red and the alarm sounds, the charge is outside the set limit.

D. Tool LED: When the LED is illuminated green, the tool is properly grounded. When the LED is illuminated red and the alarm sounds, the tool is not properly grounded.

Note: The monitor is shipped with this feature disabled. Contact the manufacturer for information on activating this feature.

E. Mat LED: When the LED is illuminated green, the worksurface mat is properly grounded. When the LED is illuminated red and the alarm sounds, the worksurface mat is not properly grounded.

- F. **Power Jack:** Connect the power adapter here.
- G. **RS-485 Jack:** Communication input 1
- H. **RS-485 Jack:** Communication input 2
- I. **Operator 2 Remote Jack:** Connect the grey operator modular cable from remote 2 here.
- J. **Operator 1 Remote Jack:** Connect the grey operator modular cable from remote 1 here.
- K. **Mat 2 Terminal:** Monitors worksurface mat 2.
- L. **Ground Terminal:** Common ground point for the monitor.
- M. **Mat 1 Terminal:** Monitors worksurface mat 1.
- N. **Tool 2 Terminal:** Monitors tool station 2.
- O. **Tool 1 Terminal:** Monitors tool station 1.

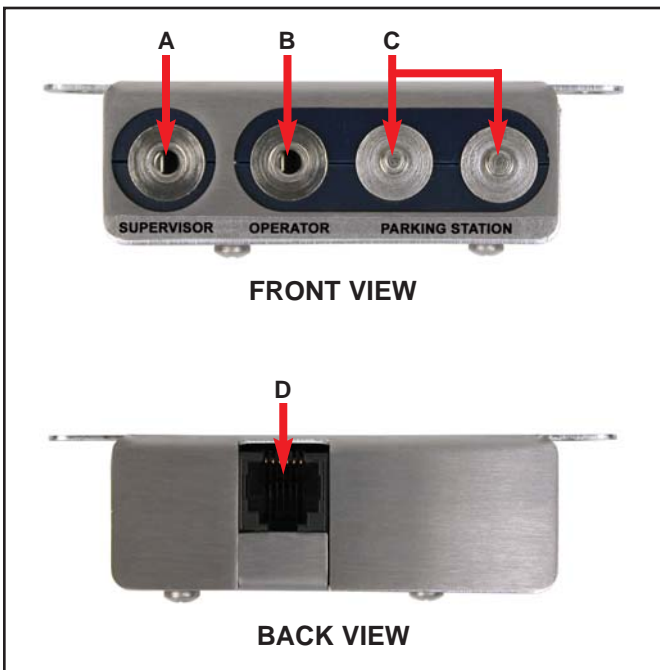


Figure 3. Remote features and components

REMOTE (See Figure 3)

Note: The following features apply to both remotes included with the Ultra Low Voltage Monitor.

- A. **Monitored Supervisor Jack:** Where the supervisor inserts the wrist cord plug.
- B. **Monitored Operator Jack:** Where the operator inserts the wrist cord plug.
- C. **Dual 4mm Parking Station:** Once the wrist cord is parked, the corresponding Operator LED will remain green for approximately 20 seconds and will then illuminate orange. While parked, the wrist cord disables the alarm, allowing the operator to leave the workstation.

- D. **Operator Remote Jack:** Connect one end of the grey operator modular cable here. The other end is to be connected to the corresponding operator remote jack located at the back of the monitor.

Installation

- I. Remove the monitor from the carton and inspect for damage.
- II. Determine the mounting location of the Ultra Low Voltage Monitor. The front panel should be visible to both operators.
- III. Determine the mounting locations of the operator remotes. Make sure to place the remotes at a distance that enables its leads to reach the monitor.
- IV. Install the remotes to the workbench or another surface using the provided screws.

Note: The Ultra Low Voltage Monitor remotes are configured differently from other Desco EMIT remotes. Be sure to only use the remotes that were packaged with your Ultra Low Voltage Monitor.

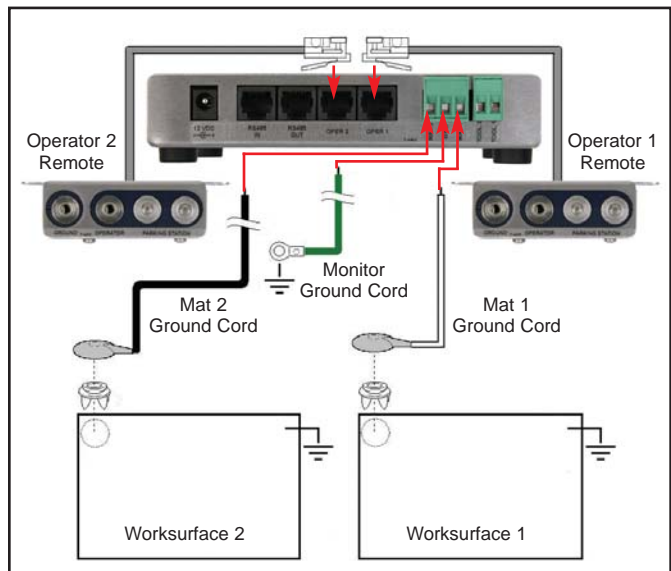


Figure 4. Installing the Ultra Low Voltage Monitor and Remotes

- V. Attach the tinned wire ends of the mat cords to their appropriate screw terminal block connection located on the back of the unit (See Figures 2 and 4). The white cord is for OPERATOR 1 and the black cord is for OPERATOR 2.
- VI. Route the hard-wired mat monitor cords from the back of the monitor to the snaps attached to the ground mats. Snap the white mat ground cord to the properly grounded OPERATOR 1 mat and the black mat ground cord to the properly grounded OPERATOR 2 mat.

VII. Attach the tinned wire end of the green and yellow ground cord to the screw terminal labeled "GND" on the back of the monitor. Attach the ring terminal end to a ground point. It is important that this ground cord is attached to a different ground point than that of the worksurface mats. The face plate screw of a grounded AC wall outlet may provide a convenient connection point.

VIII. Insert the modular plugs of each remote cord into their appropriate modular jacks located on the back of the unit (See Figures 2-4).

IX. Connect the DC power supply to the power jack located on the back of the unit. Route the wire from the supply to a nearby AC outlet and plug the power supply into the outlet. Make sure the voltage and frequency match those listed on the power supply. The monitor is now powered.

X. Once powered, the monitor will cycle through all its LEDs.

Operation

USING THE MONITOR

- I. Plug a wrist strap cord, not attached to the wristband, into the monitored jack labeled OPERATOR located on the remote (See Figure 3). This automatically activates the selected operator channel. The corresponding operator LED should illuminate red and the alarm should sound on the monitor.
- II. Remove the charges from your body by making contact with a properly grounded ESD worksurface. Snap the cord to the wristband, and fit it snugly onto your wrist. This should silence the audible alarm and cause the corresponding operator LED to switch from red to green. If this does not happen, examine the wrist cord for continuity or damage and your wrist band to ensure that it is securely fit. If you have dry skin, apply an approved dissipative hand lotion such as Desco Reztore™ ESD Hand Lotion. When leaving the area, the user can attach it to the parking station located on the remote. The corresponding operator LED will illuminate green and the audible alarm will shut off when the cord is attached to the parking snap. After approximately 20 seconds, the LED will change from green to orange.

PARKING STATION

The audible alarm is designed to alert both the operator and supervisor. The parking snap feature allows the operator to disconnect when leaving the work area without sounding the audible alarm. It also provides a means for wrist cord storage (OPR LED will illuminate green and after approximately 20 seconds will change to orange). The user can then disconnect the wrist cord from the wrist band and attach it to the parking snap for storage. If the operator removes the wrist cord plug from the OPR banana jack, the audible alarm will sound until the cord is either properly grounded or parked onto the parking station.

Specifications

Operating Voltage	100-240 VAC, 50/60 Hz
Worksurface Range	10 Megohms
Operating Temperature	32°F - 104°F (0 - 40°C)
Monitor Dimensions	5.4" x 3.4" x 1.0" (13.7cm x 8.6cm x 2.5cm)
Monitor Weight	0.7 lbs (0.3 kg)
Remote Dimensions	2.6" x 1.1" x 0.9" (6.6cm x 2.8cm x 2.3cm)
Remote Weight	0.2 lbs (0.1 kg)

DEFAULT TEST VOLTAGES

Operator	200 mV
Supervisor	200 mV
Worksurface	200 mV
Tool	20 mV

DEFAULT LIMITS

Operator	Low Fail: < 1.72 megohms Pass: 2 - 9 megohms High Fail: > 11.5 megohms
Supervisor	Low Fail: < 1.72 megohms Pass: 2 - 9 megohms High Fail: > 11.5 megohms
Worksurface	Pass: < 3 megohms Fail: > 3.5 megohms
Tool	Pass: < 7 ohms Fail: > 10 ohms
Charge Detector	Detects > 2.5 VDC on operator

Note: Work surface must have a conductive layer such as Dual Layer Rubber or Dissipative 3-Layer Vinyl or Micastat® Dissipative Laminate with conductive buried layers. Desco EMIT Continuous Monitors are not recommended for use with homogeneous matting.

Limited Warranty

Desco EMIT expressly warrants that for a period of five (5) years from the date of purchase Desco EMIT Ultra Low Voltage Monitors will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of replacement Desco EMIT Ultra Low Voltage Monitors, or, at Desco EMIT's option, the Ultra Low Voltage Monitor 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 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) 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 Desco EMIT factory. Warranty replacements will take approximately two weeks.

If your unit is out of warranty, call our Customer Service Department at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Desco 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 Desco 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.