Wave Distortion Monitor Verification Tester Operation Instructions

Made in the United States of America

Figure 1. Desco 98221 Wave Distortion Monitor Verification Tester

Description

The Desco 98221 Wave Distortion Monitor Verification Tester is used to perform periodic test limit verification of Desco Wave Distortion Monitors. Verification may be accomplished without removing the monitor from its workstation. The Wave Distortion Monitor Verification Tester is National Institute of Standards and Technology (NIST) traceable. Frequency of verification is based on the critical nature of the ESD susceptible items handled. Desco recommends annual calibration of workstation monitors and the Wave Distortion Monitor Verification Tester.

Desco Single-Wire Wave Distortion Continuous Monitors are defined as impedance continuous monitors. Most metrology departments or companies specialising in calibration will not have the specialised test equipment needed for the calibration or verification of wave distortion continuous monitors.

The Desco 98221 Wave Distortion Monitor Verification Tester can be used with the following items:

Item	Description
19243	Mini Monitor
19342	Mini Monitor
19343	Mini Monitor
19652	Multi-Mount Monitor
19656	Dual Operator Continuous Monitor

Packaging

1 Wave Distortion Monitor Verification Tester
1 Alligator Clip
1 230647 10 mm Stacking Snap
1 North American Ground Plug Adapter
1 Banana Plug Wire Adapter, 13 cm
1 Ground Extension Cord, 1.5 m
1 Certificate of Calibration

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Features and Components

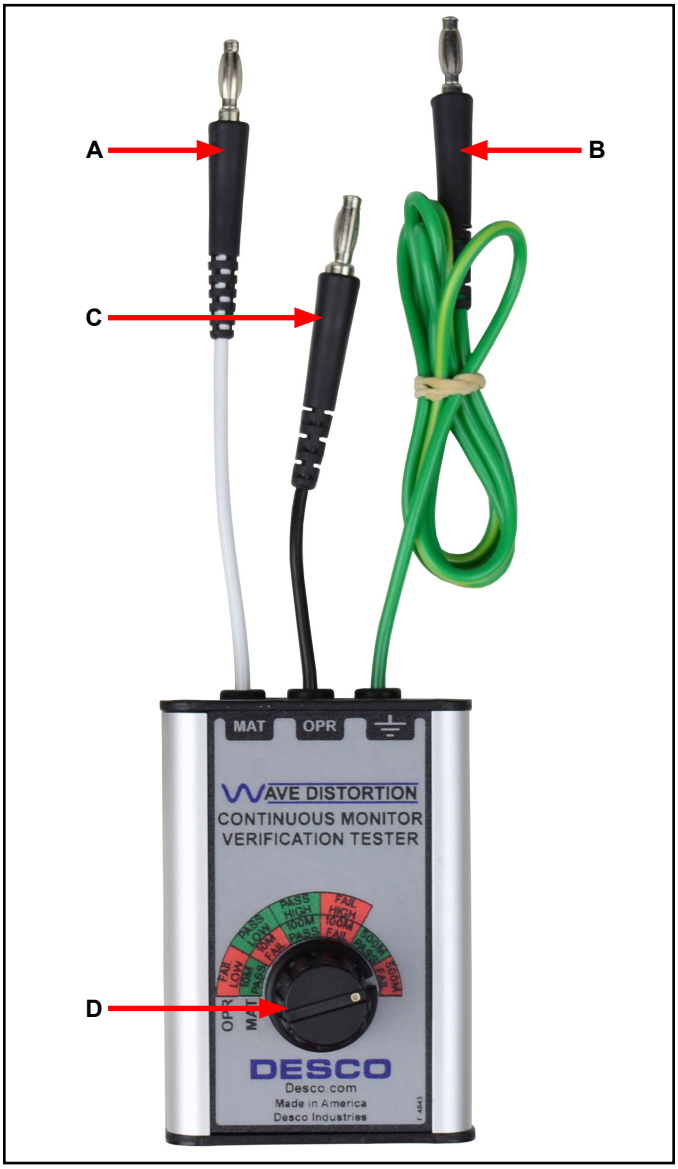

Figure 2. Wave Distortion Monitor Verification Tester features and components

A. Mat Test Lead: Connect to the monitor's mat terminal to verify its mat test circuit.

B. Ground Lead: Connect to earth protective ground to provide a ground reference for the Wave Distortion Monitor Verification Tester.

C. Operator Test Lead: Insert into the monitor's operator jack to verify its operator test circuit.

D. Rotary Switch: Selects the various pass and fail load values needed to verify the monitor's operator and mat test circuits.

Operation

19243 Mini Monitor

VERIFYING THE OPERATOR CIRCUIT

1. Connect the Wave Distortion Monitor Verification Tester's green ground lead to earth protective ground. This may be done using the included alligator clip.
2. Insert the verification tester's black operator test lead into the Mini Monitor's operator jack.

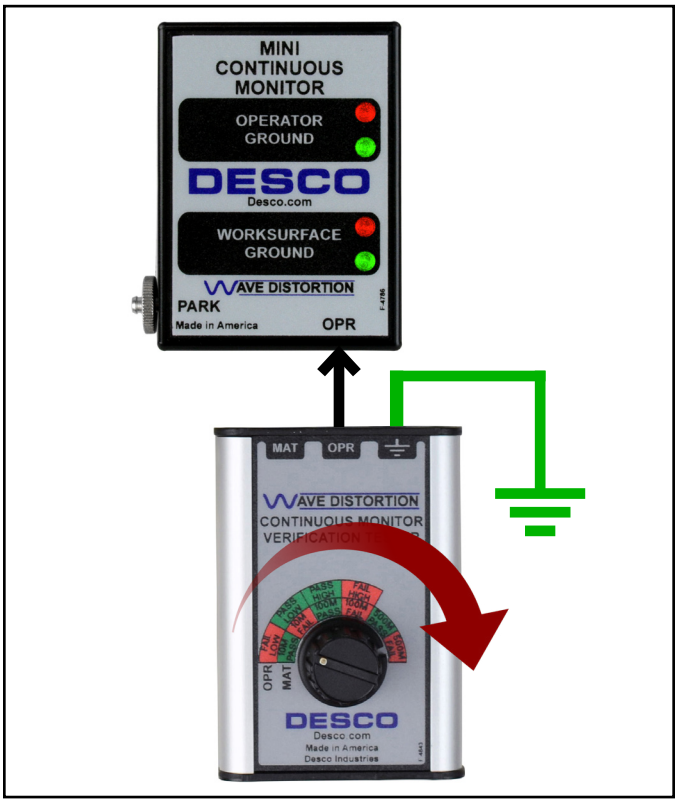

Figure 3. Connecting the Wave Distortion Monitor Verification Tester to the Mini Monitor's operator jack

3. Set the rotary switch to OPERATOR FAIL LOW. The monitor's red operator LED should illuminate, and its audible alarm should sound.
4. Set the rotary switch to OPERATOR PASS LOW. The monitor's green operator LED should illuminate.
5. Set the rotary switch to OPERATOR PASS HIGH. The monitor's green operator LED should illuminate.
6. Set the rotary switch to OPERATOR FAIL HIGH. The monitor's red operator LED should illuminate, and its audible alarm should sound.
7. Disconnect the operator test lead from the monitor.

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VERIFYING THE MAT CIRCUIT

8. Connect the included stacking snap to the verification tester's white mat test lead.
9. Disconnect the monitor from its worksurface mat and turn it over to expose its 10 mm snaps.
10. Connect the verification tester's white mat test lead to the monitor's 10 mm mat snap.

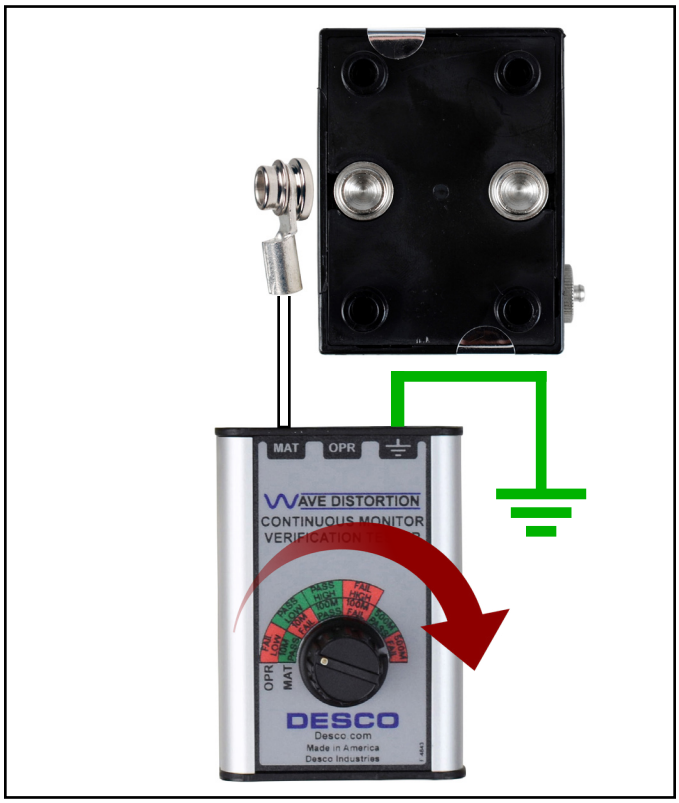

Figure 4. Connecting the Wave Distortion Monitor Verification Tester to the Mini Monitor's 10mm mat snap

11. Set the rotary switch to MAT 500M PASS. The monitor's green mat LED should illuminate.
12. Set the rotary switch to MAT 500M FAIL. The monitor's red mat LED should illuminate, and its audible alarm should sound.

19342/19343 Mini Monitor

VERIFYING THE OPERATOR CIRCUIT

1. Connect the Wave Distortion Monitor Verification Tester's green ground lead to earth protective ground. This may be done using the included alligator clip.
2. Insert the verification tester's black operator test lead into the Mini Monitor's operator jack.

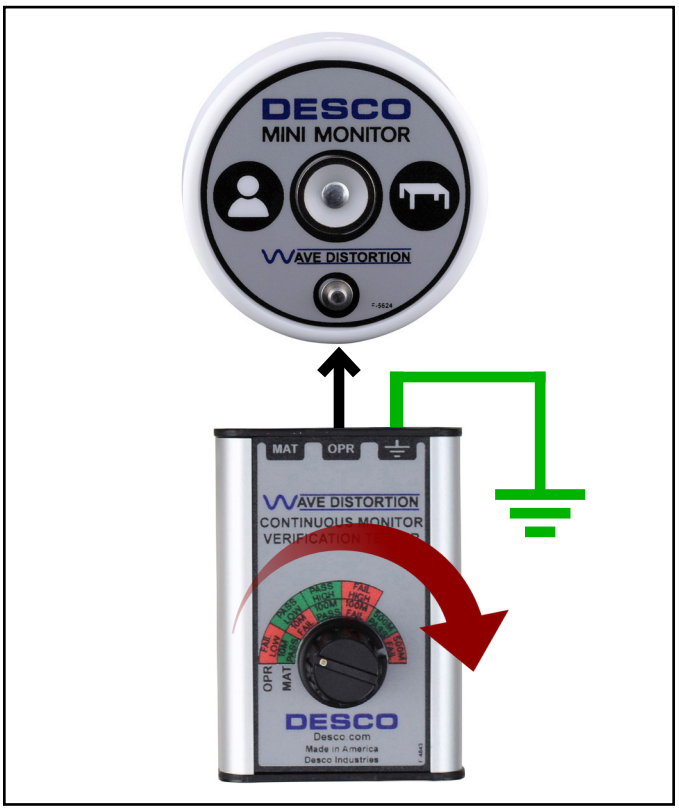

Figure 5. Connecting the Wave Distortion Monitor Verification Tester to the Mini Monitor's operator jack

3. Set the rotary switch to OPERATOR FAIL LOW. The monitor's operator LED should illuminate red, and its audible alarm should sound.
4. Set the rotary switch to OPERATOR PASS LOW. The monitor's operator LED should illuminate green.
5. Set the rotary switch to OPERATOR PASS HIGH. The monitor's operator LED should illuminate green.
6. Set the rotary switch to OPERATOR FAIL HIGH. The monitor's operator LED should illuminate red, and its audible alarm should sound.
7. Disconnect the operator test lead from the monitor.

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VERIFYING THE MAT CIRCUIT

8. Connect the included alligator clip to the verification tester's white mat test lead.
9. Uninstall the two flathead screws at the bottom of the monitor to free it from its worksurface mat.
10. Reinstall one the flathead screws into the worksurface monitor terminal at the bottom of the monitor.
11. Connect the verification tester's white mat test lead to the flathead screw using the alligator clip.

Figure 6. Using the alligator clip to connect the Wave Distortion Monitor Verification Tester to the Mini Monitor's worksurface monitor terminal

12. Set the rotary switch to MAT 10M PASS. The monitor's worksurface LED should illuminate green.
13. Set the rotary switch to MAT 10M FAIL. The monitor's worksurface LED should illuminate red, and its audible alarm should sound.

Multi-Mount Monitor

VERIFYING THE OPERATOR CIRCUIT

1. Connect the Wave Distortion Monitor Verification Tester's green ground lead to equipment ground. This may be done using the included Ground Plug Adapter or alligator clip. See Figure 3.
2. Insert the verification tester's black operator test lead into the Multi-Mount Monitor's operator jack.

Figure 7. Connecting the Wave Distortion Monitor Verification Tester to the Mini Monitor's operator jack

3. Set the rotary switch to OPERATOR FAIL LOW. The monitor's red operator LED should illuminate, and its audible alarm should sound.
4. Set the rotary switch to OPERATOR PASS LOW. The monitor's green operator LED should illuminate.
5. Set the rotary switch to OPERATOR PASS HIGH. The monitor's green operator LED should illuminate.
6. Set the rotary switch to OPERATOR FAIL HIGH. The monitor's red operator LED should illuminate, and its audible alarm should sound.
7. Disconnect the operator test lead from the monitor.

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VERIFYING THE MAT CIRCUIT

8. If using a discontinued monitor model (see page 7), insert a wrist cord into the monitor's operator jack and attach it to its park snap. This will enable the audible alarm for the mat circuit.
9. Connect the included stacking snap to the verification tester's white mat test lead.
10. Disconnect the monitor's white mat monitor cord from its worksurface mat and turn it over to expose its 10 mm snap.
11. Connect the verification tester's white mat test lead to the mat monitor cord's 10 mm snap.

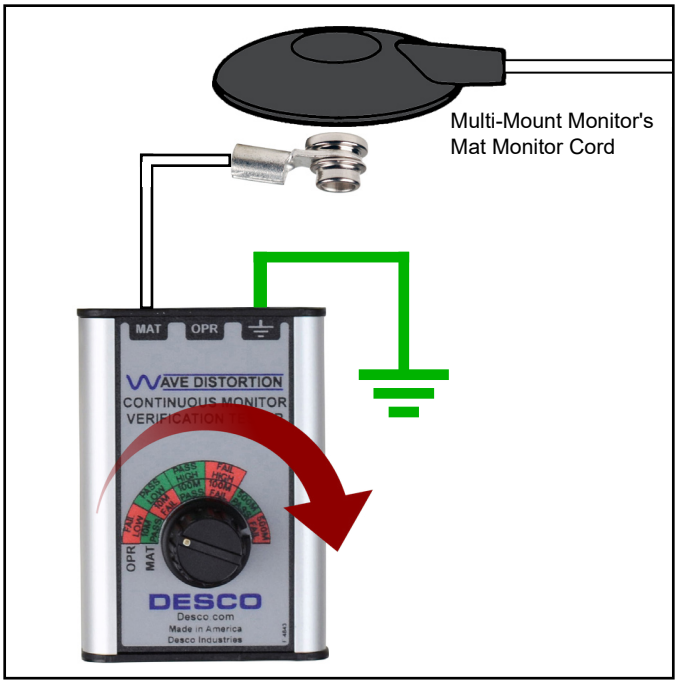

Figure 8. Connecting the Wave Distortion Monitor Verification Tester to the Multi-Mount Monitor's mat monitor cord

12. Set the rotary switch to MAT 10M PASS. The monitor's green mat LED should illuminate.
13. Set the rotary switch to MAT 10M FAIL. The monitor's red mat LED should illuminate, and its audible alarm should sound.

Dual Operator Continuous Monitor

VERIFYING THE OPERATOR CIRCUIT

1. Connect the Wave Distortion Monitor Verification Tester's green ground lead to earth protective ground. This may be done using the included alligator clip.
2. Insert the verification tester's black operator test lead into one of the two operator jacks.

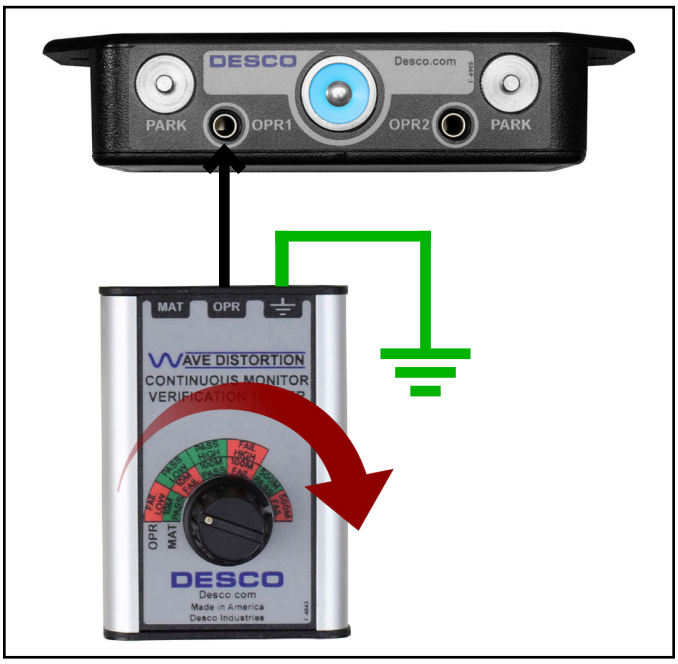

Figure 9. Connecting the Wave Distortion Monitor Verification Tester to the Dual Operator Monitor's operator 1 jack

3. Set the rotary switch to OPERATOR FAIL LOW. The monitor's corresponding operator LED should illuminate red, and its audible alarm should sound.
4. Set the rotary switch to OPERATOR PASS LOW. The monitor's corresponding operator LED should illuminate green.
5. Set the rotary switch to OPERATOR PASS HIGH. The monitor's corresponding operator LED should illuminate green.
6. Set the rotary switch to OPERATOR FAIL HIGH. The monitor's corresponding operator LED should illuminate red, and its audible alarm should sound.
7. Disconnect the operator test lead from the monitor, and connect it to the second operator jack. Repeat the test procedure for the second operator circuit.

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VERIFYING THE MAT CIRCUIT

8. Connect the included stacking snap to the verification tester's white mat test lead.
9. Disconnect the satellite remote's black mat monitor cord from its worksurface mat and turn it over to expose its 10 mm snap.
10. Connect the verification tester's white mat test lead to the mat monitor cord's 10 mm snap.

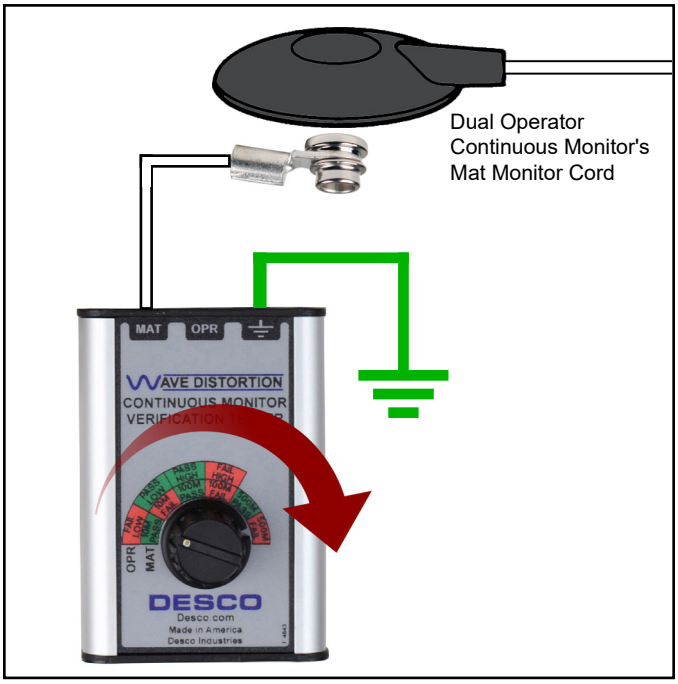

Figure 10. Connecting the Wave Distortion Monitor Verification Tester to the Dual Operator Continuous Monitor's mat monitor cord

11. Set the rotary switch to MAT 10M PASS. The monitor's mat LED should illuminate green.
12. Set the rotary switch to MAT 10M FAIL. The monitor's mat LED should illuminate red, and its audible alarm should sound.

Calibration

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, Desco recommends that calibration be performed annually.

Use the information below to verify if the Wave Distortion Monitor Verification Tester operates within its specifications.

EQUIPMENT NEEDED

- RLC Bridge for testing operator circuit
- Digital Multimeter with 50V power supply for testing mat circuit

SETTINGS

- @ 50 Hz
  Frequency = 1,000 Hz (20 x 50), 20th harmonic
- @ 60 Hz
  Frequency = 1,020 Hz (17 x 60), 17th harmonic
- Set function switch to read "Equivalent Parallel Circuit"

RECORD THE FOLLOWING DATA

Operator Rotary Switch Setting	Equivalent Parallel Capacitance	Targeted Specification (±10%)
Fail Low		138.9 pF
Pass Low		118.6 pF
Pass High		49.0 pF
Fail High		44.7 pF

Operator Rotary Switch Setting	Dissipation Factor	Targeted Specification (±10%)
Fail Low		.158
Pass Low		.367
Pass High		.445
Fail High		.192

Mat Rotary Switch Setting	Resistance @ 50V	Targeted Specification (±4%)
10M Pass		8 megohms
10M Fail		12 megohms
100M Pass		80 megohms
100M Fail		120 megohms
500M Pass		400 megohms
500M Fail		600 megohms

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Specifications

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	3.17" L x 2.25" W x 1.26" H (81 mm x 57 mm x 32 mm)
Weight	0.3 lbs. (0.15 kg)
Country of Origin	United States of America

The Desco 98221 Wave Distortion Monitor Verification Tester may also be used with the following discontinued items:

Jewel® Workstation Continuous Mini Monitor	99135, 222603
Multi-Mount Continuous Monitor	99129, 222608
Dual Operator Continuous Monitor	222743, 222744, 99093, 99095

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

See the Desco Europe Warranty - DescoEurope.com/Limited-Warranty.aspx

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