AC Outlet Analyzer and Wrist Strap Tester Installation, Operation and Maintenance

Made in the United States of America

Figure 1. Desco 98132 AC Outlet Analyzer and Wrist Strap Tester

Figure 2. Desco 98131 AC Outlet Analyzer and Wrist Strap Tester

Description

Desco's AC Outlet Analyzer and Wrist Strap Tester verifies the proper wiring of AC outlets, provides a grounding point, and tests the path-to-ground integrity of an operator's wrist strap. Visual and audible indicators display pass and fail conditions for the outlet and pass condition for the wrist strap. When plugged into an AC outlet, the green LED illuminates to confirm that both the outlet's wiring is correct and the path to equipment ground via the equipment grounding conductor is intact. The banana jack provides a grounding point for wrist straps. An operator that is wearing and using the grounding point can touch the metal button to determine if the operator's wrist strap will act as a path-to-ground and ensure the presence of a current-limiting resistor in the wrist strap.

The factory test ranges are set to:
Wrist Straps: 750 kilohms and 35 megohms

Use the AC Outlet Analyzer and Wrist Strap Tester to fulfill the S6.1 Section 6.3.1 requirement. "The hot, neutral, and equipment grounding conductor shall be verified to be in the proper wiring orientation in accordance with the National Electric Code (ANS/NFPA-70)." (Grounding ANSI/ESD S6.1 section 6.3.1 Equipment Grounding Conductor)

"Typical test programs recommend that wrist straps that are used daily should be tested daily." (ESD Handbook ESD TR20.20 section 5.3.2.4.4)

The AC Outlet Analyzer and Wrist Strap Tester is available in two models:

Item	Input Voltage	Plug Type
98132	120 VAC	North America
98131	220 VAC	Asia / UK

Packaging

1 AC Outlet Analyzer and Wrist Strap Tester
1 Certificate of Calibration

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Features and Components

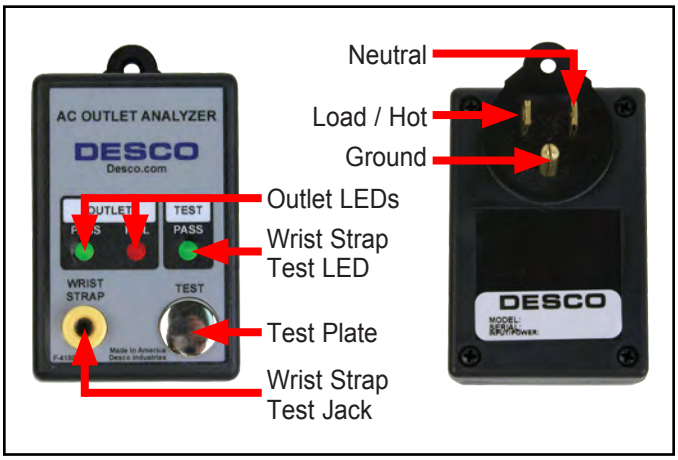

Figure 3. 98132 features and components

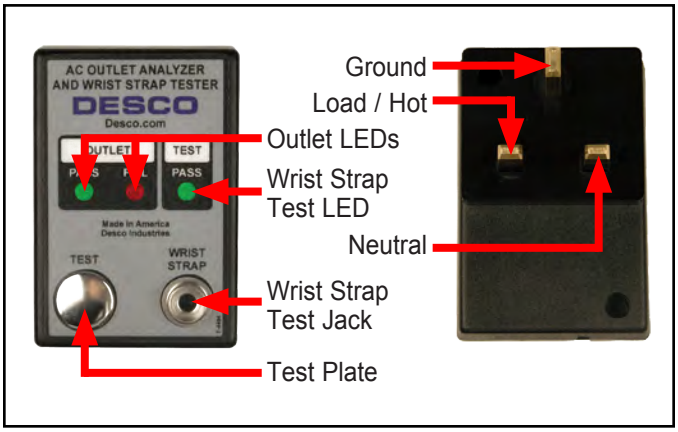

Figure 4. 98131 features and components

Installation

PERFORMING AN AC OUTLET TEST

Plug the AC Outlet Analyzer into a proper electrical outlet. The unit will indicate the condition of the electrical outlet via the Outlet LEDs.

- The green LED will illuminate if the outlet's wiring is correct and the path to equipment ground via the equipment grounding conductor is intact.
- The red LED will illuminate and the alarm will sound if the outlet's wiring is incorrect and/or the path to equipment ground via the equipment grounding conductor is not intact.

Operation

PERFORMING A WRIST STRAP TEST

1. Use the wrist strap test jack to ground the operator's wrist strap.
2. While wearing the wrist strap, touch the tester's test plate to determine if the operator's wrist strap will act as a path-to-ground and ensure the presence of a current-limiting resistor in the wrist strap.

A "PASS" test result is indicated by illumination of the green TEST LED. A "FAIL" test result is indicated if the LED does not illuminate.

If your ESD test fails, check your wrist strap to ensure it is being worn correctly and/or needs to be replaced.

NOTE: Failures may be caused by dry skin or minimal sweat layer. For wrist straps, try using an approved dissipative hand lotion such as Menda Reztore™ ESD Hand Lotion to your wrist prior to use.

The AC Outlet Analyzer and Wrist Strap Tester may also be used to test smocks or garments that feature a grounding mechanism for operators using a coil cord connection.

Calibration

TESTING THE WRIST STRAP TESTER

A. LOW FAIL - Connect a 675 kilohm resistor @ 5% tolerance between the Wrist Strap Test Jack and the Test Plate. The Wrist Strap Test LED will momentarily illuminate then turn off. This test confirms the LOW FAIL point.

B. LOW PASS - Connect a 825 kilohm resistor @ 5% tolerance between the Wrist Strap Test Jack and the Test Plate. The Wrist Strap Test LED will remain illuminated until the resistor is removed from the Test Plate. This test confirms the LOW PASS point.

C. HIGH PASS - Connect a 32 megohm resistor @ 5% tolerance between the Wrist Strap Test Jack and the Test Plate. The Wrist Strap Test LED will remain illuminated unitl the resistor is removed from the Test Plate. This test confirms the HIGH PASS point.

D. HIGH FAIL - Connect a 40 megohm resistor @ 5% tolerance between the Wrist Strap Test Jack and the Test Plate. The Wrist Strap Test LED should not illuminate. This test confirms the HIGH FAIL point.

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TESTING THE AC OUTLET ANALYZER

NOTE: The following procedure should only be done by someone familiar with voltage hazards. This procedure will work for 220VAC as long as the neutral and ground are referenced. 220VAC produced with out of phase 110VAC-Ground-110VAC will produce a FAIL result.

Isolate the ground plug from the tester by inserting it into a 3 to 2 plug adapter.

A. PASS OUTLET - Connect a 5 kilohm resistor @ 5% tolerance between the supply ground and tester ground. The PASS LED should remain illuminated until the resistor is removed. This test confirms the PASS point for the neutral-to-ground resistance.

B. FAIL OUTLET - Connect a 12.5 kilohm resistor @ 5% tolerance between the supply ground and tester ground. The FAIL LED should remain illuminated until the resistor is removed. This test confirms the FAIL point for the neutral-to-ground resistance.

Specifications

Input Voltage:
98132: 120 VAC ±15%
98131: 220 VAC ±15%

Current Drain:
< 10mA

Operator Resistance Limits (nominal):
750 kilohms - 35 megohms

Test Voltage, Open Circuit:
27 VDC (nominal)

Long Term Drift:
< 1% / decade

Dimensions:
98132: 2.0" x 3.0" x 1.3" (5 cm x 8 cm x 3 cm)
98131: 2.0" x 3.0" x 2.0" (5 cm x 8 cm x 5 cm)

Operating Temperature:
0° to 40°C

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

See Desco's Terms and Conditions - http://desco.descoindustries.com/TermsAndConditions.aspx

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