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

Made in the United States of America

Figure 1. Desco 98133 AC Outlet Analyzer and Wrist Strap Tester

Figure 2. Desco 98134 AC Outlet Analyzer and Wrist Strap Tester

Description

The Desco AC Outlet Analyzer and Wrist Strap Tester verifies the proper wiring of AC outlets, provides a verified ground 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's path-to-ground may be verified by touching the test switch while wearing a wrist strap connected to the AC Outlet Analzyer and Wrist Strap Tester.

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	Plug	Region
98133	Type B	North America, Japan
98134	Type G	Southeast Asia, UK

Packaging

1 AC Outlet Analyzer and Wrist Strap Tester

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DESCO EAST - One Colgate Way, Canton, MA 02021-1407 • (781) 821-8370 • Website: Desco.com

Features and Components

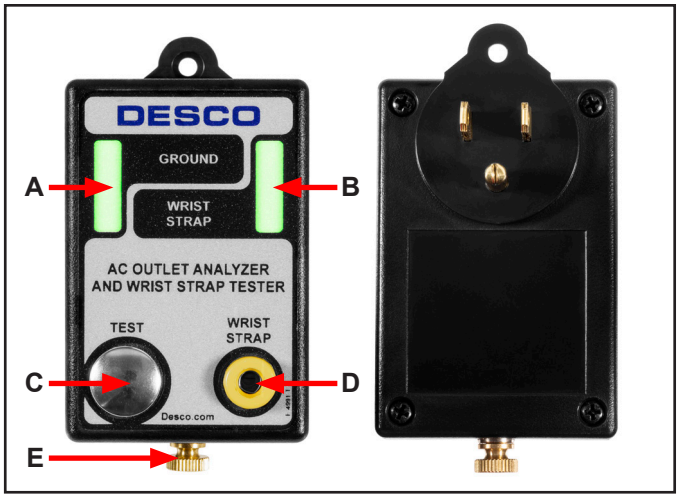

Figure 3. 98133 AC Outlet Analyzer and Wrist Strap Tester features and components

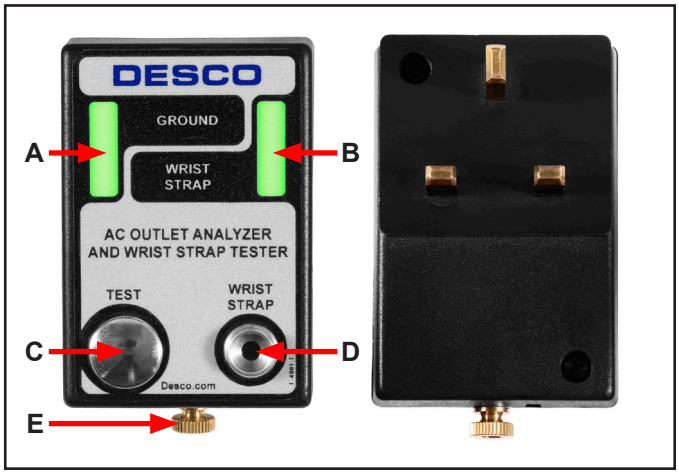

Figure 4. 98134 AC Outlet Analyzer and Wrist Strap Tester features and components

A. Ground LED: Illuminates green when the AC outlet is properly wired and its path to equipment ground via the equipment ground conductor is intact. Illuminates red and audible alarm sounds when the AC outlet is not properly wired and its path to equipment ground via the equipment ground conductor is broken.

B. Operator LED: Illuminates green and sounds an audible tone when the operator passes the wrist strap test. Remains off otherwise.

C. Test Switch: Touch to perform a wrist strap test when connected to the wrist strap jack.

D. Wrist Strap Jack: Insert a single-wire wrist cord to bond the operator to ground.

E. Monitored Ground Terminal: Provides a verified ground point. Bond to the 09842 Multi-Ground Hub to create up to 12 ground points.

Installation

1. Plug the AC Outlet Analyzer and Wrist Strap Tester into a proper electrical outlet.
2. The Ground LED will illuminate green if the outlet's wiring is correct and the path to equipment ground via the equipment grounding conductor is intact.

Figure 5. Verifying a properly wired AC outlet

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

Figure 6. Verifying a properly wired AC outlet

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Operation

1. Use the wrist strap test jack to ground the operator's wrist strap.
2. While wearing the wrist strap, touch the test switch to perform a wrist strap test. The Wrist Strap LED will illuminate green and sound an audible tone should the test pass. The Wrist Strap LED will remain off if the test fails.

Figure 7. Performing a wrist strap test

If the test fails, check the wrist strap to ensure it is being worn correctly and/or needs to be replaced. Failures may also be caused by dry skin or minimal sweat layer. Apply an approved dissipative hand lotion such as Menda Reztore® ESD Hand Lotion to the 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 coiled cord connection.

Calibration

Verifying the Wrist Strap Tester

1. Connect a 675 kilohm resistor between the wrist strap jack and the test switch. The wrist strap LED should remain off. This verifies the fail low test limit.
2. Connect a 825 kilohm resistor between the wrist strap jack and the test switch. The wrist strap LED should illuminate green and sound an audible tone. This verfies the pass low test limit.
3. Connect a 32 megohm resistor between the wrist strap jack and the test switch. The wrist strap LED should illuminate green and sound an audible tone. This verifies the pass high test limit.
4. Connect a 40 megohm resistor between the wrist strap jack and the test switch. The wrist strap LED should remain off. This verifies the fail high test limit.

Verifying the AC Outlet Analyzer

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

1. Isolate the ground plug from the tester by inserting it into a 3 to 2 plug adapter.
2. Connect a 5 kilohm resistor between the supply ground and tester ground. The Ground LED should illuminate green until the resistor is removed. This test confirms the pass limit for the neutral-to-ground resistance.
3. Connect a 12.5 kilohm resistor between the supply ground and tester ground. The Ground LED should illuminate red and sound the audible alarm until the resistor is removed. This test confirms the fail limit for the neutral-to-ground resistance.

Specifications

Input Voltage and Frequency	100-240 VAC, 50/60 Hz
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)
Operator Test Limits	750 kilohms to 35 megohms
Test Voltage	27 VDC
Dimensions	98133: 3.0" x 2.0" x 1.4" (76 mm x 51 mm x 36 mm) 98134: 3.1" x 2.1" x 2.0" (79 mm x 53 mm x 50 mm)
Weight	0.2 lbs (91 g)
Country of Origin	United States of America

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

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

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