DESCO TECHNICAL BULLETIN TB-3096

Portable Surface Resistance Probe Operation and Maintenance

Made in the
United States of America

Figure 1. Desco 19301 Portable Surface Resistance Probe

Description

The Desco 19301 Portable Surface Resistance Probe is a battery powered checker fitted with two gold plated, spring-loaded pins with conductive rubber electrodes at the point of contact. It is designed for quick checks of surface resistance for ESD control applications in electronics manufacturing or handling environments. The two electrodes measure 3.2 mm in diameter and are spaced 6.4 mm between centers.

NOTE: The Desco 19301 Portable Surface Resistance Probe is intended for quick-check applications only. Use the Desco 19290 Digital Surface Resistance Meter for applications that require more precision.

Packaging

1 Portable Surface Resistance Probe
1 Button Protector Sleeve
1 Probe Cap
2 Replacement Pins

Operation

PRE-TEST PROCEDURE
1. Remove the protective cap from the test probe. Slide the button protector off the probe.

2. Point the probe away from any surface. Press the TEST button. Confirm that the red >12 LED illuminates. This verifies the working order of the probe's high-end measurement scale and its battery.

3. Compress the spring-loaded pins onto a metal surface like a coin until the probe stops. Press the TEST button. Confirm that the yellow <3 LED illuminates. This verifies the working order of the probe's low-end measurement scale.

TEST PROCEDURE
1. Place the sample to be tested on an insulative surface.

2. Point the spring-loaded pins onto the surface of the material to be tested. Verify that the pins' rubber electrodes sit flat on the material.

Figure 2. Orienting the spring-loaded pins onto the material to be tested

3. Compress the spring-loaded pins onto the sample until the probe's limiter makes contact.
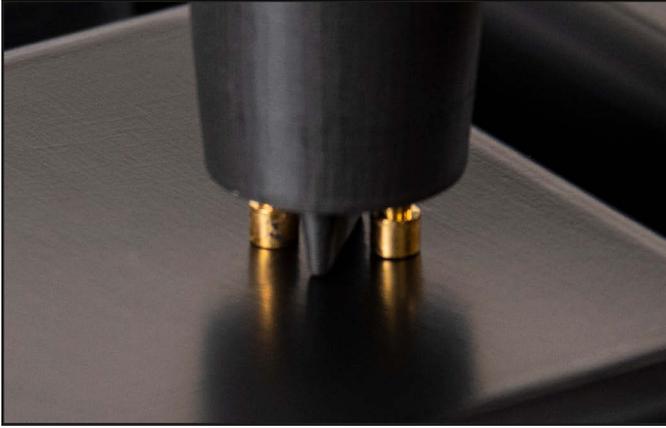
Figure 3. Compressing the spring-loaded pins until the probe's limiter makes contact

4. Press the TEST button until the measurement illuminates a single LED on the probe.

Figure 4. Using the Portable Surface Resistance Probe

Maintenance

The Portable Surface Resistance Probe requires little maintenance. There are no user serviceable parts. If the probe requires service beyond cleaning or replacing the pins or replacing the batteries, please contact Desco Customer Service.

BATTERY REPLACEMENT

Replace the battery once the probe's LEDs stop illuminating. Open the compartment located on the back of the meter to replace the battery. The meter uses one 9V alkaline battery. Ensure that the battery's polarities are oriented in the correct fashion to avoid any possible circuit damage.

CLEANING THE PINS

Periodically wipe the spring-loaded pins with lint-free tissue dampened with isopropyl alcohol (IPA) to remove contaminants.

REPLACING THE PINS

Two replacement pins are included should the ones installed in the probe become bent or damaged. Simply pull out the damaged pins from probe by hand and insert the replacements. Compress the pins into their sockets until they are level with one another.
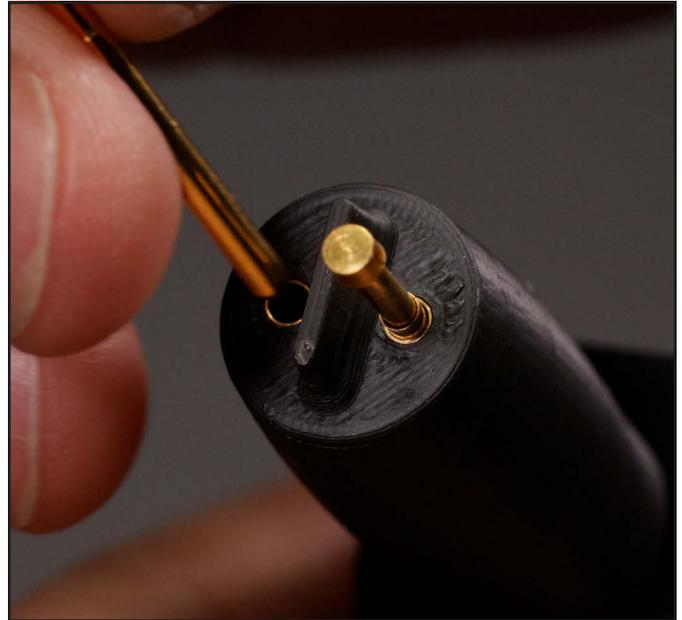

Figure 5. Replacing the spring-loaded pins

Specifications

Power Supply	9 V alkaline battery
Test Voltage	9 V nominal
Operating Temperature	40° to 110° F
Storage	20° to 120° F
Operating %RH	0% to 75% (non-condensing)
Measurement Range	10^3 ohms to 10^{12} ohms
Resolution	1 order of magnitude
Accuracy*	±10% of Measured Range
Weight (with battery)	35 oz (100 g)
Dimensions	8" L x 1" W x 1.25" H
Contact Probe Material	Nickel/Silver, Gold Plated
Preload Spring Force	3.1 oz (88 grams)
Probe Pressure at Stop	8 oz per pin (227 grams)
Contact Probe Travel	0.17" (4.3 mm)
Minimum Sample Size	0.50" (12.7 mm)
Country of Origin	United States of America

*The 19301 Portable Surface Resistance Probe is calibrated to ensure that the proper LED illuminate when their corresponding load resistances are applied. All load resistances have a ±10% accuracy. No claims are made for the actual resistance values that trigger the change in LEDs.

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