

STATICO

Operating Manual

SMP-1 Portable Surface Resistance Probe



Model SMP-1: Portable SR Probe

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UNPACKING AND INSPECTION

Examine the shipping container for obvious signs of damage.

If damage is suspected, open the container and inspect the instrument for possible damage.

If damage is noted, notify the carrier and supplier (your local rep.) immediately.

If instruments appear to be in good condition:
Read the Operator's Manual in its entirety.

Check and verify that all items are included with the kit, then conduct a series of familiarization tests as instructed in the Operation Manual.

KIT CONTENTS

Model SMP-1

Kit Consists of:

- **1 Each SMP Probe Body**
- **2 Each Pogo Pins with Electrode (Installed)**
- **2 Each Pogo Pins without Electrode (Spare)**
- **1 Each Button Protective Sleeve**
- **1 Each Probe Cap**

Product Specifications

Meter

Meter Colors	Black
Body Material	Black ABS
Power Supply	PP3 – 9 volt Alkaline
Test Voltage	9 Volts 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 (without battery)	20 ozs (55 grams)
Weight (with battery)	35 ozs (100 grams)
Dimensions (w/o protective cap)	1.25" High x 1" Wide x 8"
Long	
Dimensions (with protective cap)	1.25" High x 1" Wide x 8.4"
Long	

*the STATICO SMP-1 is calibrated to ensure that the proper LEDs illuminate when their corresponding load resistances are applied. All load resistances have a $\pm 10\%$ accuracy. No claims are made for the actual resistance values that trigger the change in LEDs.

Probe

Probe Body Colors	Black
Dielectric Material	Black ABS
Contact Probe	
Material	Nickle/ Silver, Gold Plated
Diameter	0.156" (3.96mm)
Preload Spring Force (ea.)	3.10 ozs (88g)
Probe Pressure at Stop	8 ozs (227 g) per pin.
Travel	0.17" (4.32mm)
Minimum Sample Size	0.50" (12.7mm)

Model SMP-1: Portable Surface Resistance Probe

INTRODUCTION

The Model SMP-1 Portable Surface Resistance Probe works like other two-point Pen Probes without the need for a megohm meters, electrometers and other high potential resistance meters for measuring Surface Resistance of materials with physical dimensions too small for regular probes. The size, portability and construction make these probes convenient for auditing small samples of materials in the field and yet their design specifications make this instrument good enough for quick determination of insulative, dissipative or conductive properties of materials.

The SMP-1 Portable Surface Resistance Probe use gold-plated, spring loaded electrodes to ensure intimate contact with all types of surfaces and reduce contact resistance. All electrodes are field- replaceable, spring-loaded, pogo-pin type ATE-quality probes that are made of beryllium copper with minimum 60 micro-inch hard gold.

The Two-Point Probe Head is connected directly to a built-in high resistance meter to test material surface resistance using an applied voltage of about 9 volts. Surface Resistance range is displayed via easy to read LED to indicate the ESD resistance property of the material under test.

CAUTIONS -- WARNINGS

As with any electrical device, use proper electrical precautions to avoid personnel shock.

The SMP-1 Probe Pins operate with power input from the 9 Volts alkaline battery and is capable of delivering an annoying shock to any person with sensitive skin touching it.

Although the current capability is limited, a distinct HAZARD EXISTS in the person's reaction to the shock.

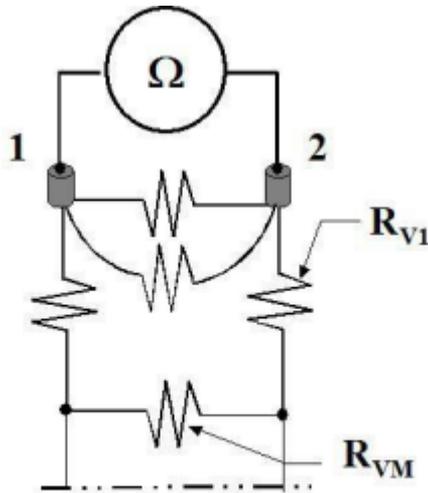
To avoid personnel shock, do not touch the contact pins on the SMP-1, when the "TEST" button is depressed.

Model SMP-1: PORTABLE SURFACE RESISTANCE PROBE

Surface Resistance Measurement for Materials

Introduction:

Surface resistance measurements for planar material characterizes the ability of a planar (flat) sample to conduct electricity and electrostatic charge from one point to another along the top-most layer of the material. For thick samples with bulk conductivity, the resultant reading can come from many paths of current flows, as shown below. (Courtesy Ben Baumgartner, ESDcovery 2000)



2-Point Surface Res. Measurement
Material with finite thickness

This test is designed to check for hot spots on a sample of a finish product where the NFPA probes (5lbs weights) are too large to detect or to fit on the sample.

Pre-test Procedure:

This procedure is designed to ensure that the probe has sufficient battery to perform the test correctly. Also, the Open-Short Test is done to make sure that the probe is in working order.

1. Remove the protective Cap from the probe. Slide the Button Guard toward the probe's end to remove it.



2. Battery Check and Open Test:
Point the probe away from any surface. Press "TEST" Button. If the RED LED on the probe is lit, the battery is in good order and the open-circuit test is PASSED.



3. Short Circuit Test:
Point the Probe Pins onto a metal surface, like a coin, and push down until the probe stops. Press the "TEST" button. If the Lowest YELLOW LED is lit, the Probe's Short Circuit Test is PASSED.



Test Procedures:

Place sample to be tested on an insulative platform such as plastic or Teflon.

1. Remove the protective Cap from the probe. Slide the Button Guard toward the probe's end to remove it.



2. Point the two Pogo Pin Probe onto the surface of the material to be tested. Orient the Probe perpendicularly to the surface to be tested.



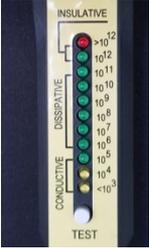
3. Push down on the probe until the probe limiter makes contact with the test surface.



4. Push "TEST" button to initiate testing.



5. Read the Surface Resistance Range on the body of the probe.



Calibration

The Probe should be calibrated every 12 months. Contact your local representative for more information.

Maintenance

Wipe probe tips with a lint-free tissue moistened with IPA periodically to remove contaminants.

Keep probe in a dry and cool place when not used.

Do not submerge probe in any liquid.