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TRANSFORMING TECHNOLOGIES, LLC
OUTSTANDING ALTERNATIVES IN STATIC CONTROL

Ohm Metrics™

Surface Resistance Meter

Model SRM 500K

Instruction Manual

Contents

Service and Warranty

Transforming Technologies, LLC provides a limited warranty for the Model SRM500K. All new products are guaranteed to be free from defects in material and workmanship for a period of one (1) year from the date of shipment. Liability is limited to servicing (after evaluating, repairing or replacing) any product returned to Transforming Technologies. The company does not warrant damage due to misuse, neglect, alteration or accident. In no event shall Transforming Technologies be liable for collateral or consequential damages.

To receive service under warranty, please contact Transforming Technologies Technical Support.

About Transforming Technologies

Since 1998, Transforming Technologies has helped electronic manufacturing facilities to protect their products and processes from the many serious problems associated with static electricity.

Transforming Technologies offers a wide range of unique and outstanding products to detect, protect, eliminate and monitor electrostatic charges. Our products are integral components of an effective static control program.

Specifications Continued

Accuracy for 10 volt scale:

10e3-10e4+/-9%	@RH<90%
10e4-10e8+/-5%	@RH<90%
10e8-10e9+/-9%	@RH<90%
10e9-10e10+/-25%	@RH<60%

Accuracy for 100 volt scale:

10e6-10e8+/-5%	@RH<90%
10e9-10e10+/-9%	@RH<60%
10e10-10e11+/-15%	@RH<50%
10e11-10e12+/-25%	@RH<40%

Description

Ohm Metrics Surface Resistance Meter: SRM 500K

The SRM500K is a digital surface resistance test kit designed to test all conductive, anti-static and static dissipative surfaces for electrical resistivity/resistance according to EOS/ESD, CECC, ANSI, ASTM test procedures. It accurately and quickly measures resistance between two points (RTT) and surface to ground resistance (RTG). Suitable for factory audits and test lab evaluations, the Ohm Metrics SRM500K also measures ambient temperature and humidity.
Features include:

- 10v and 100v range voltage selection
- Automatic zeroing and power shut off
- Two 5 lb disk probes
- Built in resistivity probes
- Carrying case

The SRM500k meets periodic test requirements per Compliance Verification ESD TR53 and conforms to ANSI/EOS/ESD (S4.1, S7.1, S12.1, S2.1).

About Ohm Metrics

Ohm Metrics test and measurement products, from Transforming Technologies, are useful, reliable tools for characterizing and identifying the electrical resistance of materials and the performance of personal grounding products.

- All Ohm Metrics products are designed to support ESDA Compliance Verification TR53.
- All Ohm Metrics products can be calibrated.
- All Ohm Metrics test and measurement products are warranted for 1 full year.

Power Options

The SRM500K can be powered by a 9 volt battery or by the included 120 volt AC adapter.

Set Up

The SRM500K has two methods to measure resistivity: Parallel Probe Resistivity (PPR) method and Concentric Ring Probe Resistivity (CRP) method. The PPR method uses built in probes on the back of the SRM500 and the CRP method uses two 5 lb probes attached to the meter by lead wires.

Product Specifications

Product Number

SRM500K	Resistance Meter with 5lb concentric ring probes and carrying case

Specifications:

Dimensions/Weight	5.15" H x 2.50" W x 1.8" D / 8.46 oz
Test range:	10^3-10^{12}
Test voltage:	10V/100V(automatic ranging)
Accuracy	± 5%
Power Supply	9V-Battery (PP3) 120 volt AC Adapter Unit automatically powers off when not in use
Probes:	Two 5 pound disk probes Two 3"parallel surface resistivity probes
Read Out	LCD alpha-numeric scale-no LED'S
Warranty	One Year

Test Range

Resistivity:	10^3-10^{12} ohms/sq.
Resistance:	10^3-10^{12} ohms
Relative humidity:	10% to 90%RH
Temperature:	0℃-37.7℃(32℉to 100℉)

RTG test method

This procedure measures the surface resistance between a ground point on the material surface and specific positions on the material being tested. This procedure complies with the EOS/ESD S4.1 standard.

1. Meter set-up: with both test leads connected to the meter, attach the alligator clip to one lead and the other to the one of the 5lb probe.
2. Attach the alligator clip to a known ground point.
3. Position the probe on the surface to be tested in accordance with the desired test procedure.
4. Press the test button until the resistivity, humidity and temperature test values are displayed on the LCD screen.
5. These readings will conform to: EIA, EOS/ESD ANSI, IEC-93 CECC and ASTM test procedures.

Note: When performing test, especially with high resistance materials be sure the test lead wires do not touch or overlap and that your hands are not in contact with the probes or wires during the actual testing of the materials. This will ensure accurate readings.

Parallel Probe Resistivity Method

The PRP method is used to give fast electrical resistivity measurements on flat homogeneous materials. Parallel probes are mounted on the back of the SRM500.

Note: It may be used on multilayered materials, but this should be noted along with the temperature and humidity value on the data report.

Make sure that surfaces to be tested are clean and free of contaminants.

1. Place the meter on the surface to be tested.
2. Move the switch to desired test voltage position, either 10 or 100 volts.
3. Press and hold the test button. After approximately 15 seconds, the meter will display the resistivity, humidity and temperature on the LCD screen.

The resistivity reading will be in ohms per square inch, temperature in centigrade, and relative humidity in percent.

The meter will keep updating the display while the button is held down and will continue to display the last test reading for approximately 45 seconds after the button is released.

Concentric Ring Probe Method

The CRP Resistivity method uses the SRM500 meter with two 5lb probes (included).

Set Up

Locate the two 5lb probes, the two probe handles and two probe lead wires. Securely screw the probe handles into the top of each probe. Insert the banana plug of one lead wire into the corresponding jack on the lower side of one probe. Insert the opposite end the lead into the jack on the top of the SRM500 meter. Repeat with the other probe and lead wire.

Testing

Make sure that surfaces to be tested are clean and free of contaminants.

1. Place the probe on the surface to be tested.
2. Press the test button and wait 15 seconds.
3. The correct temperature and humidity will be displayed on the LCD screen.
4. The resistivity value displayed must be multiplied by a factor of ten to achieve the actual test value.
5. These values will read in ohms/square.e.g.$3.5x10^4$ ohms/square (displayed value).
6. Actual resistivity value will be $3.5x10^5$ ohms/square.

Specific Measurements

The SRM500K can take specific measurements: Resistance between Two Points (RTT) and Surface to Ground Resistance (RTG). Procedures vary regarding sample preparation, probe preparation and spacing of the 5 pound probes. Select and read the correct test procedure for the desired measurement.

RTT test procedure

This procedure measures resistance between two points independent of a ground point.

1. Connect the plug ends of the test leads into the 3.5mm jacks of the meter.
2. Connect the banana plugs of the test coil cords into the ends of the 5 pound probes.
3. Place both probes on the material according to test procedures.
4. Move switch to desired test voltage position, either 10 or 100 V.
5. Press and hold the test button until power is applied to the meter and a value is displayed. Keep the button depressed with sufficient force until the electrical resistance. Relative humidity and temperature readings are displayed on the meter screen.