

ESD COMPLIANT RESISTANCE PROBES

Model 803B
Model 850

Measures surface and volume resistance/resistivity of planar surfaces in accordance with ESDA, ASTM, NFPA, military and other standards.

Features:

- ❑ Probes meet:
 - ESDA STM 11.11, 11.12, 4.1
 - ASTM D257, F150
 - NFPA 99
 - Military & IEC requirements
- ❑ Concentric ring design (803B)
- ❑ Direct x10 conversion to surface resistivity (Model 803B)
- ❑ Specified 5 lb (2.2kg) weight
- ❑ Conductive rubber electrodes
- ❑ Ground & insulated test beds (Model 803B)
- ❑ Optional calibration fixtures (Model 803B)
- ❑ Optional Press (Model 847)



Applications:

Test standards used to characterize the surface and/or volume resistance/resistivity of material typically define specific electrode configurations. ASTM D257 specifies either parallel bar or concentric ring electrodes while the ESD Association (ESDA) standards define a specific concentric ring electrode configuration.

To measure point-to-point and resistance-to-ground (RTG) of ESD protective work surfaces, floors and seating ESDA, NFPA, and ASTM test methods specify a 5 lb (2.2kg) probe with a 2.5" (64mm) diameter conductive rubber electrode.

ETS resistance/resistivity probes are designed to meet these requirements. Where applicable, surface resistance measurements are easily converted to surface resistivity by multiplying the measured resistance by 10. Custom probes are available for virtually any application.



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Description:

Model 803B Resistance/Resistivity Probe: Measures surface and/or volume resistance of planar material over the range of $<10\Omega$ - $>10^{14}\Omega$. Machined brass and stainless steel construction provide the specified 5 lb (2.2kg) weight. Conductive silicon rubber electrodes provide good probe-to-test surface contact. Compatible with resistance meters having standard 0.161" (4mm) banana plug cables or banana jacks. Probe includes 4" (102mm) aluminum and acrylic test beds plus 36" (92cm) cables when ordered without a meter. Surface resistance measurements convert to surface resistivity, ρ_s , by multiplying the measurement by 10. The optional Model 847 Press applies additional controlled pressure when required.

Optional Model 809B Surface Resistance Calibration Fixture per ESDA STM 11.11: Checks the calibration of the Model 803B Probe by verifying the alignment of the concentric rings and the low measurement range using an array of 20, 10 megohm, 1% resistors. The reverse side 5%, $1 \times 10^{12}\Omega$ resistor checks both the high range measurement accuracy and determines the electrification time.

Optional Model 819 Volume Resistance Calibration Fixture: The Model 819 verifies the surface contact of the Model 809B center electrode using a similar parallel array of 20, 1%, 10 megohm resistors spaced around the surface area of the center electrode.

Model 850 Surface Resistance Probe: Design in accordance with ESDA STM 4.1 the Probe is identical to that specified in NFPA 99 except it incorporates a conductive rubber electrode to improve probe-surface contact. It can easily be configured to the NFPA version by adding aluminum foil. The Probe can also be used to measure volume resistance then calculate volume resistivity by inserting the area of the electrode ($A=31.7\text{ cm}^2$) into the volume resistivity formula $\rho_v = A/t R_m$.



Specifications:

Probes:	Model 803B	Model 850
Electrical:		
Measurement Range @10V:	$<10\Omega$ - $>10^{14}\Omega$	$<100\Omega$ - $>10^{14}\Omega$
Contact electrodes:	Carbon Nickel Silicone Rubber	Carbon Silicone rubber
Volume resistivity:	0.1 Ohms-cm	8 Ohms-cm
Insulation:	Teflon [®]	None – Single electrode
Connectors, Std. banana jack:	Red (Source), Black (Sense), 0.162" (4mm)	Gnd Black
Mechanical:		
Electrode dimensions:		2.5" (64mm) dia.x 0.25" (6mm)
Outer:	2.5" dia.x0.125x0.125" (8x3x3mm)	
Inner:	1.2" dia.x0.125" (30.5x3mm)	
Shore-A Hardness:	55±10 Durometer	65±10 Durometer
Probe dimensions: (Including Handle)	3.25" dia.x4.0" H (83x102mm)	2.75" dia x4.75" H (70x121mm)
Weight:	5.0 lb ± 2oz (2.2±0.05 kg)	5.0 lb ± 2oz (2.2±0.05 kg)
Cables (Banana-Banana):	3' (92cm) Red (Teflon [®]), Black, Green	5' (1.5m) Black Rubber
Calibration Fixtures:	Model 809B Surface Resistance	Model 819 Volume Resistance
Resistors – equally spaced:		
Electrode alignment side:	20x10 megohm, ¼ Watt, 1%	20x10 megohm, ¼ Watt, 1%
Electrification side:	$1 \times 10^{12}\Omega$, 5%	
Construction:	0.125" (3mm) G10 PCB, Teflon [®]	0.062" (1.5mm) G10 PCB
Warranty:	One (1) Year	

Specifications subject to change without notice

2/08