

Concentric Ring Probe Installation, Operation and Maintenance



Figure 1. Charleswater [99028](#) Concentric Ring Probe



Figure 2. Charleswater [99120](#) Concentric Ring Probe Kit

Description

The Charleswater Concentric Ring Probe is an instrument to be used in conjunction with a resistance megohmmeter, such as the Charleswater [99026](#) Digital Surface Resistance Meter, to measure surface resistance per IEC 61340-2-3, the test method listed in Packaging Table 4 in EN 61340-5-1.

The Concentric Ring Probe can measure the volume resistance of planar materials using a flat conductive metal plate (not included).

The Concentric Ring Probe may be used for the resistance measurements of ESD packaging including static shielding and other bags.

The Charleswater Concentric Ring Probe is compatible with the following Charleswater Surface Resistance Meters:

Item	Description
99026	Digital Surface Resistance Meter Kit
99027	Digital Surface Resistance Meter
99111	Analogue Surface Resistance Meter Kit
99113	Analogue Surface Resistance Meter

Resistivity and Resistance

When it is appropriate to convert a resistance obtained by this test method to an equivalent resistivity in ohms per square, multiply the resistance measurements obtained by this method by ten. The conversion factor of ten is derived from the geometry of the electrode assembly. NOTE: Conversions to resistivity may not be valid for materials that are laminated, plated or metallized with conductive materials. This fact should be understood when users of this test procedure are required to satisfy specifications given in "ohms/square."

Per User guide EN 61340-5-2:1999 Clause 4.1.1

"Point-to-point resistance has been discussed, rather than the surface and volume resistivity which was found in previous standards and reports. This change has been made to cater for non-homogenous materials, which are becoming increasingly common in these applications, as well as ease of measurement."

Repeatability

Per IEC 61340-2-3 clause 10 "Repeatability and reproducibility, the repeatability of these test methods can be assumed to be in the range of approximately one half order of magnitude. If the average value for a series of laboratory tests is 5×10^{10} ohms, the spread of values can be expected from 2.5×10^{10} ohms to 7.5×10^{10} ohms."

Packaging

[99028](#) Concentric Ring Probe

- 1 Concentric Ring Probe
- 1 BNC / Banana Jack Adapter
- 1 Certificate of Calibration

[99120](#) Concentric Ring Probe Kit

- 1 Concentric Ring Probe
- 1 Carrying Case
- 1 BNC / Banana Jack Adapter
- 2 Banana Plug Test Leads
- 1 Certificate of Calibration

Operation

1. Connect the Concentric Ring Probe to a resistance meter using the included BNC / banana jack adapter and the meter's test leads.
2. Place the material to be tested on an insulative surface.
3. Place the Concentric Ring Probe on top of the material to be tested.
4. Take a resistance measurement using the resistance meter.



Figure 3. Using the Concentric Ring Probe with the Charleswater Digital Surface Resistance Meter



Figure 4. Using the Concentric Ring Probe with the Charleswater Analogue Surface Resistance Meter

Specifications

Weight	2.6 kg
Dimensions	7 cm diameter x 17 cm height (with BNC / banana jack adapter)
Outer Probe Diameter	6 cm
Inner Probe Diameter	3 cm
Insulation Resistance Between Probes	$>1 \times 10^{12}$ ohms @ 500V
Probe Resistance of Carbon Pads	<100 ohms at low test voltage

Limited Warranty

Charleswater expressly warrants that for a period of one (1) year from the date of purchase, Charleswater Concentric Ring Probes will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the product will be tested, repaired or replaced at Charleswater's option, free of charge. Call Customer Service at 00 44 (0) 1892-665313 for a Return Material Authorisation (RMA) and for proper shipping instructions and address. You should include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the Charleswater factory. Warranty replacements will take approximately two weeks.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

In no event will Charleswater or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.