



# SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE SM9001

Electronic Measuring Instruments

Measure Sheet/Film/Plate Products/Materials Antistatic Flooring Just As They Are

## Quality Control by Surface/Volume Resistance Measurements



- Measurement voltage up to 1,000 V enables stable resistance measurements of materials and their characteristics when high voltage is applied
- Electrodes compliant with the JIS C 2170 and IEC 61340-2-3 standards
- Surface and volume resistance of sheets and films can be measured just as they are without the need to cut samples
- Measure the surface resistance of antistatic flooring and molded products

### Easy Measurement

- Sheets and molded products can be measured just as they are. Samples for which the size is specified beforehand do not need to be prepared.
- Resistance of thick samples can be measured.
- **Just place** the main body on the antistatic flooring or resin **to measure the stable surface resistance.**

### Reliable Measurement

- **Standards compliance**  
 JIS C 2170 and IEC61340-2-3  
 “Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation”
- **Stable measurement**  
 High voltage (up to 1,000 V)  
 Stable contact under load
- **Test fixture (option)**

### Up to 10<sup>13</sup> Ω (10 TΩ ) High Resistance Measurement at 1,000 V

- When used in combination with the **DSM-8104** or **SM-8220** super megohm meter  
 Measurement resistance range\*:  
 10<sup>3</sup> to 10<sup>13</sup> Ω  
 (\*When using the SM-8220: 5 × 10<sup>4</sup> to 10<sup>13</sup> Ω)
- **Surface resistance** can be measured with the main body alone
- **Volume resistance** can be measured using a pair electrode



ISO 9001  
 JMI-0216



ISO14001  
 JQA-E-90091



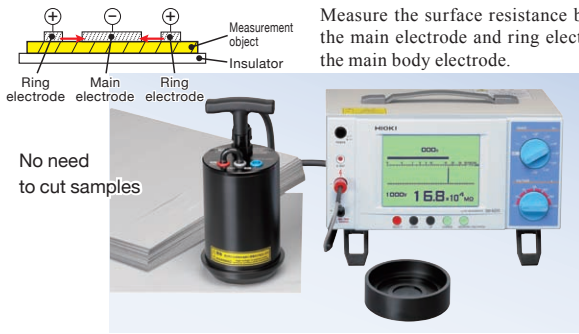
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## Simple and Convenient Surface/Volume Resistance Measurement

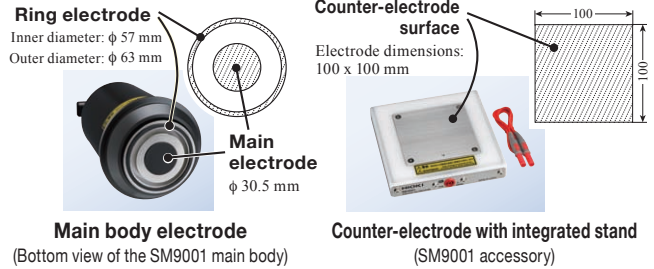
### Surface Resistance Measurement

Measure the surface resistance between the main electrode and ring electrode of the main body electrode.



No need to cut samples

### Electrode Shapes Compliant with Standards



**Main body electrode**  
(Bottom view of the SM9001 main body)

**Counter-electrode with integrated stand**  
(SM9001 accessory)

The electrode on the main body uses conductive rubber in a size conforming to standards. Just place the electrode on the sample or measurement point and stable measurements can be made under a load of 2.5 kg. Furthermore, measurement voltage up to 1,000 V enables highly accurate measurements.

### Volume Resistance Measurement

Measure the volume resistance of the sample sandwiched between the main electrode and counter-electrode.



No need to cut samples

### Test Before Use With the SM9002 Verification Fixture for Surface Resistance Measurement (Option)

The SM9002 Verification Fixture for Surface Resistance Measurement (option) allows you to check the operation of the electrode to increase the reliability of measurement results.

**VERIFICATION FIXTURE FOR SURFACE RESISTANCE MEASUREMENT SM9002**



When using the SM9002

## Specifications (One Year Product Warranty and One Year Accuracy Warranty)

| Surface/Volume Resistance Measurement Electrode SM9001 Specifications |  |
|---|--|
| Reference standards   | IEC61340-2-3: 2000 and JIS C2170: 2004   |
| Resistance measurement  | Surface/volume resistance measurement (switch using connection terminals)  |
| Measurement range   | 1 × 10 <sup>3</sup> Ω* to 1 × 10 <sup>13</sup> Ω<br>* The minimum resistance measurement range varies depending on the specification of the super megohm meter.<br>(Reference) When using the SM-8220: 5 × 10 <sup>4</sup> Ω (50 kΩ) to 1 × 10 <sup>13</sup> Ω (10 TΩ).<br>When using the DSM-8104 or DSM-8542: 1 × 10 <sup>3</sup> Ω (1 kΩ) to 1 × 10 <sup>13</sup> Ω (10 TΩ) |
| Resistance between electrodes   | 1 × 10 <sup>14</sup> Ω or more   |
| External dimensions   | Approx. φ100 × 233H mm (φ3.94" × 8.78"H) (including the handle and barrier, but not including the support holder), connection cable length: 1 m  |
| Weight  | 2.5 ± 0.25 kg (88.2 ± 8.82 oz.)  |
| Electrode   | Conductive rubber with a thickness of 3 mm<br>Main electrode diameter: φ30.5 mm<br>Ring electrode diameters: φ57 mm (ID), φ63 mm (OD)  |
| Counter-electrode with integrated support plate                       | Electrode dimensions: 100 × 100 mm<br>External dimensions: Approx. 154W × 155D × 25H mm (6.06"W × 6.10"D × 0.98"H)<br>Weight: Approx. 1.2 kg (42.3 oz.)  |
| Operating temperature/humidity range                                  | 0°C to 40°C (32°F to 104°F)/80% RH or less (no condensation)   |
| Storage temperature/humidity range                                    | -10°C to 50°C (14°F to 122°F)/80% RH or less (no condensation)   |
| Installation site   | Indoors, pollution degree 2, altitude 2,000 m (6562 feet) or less  |
| Rated ground voltage  | Max. 1,000 V DC  |

|                   |   |
|-------------------|---|
| Withstand voltage | 7,504 V DC between input terminal (batch) and main body case  |
| Applicable models | Ultra Super Megohm meter SM-8220<br>Digital Ultra Insulation/Micro Ammeter DSM-8104/DSM-8542<br>(When using a super megohm meter other than the above, measurements are possible within the measurement range of the corresponding super megohm meter. With the SM-8213, 8215, and 8216 super megohm meters, high resistance measurements of the SM9002 are out of the accuracy range of the super megohm meter. The SM-8215 super megohm meter does not support the low resistance measurement of the SM9002.) |
| Accessories       | Counter-electrode with integrated stand × 1, protective stand × 1, short bar × 1, counter-electrode connection cable (approx. 0.7 m) × 1, carrying case × 1   |

| Verification Fixture for Surface Resistance Measurement SM9002 Specifications |   |
|---|---|
| Low resistance  | 500 kΩ ± 1%, measurement voltage 10 V DC                          |
| High resistance   | 1 TΩ ± 5%, measurement voltage 100 V DC                           |
| Operating temperature/humidity range  | 18°C to 28°C (64.4°F to 104°F)/60% RH or less (no condensation)   |
| Storage temperature/humidity range  | -10°C to 50°C (14°F to 122°F)/80% RH or less (no condensation)    |
| Installation site   | Indoors, pollution degree 2, altitude 2,000 m (6562 feet) or less |
| Rated ground voltage  | Max. 100 V DC   |
| Withstand voltage   | 1,120 V DC between electrode (batch) and main body case           |
| Applicable model  | Surface/Volume Resistance Measurement Electrode SM9001            |
| External dimensions   | Approx. φ100 × 56H mm (φ3.94" × 2.20"H)                           |
| Weight  | Approx. 300 g (10.6 oz.)  |

## Ordering Information

### Main body

SURFACE/VOLUME RESISTANCE MEASUREMENT ELECTRODE SM9001



SM9001

Counter-electrode with integrated stand (included)

Protective stand (included)

Carrying case (included)

### Option

VERIFICATION FIXTURE FOR SURFACE RESISTANCE MEASUREMENT SM9002

(With integrated low resistance [500 kΩ]/high resistance [1 TΩ] test surfaces\*)



\* The low resistance and high resistance test surfaces are arranged inside a single fixture.