Device configuration and operation

Figure 1 shows the principle of charge decay measurement. The capacitance of the sample is "C" and leakage resistance is "RL". Charge the sample from the power source and wait for the charge distribution to reach to a trable state, then turn off the power. Assume the electrostatic potential of the sample now is at "0". After "t" seconds, through the leakage resistance of the sample, the electrostatic potential decreases due to the current as shown in Fig.2, the decay curve. The potential ΔV of the decay curve is given by the following fomula.

$$V = V_0 \exp\{-t/(RL \cdot C)\} \quad \text{.....Fomula 1}$$

The half-life τ is the time from the leakage and diffusion of the charge of the sample to the decay until the potential becomes 1/2 of the initial potential V0.In formula 1, when V = V0 / 2, the half-life τ is calculated by the following formula

$$\tau = (RL \cdot C)\ln 2 \quad \text{..... Formula 2}$$

In formula 2, since the half-life τ is proportional to the leakage resistance RL, it can be inferred as long as the half-life τ is measured

Principle of charge decay measurement

As shown in Figure 3, the device consists of the following: the applied voltage part to corona discharge the sample, a rotational turntable to place the sample and a power receiving part for measuring the electrostatic potential of the sample. The operation of the device is shown in Figure 2. Place the sample on the turntable and rotate, then start to apply high voltage (point A) to increase the electrostatic potential of the sample. When the turntable rotates, the applied voltage and the leakage of electrostatic potential reach to an equilibrium (point B), the electrostatic potential of the sample reach to the saturation level. After the electrostatic potential reaches to the constant value V0 at time t1 (point C), turn off the high voltage and let the electrostatic potential to decrease (point C → point E). The half-life τ is when the electrostatic potential V0 deacays to 1/2 of the initial electrostatic potential t2 (point D).

Figure 1

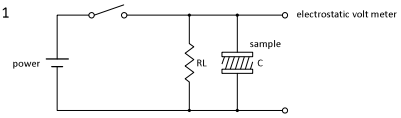


Figure 2

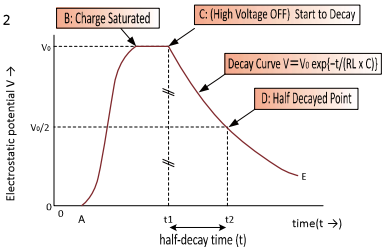
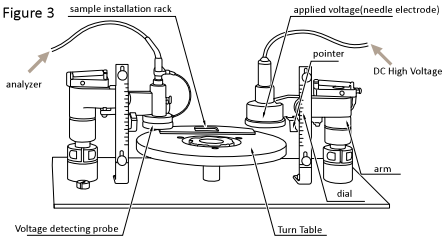


Figure 3



Digital Surface Resistance Meter MEG102 NEW

Surface resistance can be measured quickly!

MEG102

Main Features

- It can be used in different type of materials to measure surface resistance, mostly suitable for (RTT, RTG)
- Automatic range switching functions, easy to use
- Optional probes available to meet the required measurement

*RTT: Resistance to (Table) Top RTG: Resistance to Ground

Optional

OMEG-B (Optional)

OMEG-RING (Optional Probe)

Measured Range	10V supply: 1x10³ ~ 1x10⁶ Ohm
	100V supply: 1x10⁶ ~ 10¹² Ohm
Measured Resistance Accuracy	±10%(above 10¹¹ ±20%)
Applied Voltage	10V, 100V(± 5%)
Memory Capacity	For 100 times measurement
Power	AA alkaline dry batteries (4 pcs)
Battery Life	Around 1,500 times (Available measured data)
Weight	400g
Dimentions	Main Unit: 100mm×210mm×32mm
Environment	Temperature: 5 ~ 30°C, Humidity: Below 80%RH
Accessories	Probe: 2.27kg, OMEG-EP (2), Testing Wire OMEG-CA (2), Electrode spacer (10" & 36")
	Allegator Clip(1), Type three alkaline dry batteries (4 pcs), Carring case
Optional Probe	OMEG-RING(IEC Standard), OMEG-B

Dimension Diagram