

COULOMB METER - Digital

Cat: EM1100-001

DESCRIPTION: The Coulomb meter is a digital instrument that can replace the traditional electroscope. It measures **electrical charge or the quantity of electricity**.

By definition, one Coulomb is the quantity of electricity equivalent to **1x amp second** (one amp flowing for exactly one second). The amount of charge on an electron inside an atom is 1.602×10^{-19} Coulombs. The Coulomb Meter can measure up to 1,999 nC (nanoCoulombs). Note: $1x \text{ nC} = 10^{-9}$ Coulombs.

In the Coulomb Meter, a 1uF capacitor is charged by the amount of electricity passed into the terminals. As the amount of electricity or charge increases inside the capacitor, its voltage rises. This electricity may be in the form of current flowing through a resistor from a battery or other power source or from static electricity on an electrostatic rod discharged into the terminal etc. The charge rises and falls in a similar manner to the vane of an electroscope but, unlike an electroscope, the Coulomb Meter operates at very low voltages.

EM1100-001



Physical size:

Weight: kg

Designed and manufactured in Australia by Industrial Equipment and Control Pty Ltd

Distributed by

Scientrific Pty Ltd

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**DIFFERENCE BETWEEN ELECTROSCOPE AND THE COULOMB METER:**

In the case of an electroscope, the capacitance is very very small and the electrostatic voltage applied is very high, but in the case of the Coulomb Meter, the capacitance is very high and the voltage applied is low. In the case of an electroscope, the deflection is a measurement of charge, but in the Coulomb Meter the digital display is far more accurate in nC.

IMPORTANT NOTES:

- Charge is accumulated on a 1uF capacitor contained within the Coulomb Meter.
- Full scale reading occurs when sufficient charge has been accumulated in the capacitor to produce a 2V P.D. (potential difference) between the + and - terminals.
- The maximum voltage directly connected between the + and - terminals is 100V.
- A charged electrostatic rod carries a potential of several thousand volts but, since the capacitance of the rod is very very small compared to the 1uF capacitor, the voltage that will appear on the terminals when the rod is discharged to the terminal will not exceed a few hundredths of a volt.

ADDITIONAL PARTS SUPPLIED:

- 1 pce 25mm Diameter Collector Plate to fit + socket.
- 1 pce 9V Battery (PP3) To fit new battery, remove end panel.

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