# WIDE RANGE RESISTANCE METER and KIT

# Model 8873

**Autoranging, microcomputer based resistance meter measures from Ohms to Teraohms with built-in surface/volume or external electrodes**

## Features:



- **Measurement range:**
  **$10^2$ to $10^{10}$ Ω @10V**
  **$10^4$ to $10^{12}$ Ω @100V**
- **Autoranging, microcomputer based**
- **User selectable regulated test voltages**
- **2-line alphanumeric LCD display**
- **Configurations available:**
  **Meter only**
  **With plug-in surface/volume electrode assembly**
  **Kit with required accessories**
- **Battery and optional AC power**
- **Meets ESDA, ASTM, SAE J1645, DOD plus International requirements**

## Applications:

Many applications require the measurement of the resistance characteristics of packaging materials, work surfaces, and flooring plus objects where dissipation of static charge is of concern. Some materials are nonlinear and have a measured resistance that is a function of test voltage. Specifications, including those written by the Electrostatic Discharge Association (STM 4.1, 11.11, 11.12, 11.13, etc.), ASTM (D257, 4496, F150 etc.), EIA, SAE (J1645, etc), NFPA (77, 99 etc) military (MIL PRF 81705 etc.) plus International documents, specify test voltages of 10 and 100 Volts.

The ETS Model 8873 is an accurate, battery-powered, microcomputer-based instrument that meets the requirements for measuring resistance from $10^2$-$10^{12}$ Ω using selectable regulated test voltages of 10 or 100V. The Model 8873 is available as either a stand-alone meter for use with external probes or with the optional plug-in, 2.5” (64mm) dia. solid /concentric ring electrode assembly. The Model 8873 Test Kit includes the Model 8873 Meter, electrode assembly, 4” (102mm) dia. conductive and acrylic test beds, cables and spare batteries plus a Model 850, 5 lb (2.2kg) Surface Resistance Probe housed in a dust and waterproof carrying case. An external universal voltage power module and a Model 5646 Humidity/Temperature Indicator are available as options.

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# Description:

The Model 8873 Wide Range Resistance Meter is an accurate, easy to use instrument featuring manual ON/OFF plus auto standby (internally selectable) and a momentary **PUSH TO TEST** button for making measurements. The voltage at which the measurement is taken is selected using a push-push **TEST VOLTAGE** select button. The 2-line alphanumeric LCD readout displays the measured resistance plus a flashing * on the top line to indicate that a measurement is in process and stops when the measurement is completed. The test voltage ($V_e$=10 or 100V) is displayed on the bottom line. When $V_e$=100V is used, it is also turned off at this time. Resistance is displayed in engineering units (ex: 6.35e+8 = $6.35 \times 10^8$ Ohms) plus "**UNDERSCALE" and "OVERSCALE"** are indicated. The lowest measurable resistance is 100Ω at 10V and 10kΩ at 100V. The highest measurable resistance is approximately 100GΩ at 10V and <1 TΩ at 100V. The electrification time required to take a measurement at the highest resistance is normally less than 15 seconds when the plug-in integrated electrode assembly is used.

The plug-in electrode assembly consists of a solid 2.5" (64 mm) conductive rubber electrode on one side to measure point-point resistance and resistance to ground (RTG). On the reverse side are concentric ring conductive rubber electrodes to measure surface resistance per ESDS STM 11.11, and when applicable, converted to surface resistivity per ASTM D 257 by multiplying the measured resistance by 10 ($\rho_s=10R_m$ Ohms/sq).

Volume resistance is measured between the 2.5" (64mm) dia. electrode and a conductive test bed (included in the Model 8873 Kit). To measure per STM 11.12 an external probe must be used.

External probes are connected to the Model 8873 via standard banana jacks located on the side of the instrument. Refer to the ETS Series 800 Resistance/Resistivity Probes literature sheets for probes to meet virtually any surface, volume (solids, liquids and powders) and point-to-point resistance measurement requirement. Other probes having standard banana plug leads may also be used.

Auto shutoff places the unit in "**sleep"** mode if no activity is detected after approximately 15 minutes. To perform a test, simply depress the **PUSH TO TEST** button. An internal switch disables the time-out and power on/off will be totally controlled by the **POWER** switch. Low battery voltage is displayed automatically as "**Low Battery"**.

# Specifications:

**Measurement range:**
$10^2$ to $10^{11}$ Ω @10V
$10^4$ to $10^{12}$ Ω @100V
**Accuracy:** ±5% ($10^2$ to $10^{10}$ Ω @10V)
±5% ($10^4$ to $10^{11}$ Ω @100V)
±15% (>$10^{10}$ @10V, >$10^{11}$ @100V)
**Voltage regulation:** Better than ±5%
**Display:**
Resolution: 0.01
Character height – 0.188" (4.8mm)
2-line, alphanumeric LCD
Backlight – None
**Enclosure:** Steel base, aluminum shell

**External Input:** Std. 0.061" (4mm) Banana jack
Source (Red), Sense (Black), Ground (Case)
**Power:** 2x9V Alkaline batteries
Optional – 15VAC (90-260VAC, 50/60Hz
**Electrode Assy. (per ESDA STM 4.1 & S11.11):**
2.5" (64mm) Conductive rubber with R=100Ω min
2.5" (64mm) Concentric Ring with R=100Ω min
**Size:**
Meter only – 4" Dia. x 5.5" (102x140mm**)**
Incl Electrode Assy. – 4" Dia. x 6.75" (102x165mm)
**Weight:** 5 lbs (2.2kg) Incl. Electrode Assy.

**Warranty:** One (1) Year

*Specifications subject to change without notice.*

6/08