

SRM-232 Sheet Resistance Meter with Four Point Probe



Bridge Technology offers a low-cost hand-held sheet resistance meter with four-point probe for use in measuring the sheet resistance of applied coatings such as conductive paints, EMI coatings, ITO on glass, and many other types of materials. The unit operates on one 9 volt battery. The data from up to 127 measurements can be stored in the unit and then uploaded to a PC via the included RS-232 cable. The SRM-232 includes a Pelican carrying case.

The SRM-232 is available in four measurement ranges as follows:

SRM-232-10

- Range: 0.000 to 9.999 ohms/square.
- Displayed as: ##.###
- Resolution: 0.004 ohms/sq.
- Accuracy: 0.01 ohms/sq. @ 1.00 ohm/sq.

SRM-232-100

- Range: 0.00 to 95.00 ohms/square.
- Displayed as: ###.##
- Resolution: 0.04 ohms/square
- Accuracy 0.07 ohms/square @ 10 ohms/sq.

SRM-232-1000

- Range: 0.00 to 999.99 ohms/square.
- Displayed as: ###.##
- Resolution: 0.4 ohms/sq.
- Accuracy: 0.7 ohms/sq. @ 100 ohm/sq.

SRM-232-2000

- Range: 0.0 to 2000 ohms/square.
- Displayed as: ####.#
- Resolution: 0.8 ohms/sq.
- Accuracy: 1.4 ohms/sq. @ 1000 ohm/sq.

Stated accuracies apply to the electronics unit.

One SRM Probe Head (see page 3 of this document) is included with the unit. The probe specifications by default are 62.5 mil tip spacings (40 or 50 mil spacing are available), 85 gram load per tip (45 and 180 gram loads are available), tungsten carbide tips (osmium alloy is available), and 10 mil tip radii (1.6 & 5 mil radii are available). Once an order has been placed, samples of your material can be tested to determine the optimum probe tip specifications. Contact Bridge Technology for details.

A calibration certificate is included with the system. Calibration fixtures (see page two of this document) are available.

SRM-CAL Calibration Fixture

The SRM-CAL is a test fixture that contains three sets of contact points for use in verifying the accuracy of the SRM-232 electronics against an external standard. One set of pads is connected to a dead short; one set of pads is connected to a precision resistor with a value in the middle of the SRM-232's measurement range; the third set of pads is connected to a precision resistor with a value in the upper end of the SRM-232's measurement range. If an inaccuracy in the unit is detected when checking it against the calibration fixture, the SRM can be factory recalibrated. The SRM-CAL is supplied with an NIST traceable certificate of calibration and can be recertified on a yearly bases if desired.

The calibration mode as explained in the SRM-232 manual is for self-calibration against precision resistors that are internal to the SRM-232. The SRM-CAL is used to verify the accuracy of the instrument's electronics against an external standard. The SRM does not provide the capability for the end user to adjust the SRM against the external SRM-CAL - this must be performed at the factory using special equipment.

SRM-CAL Calibration Fixture

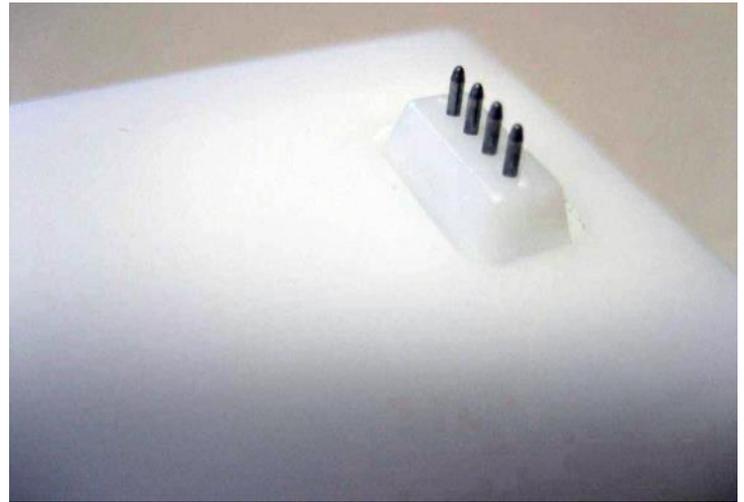
Dimensions 1" x 4" x 2"

(SRM-CAL-10 shown, for use with SRM-232-10)



SRM Probe Head

The SRM Probe Head is a plastic bodied four point probe head which is applied by hand. The connection to the probe head from the SRM-232 electronics is via a female RJ45 connector which is the same type of connector used for Ethernet connections. The SRM-232 four point probe systems include one SRM Probe Head and one of the coiled cables shown below.



Probe Tips Specification Choices

The probe has four spring-loaded, collinear probe tips.

Tip Spacing: 40, 50, or 62.5 mils

Spring Loads: 45, 85, or 180 grams per tip

Tip Material: tungsten carbide or 50% osmium alloy

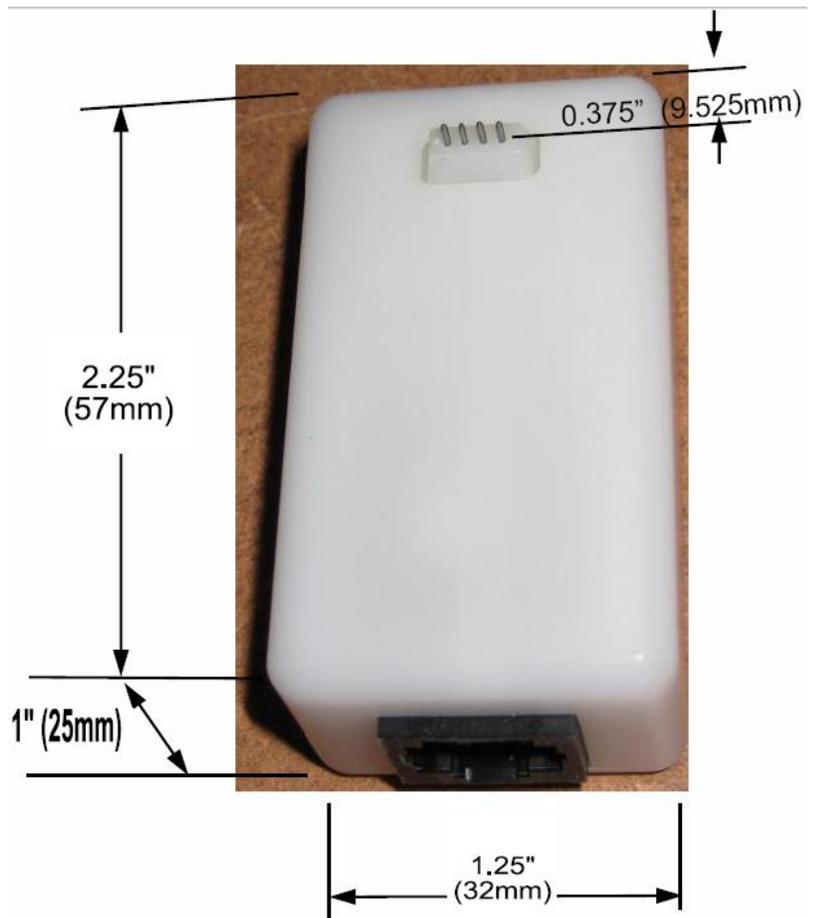
Tip Radii: 1.6, 5, or 10 mils.

The probe is also available with the “flush mount” housing in which the tips are recessed deeper into the outer housing so that the tip retraction is limited, resulting in a lower spring pressure than the stated gram load (see the bottom of the next page for an image showing the difference between the standard housing and the flush mount housing).

SRM PROBE HEAD
with CABLE



SRM Probe Approximate Dimensions (in inches)



Standard SRM Probe Housing versus the "Flush Housing"

Standard Probe Housing



Flush Housing



The "Flush Housing" probe on the right has the inner probe assembly mounted deeper into the outer shell so that only the ends of the tips protrude from the housing. This limits the tip retraction, significantly reducing the spring load for use when probing soft materials or whenever a lighter spring load is preferred to reduce marking on the material or when required to make successful measurements. Standard probe tip retraction distance is 0.187". The "flush housing" probe has tip retraction of 0.03".