

JANDEL ENGINEERING LTD.

SRM+RM3000 Four Point Probe

**General Purpose Four Point Probing System for
Measuring Sheet Resistance or Volume Resistivity**

SRM Probe Head Combined with RM3000 Test Unit



About the SRM Probe

The SRM probe is a lower cost plastic bodied probe that is suitable for use in measuring a wide range of materials including various conductive coatings, ITO on glass, silicon wafers, ingots, pot-scrap, conductive paints, and various thin films. The connection to the probe head is made via a female RJ45 connector which is the same type of connector used for Ethernet connections. In this configuration, the RM3000 is supplied with a 1 meter long cable that plugs directly into the SRM probe head. Holding a probe head by hand does not always work well when measuring higher resistance materials and films, however, for many materials it is suitable. Since the probe does not have a switch to control the flow of current, it is best to switch the RM3000 into the standby mode until the tips are placed into contact so that sparking does not occur as the probe tip approach the material to be tested.



The SRM probe heads are available in three choices of tip spacing, three choices of spring load, two choices of tip material, and three choices of tip radii.

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The RM3000 Test Unit is a specialty electronics instruments designed specifically for the four point probe measurement. It features high accuracy, an excellent range, and many features which simplify the four point probing measurement. The following are features of the RM3000 Test Unit:

- The measurement range of the RM3000 Test Unit is from 1 milliohm-per-square (10^{-3}) up to 5×10^8 ohms-per-square with 0.3% accuracy. The volume resistivity range is from 1 milliohm-cm (10^{-3}) up to 10^6 ohms-cm (more conductive materials can be measured if in the form of a thin film).
- The RM3000 includes PC control software which can be used for data logging (storing data in the CSV format) and measurement conversion to ohms-per-square or ohms-cm.
- The RM3000 provides simultaneous read-out of input current and either mV, ohms-per-square, or ohms-cm. Ohms-cm readout requires input of thickness if measuring thin films, or tip spacing if measuring bulk resistivity samples.
- The RM3000 has onboard non-volatile memory so that up to 50 measurements can be stored internally and then downloaded and saved all at one time using the software. Alternately, each measurement can be saved to a PC as it is made.
- The RM3000 has an auto-range button that can be used to automatically determine the optimum input current for a given material without using the trial and error method.
- The RM3000 has forward (FWD) and reverse (REV) buttons to reverse the direction of current flow. A common way to determine if a measurement is valid is to reverse the direction of current flow and then check to see if the forward and reverse voltage readings correlate well, i.e., the values should be similar, but with the reverse current voltage being a negative value.
- Allows input of correction factor when making sheet resistance or volume resistivity measurements
- Interfaces with optional AFPP motorized Z-motion arm (which is not for use with the SRM probe)

SPECIFICATIONS

Superior Current Source

- 10nA to 100mA (99.999mA) current source selectable in steps to 3 decimal place resolution
- Current set numeric keypad
- 4 default preset current programs (user programmable)

Superior Inbuilt DVM

- Input Impedance 1,000,000,000,000 ohms
- Input Bias current 4pA
- DVM 1300mV range and 130mV range
- 130mV accuracy
- 0.2% +/- 5uV resolution (10uV or 1uV) range
- 1300mV accuracy 0.2% +/-100uV resolution
- 100uV Ohms/Square
- Rapid Zeroing null function for DVM



FEATURES

- 28 Key high quality Keypad
- 16x2 line LCD Display for simultaneous indication of Set Current and either Ohms/Sq, Ohms-cm, or mV
- Auto-Ranging capability to determine the optimum input current based upon the material being measured.
- Intuitive operation
- Microprocessor controlled
- Reduced Footprint
- Robust Attractive ABS Case
- Accurately measures down to 10's of milliohms/square without external meter
- 4mm socket facility to connect an external meter
- RS232/USB connectivity for control and for collecting data in CSV format

Downloads:

[Product Brochure for the SRM Probe Head](#)

[Instruction manual \(688K PDF file\) for the RM3000 Test Unit](#)