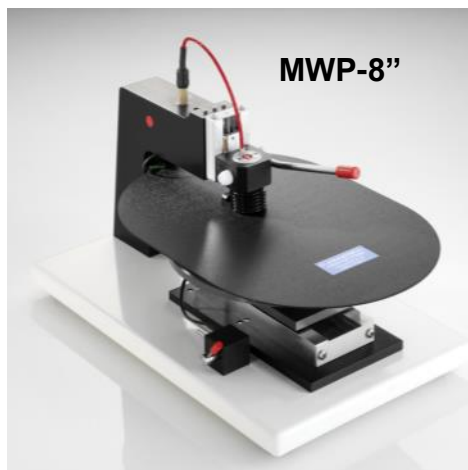
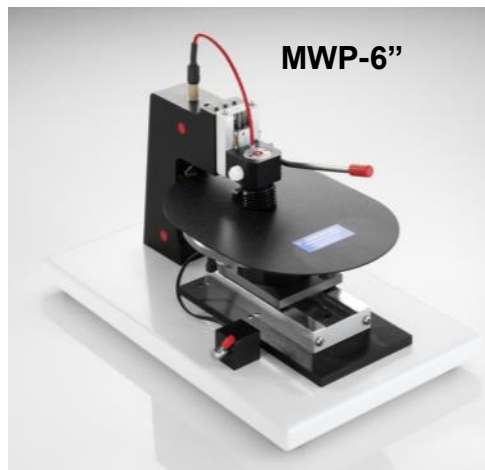


JANDEL ENGINEERING LTD.

Jandel Four Point Probing System for Wafers

Multiposition Wafer Probe with RM3000 Test Unit



The Multiposition Wafer Probe combined with the RM3000 Test Unit provides a high quality, easy to use system for measuring the sheet resistance and/or volume resistivity of wafers up to 200mm (8") in diameter.

The Multiposition Wafer Probe has the ability to probe 1, 5, 9, or somewhat more positions on multiple wafers with 1mm positioning repeatability from wafer to wafer. It is not motorized, but requires that the user moves the wafer stage by hand. It is available with either a 6" (150mm) wafer chuck or an 8" (200mm) wafer chuck. The price is the same for either unit, however, the MWP-6 would be preferable for use with wafers that are 6" in diameter or smaller due to the increased ease of centering the wafer on the wafer chuck. Annular rings (not vacuum rings) allow wafers to be centered more easily. To aid in centering smaller wafers, the 6" Multiposition Wafer Probe has circular patterns on the wafer chuck with diameters of 25mm, 50mm, 75mm, 100mm, and 125mm. The 8" system has circles at 125mm and 150mm. The Multiposition Wafer Probe can be connected to a vacuum source for wafer hold-down. The instrument comprises a white powder-paint coated metal base carrying a Delrin column supporting the vertical slide, operating lever shaft, and micro-switch. The vertical slide carries the probe head, secured by a clamp screw. The probe head is positioned so that the micro-switch does not pass current until the probes have made contact, lost motion ensures that the current is switched off before the probes are raised. The wafer table slides towards the operator to enable the wafer to be centrally positioned, after which the vacuum control valve can be operated to secure it in position. When the table is pushed to the limit of its travel, a measurement can be made at its center. Four radial positions at right-angles are denoted by a spring-loaded index ball incorporated in the rotary table. The radial distance of measurement is denoted by a similar arrangement on the linear slide index plate. Unwanted settings can be blocked off by easily removed screws. So that, for example, one could choose to measure at the center and four points at 50mm radius. A grounded metal shield screens the wafer from light and electrical noise during measurement. It is arranged that the shield rises when the probe head is fully lifted to permit loading.

The system incorporates the Jandel Cylindrical probe head which is built to high standards of quality and accuracy. A brochure regarding the Cylindrical probe can be found here:

<http://www.fourpointprobes.com/jandelcylindrical.pdf>

Information regarding the constructions and specifications of the Jandel Cylindrical probe can be seen here: http://www.fourpointprobes.com/cylindrical_app_notes.pdf

Multiposition Wafer Probe Specifications:

Wafer Chuck - Hard anodized aluminum alloy with vacuum hold, centering grooves, and tweezer notch for: 6" model - 3", 4", 5" and 6" wafers, 8" model - 5", 6", and 8" nominal diameters.

- 6" Model Preset Measurement Positions: Center and four radii at right angles 15, 20, 25, 35, 50, and 60mm
- 8" Model Preset Measurement Positions: Center and four radii at right angles 32, 38, 50, 57, 68, and 94mm
- Services: Vacuum line or pump required
- Dimensions: 355 x 215 x 195mm high
- Net weight: 6" model - 3.5kg, 8" model - 4.0kg

Sampling Plan C, ASTM F-81-89, using		
Wafer	1/2R	6mm from edge
5"	32mm	57mm
6"	38mm	68mm
8"	50mm	94mm

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 sample thickness for thin films, or tip spacing for bulk 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

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:

[Instruction manual \(155K PDF file\) for the Multiposition Wafer Probe](#)

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

[High resolution image of Multiposition Wafer Probe and RM3000 Test Unit \(1meg JPG file\)](#)

Click here to request a price quotation for the Multiposition Wafer Probe combined with the RM3000 Test Unit: sales@bridgetec.com

