

**DATASHEET:**

**RS450 Benchtop Sensor and IM100 Interface Module**

**FEATURE SUMMARY**

- Integrated sensor and stage with a 26 mm spot size and 450 mm x 450 mm stage
- Noncontact measurement of sheet resistance, thickness, resistivity, and emissivity
- Measures nearly all thin conductive materials or coatings (e.g. wafer, glass, roll to roll, etc.)
- Small swappable sensor for benchtop or inline use
- Add additional sensors, ranges, and stages any time
- Simple one button operation with LCD
- Intuitive software for benchtop, mapping, and inline monitoring applications
- Interface via LCD, Modbus over Ethernet, or use our Python library

**APPLICATIONS**—Designed for use on glass, wafers, film and more, including:

- Touch screens, flat screens, ITO, TCOs, etc.
- Carbon nanotube, graphene, silver nanowire, etc.
- Semiconductor materials
- Photovoltaic materials
- Architectural glass (Low-E), smart glass
- OLED and LED applications
- Packaging, decorative films/paper, metalized labels, microwave susceptors, reflective materials
- Flex circuitry and flexible circuit boards
- Metalized capacitor foil
- Low observables
- Batteries and fuel cells
- De-icing and heating products
- Antennas
- Anti-static films

**TYPES OF MEASUREMENTS THAT ARE POSSIBLE**

- Sheet Resistance in ohms/square
- Sheet Conductance in siemens/square
- Resistivity in ohms-cm
- Thickness in microns
- Emissivity between 0 & 1 as defined by user

**ADVANTAGES OF NONCONTACT EDDY CURRENT**

- Nondestructive
- Reads through insulating layers
- Measures moving material
- Nearly instantaneous readings
- Provides real-time process inspection

**REDUCE PRODUCT AND LABOR COSTS**

- Automate testing—no more manual probing
- Test 100% of material without damage
- Address coating issues as they happen
- Avoid further processing of out-of-spec material

**SENSOR DIMENSIONS**

Type:	Single-sided
Stage size:	Built-in 450 x 450 mm
Reach into material:	NA
Sensor diameter:	26 mm diameter circle
Sensor gap:	NA
Sensor-sample offset:	0-3 mm (adjustable)
Spot size:	26 mm diameter circle

**METER RANGES**—Select two adjacent ranges

×10	From 5 to 100,000 ohms/square
×1	From .5 to 10,000 ohms/square
÷10	From .05 to 1,000 ohms/square
÷100	From .005 to 100 ohms/square

**MATERIAL REQUIREMENTS**

Minimum thickness:	No minimum
Maximum thickness:	≈3mm, but no limit if sample is face down
Minimum size:	26 mm diameter circle
Maximum size:	No limit if sample can hang over edge of stage

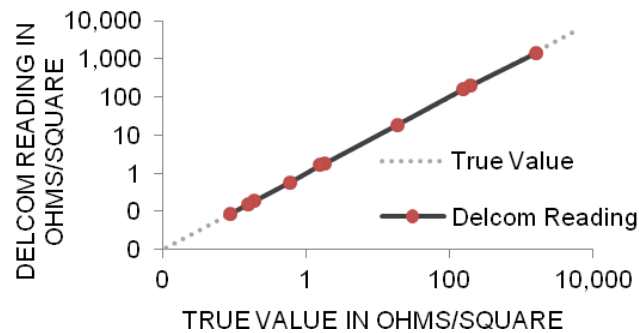
**RESPONSE & DISPLAY RATES**—Delcom meters sample material every 30 ms. Delcom firmware and software perform pipeline averaging and display 8 averaged readings every 240 ms.

**ACCURACY**—Delcom meters are calibrated to better than 99.9% accuracy against National Institute of Standards and Technology (NIST) standards. User can calibrate a meter with one standard in one minute.

**RESOLUTION**—Significant digits available at each order of magnitude for each of the four meter ranges.

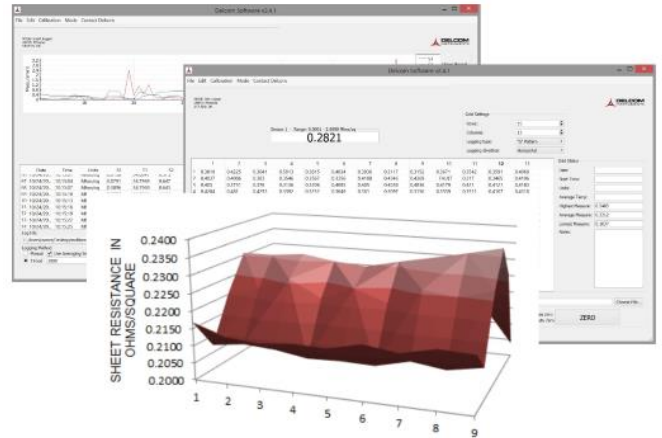
RANGE	.001	.01	.1	1	10	100	1K	10K
×10				5	4	3	2	1
×1			5	4	3	2	1	
÷10		5	4	3	2	1		
÷100	5	4	3	2	1			

**LINEARITY**—Delcom guarantees no more than 3% deviation from the true sheet resistance value of tested material. The chart below shows a Delcom meter tested against 10 NIST, VLSI, and MSA standards.



**REPEATABILITY**—Delcom meter readings are effectively 99.9% repeatable if sample placement and environmental factors, such as temperature, are held constant.

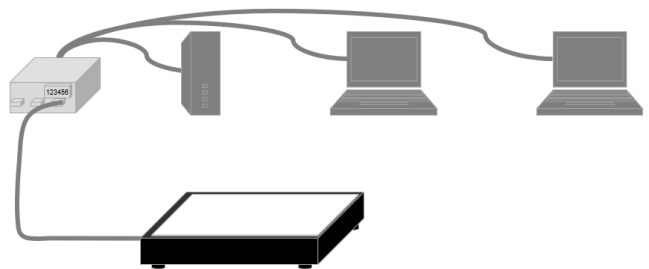
**SOFTWARE**—Software with multiple modes designed to ease any application and use case from monitoring to mapping.



**INTERFACE AND CONFIGURATION OPTIONS**

Interface Options:

- 1) LCD
- 2) Modbus/TCP
- 3) Delcom Software
- 4) Delcom Python Library



**OPTIONS UPGRADES AND ACCESSORIES**

1. Build your own custom interface using the Delcom's Python library
2. Add additional range to span from .005 to 100,000 ohms/square
3. The IM100 Interface Module supports additional sensors allowing you to add ranges, measure thicker materials, and decrease spot size