DATASHEET:

S3 Inline Sensor and IM100 Interface Module

FEATURE SUMMARY

- Single-sided sensor with a 26 mm spot size
- 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

- 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:	Optional 300 x 300 mm stage
Reach into material:	Infinite
Sensor diameter:	26 mm diameter circle
Sensor gap:	NA
Sensor-sample offset:	0-3 mm (adjustable)
Spot size:	26 mm diameter circle

TYPES OF MEASUREMENTS THAT ARE POSSIBLE

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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:	No max for thinly coated on nonconductive substrates, 3 mm max for bulk conductive materials
Minimum size:	26 mm diameter circle
Maximum size:	N limit

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.
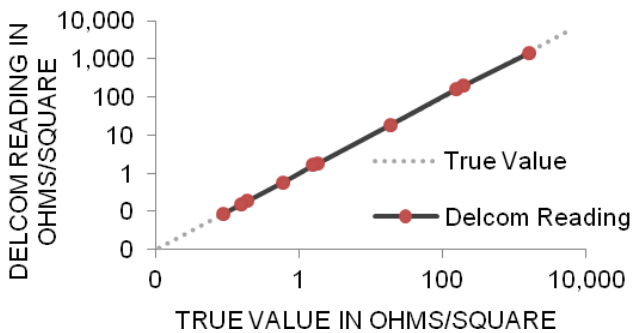
REPEATABILITY—Delcom meter readings are effectively 99.9% repeatable if sample placement and environmental factors, such as temperature, are held constant.
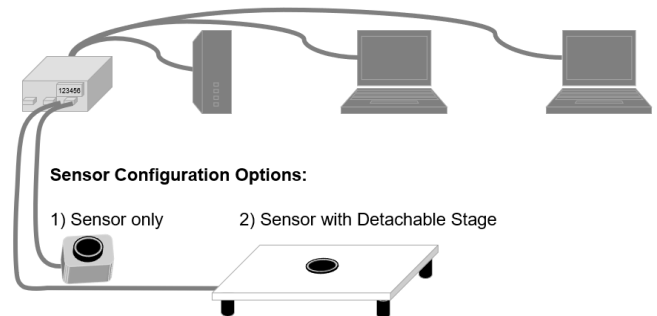
SOFTWARE—Software with multiple modes designed to ease any application and use case from monitoring to mapping.
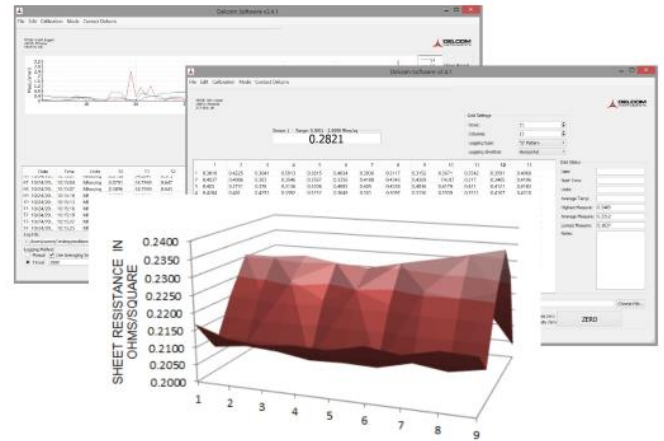
INTERFACE AND CONFIGURATION OPTIONS

Interface Options:

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

Sensor Configuration Options:

1) Sensor only   2) Sensor with Detachable Stage

OPTIONS UPGRADES AND ACCESSORIES

1. Use as stand-alone sensor, in a stage, or inline
2. Build your own custom interface using the Delcom's Python library
3. Add additional range to span from .005 to 100,000 ohms/square
4. The IM100 Interface Module supports additional sensors allowing you to add ranges, measure thicker materials, and decrease spot size
5. Use optional stage for better material handling

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