



Inline Noncontact Sheet Resistance Meter

DATASHEET FOR MODEL: 20J3 Inline Vacuum-Ready Sensor and 873 Interface Module

ADVANTAGES OF EDDY CURRENT TECHNOLOGY

- 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

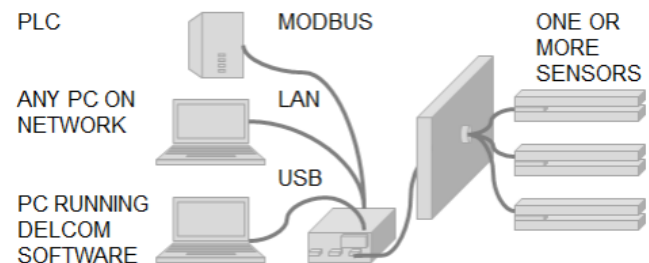
FEATURES OF THIS CONFIGURATION

- Vacuum-ready configuration
- Monitor coatings inline and in real time
- Least expensive option for inline process control
- Monitor up to 12 sensors at once with one interface module and software
- Measure sheet conductance, sheet resistance, thickness (with known resistivity), and resistivity (with known thickness)
- Remotely read and control sensors with Modbus or web-based application
- Software includes automatic sample detection, reading, recording, manual mapping, pass/fail and exportation to .csv file and Microsoft Excel
- Narrow profile allows for mounting in the most needed location
- Calibrate each sensor in less than one minute
- Automatic compensation for temperature drift
- Swap sensors of other types and ranges

APPLICATIONS—Designed for use on 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

GENERIC CONFIGURATION



SPECIFICATIONS

Reach into material:	20 cm
Sensor gap:	3 mm
Minimum sample size:	3 cm diameter circle
Spatial resolution:	3 cm diameter circle
Response rate:	40 ms
Max web speed:	10 m/s

METER RANGES—Delcom meters are available in one of four ranges.

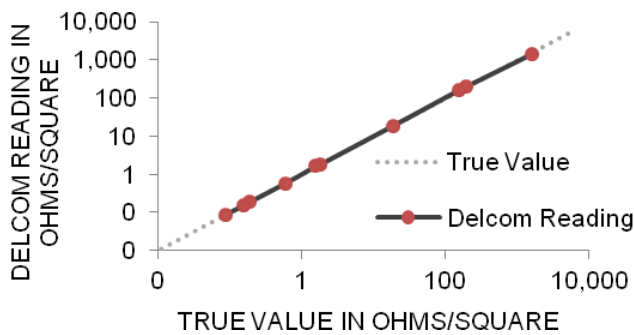
×10	From 5 to 100,000 ohms/square
×1	From .5 to 10,000 ohms/square
÷10	From .05 to 1,000 ohms/square
÷100	From .005 to 100 ohms/square

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.

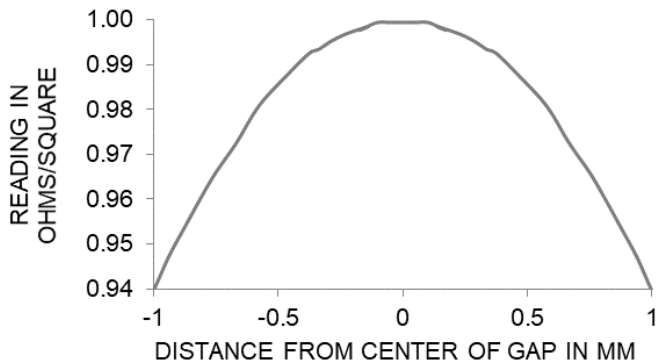


REPEATABILITY—Delcom meter readings are effectively 99.9% repeatable if sample placement and environmental factors, such as temperature, are held constant.

TEMPERATURE COMPENSATION—The baseline readings of eddy current instruments drift with changes in ambient temperature. Delcom sensors are

temperature compensated and will not drift more than .04% of total resolution per degree Celsius per hour.

EFFECTS OF ELEVATION ON READING—The elevation of the conductive layer in the sensor gap affects the meter readings. This effect can be addressed through appropriate placement of the conductive layer in the sensors, automatic compensation with a distance detector, or calibrating the meter to expect the material at a known elevation.



REQUIREMENTS

Power input:	100–120/200–250 VAC
Frequency:	60/50 Hz
Power consumption:	1.0/0.5 A
Temperature range:	10°C–60°C

DIMENSIONS AND WEIGHTS

20J3 Sensor:	33 × 5 × 5 cm, 1 kg
873 Interface Module:	22 × 18 × 10 cm, 2 kg
20J3 and 873 packaged for shipping:	46 × 41 × 21 cm, 9 kg

DELCOM SOFTWARE—Optional software includes various inline monitoring and analysis tools.

