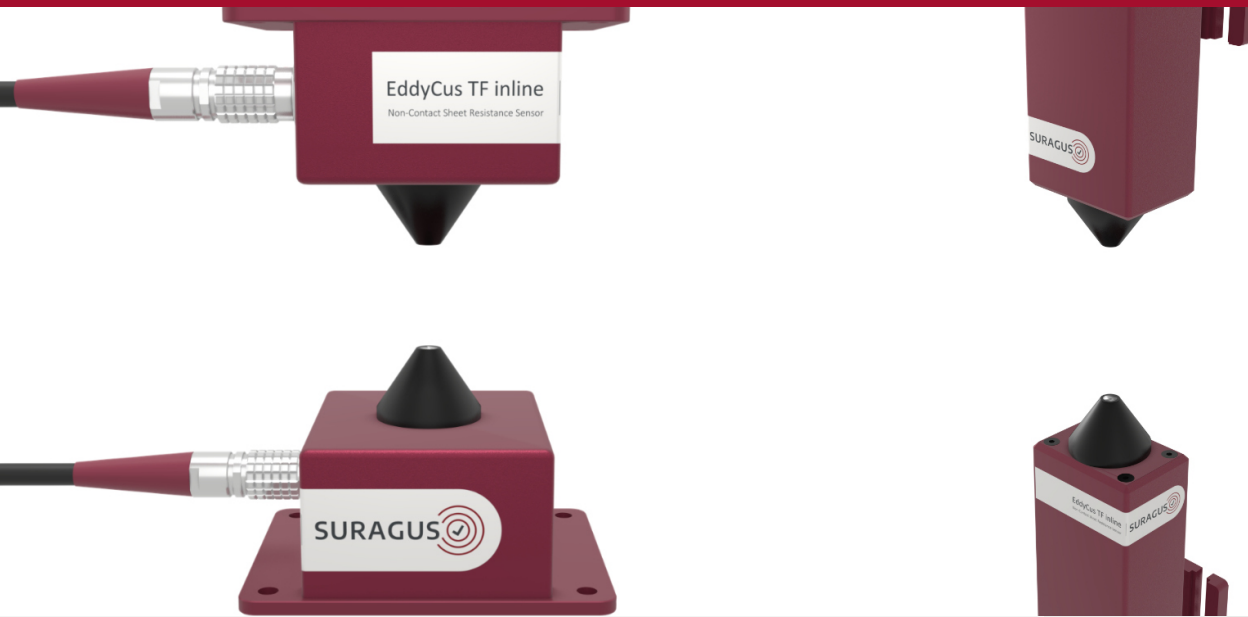


EddyCus® TF inline SR – Sheet Resistance Monitoring System

P_T_inlineSR_24



Highlights

- ▶ Contact-free and realtime
- ▶ Accurate measurement
- ▶ High degree of versatility and flexibility
 - ▶ In- and ex-vacuo solutions
 - ▶ Fixed sensor and traverse solutions
 - ▶ Single-lane and multi-lane solutions
- ▶ High sample rate up to 1,000 measurements per second

Sensor Series

- ▶ Sheet resistance (Ohm/sq)
- ▶ Metal layer thickness (nm, μm)
- ▶ Metal substrate thickness (μm)
- ▶ Anisotropy
- ▶ Defects
- ▶ Integrity assessment

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Applications

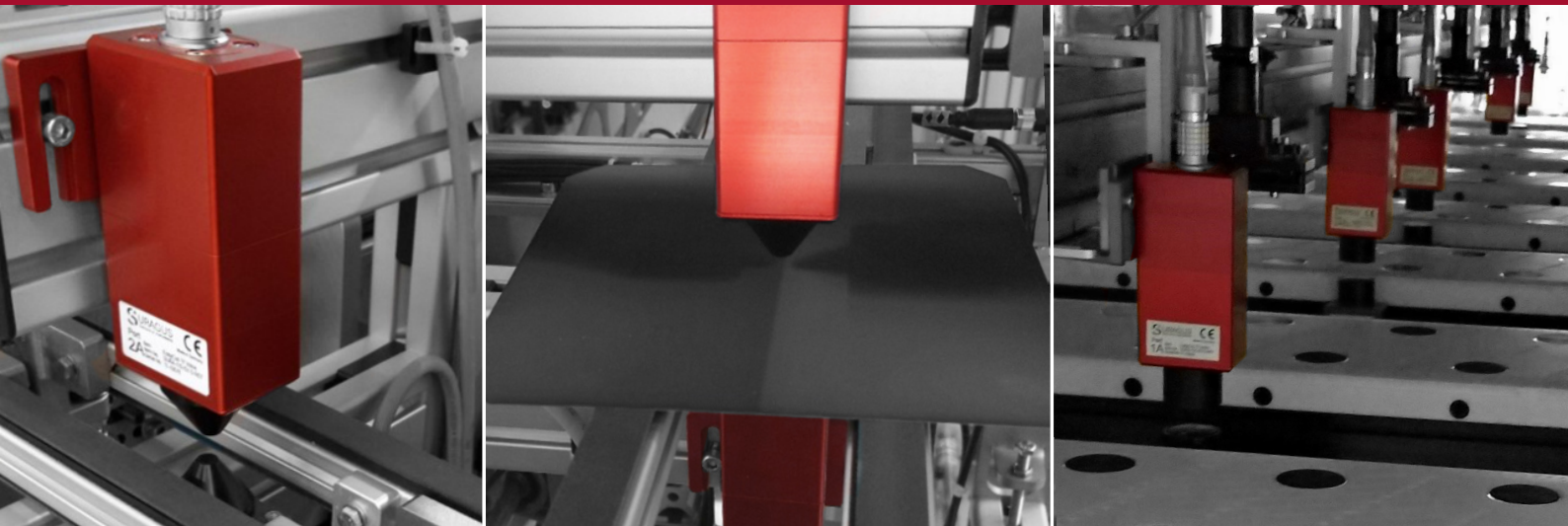
- ▶ Architectural glass (LowE)
- ▶ Touch screens and flat monitors
- ▶ OLED and LED
- ▶ Smart-glass
- ▶ Transparent antistatic foils
- ▶ Photovoltaics
- ▶ Semiconductors
- ▶ De-icing and heating
- ▶ Batteries and fuel cells
- ▶ Packaging materials

Materials

- ▶ Metal films and meshes
- ▶ Conductive oxides
- ▶ Nanowire films
- ▶ Graphene, CNT, Graphite
- ▶ Printed films
- ▶ Conductive polymers (PEDOT:PSS)
- ▶ Other conductive films and materials

Engineered and Made in Germany





Measurement technology	Non-contact eddy current sensor
Substrates	Boules, ingots, wafer, foils, glass, etc.
Measurement gap size	3 / 5 / 10 / 15 / 25 / 50 mm (other upon request)
Number of sensor pairs / monitoring lanes	1 – 99
Sensor sizes (W x L x H) in mm	Sensor M: 80 x 100 x 66 Sensor S: 34 x 48 x 117
Conductive layers	Metals/ TCOs/ CNTs/ nanowires/ graphene/ grids/ PEDOT/ others
Thickness measurement of metal films (e.g. Al, Ag, Mo, Ag paste)	1 nm – 2 mm (in accordance with sheet resistance)
Other integrated measurements	Metal thickness / optical transmittance / density / anisotropy
Environment	Ex-vacuo / in-vacuo @ T < 60°C / 140°F (higher on request)
Sample rate	1 / 10 / 50 / 100 / 1,000 measurements per second
Hardware trigger	5 / 12 / 24 V
Interfaces	UDP, .Net libraries, TCP, Modbus, analog/digital

	VLSR	LSR	MSR	HSR
	6 decades are measurable by one sensor, but with slightly affected accuracy			
Range [Ohm/sq]	0.0001 – 0.1	0.01 – 10	0.1 – 100	10 – 2,000
Accuracy / Bias		± 1%		± 1 – 3%
Repeatability (2σ@1 Hz)		< 0.3%		< 0.5%

VLSR – Very Low Sheet Resistance, LSR – Low Sheet Resistance, MSR – Medium Sheet Resistance, HSR – High Sheet Resistance

Device Control and Software

- ▶ Several views and user levels
- ▶ Live view with upper and lower limits and alarm functions
- ▶ Analysis view providing statistics
- ▶ Can handle data of several thousands measurements per second
- ▶ Data storage into SQL database
- ▶ Customizable automated data export (csv, txt, xls,...)
- ▶ Several smart functions (automated DB cleaning, self-reference etc.)
- ▶ Parameterizable I/O modules (triggering of actions or alarms)

