



Roving Monitor for Carbon Fiber Tow Testing

The **EddyCus® Roving Monitor** is a multi-purpose inline sensor specifically designed for the **non-contact** and continuous testing of carbon fiber tows, coated and metalized yarns, and metal fibers or filaments.

The online yarn testing system measures the **electrical resistivity [Ohm.m]** or **sheet resistance [Ohm/sq]**. Defects such as filament breakages, twist, splice, fuzz, fold, entanglement can be detected via threshold monitoring. The system is particularly designed for online control of high-value conductive fibers with a data rate allowing users to monitor at production speeds of up to 10 m/s.

The textile industry typically employs a stack of 10-200 sensors to monitor the entire fabric. The sensors operate independently and feed data directly to a PLC for immediate process control.

The standard sensor applications for **carbon fiber processing** are monitoring of carbonization; outbound carbon fiber bobbin control; quality control of TowPreg and tape slitting; online process control of fiber spreading; tape laying and filament winding e.g. for high-pressure gas tanks. A further application is the measurement of the resistivity of conductive coatings such as copper or nanowires (CNT or AgNW) for the **smart textile** industry, again without contact to the material. In addition, the sensors can be used for quality monitoring of high resistive metal filaments which are used for **EMI shielding**.

The SURAGUS testing solution supports the improvement of product quality by direct **process control**, the increase of **material yield**, and by conducting incoming and outgoing **goods inspection**.

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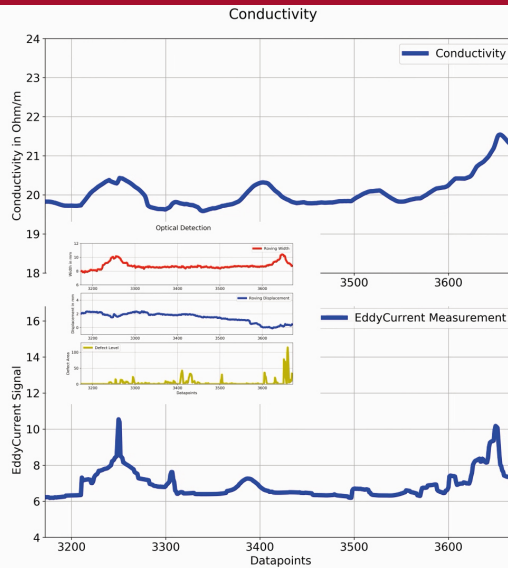
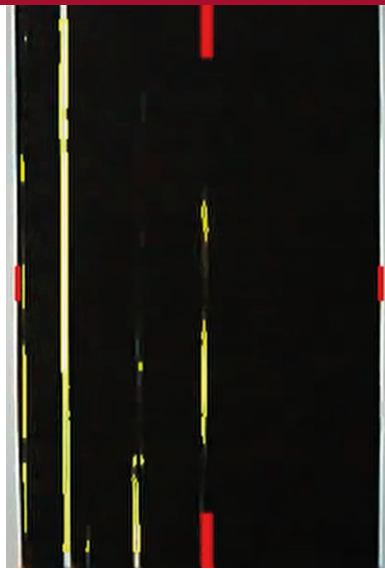
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Made and Engineered in Germany

Innovation Award by
Free State of Saxony 2013
1st Place





Parts geometry	Width: 1 - 20 mm Height: 5 mm
Sensor size	1 - 20 mm
Sensor type	Open / Closed loop
Measuring	Resistivity (Ohm/m) Sheet resistance (Ohm/sq) Shielding quality Coating uniformity
Measurement range	Resistivity 0.5 mOhm/m - 500 Ohm/m Surface resistivity 0.001 Ohm/sq - 250 Ohm/sq
Speed	1 - 10.000 measurements per second
Mode	Non-contact
Method	Inductive and capacitive
Add-ons	Scalable to multiple lines Optical camera
Device size (w/h/d)	Standard 80 x 60 x 70 mm Customized to integration position

Parameters

- ▶ Conductive fiber uniformity
- ▶ Carbonization
- ▶ Filament breakedge & fuzz
- ▶ Tow twist & splice
- ▶ Coating resistivity
- ▶ Conductive coating uniformity
- ▶ Impregnation dry/ wet
- ▶ Degree of metalization
- ▶ Fiber spreading
- ▶ Filament winding

Materials

- ▶ Carbon tow
- ▶ Tow Preg
- ▶ Coated yarn
- ▶ Metal fibers
- ▶ Conductive coating
- ▶ Nanowire (CNT, AgNW)
- ▶ Carbon fiber
- ▶ Smart textiles
- ▶ Shielding and EMI materials

