

Data Sheet- EddyCus® TF 4040 SR-A Series

P_T_40AI_11



Highlights

- ▶ Contact free & real time
- ▶ Accurate single-point measurement of isotropic and anisotropic films
- ▶ Manual software guided mapping

Parameters

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

Applications

- ▶ Architectural glass (LowE)
- ▶ Touch screens and flat monitors
- ▶ OLED and LED applications
- ▶ Smart-glass applications
- ▶ Transparent antistatic foils
- ▶ Photovoltaics
- ▶ Semiconductors
- ▶ De-icing and heating applications
- ▶ 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

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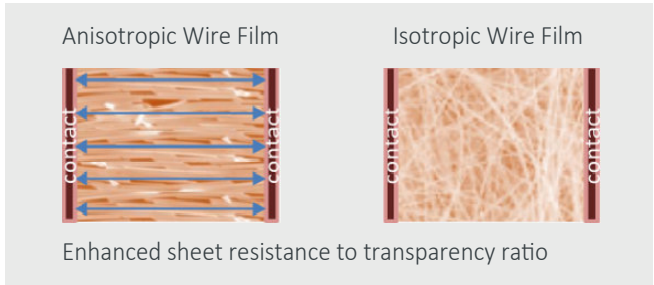
Made and Engineered in Germany

Innovation Award by
Free State of Saxony 2013
1st Place



Anisotropy Term and Concept

- ▶ Sheet resistance anisotropy refers to a difference in electrical resistivity measured parallel and perpendicular to the machine direction
- ▶ Many wire and mesh structures can have an anisotropic sheet resistance



Electrical anisotropy...

- ▶ ... can be optimized according to the layout of the contact pattern
- ▶ ... can save material and improve optical transparency
- ▶ ... can be measured in contact or non-contact mode by EddyCus® TF lab 4040 SR-A or EddyCus® TF inline anisotropy devices

Anisotropy Term and Concept

$$\text{Anisotropy Ratio} = \frac{R_{TD}}{R_{MD}} \quad \text{Anisotropy [\%]} = \frac{R_{TD} - R_{MD}}{0.5 (R_{TD} + R_{MD})}$$



Measurement technology	Non-contact eddy current sensor
Substrates	e.g. Foils, glass, wafer, etc.
Substrate area	29.5 x 25.6 inch / 750 x 650 mm (for 400 x 400 mm samples)
Max. Sample thickness / sensor gap	1 / 2 / 5 / 10 / 25 mm (defined by the thickest sample)
Sheet resistance range	Standard 0.001 - 500 Ohm / sq; 1 to 5 % accuracy
Thickness measurement of metal films (e.g. copper)	2 nm - 2 mm (in accordance with sheet resistance)
Device dimension (w/l/ h) / weight	30 x 12 x 26 inch / 760 x 310 x 660 mm / 20 kg
Available features	Sheet resistance anisotropy sensor Optical transparency

Software and Handling - EddyCus® TF lab Control

