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Release: No. 726, October 23, 2018

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**Fast ROI and low operating costs: 100% monitoring for consistent glass quality and optimum production costs and processes**

## **Solar glass inspection at new maximum speed thanks to embedded camera technology**

Virtually invisible material defects in the glass for photovoltaic modules can compromise the stability. A fully automatic optical inspection system with a patented process featuring individually switchable LED lighting is the perfect solution to address this problem and provide assurances spanning up to 30 years. The proven system is now also available with a smart camera technology, which allows it to collect high-definition images at top speed even under the toughest conditions.

The PATTERNSCAN-Ribbon solar glass inspection system from ISRA VISION reliably detects errors both inside and on its surface during the manufacturing and processing of solar glass. Defects such as open and closed bubbles as well as the smallest blemishes and scratches are detected and classified regardless of their orientation on the material.

### **Intelligent LEDs for maximum precision**

PATTERNSCAN-Ribbon uses an LED lighting unit to create various dispersion effects. The patented unit consists of individual lights that can be switched separately extremely fast, making even the smallest

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material defects visible. A preconfigured classifier helps the system to recognize the various defect types. Then the software identifies the defect type in real time by comparing inspection results with preinstalled data, thereby allowing the system to reach its maximum performance in no time at all.

#### **Smart inspection: intelligent camera and cut optimization**

The inspection software uses the defect data gathered during the various views to perform reliable collective defect classification in real time – allowing aspects such as the cutting of glass panes to be optimized. Any defects found are omitted in order to increase the yield of high-quality material. As a result, the user benefits from an enormous increase in performance while significantly boosting quality at the same time. In addition, ISRA uses the in-house developed Smart Cam in the latest version of the PATTERNSCAN-Ribbon: In its compact and robust enclosure, this intelligent camera module features an integrated PC with powerful detection algorithms, optical components, cooling, and, of course, a high-resolution camera with an impressive line rate. The model with embedded camera is also suitable for use in harsh production environments and offers low operating costs while also keeping maintenance requirements to a minimum.

#### **Higher quality and lower costs – in every market environment**

When a company needs to drastically reduce costs within a short period of time, quality becomes an even greater challenge. This will become even more relevant due to the Chinese government's ceasing subsidies for photovoltaics during the first half of the year 2018. The

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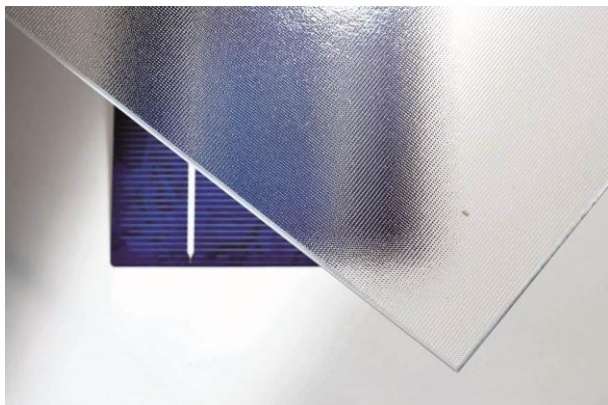
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solar market has started to fluctuate accross the world; manufacturing costs and solutions that cushion the drop in prices for solar modules are gaining in importance. One way to reduce in-house costs is to expand automation. Intelligent optical inspection throughout the entire value chain reduces production costs while also guaranteeing higher product quality. ISRA VISION is one of the world's leading suppliers of image processing technologies and offers intelligent and automated inspection solutions for every step of the production process of photovoltaic modules.

### Images



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**The fully automatic optical inspection system detects critical material defects in the glass for photovoltaic modules, guaranteeing the stability.**

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726\_2.jpg

**PATTERNSCAN-Ribbon detects and classifies open and enclosed bubbles.**

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