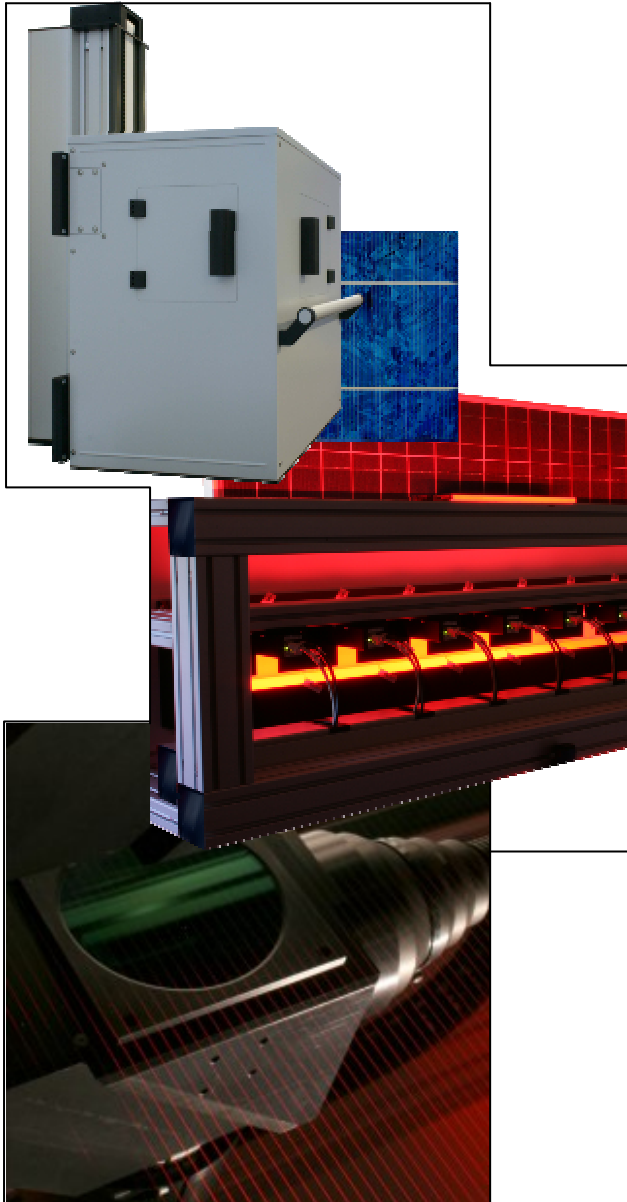


Graphikon GmbH



> The Company

Graphikon has been developing and manufacturing optical inspection systems since 1991. Since 2004, the company's inspection systems have also been supplied to the photovoltaic's industry. Due to its innovative technology Graphikon sets standards in the fields of quality assurance and process control.

> Inspection for crystalline and thin film modules

- In **cell manufacture**, the inspection of geometry, breaks, texture, color and printing is indispensable to achieve high quality products. Hotspot detection and electroluminescence inspection complement the range of purely optical systems.
- Essential systems for **module manufacture** include those for glass input and cell input testing, cell alignment and string, layup, laminate and module inspection systems.
- Glass input testing, inspection of individual layers and inspection of structuring lines are used in all common **thin film technologies**. Standard systems are complemented by color homogeneity testing, layer thickness testing and deformation measurement.

Our customers appreciate the short cycle times combined with ultimate precision and simple, intuitive operation.

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Photovoltaic applications

Field:	Inspection:
Cell manufacturing: (Silicon)	Cell Geometry Cell Texture Cell AR Coating Screens Cell Front/Rear printing Hotspot Electroluminescence Cell count
Module production: (Silicon)	Cell features (color, printing, defects) Cell alignment String (completeness, shape, defects) Layup Laminate / Module Frame
Float glass	Incoming glass inspection
Module production: (Thin-film)	Coating layers Pattern lines Color homogeneity Cleanliness Deformation

References (Extract)

Photovoltaics:

DeutscheCell, Enfoton, Evergreen, Kyocera, Q-Cells, Solarwatt, Solon, Sunways,

Calyxo, Malibu, Solibro, Würth Solar

Glass:

Bystronic, Docter Optics, General Electric, Osram, Job, Philips, Saint Gobain Sekurit, Samsung, Schott

Electronics and Semiconductors:

Epcos, Epigap, Infineon, OSA Opto, Siemens, Silicon Sensor

Automotive:

Afag, Bosch, Corning, DaimlerChrysler, Elringklinger, Lüdi, Porsche, Stüken, Takata-Petri, Umicore, Volkswagen, ZF Friedrichshafen

References (Extract)

