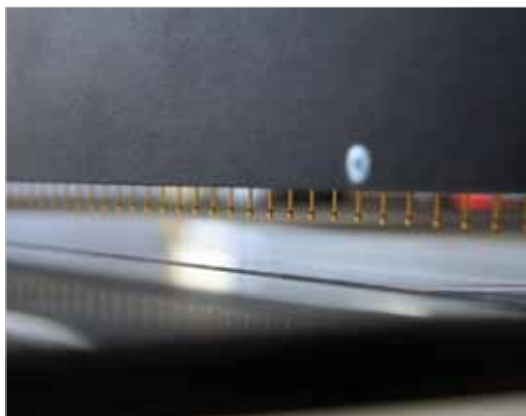


Dr. Schenk SolarMeasure Electrical Insulation Tester: Avoid Shorts and Performance Loss



*Detail of the Dr. Schenk' SolarMeasure
Electrical Insulation Tester*

The efficiency of solar modules depends largely on the accurate execution of the various production processes. Early detection of defects is the key to producing highly efficient and cost-competitive modules.

Discontinuities in the scribe lines can result in a short circuit and endanger the functionality of the modules.

Dr. Schenk's SolarMeasure Electrical Insulation Tester detects shorts and minimum resistance between neighboring cells after P1 scribing.

Measurement options and solutions for solar panels

The Electrical Insulation tester is part of the SolarMeasure product series - precise and reliable measurement solutions that focus on the physical and electric characteristics of thin film solar panels. The products of the SolarMeasure series are available as stand-alone systems or as options integrated into Dr. Schenk SolarInspect systems.

Main components

At the heart of the Electrical Insulation Tester lies the measurement interface, a row of metal contact probes, that is installed on a contact bar. This board-like interface can easily be placed above the solar modules passing through the production line after the P1 scribing step. The number and distance of contact probes depend on the size of the panels and the number of cells - one probe per cell.

The modular design of the bar interface allows for easy exchange enabling applications with differing panel sizes and module designs.

KEY FEATURES

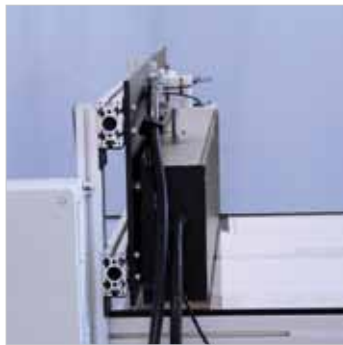
- Modular system design, adaptable to all substrate sizes, all cell widths and any number of cells
- Fast measurement cycle: < 3s
- Adjustable insulation threshold
- Highly durable, spring-mounted probes
- Quick-release contact bar

Principle of operation

The electrical resistance between neighboring cells is measured using a low voltage on the contact probes. The system detects whether cells are properly insulated or whether discontinuities in the scribes, such as interruptions, will cause a short circuit. Modules with cells displaying only low resistance are damaged and can be repaired or rejected from further production.

As an additional advantage the Dr. Schenk SolarMeasure Electrical Insulation Tester does not require visualization software for fully automated production lines. It communicates directly with the line control unit and can send signals to restart the line flow.

The Dr. Schenk SolarMeasure Electrical Insulation Tester can be combined with a Shunt Repair Station. In a shunt busting process any shunts detected by the Electrical Insulation Tester can be repaired on the spot without interrupting production. The module can be subsequently re-tested to verify that the shunt busting was successful, in which case the module is processed further.



Controller box
with single board computer



Screen shots of scribe defects: Discontinuities in scribes will
result in short circuits

KEY BENEFITS

- Flexible solution to be used in-line or off-line depending on customer requirements
- Improved product quality by preventing possible short circuits and loss of performance
- Combine surface inspection and scribe line analysis in a single solution: Save time, space and minimize the investment

About Dr. Schenk

Dr. Schenk GmbH, established in 1985, is a globally active, innovative high-tech company based in Munich, Germany. For the third decade now Dr. Schenk offers comprehensive solutions for automated quality assurance and production process monitoring for the solar, flat glass, film and foil, converting, optical media and semiconductor industries.

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