

GS150 GS150LE



Infrared Temperature Measurement for Glass Processes



Photo: Courtesy of Glassrobots OY, Tampere, Finland

Benefits

- Quickly find material defects and failed heating elements
- Significantly reduce setup time
- Automate quality monitoring for ISO 9000
- Improve profitability and product quality
- Reduce scrap

Quality Monitoring for Glass Processes

The GS150 System is an automated temperature measurement system for glass bending, forming, annealing, and tempering processes.

Core of the system is the MP150 linescanner. The MP150 measures a line of up to 1024 points using a rotating mirror that scans a 90° field-of-view up to 150 times per second. The high scan rate allows rapid detection of temperature non-uniformities and hot spots. The scanning of a glass part is initiated by the measured temperature, or an external “trigger” signal. As each heated glass part traverses the field-of-view, a two-dimensional thermal image or “thermogram” is formed.

The system software provides features to sub-divide thermal images from MP150 into portions of specific interest, the zones. The zone grid overlaid on the thermal image represents the heating elements in the furnace. Temperatures in each zone can be processed for a certain math function like average, maximum, or minimum temperatures. In case of a thermal defect, the software triggers an alarm. For later analysis, the thermal image is automatically stored in a separate file. The alarm can also be output with an optional digital output module.

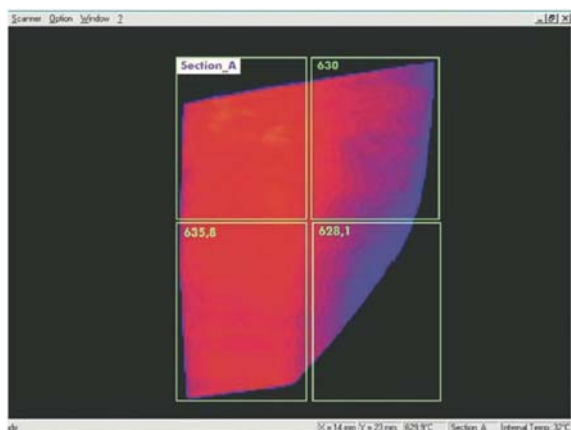
Through the use of OPC (OLE for Process Control), the GS150/GS150LE system acts as an OPC server and communicates with many common process control systems. This feature allows the GS150/GS150LE to move beyond being just a measurement tool and to become an integral part of the total process control system.

Features

- Detailed thermal images based on 40,000 measurement points per second
- Automatic emissivity correction for low emissivity glass with GS150LE
- Define product-specific configurations (recipes)
- Customize and display zones overlaid on thermal image
- Play back stored files as “movie”
- PC independent alarms
- Integrated OPC server for remote system control
- Analog or digital output modules
- On board Ethernet TCP/IP communication
- Built-in laser sighting
- Multiple language support



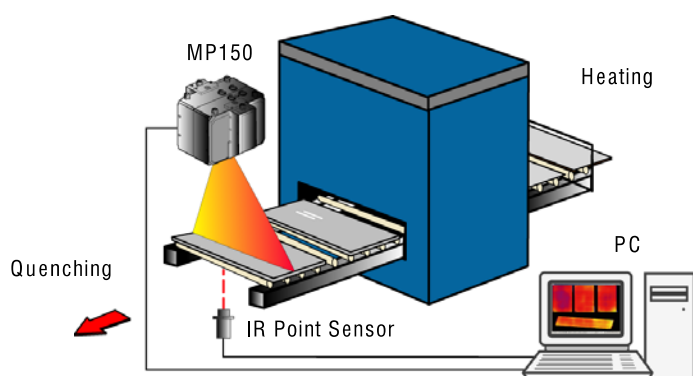
System Description



Glass window thermogram showing heater zones

The GS150LE system for low emissivity glass with automatic emissivity correction

The GS150LE incorporates all features of the proven Raytek GS150 System. It is suited for monitoring and optimizing glass treatment processes (e.g. tempering and one-sided coated glass). Coated glass has very low emissivity values (high reflection). Knowing the exact emissivity value is essential for infrared temperature measurements. With the addition of an IR point sensor that measures the temperature on the uncoated (bottom) side of the glass where the emissivity is known, the thermal image created by a Raytek MP150 linescanner can be corrected. By quickly detecting thermal irregularities within the glass and identifying defective heating elements, the GS150LE allows glass processors to improve product quality and uniformity, and reduce scrap. If a fault or defect occurs, an alarm is triggered to allow for corrective action. Further, the GS150LE system allows the user to set-up predefined recipes to accommodate frequent product changes, such as loads of differing thickness.



Specifications

Temperature Range	100 to 950°C
System Accuracy	±0.5°C or ±3°C
Repeatability	±1°C
Optical Resolution	150:1 (90% energy)
Ambient Temp.	0 to 50°C (optional 180°C)
Field of View	90°
Points per Line	up to 1024 pixels
Scan Rate	up to 150 Hz
Dimensions	200 x 180 x 190 mm
Weight	7 kg

Scope of Delivery

RAYTGS150G5	- MP150G5 linescanner - GS150 Software - Line laser sighting - Industrial power supply
RAYTGS150LEG5	RAYTGS150G5 plus GS150LE Software and IR point sensor

Accessories

XXXTMP50ARMB	Adjustable mounting base
XXSYS16DA	Digital output module (16 channel, open collector)
XXSYS7RA	Digital output module (7 channel, relay contacts)
XXSYS4AA	Analog output module (4 channel, mA or V)
XXSYS485CV	RS232/485 converter for output modules

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