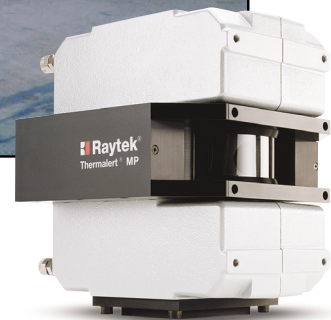# GS100

Thermal Imaging System for Quality Control in Glass Processing Applications

The GS100 provides real time temperature analysis for glass bending processes
(Photo: Courtesy of Glassrobots OY, Tampere, Finland)

MP50 Process Imager

Raytek®

Thermal Imaging System for Glass Processes

The GS100 System is an automated temperature measurement system for glass bending, forming, annealing, and tempering processes.

Benefits

- Improve profitability and product quality
- Reduce set-up time
- Detect defects quickly
- Automate quality monitoring for ISO 9000
- Reduce scrap

Features

- View complete thermal images and temperature profiles
- Define product-specific configurations and data files
- Customize and display zones overlayed on thermal image
- Automatically analyze zone temperatures
- Fail-safe alarm logging
- Optional analog or digital outputs
- Languages supported: English, German, French, Finnish, Italian, Swedish

The GS100 Thermal Imaging System allows you to see what's happening in your glass process
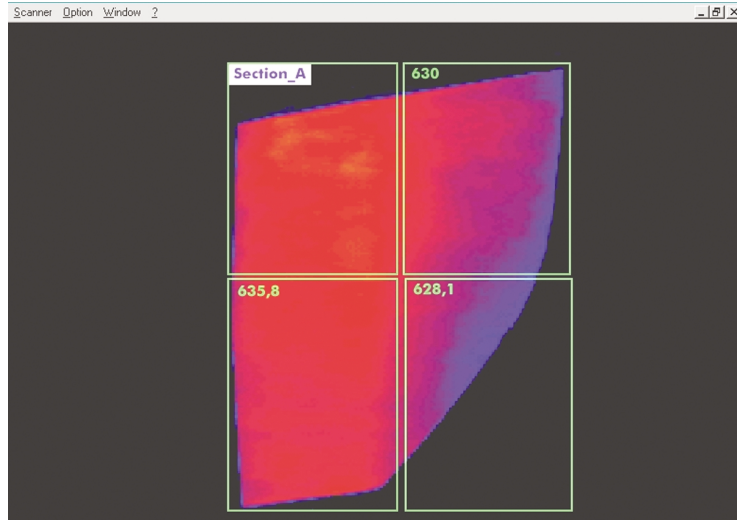
Actual glass window thermogram showing heater zones

The grid overlay represents the heating element zones in the furnace. The average temperature of each zone is displayed in the corner. Zones can be tailored to each application depending on heater size and location. Temperatures for each zone are displayed as average, maximum, or minimum values. Serial or analog outputs can be configured to provide outputs proportional to each zone's temperature.
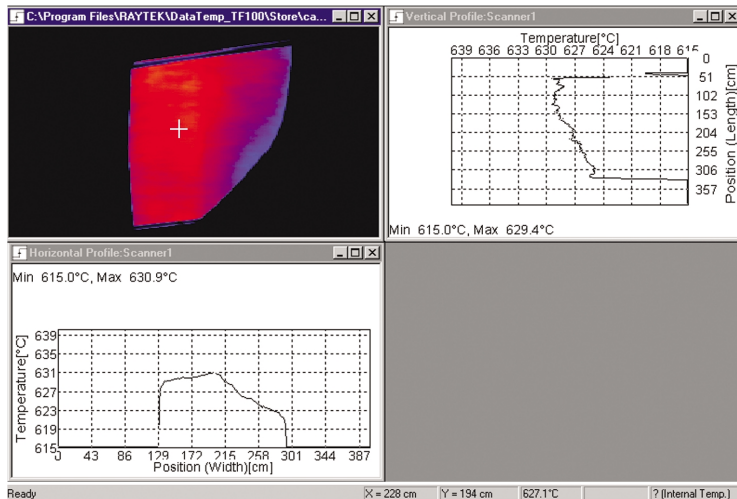

Actual thermogram showing temperature profiles

Thermal image data files can be recalled for subsequent analysis and display. As the cursor is moved around the thermal image to selected locations, the spot temperature and location (x- and y-coordinates) appear on the task bar. Move the cursor to selected spots, and the software displays the corresponding temperature profiles that intersect the spot location in the machine-direction and cross machine-direction.
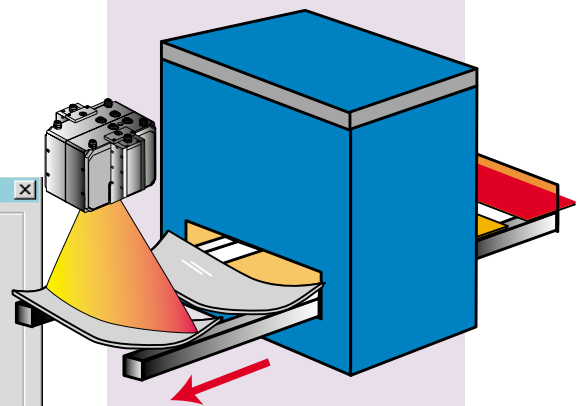
The GS100 System features an easy-to-use "point and click" user interface
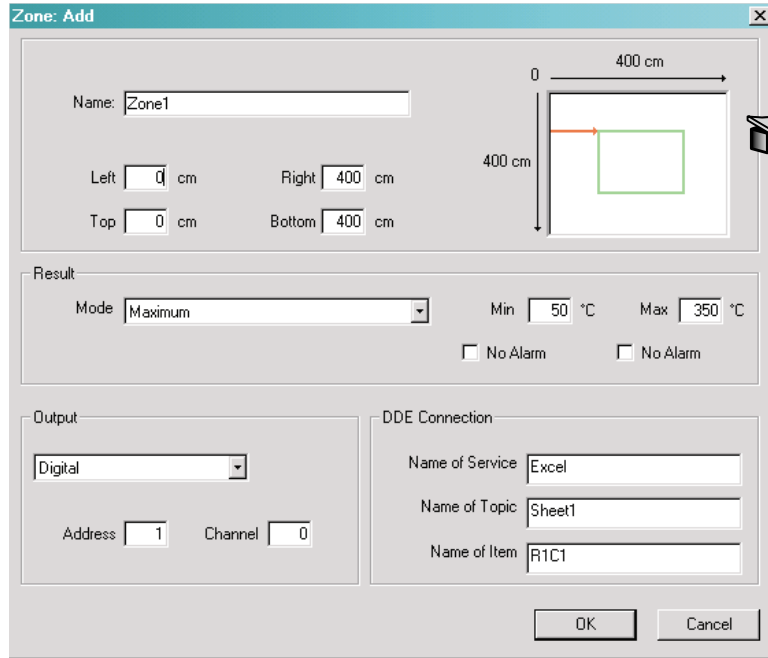
Zone Configuration Screen
The screen allows specification of zone name, size, location, temperature limits, signal processing, output module configuration, and DDE connection.

Custom Configurations

DataTemp GS100 Software allows custom configurations for any type of glass product or process

General	Specify MP50 scan rate, PC COM ports, baud rate, and native language
Temperature	Adjust emissivity, temperature range, and temperature units
Geometry	Specify MP50 distance, installation angle, thermal image dimensions, and units
Data File	Define product name, date and time stamp for storing images under alarm conditions, and data file storage path
Trigger	"Trigger" images based on measured temperature or an externally applied trigger signal
Zone	Configure any number of rectangular zones by size and location. Specify desired signal processing and alarm conditions for each zone
Input/Output	Specify COM port, addresses, and channel numbers for optional analog or digital output modules and output zone results on a specified COM port

Processing Image

The MP50 measures a line of 256 points using a rotating mirror that scans a 90° field-of-view up to 48 times per second. 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.

Installs in Minutes

The MP50 installs easily - just like a camera - and views the glass part from above... wherever it has a clear viewing path. Connecting the pre-wired cables (included) to a PC and entering installation dimensions in the GS100 Software completes the installation process.

RAYTGS100G51
- MP50G51 Process Imager
  (5 micron spectral response)
- DataTemp GS100 Software
- DTMP Software
- Industrial power supply
- RS232/485 Converter

GS100 Specifications

|	
Temperature Range	200 to 950°C
System Accuracy	±0,5% of reading or ±3°C whichever is greater
Repeatability	±1°C
Optical Resolution	100:1 (90% energy) 300:1 (50% energy)
Ambient Operating Temperature[1]	0 to 50°C 180° with water cooling
Field of View (FOV)	90° or 45°
Number of Temp. Points	256
Scan Rate	48 Hz
Physical Dimensions	200 x 180 x 190 mm
Weight	7 kg

[1]Contact Raytek for information regarding optional protective enclosures

Options and Accessories

Part Number	Description
XXXTMP50ACCC	MP50 carrying case
XXXTMP50AC485CB	RS485 cable extension
XXXTMP50ACPSCB	Power cable extension
XXXTMP50LS	Line laser sighting (option)
XXXMP50ACMP	Mounting plate for adjustable mounting base (or tripod)
XXXTMP50AMB	Adjustable mounting base
XXXSYS16DA	Digital output module 16 channel, open collector
XXXSYS4AA	Analog output module 4 channel, mA or V
XXXSYS485CV	RS232/RS485 Converter (needed for output modules)
XXXSYSPSWM	Wall mount power supply (24 VDC, 0,6 A) needed for analog /digital modules and SYS485CV converter

Easy Installation & Maintenance

The small size of the MP50 Process Imager allows installation at the exit of the furnace or forming sections. The MP50 connects to a standard PC operating Windows® NT4 or Windows® 2000. The system's RS485 digital interface insures reliable operation over long cable runs. The diagram below represents a typical system installation. Optional analog and digital (open collector) output modules operate from a second serial COM port on the PC. The PC never has to be opened to install the GS100 System.
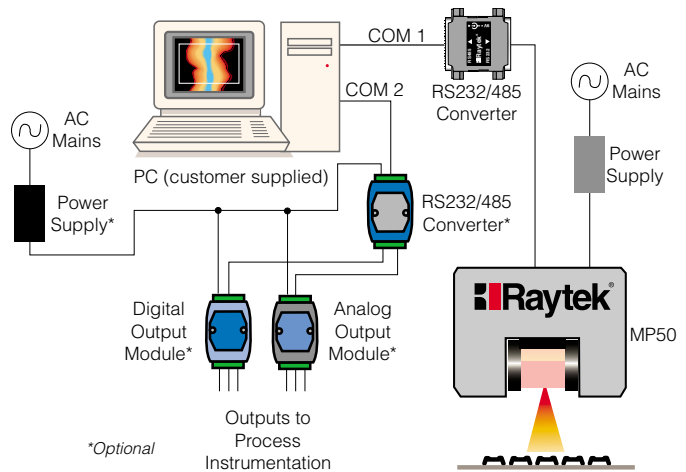
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