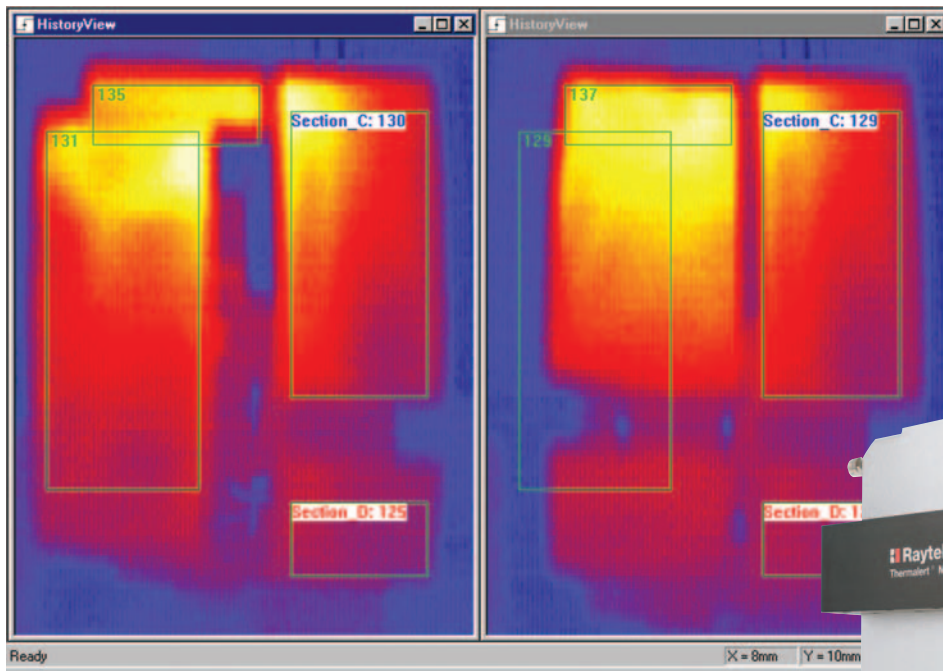
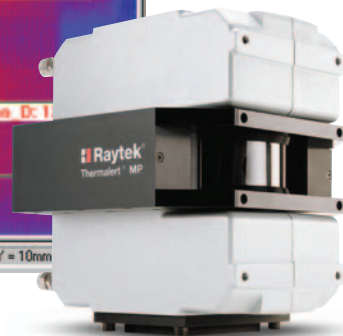


TF100

Quality Control System for Thermoforming Applications



Thermal image from an actual thermoforming application



MP50™ Process Imager





Thermoforming Process Imaging System

The TF100 System allows thermoformers to visualize the temperature distribution of virtually any plastic part in thermoforming processes.

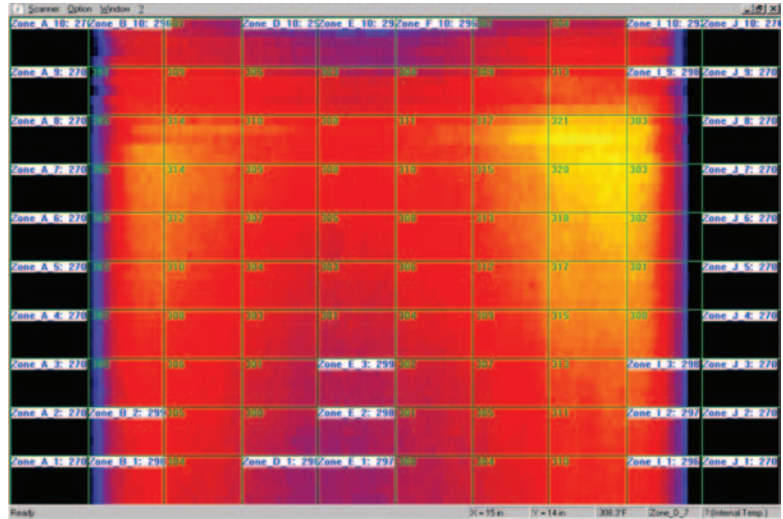
Benefits

- Improve profitability and product quality
- Reduce set-up time
- Detect defects and failed heating elements quickly
- Automate quality monitoring
- Reduce scrap

Features

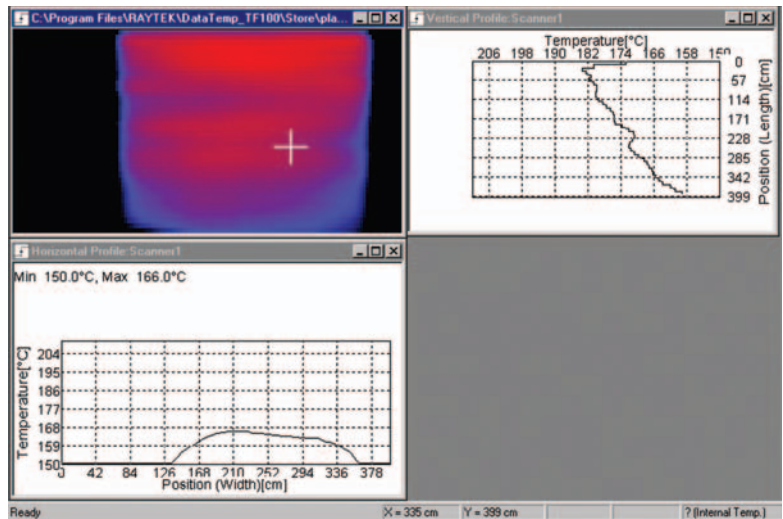
- View complete thermal images and temperature profiles
- Define product-specific configurations (recipes)
- Customize and display zones overlaid on thermal image
- Automatically analyze zone temperatures
- Fail-safe alarm logging
- Playback stored files as a "movie"
- System interfaces: OPC or DDE server, analog or digital output modules, serial COM port
- Multiple language support

The TF100 Process Imaging System allows you to see what's happening in your thermoforming process



Actual thermogram showing heater zones

The grid overlay represents the heating element zones in the oven. 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 available analog outputs can be configured to provide outputs proportional to each zone's temperature.

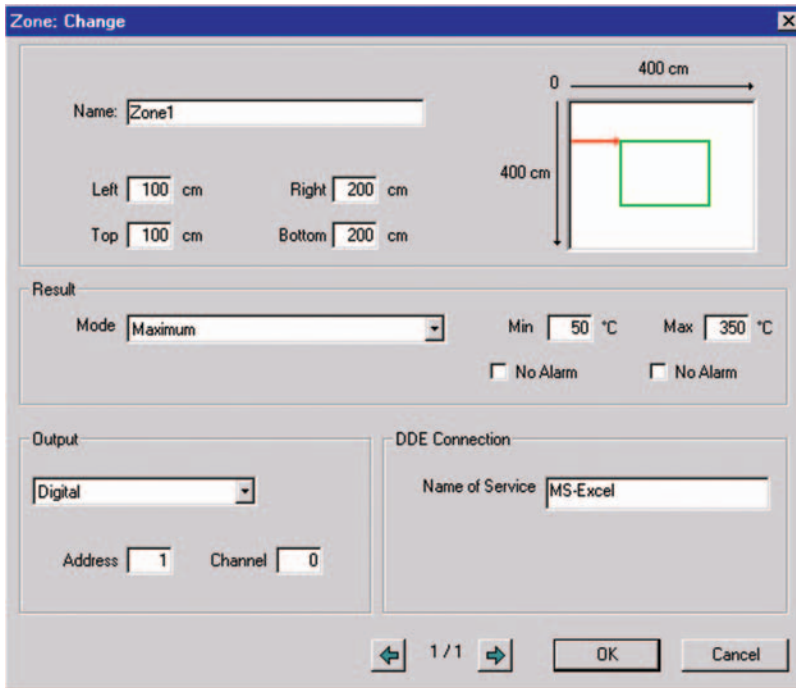


Actual thermogram showing temperature profiles

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 a selected spot, and the software displays the corresponding temperature profiles that intersect the spot location in the machine-direction and cross-direction.



The TF100 System features an easy-to-use “point and click” user interface



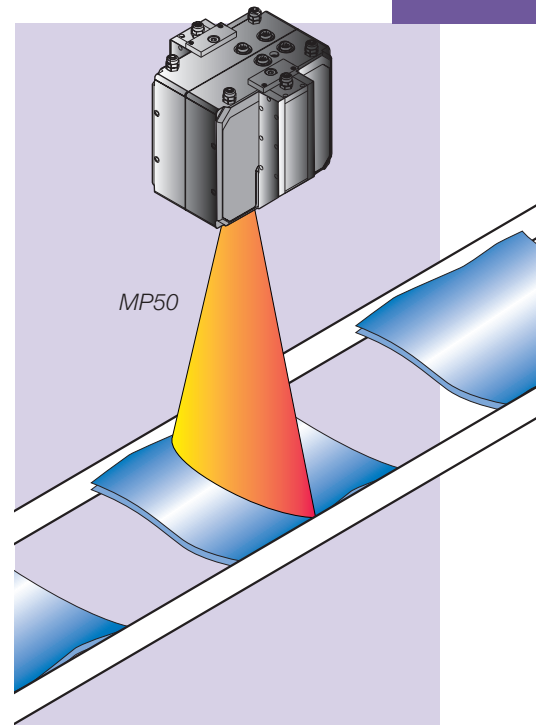
Zone Configuration Screen

The screen allows specification of zone name, size, location, temperature limits, signal processing, and Output Module configuration.

Custom Configurations

DataTemp TF100 Software allows custom configurations for any type of product.

General	Specify MP50 scan rate, PC COM ports, baud rate, and native language
Temperature	Adjust emissivity, minimum/maximum temperature, and temperature units
Geometry	Specify MP50 distance, installation angle, and 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 settings for optional Analog or Digital Output Modules, Define OPC or DDE interface connectivity



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 sheet can be initiated by the measured temperature, or by an external “trigger” signal. As the heated sheet traverses the field-of-view, a two-dimensional thermal image or “thermogram” is formed. Thermal images are displayed each time the scanned sheet indexes.

Installs in Minutes

The MP50 installs easily... just like a camera, and views the sheet between the oven and forming sections from above or below... wherever it has a clear viewing path. Connecting the pre-wired cables (included) to a PC and entering installation dimensions in the TF100 Software completes the installation process.

TF100 System

RAYTTF100XXX MP50 Process Imager*
 DataTemp TF100 Software
 Industrial power supply
 RS232/485 Converter

*See MP50 Data Sheet for available models.

TF100 Specifications

Temperature Range	20 to 300°C*
System Accuracy	±2°C
Optical Resolution	100:1 (90% energy)
Ambient Temperature	0 to 50°C
Field of View (FOV)	45° or 90° (selectable)
Number of Temp. Points	256 (45° or 90° FOV)
Scan Rate	36 Hz (45° or 90° FOV) 48 Hz (90° FOV)
Physical Dimensions	200 x 180 x 190 mm
Weight	7 kg

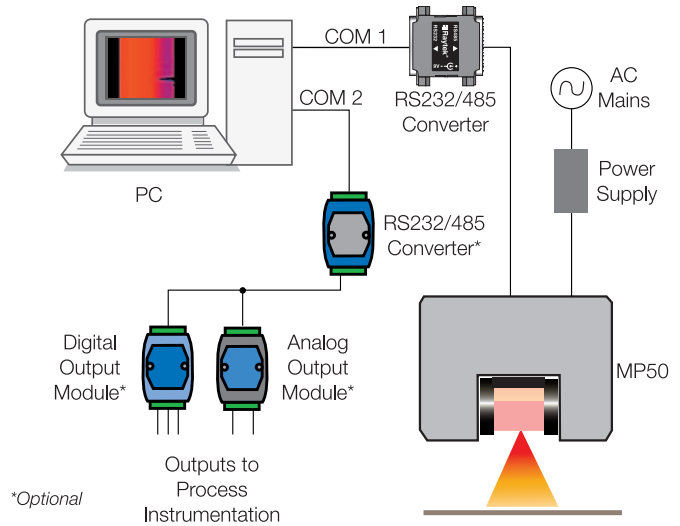
*Specifications for MP50LT (see MP50 Data Sheet for other models).

Options and Accessories

Part Number	Description
XXXTMP50ACCC	MP50 carrying case
XXXTMP50AC485CB	RS485 cable extension
XXXTMP50ACPSCB	Power cable extension
XXXTMP50LS	Line laser sighting (option)
XXXTMP50ARMB	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)

Easy Installation

The small size of the MP50 Process Imager allows installation between the oven and forming sections. The MP50 connects to a standard PC operating Windows® NT4/2000/XP. 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 TF00 System.



www.raytek.com
 for up-to-the-minute features

Raytek Automation Products: Noncontact Temperature Measurement Solutions For Industrial Applications

Worldwide Headquarters

Raytek Corporation
 1201 Shaffer Rd. PO Box 1820
 Santa Cruz, CA 95061-1820 USA
 Tel: 1 800 866 5478
 1 831 458 1110
 Fax: 1 831 425 4561
 solutions@raytek.com

Raytek China Company
 info@raytek.com.cn

Raytek Japan, Inc.
 info@raytekjapan.co.jp

South American Headquarters

Raytek do Brasil
 raytek@raytek.com.br

European Headquarters

Raytek GmbH
 Berlin, Germany
 Tel: 49 30 4 78 00 80
 Fax: 49 30 4 71 02 51
 raytek@raytek.de

France
 info@raytek.france

United Kingdom
 ukinfo@raytek.com



© 2005 Raytek (55519 Rev. C) 04/2005
 Raytek and the Raytek logo are registered trademarks, and TF100 and MP50 are trademarks of Raytek Corporation. Windows, Windows NT, Windows 2000, Windows XP are registered trademarks of Microsoft Corporation.
 Specifications subject to change without notice. Raytek is ISO 9001:2003 certified.

Raytek®
 A Fluke Company