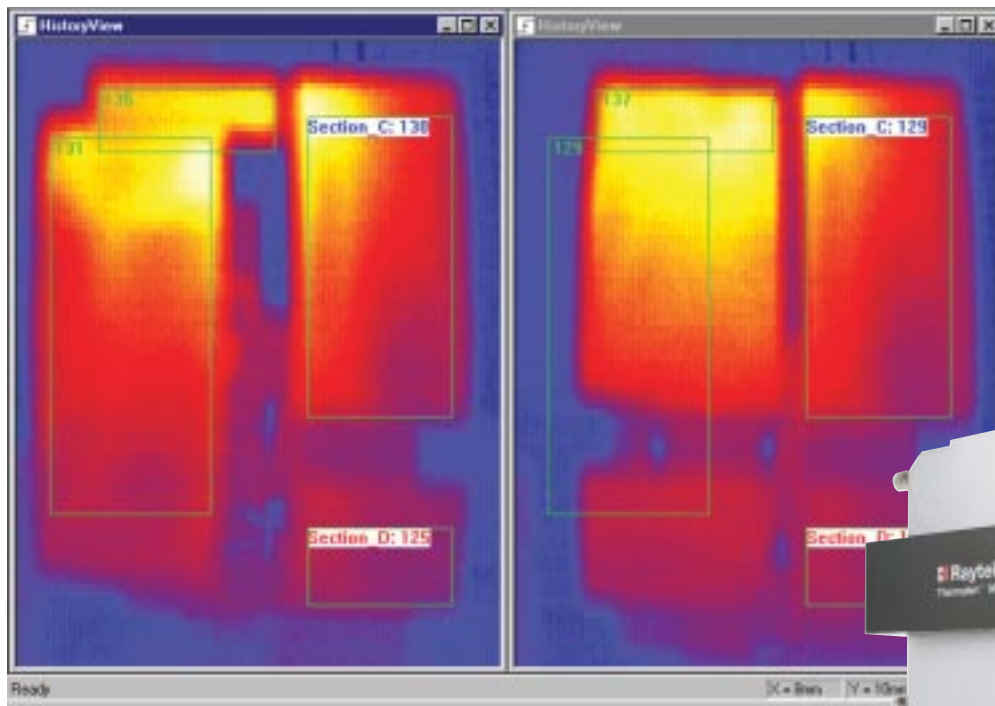


TF100

Process Imaging 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.

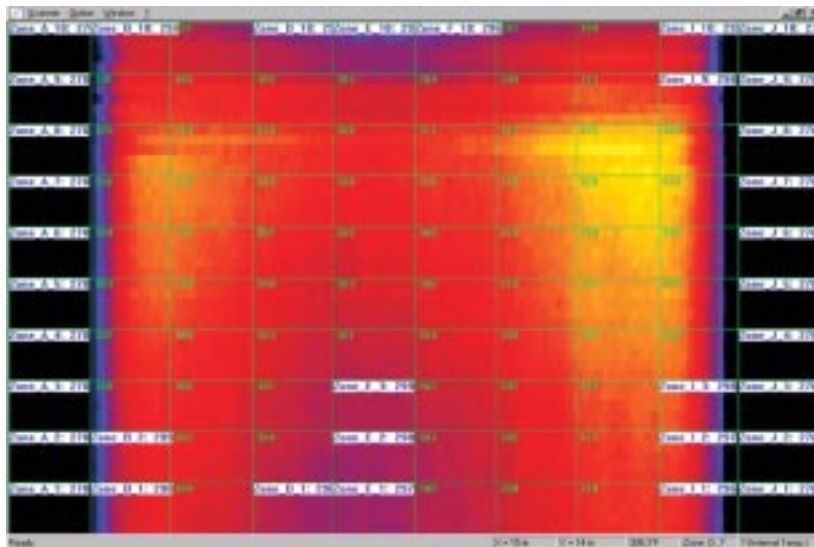
Benefits

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

Features

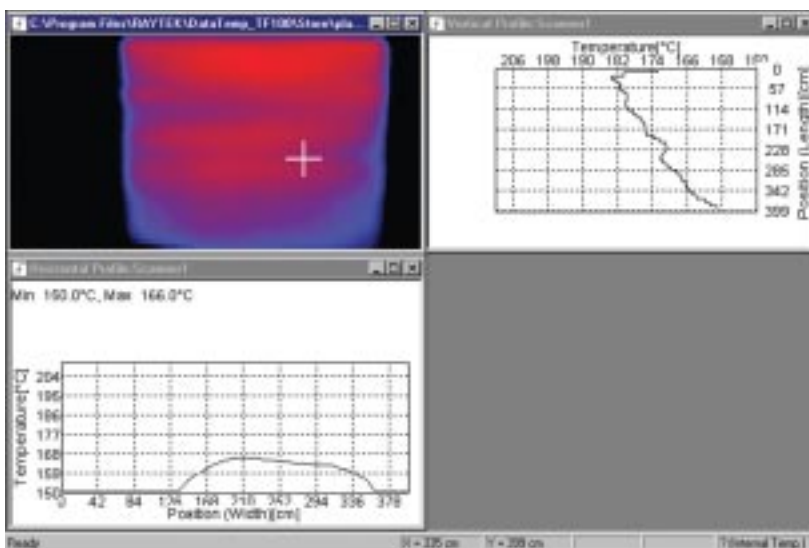
- View complete thermal images and temperature profiles
- Define product-specific configurations and data files
- Customize and display heating zones overlaid on thermal image
- Automatically analyze zone temperatures
- Fail-safe alarm logging
- Optional analog or digital outputs
- Various languages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

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



Actual thermogram showing heater zones

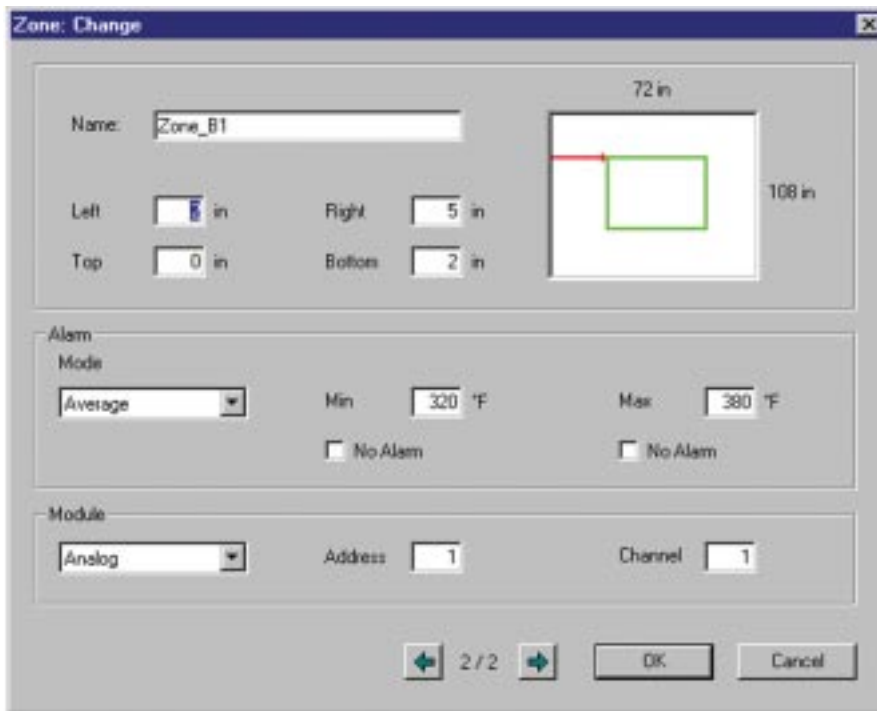
The grid overlay represents the heating element zones in the oven. The average temperature of each zone is displayed in the corner. Zones can be tailored to each application depending on heater size and location. Temperatures for each zone are displayed as average, maximum, or minimum values. Serial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



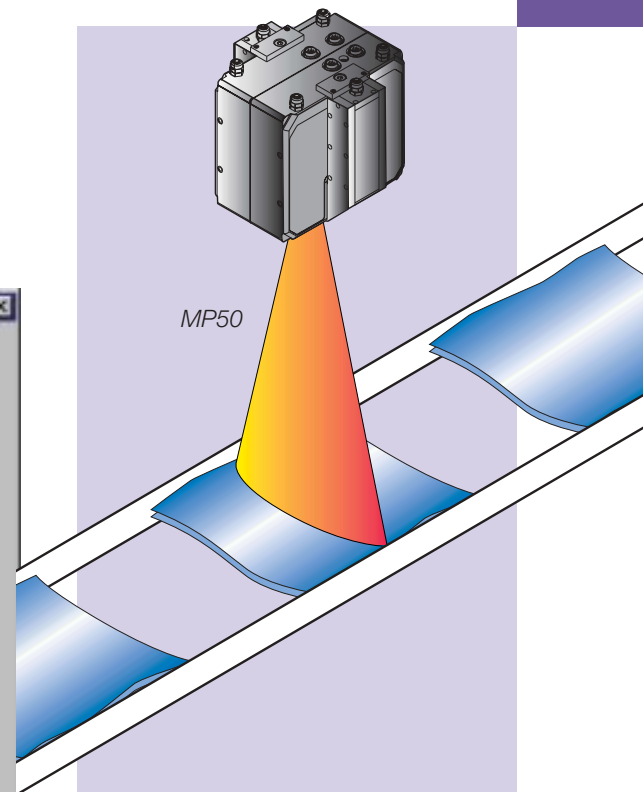
Zone Configuration Screen

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 COM port, addresses, and channel numbers for optional Analog or Digital Output Modules, and output of 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 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
 DTMP Software
 Industrial power supply
 RS232/485 Converter

*See MP50 Data Sheet for available models.

TF100 Specifications

Temperature Range	20 to 350°C (68 to 662°F)*
System Accuracy	±2°C (±4°F)
Optical Resolution	100:1 (90% energy)
Ambient Temperature	0 to 50°C (32 to 122°F)
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 7.9 x 7.1 x 7.5 in
Weight	7 kg (15.5 lbs)

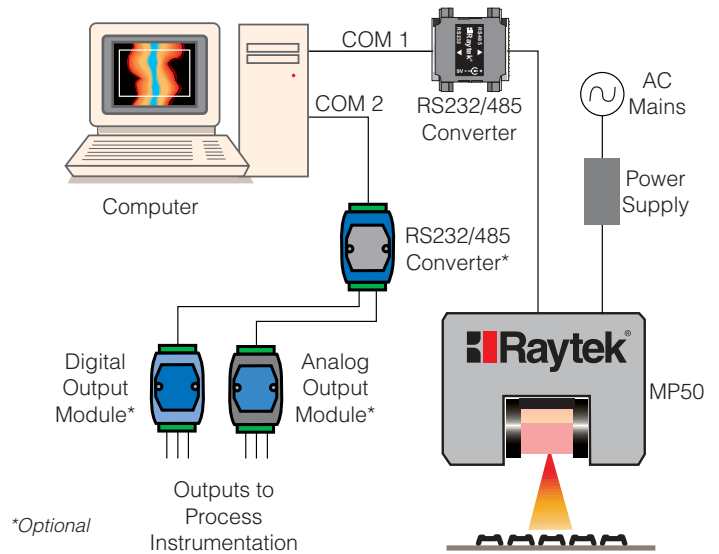
*Specifications for MP50LT (see MP50 Data Sheet for other models). MP50 models available measure from 20°C (68°F) to in excess of 450°C (842°F).

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)

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 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 TF00 System.



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

Raytek Automation Products: Noncontact Temperature Measurement Solutions For Industrial ApplicationsSM

Worldwide Headquarters

Raytek Corporation
 Santa Cruz, CA USA
 Tel: 1 800 227 8074
 1 831 458 1110
 Fax: 1 831 458 1239
 solutions@raytek.com

Raytek China Company
 Beijing, China
 Tel: 86 10 6439 2255
 Fax: 86 10 6437 0285
 info@raytek.com.cn

Raytek Japan, Inc.
 Osaka, Japan
 Tel: 81 6 4390 5015
 Fax: 81 6 4390 5016
 info@raytekjapan.co.jp

South American Headquarters

Raytek do Brasil
 Sorocaba, SP Brasil
 Tel: 55 15 32176046
 Fax: 55 15 32175694
 info@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

Raytek UK Ltd.
 Milton Keynes, UK
 Tel: 44 1908 630800
 Fax: 44 1908 630900
 ukinfo@raytek.com

Raytek France
 Palaiseau, France
 Tel: 33 1 64 53 15 40
 Fax: 33 1 64 53 15 44
 info@raytek.fr

Worldwide Service

Raytek offers services including emergency repairs and calibration. For more information, contact your local office or e-mail: support@raytek.com

