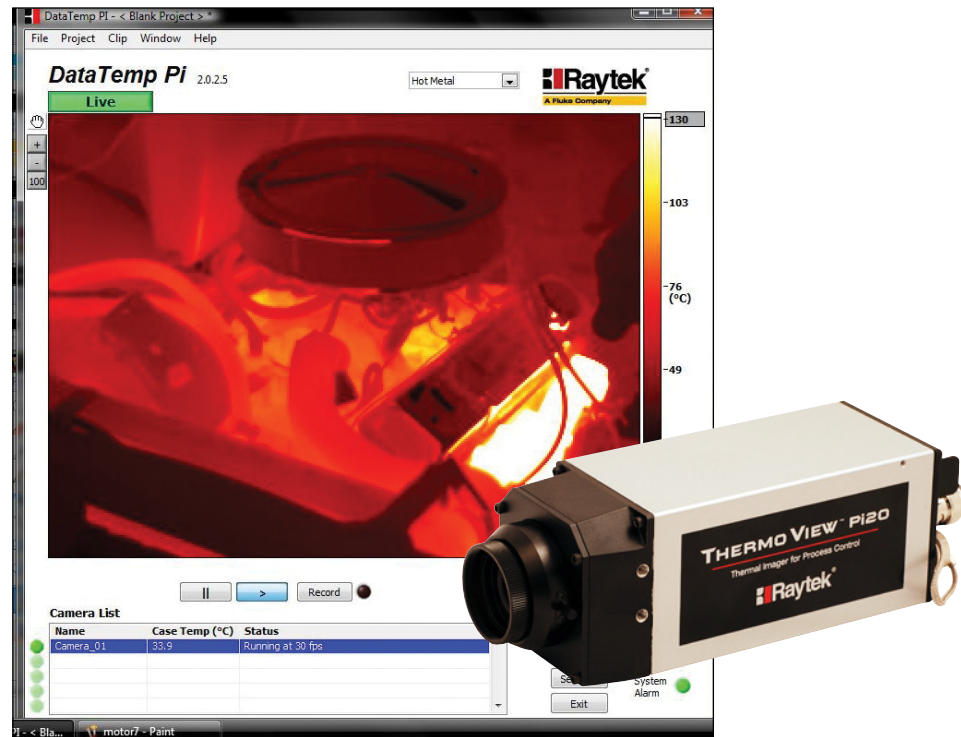


DataTemp® Pi Software



Thermal Imaging Software for Industrial Applications

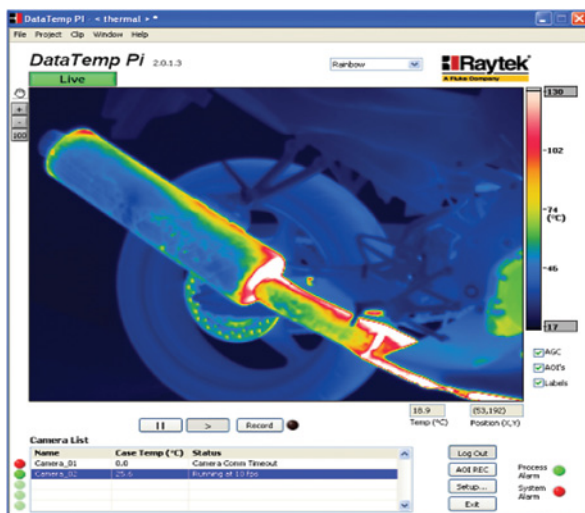


DataTemp® Pi (DTPi) Key Features

- Easy-to-use software with powerful image processing functions
- Thermal imaging for moving or stationary targets
- Multi-camera support
- Process or system relay outputs provide warning when alarm conditions occur
- Designed for use in process control applications, and can also be used in Lab and R&D applications
- On-line and Off-line image processing capabilities

DataTemp Pi Highlights

- DTPi can support up to 16 Pi20 cameras simultaneously, with up to 192 process alarms assigned on each camera.
- Alarm outputs can be assigned to specific relay outputs for feedback control of your process. Additionally, multiple alarms can be assigned to a specific relay to provide an overall passing condition output.
- In addition to process alarm outputs, the DTPi software can also provide multiple system alarm outputs to indicate overall health of the Raytek® Pi20 camera and that the DTPi software is operating properly.
- Digital inputs into the DTPi software allow for triggering of various events, such as Clip and Trend file capture.
- Automatic clip file or AOI trend data collection capabilities allows continuous or time based capturing of events for later review to understand how your process has changed.
- Export Trend data - The AOI data (maximum, average, and minimum temperature) is archived to a spreadsheet file for post processing review.
- Output AVI files for use in commercially available media players
- 17 different color palettes to choose from
- Project file storage allows you to save all Pi20 cameras and DTPi settings for a specific job or product you are running. The project file saves all AOI, alarm, and camera data as part of the file.



Clip file saving and playback capability user controls to allow you to advance to any position in the clip file

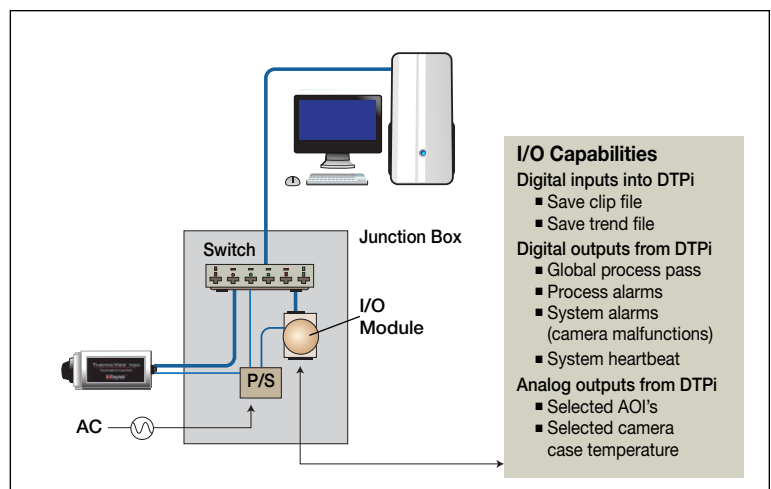
Our companion software for the ThermoView® Pi20 thermal imager is a fully featured software for process control, process monitoring and R&D applications. If your application requires that you need to monitor the process, DTPi provides a variety of displays to show that your process is under control.

Project Files – Many applications require multiple products to be manufactured in the plant. Each product has a unique temperature process that will need to be inspected by the Pi20 camera. With DTPi, you can save a project file for each product that you manufacture, so that when the time comes to run that part again, you simply call up the project file and the DTPi software is ready to monitor and control your process.

Process Alarms - The user can set up 64 Areas Of Interest (AOI's) for each camera. Each AOI can have multiple alarm settings established. When an out of process condition occurs, DTPi provides relay and digital outputs for you to take action on.

System alarms – The software has built in watchdog functions to tell you if camera communications have been cut or if there is a problem with the computer running the DTPi software.

Powerful Networking and I/O capabilities that provide a cost effective way to control your process



How the software can be used in R&D applications

Trending and clip files – If your application requires data trending and post processing data manipulation, DTPi has built in functions to play back and review captured images, display alarm summaries, and adjust AOI and alarm attributes. Clip files, or a stream of images which are saved, can be easily converted to AVI files within DTPi for playback in standard movie players.

Capture events at (30 fps) – Your process can be monitored, clip file data can be archived and alarms can be monitored at a rate of 30Hz, so you don't miss an event in your process.

Online and offline mode operation – DTPi can be configured to monitor your process in a "live" imaging mode. When running live, you can configure the system to provide notifications if an "out of process" condition occurs. You can also save images and play them back in an off-line mode to reconstruct your process after the data has been collected.

Easy-to-set up and operate

After installation, just plug your Ethernet cable into the PC, type your Pi20 camera IP address into the DTPi software and off you go!

Viewers

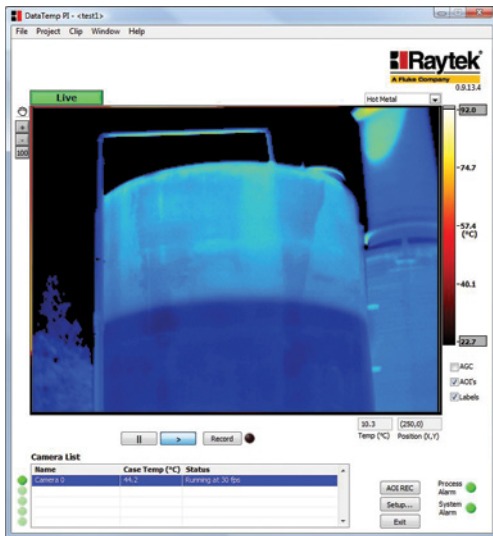


Image Viewer

This viewer provides a thermal image of the camera you have selected. If multiple cameras are connected to your network, simply select the camera you want to view and it will be displayed. Process and system alarm annunciators are also displayed in this viewer.

The Alarm Viewer displays a table of alarm data. The table has columns for Camera, Alarm Name, AOI, Statistic, Low Limit, High Limit, and Value.

Camera	Alarm Name	AOI	Statistic	Low Limit	High Limit	Value
Camera 0	Alarm_00	AOI_00	Max	-40.00	25.00	22.60
Camera 0	Alarm_01	AOI_01	Max	-40.00	25.00	22.86
Camera 0	Alarm_02	AOI_02	Max	-40.00	25.00	31.71

Alarm Viewer

This viewer allows you to monitor all of the process alarms you have set up. Process alarms are activated when the process temperature exceeds the set-point values for that alarm. When this occurs, the associated alarm changes color to indicate that an out of process condition exists.

The AOI Data Viewer displays a table of AOI data. The table has columns for Camera, AOI, Min, Mean, and Max.

Camera	AOI	Min	Mean	Max
Camera 0	AOI_00	20.50	20.94	21.64
Camera 0	AOI_01	17.70	21.27	21.96
Camera 0	AOI_02	28.31	29.48	30.63

AOI Data Viewer

Use this viewer to see a list of all AOI's and the process temperatures that are being measured. For each AOI, the minimum, average, and maximum temperatures are displayed.

The Digital Output Viewer displays a table of digital output data. The table has columns for Camera, Device, Channel, and Value.

Camera	Device	Channel	Value
Camera 0	6000	RL-0	False
Camera 0	6000	RL-1	False
Camera 0	6000	RL-2	True

Digital Output Viewer

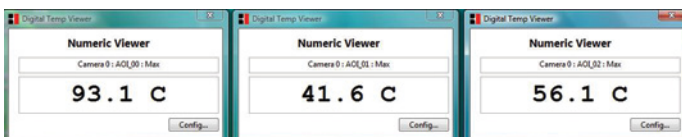
This viewer provides a table of the digital outputs you have set up.

The Analog Output Viewer displays a table of analog output data. The table has columns for Camera, Device, Channel, and Value (V).

Camera	Device	Channel	Value (V)
Camera 0	6024	AO-0	6.38
Camera 0	6024	AO-1	3.91

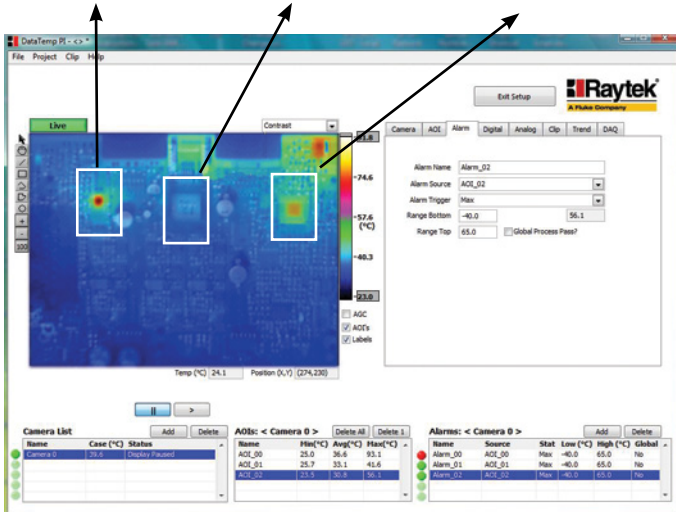
Analog Output Viewer

Use this viewer to see a table of the analog outputs you have set up.



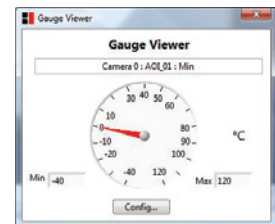
Digital Display

Select any number of AOI's as a digital temperature.



Setup Viewer

Use this viewer to configure cameras, add or manipulate AOI's, alarms, digital and analog outputs, and set up recording of clip files and trending files.



Gauge Viewer

This viewer allows you to monitor any of your AOI's as a gauge.

The ThermoView Pi20 camera, combined with our easy-to-use, fully featured DataTemp DTPI software, allows us to target applications in furnace refractory monitoring, semiconductor and solar, glass, plastics, automotive, building, food & beverage, and petrochemical manufacturing. Additional applications include:

- Vessel monitoring
- Welding
- Induction Heating
- Printed circuit board monitoring
- Hot spot detection of various products
- Thermoforming



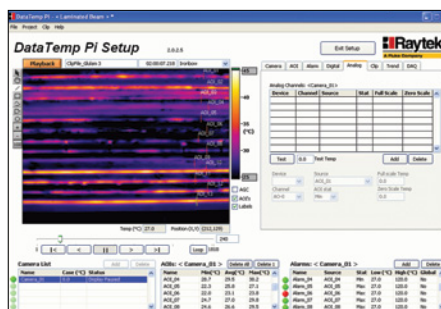
Engine Testing

- Identify temperature variations from surface to surface
- Collect temperature data in the form of trend files to tell when critical components are overheating
- Use as a development tool of product temperature ratings for manufacturers of external parts – such as wiring, hoses or belts, and heat deflection materials



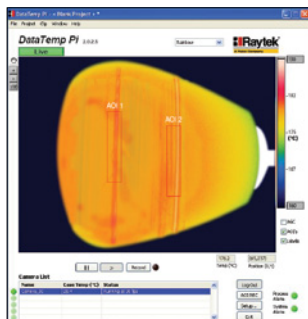
Glass Vial Manufacturing

- Temperature monitoring of key areas to optimize cut ability on the part
- Use AOI and alarming capability to improve process control of vial manufacturing process



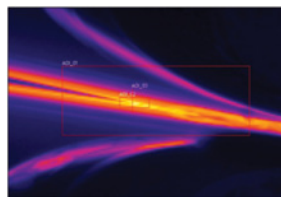
Laminated Structural Beams

- Monitor glue extruded from the side of laminated beams to ensure correct product glue joint temperature
- Use DTPI analog outputs to control dispensing rate.



Metal Spin Forming

- Determine temperature anomalies due to improper part rotation speed
- Place AOI's in key areas to make sure the optimal temperature is achieved to support the forming in that area



Metals Induction Pipe Welding

- Obtain seam position relative to weld area
- Monitor seam width to control weld profile

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