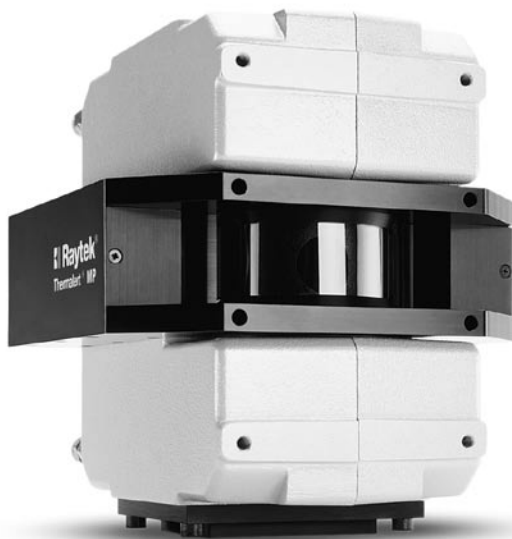


MP150

Thermal Imaging for Industrial Applications



Key Features:

- Real-time thermal imaging
- Fast scan rate up to 150 lines per second (150Hz)
- Up to 1024 data points per scan line
- Wide choice of models for all applications
- Thermal imaging for continuous or discrete process
- Three on-board analog outputs
- Built-in Ethernet TCP/IP communication
- Rugged NEMA 12/IP65 enclosure with air-purge and built-in water cooling capability

MP150 Highlights

The MP150 Linescanner provides accurate temperature images of materials and processes. As its precision balanced motor rotates within a 90° field-of-view, a mirror assembly projects infrared energy from the scene through precision optics onto a detector. Spinning at speeds of up to 150 cycles per second, and sampling at up to 1024 points per rotation, the onboard high-speed microprocessor converts the infrared energy into temperature data. As the target moves, individual lines of data are then combined to create a high resolution two-dimensional thermal image.

The MP150 can be used in stand alone mode, connected to a single PC or integrated into a comprehensive process control system. In stand alone mode the scanner is equipped with three fully-configurable internal analog outputs which can be connected directly to the process. The MP150 can also be used along with the full suite of Raytek DataTemp® DP system software when connected to a PC using either RS485 or built-in industrial Ethernet TCP/IP communication. Utilizing the OPC Server functionality of the DataTemp DP software, the scanner becomes an integral part of any OPC compliant Distributed Control Interface (DCI) or Human Machine Interface (HMI) system. In all cases, the MP150 provides real-time monitoring and control capabilities.

The MP150 linescanner is designed for use in highly demanding industrial environments with a rugged cast aluminum housing, complete with integrated water cooling capability. The replaceable window is protected by an integral air-purge collar which produces laminar airflow across the window to prevent contamination build-up. Installation is made simpler by the internal line-laser which can be activated to provide a visible reference to the line-of-sight and the housing which is pre configured to be mounted on any of three surfaces.

MP150 linescanner models are available with a choice of temperature ranges and spectral response characteristics specifically suited to industrial processes such as extrusion and forming and to materials such as steel, plastic, and glass.

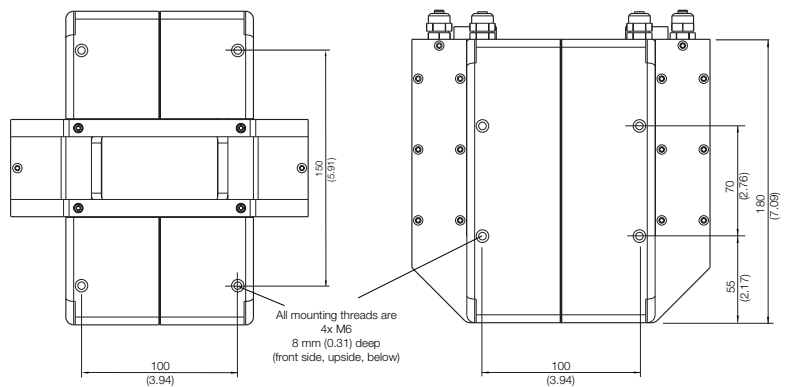
MP150 Models

Model Number	Spectral Response	Temperature Range	Accuracy	Repeatability	Optical Resolution	Description
RAYTMP150LT	3-5µm	20 to 350°C 68 to 662°F	±2°C ±4°F	±1°C ±2°F	150:1	Low temperature applications
RAYTMP150MT	3.9µm	100 to 800°C 212 to 1472°F	±3°C ±6°F	±2°C ±4°F	150:1	Mid temperature applications
RAYTMP150G5	5µm	100 to 950°C 212 to 1742°F	±3°C ±6°F	±1°C ±2°F	150:1	Glass processing
RAYTMP150P30	3.43µm	30 to 250°C 86 to 482°F	±3°C ±6°F	±1°C ±2°F	33:1	Thin film plastic processing
RAYTMP150P31	3.43µm	100 to 350°C 212 to 662°F	±3°C ±6°F	±1°C ±2°F	60:1	Thin film plastic processing
RAYTMP1501M	1µm	600 to 1200°C 1111 to 2192°F	±3°C ±6°F	±2°C ±4°F	150:1	High temperature applications
RAYTMP1502M	1.6µm	400 to 950°C 752 to 1742°F	±3°C ±6°F	±2°C ±4°F	150:1	High temperature applications
RAYTMP150HR	3.5-4.0µm	100 to 650°C 212 to 1202°F	±3°C ±6°F	±2°C ±4°F	150:1	Rotating Kilns

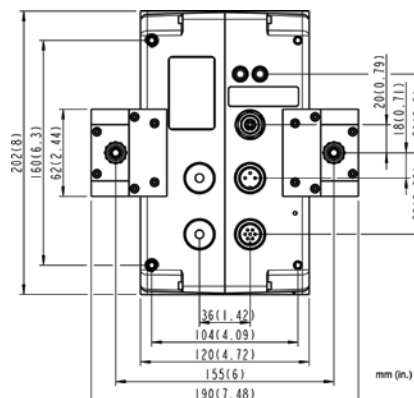
Mountings and Fittings

Process Imager Mounting Locations and Dimensions

(Mounting dimensions are the same for top and bottom view)



Process Imager Fittings Locations and Dimensions



General Specifications

Environmental Area Classification	NEMA 12, (IEC 529, IP 65)
Ambient Operating Temperature without water cooling with water cooling	0–50°C (32–122°F) 180°C (356°F) maximum
Internal Operating Temperature	0–60°C (32–140°F)
Maximum Temperature	65°C (140°F) operating or non-operating
Relative Humidity	10% to 90%, non-condensing
Shock	IEC 68-2-29, 3-axes, 1000 bumps 5 G operating; 25 G non-operating
Vibration	IEC 68-2-6, 3 axes, 10–150 Hz Operating: 0.5G Non-operating: 2.0 G
Scan Motor	40,000 hours MTBF
Air Purge and Water Cooling max water pressure max air pressure	Built-in; included with standard MP150 5 bar (72.5 psig) 3 bar (43 psig)
Size	(200 x 180 x 190 mm) (7.9 x 7.1 x 7.5 inches)
Weight	7.0 kg (15.4 lbs)
Warm-up Time	20 minutes
Field of view (all models)	45° or 90° (selectable)

Minimum Requirements

- 600 MHz or higher Pentium III
- 128MB RAM
- Mouse
- SVGA monitor
- 4MB video RAM
- 800 x 600 resolution minimum with 64K colors
(high color 16-bit, higher resolution required for multiple linescanners)
- 2 GB hard drive
- Windows® NT4.0 or Windows® 2000 and Internet Explorer® 5.0
or newer

The following are preferred, but not mandatory:

- Ethernet or other network connection
- Internet connection for downloading information and upgrades
- Sound card: SoundBlaster 16 compatible; for .wav file alarm
- Equinox serial port card (SST-2I for one or two linescanners, or SST-4I
with cable for up to 4 linescanners)

Standard Package Components

MP150 Process Imager Package Includes:

- DataTemp DP LT Software (CD-ROM)
- MP150 User Manual, DataTemp DP LT Manual
- For RS-485:
 - 1x 7.5m (24.6 ft) RS-485
RS-485/RS-232 converter
 - 1x SUB-D connector cable,
25-pin (male) to 9-pin (female)
- RS-485 extension cable (accessory):
 - 2x housing for SUB-D pin connectors
 - 1x SUB-D connector (male) 25-pin
 - 1x SUB-D connector (female) 25-pin
- For Ethernet:
 - 1 x 7.5m (24.6 ft) high-temperature Ethernet
cable with RJ45 male-connector
- Power Supply Cable: 1x 7.5m (26.4 ft)
- Tools:
 - 1x hex key wrench 2.5mm 1x hex key wrench 5mm
 - 1x connector (female) 6-pin for digital inputs/outputs
 - 1x connector (male) 4-pin for analog outputs

Electrical Specifications

Outputs

Analog	3 user-configurable 0/4-20mA current outputs, collectively isolated. Maximum dc resistance 500 ohms
Alarm	Electromechanical relay 30V, 1A
Digital	RS485/RS232 full duplex, non-addressable
Communications	Ethernet Communication TCP/IP protocol 10/100mbits

Inputs

Trigger + 5VDC pulse
(user-supplied) RS485/RS232

Power Requirements

24 VDC ± 25%, 1A

CE Conformance

EN61010-1
EN61326-1

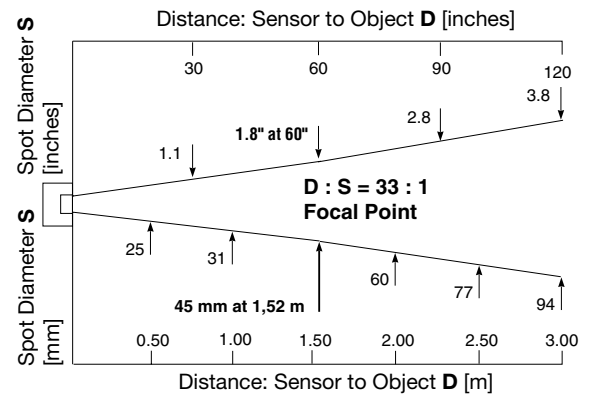
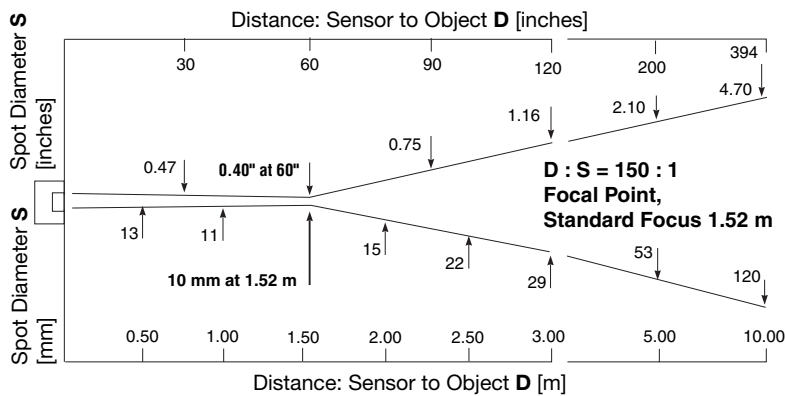
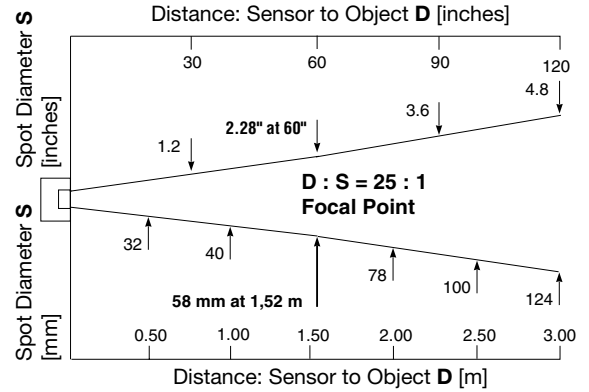
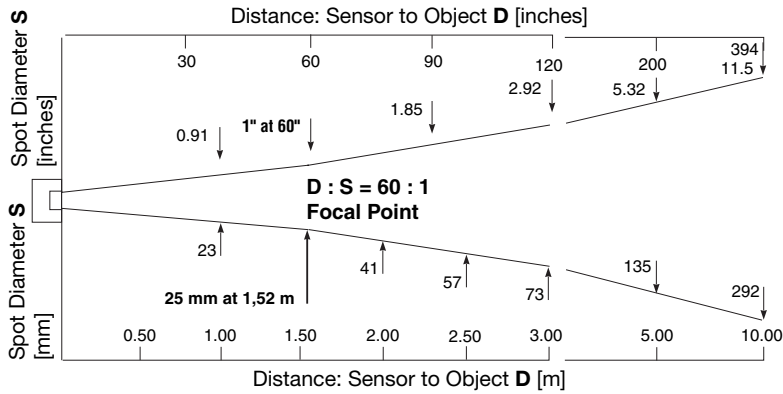
Operating Characteristics

Optical Scan Rate	20 to 150 Hz (max 48 Hz for P3 models)
Focus Distance	1.5m (60 inches) standard; custom focus distances (consult factory)
Emissivity	0.1 to 1.00 digitally adjustable
Number of Samples	1024 per scan line up to 40HZ scan speed ^{1,2} 512 per scan line up to 80 Hz scan speed 256 per scan line up to 150 Hz scan speed

¹ Requires XXXTMP1501K factory-installed option

² Standard feature on RAYTMP150HR

Optical Diagrams



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