

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.

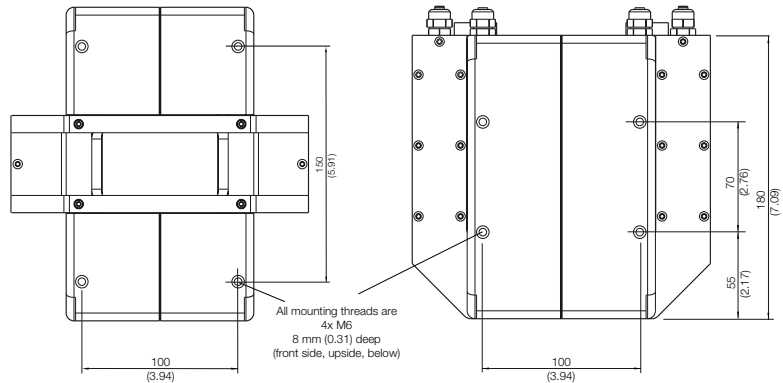
MP150 Models

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	170:1	Low temperature applications
RAYTMP150MT	3.9µm	100 to 800°C 212 to 1472°F	±3°C ±6°F	±2°C ±4°F	170:1	Mid temperature applications
RAYTMP150G5	5µm	100 to 950°C 212 to 1742°F	±3°C ±6°F	±1°C ±2°F	170:1	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	75:1	Thin film plastic processing
RAYTMP1501M	1µm	600 to 1200°C 1111 to 2192°F	±3°C ±6°F	±2°C ±4°F	200:1	High temperature applications
RAYTMP1502M	1.6µm	400 to 950°C 752 to 1742°F	±3°C ±6°F	±2°C ±4°F	200:1	High temperature applications
RAYTMP150HR	3.5-4.0µm	100 to 650°C 212 to 1202°F	±3°C ±6°F	±1°C ±2°F	170:1	Rotating Kilns

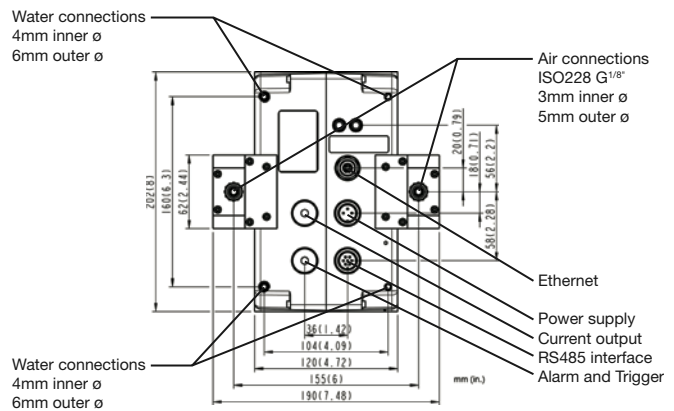
Mountings and Fittings

Linescanner Mounting Locations and Dimensions

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



Linescanner Fittings Locations and Dimensions



General Specifications

Environmental Area Classification	IP65 (NEMA 4) in accordance to IEC 60529
Ambient Operating Temperature without water cooling with water cooling	0–50°C (32–122°F) 180°C (356°F) maximum
Internal Operating Temperature	-25–65°C (-13–149°F)
Maximum Temperature	180°C (356°F) operating or non-operating
Relative Humidity	10% to 90%, non-condensing
Shock	IEC 60068-2-27, 3 axes, operating: 5 g at 11 ms, 15 g at 6 ms
Vibration	IEC 60068-2-6, 3 axes, 10 to 150 Hz, operating 2 g above 20 Hz
Scan Motor	40,000 hours MTBF
Air Purge and Water Cooling	Built-in; included with standard MP150
max water pressure	15 bar (217.5 psig)
max air pressure	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)	90°

Minimum Requirements

- Minimum requirements for the PC (provided by the user):
- Processor: ≥ Pentium III
- Clock speed: ≥ 1 GHz
- Main memory: ≥ 512 Mb RAM
- Hard disk: approx. 50 MB memory for program
- Ethernet communication Ethernet, TCP/IP protocol, 10/100 Mbit/s
- Graphic 1280 x 1024 pixel (for displaying 1024 scanner pixel per line)
- RS485 communication: serial Com-Port with hardware buffer (16550 Uart)
- Operating system: Windows 2000/XP 1

Standard Package Components

- MP150 Linescanner
- Operating Instructions (also included as PDF file on the CD-ROM)
- Software CD with DataTemp DP (Windows 2000, XP, Vista, Win7)
- Protocol Manual only as PDF file on the CD-ROM
- Ethernet cable: 1x 7.5 m (24.6 ft), max. ambient temperature: 180°C (356°F)
- Power Supply cable: 1x 7.5 m (26.4 ft), max. ambient temperature: 180°C (356°F) (power supply XXXSYSPS should be ordered separately)
- 1x spare window for MP150
- 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

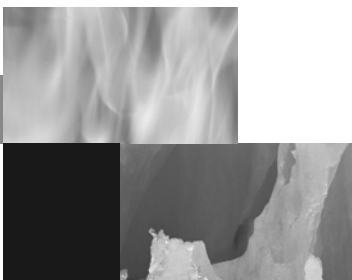
Electrical Specifications

Outputs	
Analog	3 user-configurable 0/4-20mA current outputs, collectively isolated. Maximum dc resistance 500 ohms
Alarm	Electromechanical relay 30V, 1A
Digital Communications	RS485/RS232 full duplex, non-addressable
Ethernet Communication	TCP/IP protocol 10/100Mbit/s
Inputs	
	Trigger + 5 to 24VDC pulse (user-supplied)
Power Requirements	
	24 VDC ± 25%, 1A
CE Conformance	
	EN61010-1: 1993 / A2: 1995 EN61326-1, EN 60825-1

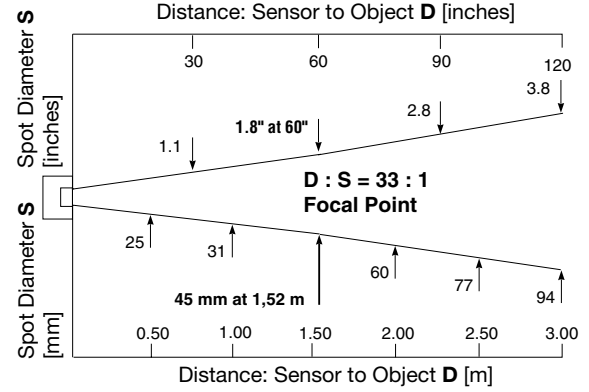
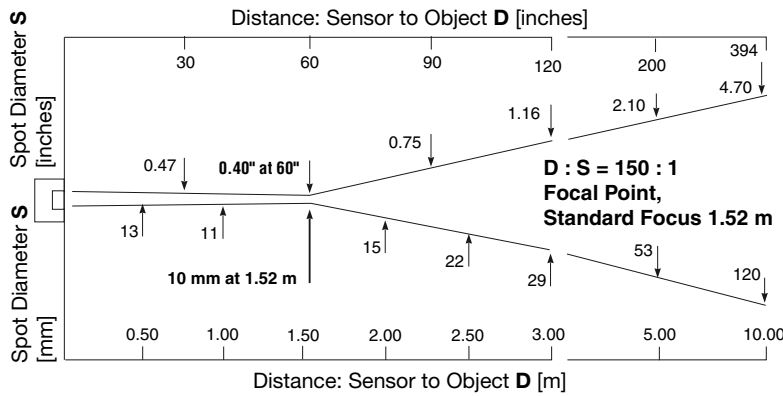
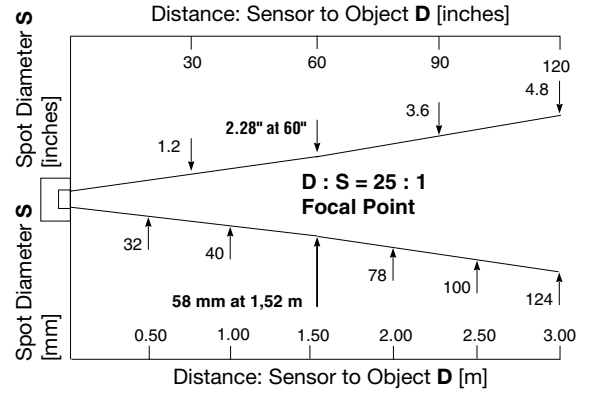
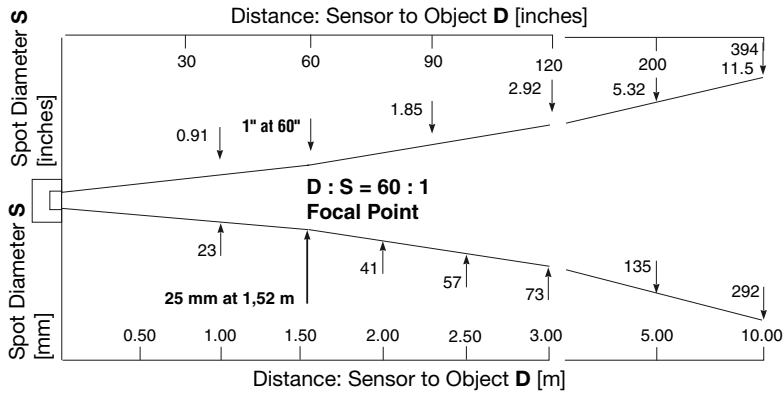
Operating Characteristics

Optical Scan Rate	20 to 150 Hz
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 ¹ 512 per scan line up to 80 Hz scan speed 256 per scan line up to 150 Hz scan speed

¹ Standard feature on RAYTMP150HR



Nominal Optical Specifications



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