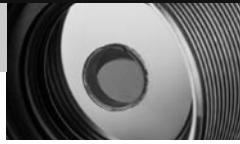


XR

Datasheet



Noncontact Temperature Measurement for Industrial Applications



XR Highlights

- Flexible user defined analog output
- Multiple temperature ranges
- Local User-interface for sensor programming
- User-selectable 0/4-20 mA, 0-5 V, J or K thermocouple output
- User-scalable 0/4-20 mA or 0-5 V output
- Choice of field wiring or quick connector wiring option
- Optional laser sighting and high resolution optics
- Optional stainless steel housing
- Simultaneous analog and digital outputs
- Field Calibration software

The Raytek XR sensors are designed for continuous temperature monitoring in a broad range of manufacturing processes. The XR sensor is a rugged, NEMA 4 sealed single piece system with the flexibility to handle nearly any application. Multiple extended temperature ranges, precision temperature resolution, RS-485 output and a flexible electronic platform create a single sensor that solves the most challenging applications.

Optional laser sighting and high-resolution optics provides the solution for either small targets or long sight-tubes. An intuitive user interface reduces setup time and adds powerful troubleshooting capabilities. Common and configurable installation hardware and software reduces installation expense and variation.

The Raytek XR sensor has a flexible user defined analog output, allowing this sensor to be installed with almost any existing control system. This unique capability sets a new standard for process monitoring. The Raytek XR sensor insures a consistent manufacturing process and allows tighter tolerances on heating processes, reducing heating costs. For performance and value choose the Raytek XR sensor.



Measurement Specifications

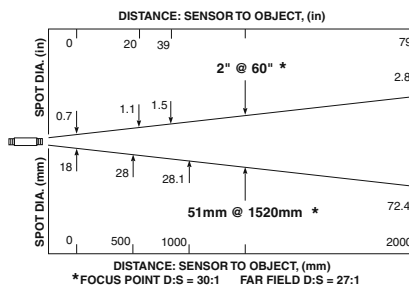
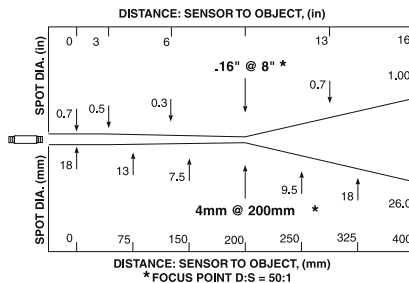
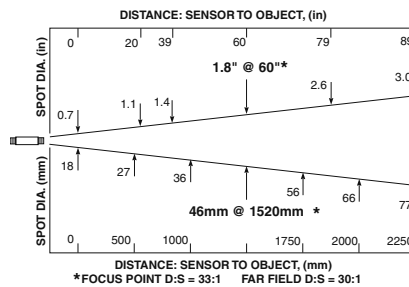
Model:	Spectral Response:	Temperature Range:
LT (Low Temp)	8 to 14 μm	-40°C to 600°C (-40°F to 1112°F)
LTHSF (Low Temp)	8 to 14 μm	-40°C to 600°C (-40°F to 1112°F)
MTB (Medium Temp)	3.9 μm	250°C to 1200°C (482°F to 2190°F)
G5 (Glass)	5.0 μm	250°C to 1650°C (482°F to 3002°F)
P7 (Plastics)	7.9 μm	10°C to 350°C (50°F to 662°F)
Model:	Optical Resolution*	
LT (Low Temp)	33:1	
LTHSF (Low Temp)	50:1	
MTB (Medium Temp)	30:1	
G5 (Glass)	33:1	
P7 (Plastics)	30:1	
Accuracy	$\pm 1\%$ of measured value or $\pm 1^\circ\text{C}$ (2°F),	
Repeatability	LT**, MT, G5 & P7*** $\pm 0.5\%$ of measured value or $\pm 0.5^\circ\text{C}$ (1.0°F),	
Temperature Resolution	0.5°C (1.0°F) for all models except P7; 1.0°C (0.2°F) P7 only	
Response Time (95%)	150 mSec	
Emissivity	Adjustable; 0.10 to 1.00 for all models	
Signal Processing	°C/°F, Advanced Peak/Valley Hold, Averaging, Ambient temperature compensation	
Sensor Construction	Anodized Aluminum or Stainless Steel	

* Typical optical resolution

** Accuracy measured on target temperatures $> 25^\circ\text{C}$ (77°F) @ ambient = 23°C (77°F)

*** P7 accuracy @ temperatures $> 95^\circ\text{C}$ (203°F)

Nominal Optical Specifications



(Note: Nominal Spot Size based on 90% energy)

Electrical Specifications

Outputs:

Analog	4-20 mA, 0-20mA, 0-5V J type or K type thermocouple*
Digital	Two-way RS485 digital output
Alarm	Opto-coupled contact closure
Power Supply	24 VDC, 100mA, ±20%

* Type J and K t/c outputs available only with terminal connector

Sensor Specifications

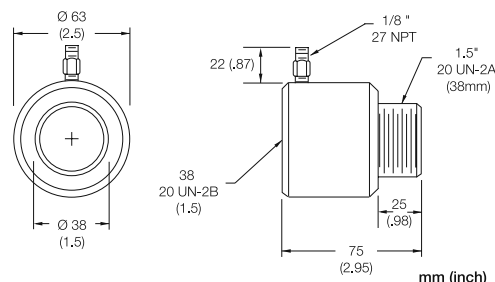
Environmental Rating	NEMA-4 (IEC529, IP65)*
Ambient Temperature Range:	0°C to 70°C (32°F to 160°F)
With air cooling	up to 120°C (up to 250°F)
With water cooling	up to 175°C (up to 350°F)
With ThermoJacket	up to 315°C (up to 600°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Relative Humidity	10 to 95%, non-condensing
Shock:	IEC 68-2-27 (MIL STD 810D) (50g's, 11 mSec, any axis)
Vibration:	IEC 68-2-6 (MIL STD 810D) (3 g's, 11-200 Hz, any axis)
Dimensions:	192 mm L x 42 mm diameter (7.6 L in x 1.7 in diameter)
With cooling jacket	192 mm L x 63 mm diameter (7.6 L in x 2.5 in diameter)
Weight:	0.585 kg (1.3 lbs)
With cooling jacket	0.675 kg (1.5 lbs)

*IP65 required on standard XR models using the 12-pin connector.

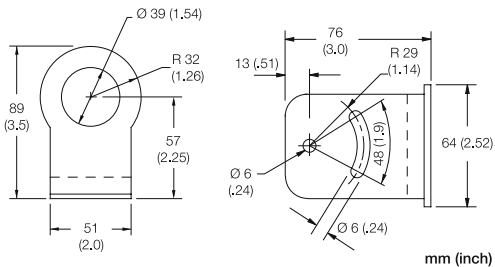
Accessories / Options

- Remote Communications Kit (XXXMINCONV1/2)
A requirement for digital communication, the kit includes the RS 485/RS232 adapter and the Windows DataTemp software package. One kit serves multiple sensors. Requires RS232 serial port voltage and Windows NT/ Windows 2000/ Windows XP.
- Accessory air purge collar to keep lens clean (XXXTXXACAP)
- Accessory pipe adapter, adapts sensor threads to 1.5 in. NPT (XXXTXXACPA)
- Accessory right angle mirror, provides perpendicular view of target in tight installations (XXXTXXACRA)
- Accessory lens protection window-field replaceable protection window
- *Optional air/water cooled housing for installation in environments up to 175°C (350°F)
- Accessory GPC-local display, sensor power supply and emissivity adjustment (RAYGPC or RAYGPCM)
- *Optional NIST traceable calibration certificate (call for specifications)
- ThermoJacket protective enclosure enables installation in very harsh environments and provides air purging and water cooling up to 315°C (600°F)
- *Options must be specified at time of order

Air purge collar XXXTXXACAP

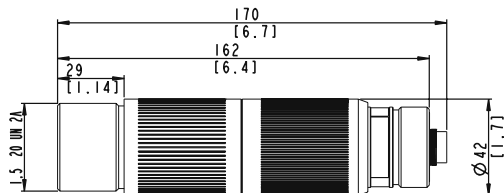


Fixed bracket XXXTXXACFB

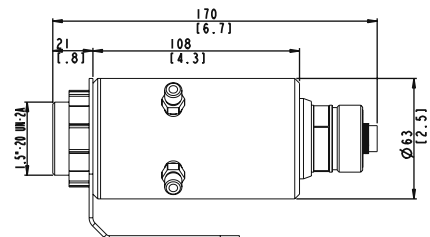


Sensor Dimensions

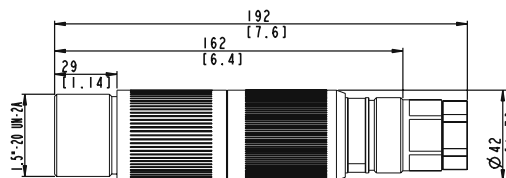
Quick connect sensor



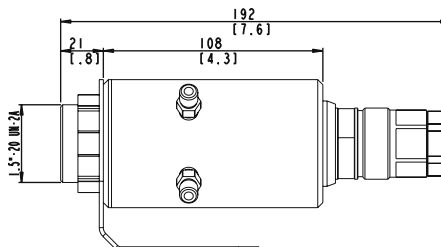
Air/Water cooled



Terminal connect sensor



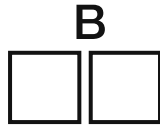
Air/Water cooled housing option



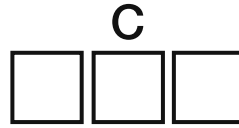
RAYXR



A
Electrical
Connection



B
Temperature Range
& Spectral Response



C
Focus
Options



D
Housing



E
Options

RAYXR Description

Code A Electrical Connection

- C 12 - pin DIN quick connector, NEMA4 - IP65 Sealed, enables full sensor functionality
- T 7 - pin Terminal Connector, allow use of field wiring for power, analog output and RS485 digital connections

Code B Temperature Range and Spectral Response

- LT Low Temp: -40 to 600°C (-40 to 1112°F) / 8 to 14 micron spectral response
- MT Medium Temp: 250 to 1200°C (482 to 2192°F) / 3.9 microns
- G5 Glass Surface: 250 to 1650°C (482 to 3002°F) / 5.0 microns
- P7 Thin Film Plastics (Polyester & Teflon): 10 to 360°C (50 to 680°F) / 7.9 microns, SF Optics ONLY

Code C Focus

- SF Standard Focus, (33:1 D:S for all models)
- CF1 Close Focus 1, 2.6mm spot @ 76mm (LT model only)
- CF2 Close Focus 2, 7mm spot @ 200mm (LT,MT & G5 Models)
- HSF High Resolution Standard Focus, 30mm spot @ 1520mm (50:1 D:S - LT model only)
- HCF High Resolution Close Focus, 4.5mm spot @ 200mm (50:1 D:S - LT model only)

Code D Housing

- A Anodized Aluminum Sensor body construction
- S 316L Stainless Steel Sensor body construction

Code E Options

- W Coolable Housing, includes Lens Air Purge Collar Note: For ambient temperatures exceeding 175°C (350°F), See Thermo jacket Price Sheet.

Typical Model Number RAYXRCMTSFS

A Worldwide Leader in Noncontact Temperature Measurement

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