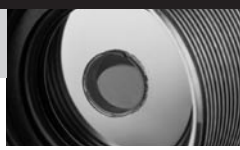
RAYTEK SENSORS



XR

Noncontact Temperature Measurement for Industrial Applications

Raytek®
A Fluke Company

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**
- **Laser-sighting and high resolution optics on LTH models**
- **Optional stainless steel housing**
- **Simultaneous analog and digital outputs**
- **DataTemp® Multidrop software included**
- **Field Calibration software**

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.

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. The XR sensor has multiple extended temperature ranges and precision temperature resolution. RS-485 output seemlessly integrates with DataTemp® Multidrop software, allowing up to 32 sensors to interface to one communication port. The flexible electronic platform creates a single sensor that solves the most challenging applications.

Laser sighting and high-resolution optics on the LTH models provides the solution for either small targets or long sight-tubes. An intuitive user interface reduces setup time and adds powerful trouble-shooting capabilities. Common and configurable installation hardware and software reduces installation expense and variation.

Measurement Specifications

Model:	Spectral Response:	Temperature Range:
LT (Low Temp)	8 to 14 µm	-40°C to 600°C (-40°F to 1112°F)
LTH (Low Temp)	8 to 14 µm	-40°C to 600°C (-40°F to 1112°F)
MT (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
LTH (Low Temp)	50:1
MT (Medium Temp)	30:1
G5 (Glass)	33:1
P7 (Plastics)	30:1

Accuracy	±1% of measured value or ±1°C (2°F),
Repeatability LT**, MT, G5 & P7***	±0.5% of measured value or ±0.5°C (1.0°F),
Temperature Resolution	0.5°C (1.0°F)
Response Time (95%)	150 mSec
Emissivity	Adjustable; 0.10 to 1.100 for all models
Signal Processing	ºC/ºF, Advanced Peak/Valley Hold, Averaging, Ambient temperature compensation
Sensor Construction	Anodized Aluminum or Stainless Steel

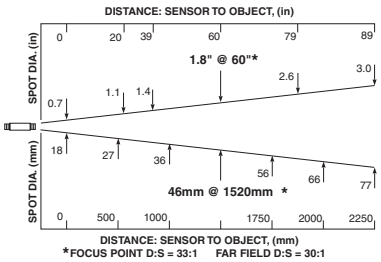
** Typical optical resolution*

*** Accuracy measured on target temperatures > 25ºC (ºF) @ ambient = 23ºC (77ºF)*

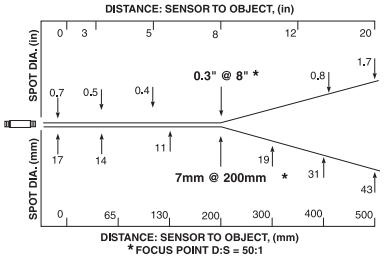
**** P7 accuracy @ temperatures > 95ºC (203ºF)*

Nominal Optical Specifications

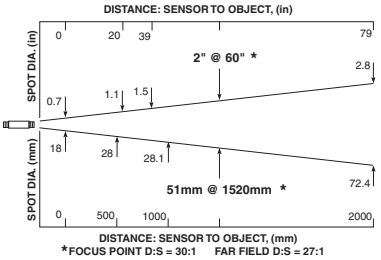
Standard Focus—LT and G5 models



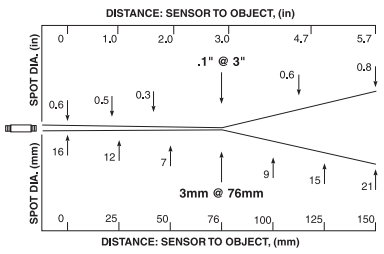
Close Focus 2—LT, MT and G5 models



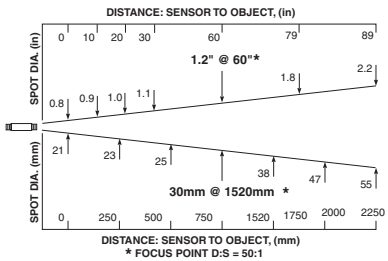
Standard Focus—MT and P7 models



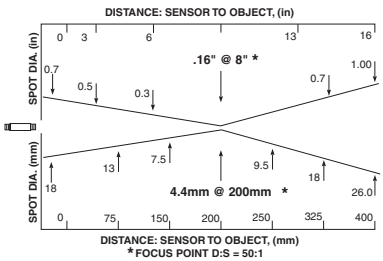
Close Focus 1—LT models only



Standard Focus—LTH models



Close Focus—LTH models



*(*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 ouputs available only with terminal connector*

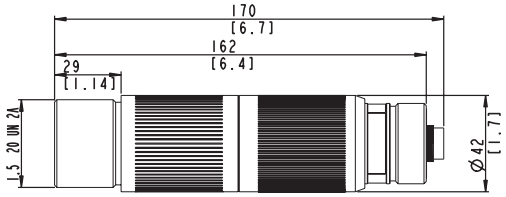
Sensor Specifications

Environmental Rating	NEMA-4 (IEC529, IP65)*
Ambient Temperature Range: With air cooling With water cooling With ThermoJacket	 0°C to 70°C (32°F to 160°F) up to 120°C (up to 250°F) up to 175°C (up to 350°F) up to 315°C (up to 600°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°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: With cooling jacket	192 mm L x 42 mm diameter (7.6 L in x 1.7 in diameter) 192 mm L x 63 mm diameter (7.6 L in x 2.5 in diameter)
Weight: With cooling jacket	0.585 kg (1.3 lbs) 0.675 kg (1.5 lbs)

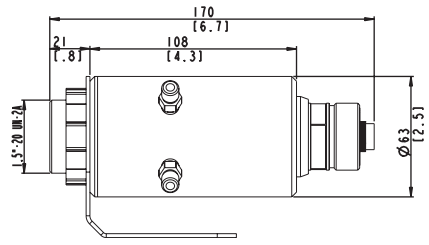
**IP65 required on standard XR models using the 12-pin connector.*

Sensor Dimensions

Quick connect sensor



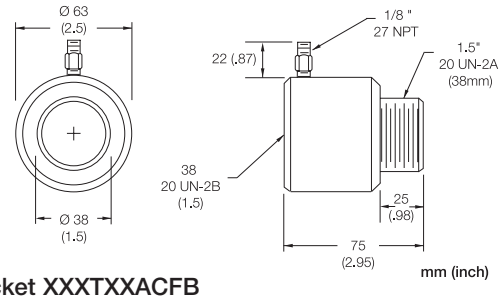
Quick connect sensor with Air/Water cooled



Accessories / Options

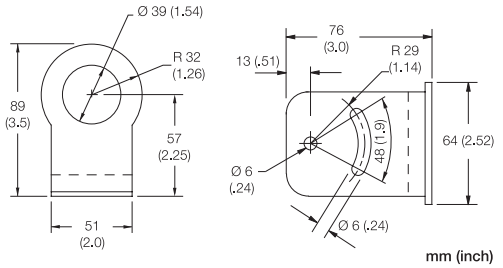
- Remote Communications Kit (XXXMINCONV1/2)
  A requirement for digital communication, the kit includes the RS 485/RS232 adapter and the Windows DataTemp software package. One kit serves multiple sensors. Requires RS232 serial port voltage and Windows® NT/ Windows 2000/ Windows XP.
- Accessory air purge 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 175ºC (350ºF)
- 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 315ºC (600ºF)
- *Options must be specified at time of order

Air purge collar XXXTXXACAP



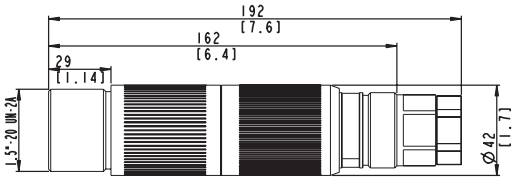
mm (inch)

Fixed bracket XXXTXXACFB

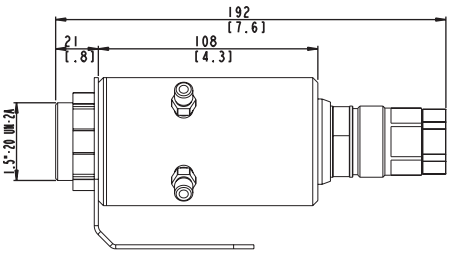


mm (inch)

Terminal connect sensor



Terminal connect sensor Air/Water cooled housing option



RAYXR

A	B	C	D	E
Electrical Connection	Temperature Range & Spectral Response	Focus Options	Housing	Options

RAYXR	Description
Code A	**Electrical Connection**
C	12 - pin DIN quick connector, NEMA4 - IP65 Sealed, enambles full sensor functionality
T	7 - pin Terminal Connector, allows 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 350°C (50 to 662°F) / 7.9 microns, SF Optics ONLY
Code C	**Focus**
SF	Standard Focus, (Focused @ 1524mm)
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 (Includes laser sighting - LT model only)
HCF	High Resolution Close Focus, 4.4mm spot @ 200mm (Includes laser sighting - 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 Thermojacket Accessory.
Typical Model Number	**RAYXRCMTSFS**

The Worldwide Leader in Noncontact Temperature Measurement

Raytek Corporation
Worldwide Headquarters
Santa Cruz, CA USA
Tel: 1 800 227 8074 (USA and Canada, only)
1 831 458 3900
solutions@raytek.com

www.raytek.com

European Headquarters

Berlin, Germany	France	United Kingdom
Tel: 49 30 4 78 00 80	Tel: 0800 888 244	Tel: +44 1908 630 800
raytek@raytek.de	*info@raytek.fr*	*ukinfo@raytek.com*

China Headquarters
Beijing, China
Tel: 8610 6438 4691
info@raytek.com.cn

To find a Raytek office near you, please visit www.raytek.com

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For more information, contact your local office or e-mail support@raytek.com

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