

Highlights

- Simple, two-wire installation
- Simultaneous 4-20 mA and digital output for smart TX sensors
- Compact, rugged sensor with IP 65 rating
- Wide temperature range from -18 to 2000°C
- Advanced signal processing
- Point-to-point or multidrop installation
- Install up to 15 sensors on a single multidrop network
- Windows software for remote configuration and monitoring
- Wide choice of focus distances
- Special models for glass and plastics applications

TX

Datasheet



Electrical Specifications

Outputs

Analog	4-20 mA, max. loop resistance 700 Ω
Digital (Smart models)	HART® to RS-232 (with optional adapter)
Alarm (Smart models)	24 V / 150 mA; adjustable setpoints, deadband, normally open/closed settings

Power Supply

12 - 24 VDC ±20% (Standard models)
24 VDC ±10% (Smart models)

General Specifications

Environmental Rating	IP65 (IEC529)
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Ambient Temperature

without cooling	0 to 70°C
with air cooling	up to 120°C
with water cooling	up to 175°C
with ThermoJacket™	up to 315°C

Storage Temperature	-18 to 85°C
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Relative Humidity	10 to 95%, non-condensing
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Shock	IEC 68-2-27, 50 G, 11 ms, any axis
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Vibration	IEC 68-2-27, 3 G, any axis, 11 – 200 Hz
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Dimension	187 mm L x 42 mm diameter
with cooling jacket	187 mm L x 60 mm diameter

Weight	330 g
with cooling jacket	595 g

Measurement Specifications

Temperature/Spectral Ranges

LT/LTP (Low Temp.)	-18 to 500°C	8 to 14 μm
MT (Medium Temp.)	200 to 1000°C	3,9 μm
HT (High Temp.)	500 to 2000°C	2,2 μm
G5 (Glass)	250 to 1650°C	5,0 μm
P7 (Plastic)	10 to 360°C	7,9 μm

Optical Resolution¹

LT, MT, G5, P7	33 : 1
LTP	15 : 1 (Fresnel optics)
HT	60 : 1

System Accuracy

±1% or ±1,4°C ^{2,3}

Repeatability

±0,5% or ±0,7°C ³

Temperature Resolution

LT	0,1°C
all other models	1°C

System Response Time⁴

HT	100 ms
all other models	165 ms

Emissivity

adjustable: 0,10 to 1,00

Signal Processing

Standard model	emissivity, °C/°F, advanced peak / valley hold, averaging, background radiation compensation
Smart model	emissivity, °C/°F, advanced peak / valley hold, averaging, background radiation compensation

¹ 90% energy, standard focus optics

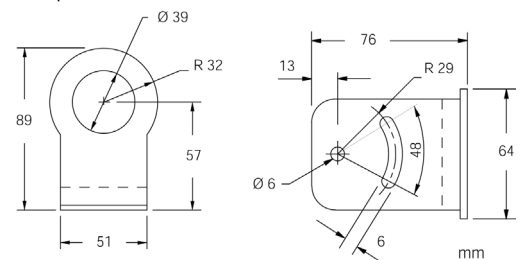
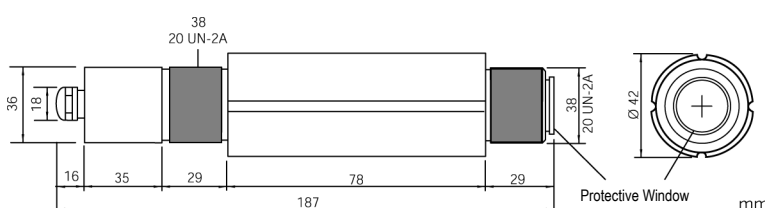
² at ambient temperature 23°C ± 5°C

³ whichever is greater

⁴ 95% value

Sensor and Fixed Bracket

Each sensor comes with a fixed bracket, a mounting nut, and an operator's manual. All models have 4 to 20 mA output.

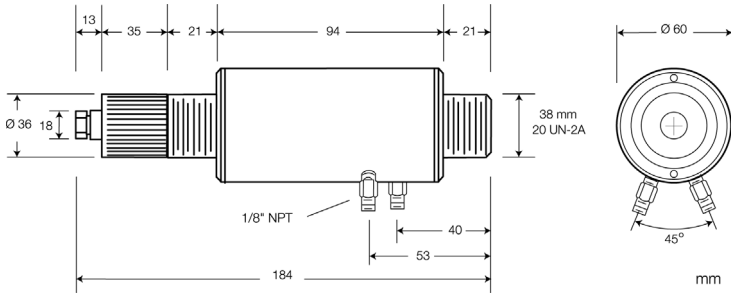


Fixed Bracket (XXTXXACFB)

Options

Options must be specified at time of order.

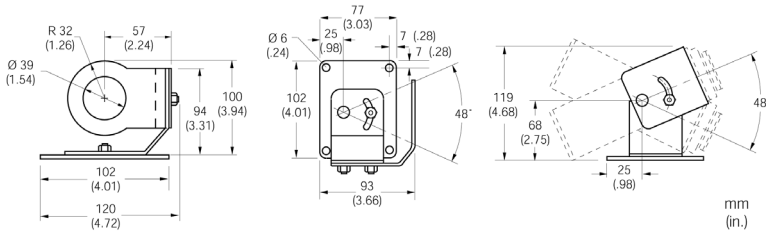
- ISO Calibration Certificate, based on NIST/DKD certified probes (XXXDKDCERT)
- Intrinsically-Safe Rating, PTB-approval (...IS1)
- Water/Air Cooled Housing incl. Air Purge Collar (...W)



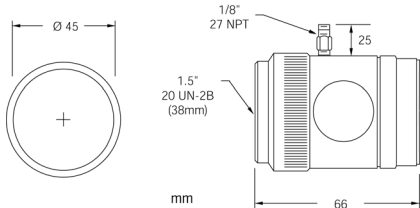
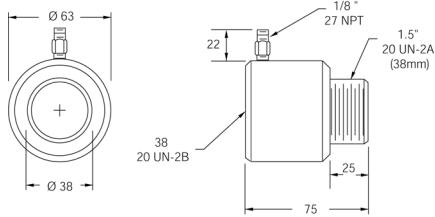
Accessories

- Sighting Viewer Tool (XXXTXXACSV)
- Protective Window according to spectral range (XXXTXACTW...)
- ThermoJacket: extra rugged cast metal housing for thermal/mechanical environmental protection (RAYTXXTJ3M), see also ThermoJacket datasheet

Adjustable Bracket (XXXTXXACAB)



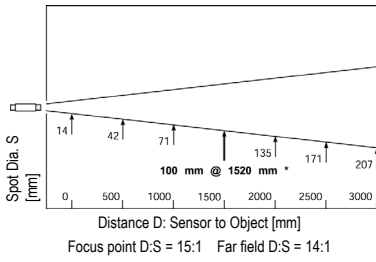
Air Purge Collar (XXXTXXACAP)



Right Angle Mirror for measuring targets at right angles to sensor axis (XXXTXXACRA)

Optical Specifications

Standard Focus: LTP models

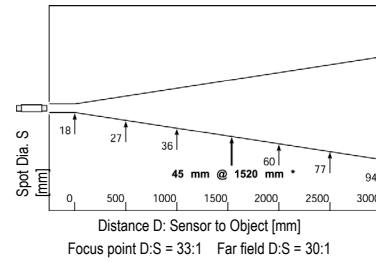


Close Focus Option	
D (mm)	S (mm)
0	10
50	7,5*
150	115

D:S = 7:1, Far Field = 4:1

*focus point

Standard Focus: LT, MT, G5, P7 models



Close Focus Option 1	
D (mm)	S (mm)
0	16
76	2,5*
500	92

D:S = 30:1, Far Field = 5:1

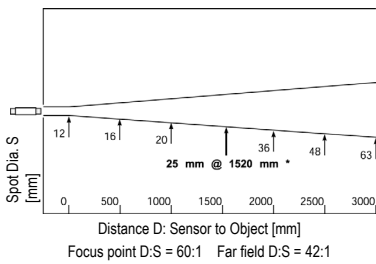
Close Focus Option 2	
D (mm)	S (mm)
0	17
200	6,4*
450	32

D:S = 32:1, Far Field = 10:1

*focus point

Close Focus not available for G5 and P7

Standard Focus: HT models



Close Focus Option 1	
D (mm)	S (mm)
0	11
76	1,3*
500	66

D:S = 60:1, Far Field = 7:1

Close Focus Option 2	
D (mm)	S (mm)
0	11
200	3,4*
450	22

D:S = 60:1, Far Field = 14:1

*focus point

Remote Communication Kit

Required for smart models, the kit (RAYTXSCAL) includes the HART/RS-232 adapter and the Windows DataTemp Multidrop software package. One kit serves multiple sensors. Requires RS-232 serial port voltage and Windows 95/98, or Windows NT/2000.

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for up-to-the-minute features

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