

TECHNICAL DATA

Thermalert® 4.0

Highlights

- Wide temperature range from -40 to 2300 °C (-40 to 4172 °F)
- Multiple spectral models for applications such as metals, glass and plastics
- Best in class ambient temperature up to 85 °C (185 °F)
- Wide choice of optics
- Fast response time down to 10 ms
- Laser sighting
- Compact, rugged design in stainless steel
- Galvanic isolated outputs
- Real time background temperature compensation
- Simple, two-wire installation or RS485 communication
- Software for remote configuration, monitoring and field calibration
- Multiple analog and digital interfaces
- Power over Ethernet (PoE)
- PROFINET IO and EtherNet/IP fieldbus communication, HART Protocol optional
- LTD model for extreme dusty environments
- Intrinsically-safe models for use in potentially explosive atmospheres (dust, gas)

Back Panels



Thermalert 4.0 supports 2-wire loop



Thermalert 4.0 with 4-pin connector



Thermalert 4.0 with 6-pin connector



Thermalert 4.0 with 12-pin connector



General Specifications

Environmental Rating IP65 / NEMA-4

Operating Ambient Temperature

without cooling	-20 to 85 °C (-4 to 185 °F)
with air cooling	120 °C (248 °F)
with water cooling	175 °C (347 °F)
with ThermoJacket	315 °C (599 °F)

Storage Temperature -20 to 85 °C (-4 to 185 °F)

Relative Humidity 10 to 95%, non-condensing

Weight 500 g (17.6 oz)

Electrical Specifications

Power Supply

2-Wire	12 to 28.8 VDC
4-Wire	Power over Ethernet
6/12-Wire	24 VDC nominal (20 to 48 VDC), 100 mA @ 24 V

2-Wire

Analog	4 to 20 mA
Digital	USB (for setup only)

4-Wire (M12)

Digital network communication interface
Ethernet, EtherNet/IP, PROFINET IO, Full duplex, 100 Mbit/s

6-Wire

Analog	0/4 to 20 mA, 0 to 10 V, J/K thermocouple
Digital	RS485, USB (for setup only)

12-Wire (M16)

Analog	output 0/4 to 20 mA, 0 to 10 V, input 0 to 10 V for emissivity setting, and background temperature compensation
Digital	RS485, USB (for setup only) alarm output, trigger input

Measurement Specifications

	LT	G5	G7	P7	P3
Temperature Range	LTD-04 -20 to 500 °C (-4 to 932 °F) LT-07, LT-15, LT-30, LTB-30 -20 to 600 °C (-4 to 1112 °F) LT-50, LT-70 -40 to 1000 °C (-40 to 1832 °F)	G5-30 250 to 1650 °C (482 to 3002 °F) G5-70 450 to 2250 °C (842 to 4082 °F)	G7-70 300 to 900 °C (572 to 1652 °F)	P7-30 10 to 360 °C (50 to 680 °F)	P3-20 25 to 450 °C (77 to 842 °F)
Spectral Response	8 to 14 µm	5 µm	7.9 µm	7.9 µm	3.43 µm
System Accuracy¹	±1% of reading or ±1.0 °C (2.0 °F) for T _{meas} > 0 °C (32 °F) for T _{meas} ≤ 0 °C (32 °F): ±[1.0 °C + 0.1* (0 °C – T _{meas})] with T _{meas} in °C ±[2.0 °F + 0.1* (32 °F – T _{meas})] with T _{meas} in °F				±[3 °C + 1% of reading] for T _{meas} > 75 °C (167 °F)
Repeatability²	±0.3 °C (0.6 °F) or 0.3% of reading ³				±1 °C (2 °F) or 0.5% of reading ³
Response Time⁴	LT-07, LT-15, LTD-04: 150 ms LT-30, LTB-30: 30 ms LT-50, LT-70: 130 ms	G5-30, G5-70 60 ms	G7-70 130 ms	P7-30 130 ms	P3-20 130 ms ⁶
Optical Resolution (D:S)	LTD-04: 4:1 LT-07: 7:1 LT-15: 15:1 LT-30, LTB-30: 33:1 LT-50: 50:1 LT-70: 70:1	G5-30 33:1 G5-70 70:1	G7-70 70:1	P7-30 33:1	P3-20 20:1
Focus Distance	LT-07⁵ CFO 50 mm (2 in) LT-15⁵, LTD-04 SFO 1520 mm (60 in) LT-30, LTB-30 SFO 1520 mm (60 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in) LT-50 SFO 1520 mm (60 in) CF2 200 mm (7.9 in) LT-70 SF2 1250 mm (49 in) CF2 200 mm (7.9 in)	G5-30 SFO 1520 mm (60 in) G5-70 SF2 1250 mm (49 in)	G7-70 SF2 1250 mm (49 in)	P7-30 SFO 1520 mm (60 in)	P3-20 SF4 500 mm (20 in)
Smallest Measurement Spot	LT-07 CF 7.1 mm (0.28 in) LT-30, LTB-30 CF1 2.3 mm (0.09 in) CF2 6.1 mm (0.24 in) LT-50 CF2 4 mm (0.16 in) LT-70 SF2 17.9 mm (0.7 in) CF2 2.9 mm (0.11 in)	G5-70 SF2 17.9 mm (0.7 in)	G7-70 SF2 17.9 mm (0.7 in)		

¹ at ambient temperature 23 °C ± 5 °C (73 °F ± 9 °F), ε = 1.0, and calibration geometry

² at ambient temperature 23 °C ± 5 °C (73 °F ± 9 °F)

³ whichever is greater

⁴ 90% value

⁵ Plastic lens only, no ATEX/IECEX/CCC-IS option

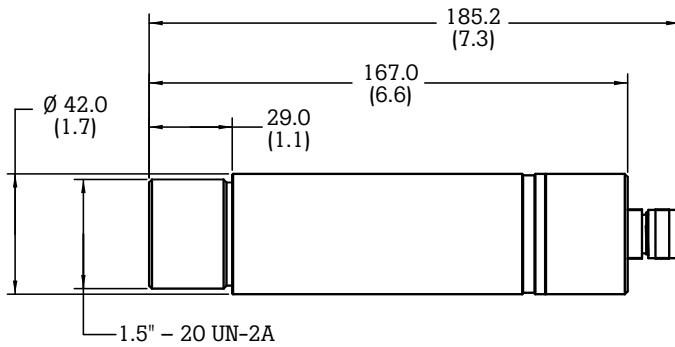
⁶ 10 s for T target < 150 °C (302 °F)

MT	HT	3M	2M	1M	
MT-30 200 to 1000°C (392 to 1832°F) MT-70 450 to 2250°C (842 to 4082°F)	HT-60 500 to 2000°C (932 to 3632°F)	3M-70 100 to 600°C (212 to 1112°F)	2M-150 250 to 1400°C (482 to 2552°F)	1ML-150 500 to 1650°C (932 to 3002°F) 1MH-150 650 to 2300°C (1202 to 4172°F)	Temperature Range
3.9 μm	2.2 μm	2.3 μm	1.6 μm	1 μm	Spectral Response
±1% of reading or ±1.0°C (2.0°F) for Tmeas > 0°C (32°F) for Tmeas ≤ 0°C (32°F): ±[1.0°C + 0.1* (0°C – Tmeas)] with Tmeas in °C ±[2.0°F + 0.1* (32°F – Tmeas)] with Tmeas in °F		± (2°C + 0.5% of reading)			System Accuracy¹
±0.3°C (0.6°F) or 0.3% of reading ³		± (1°C + 0.25% of reading)			Repeatability²
MT-30, MT-70 130 ms	HT-60 130 ms	3M-70 20 ms	2M-150, 1ML-150, 1MH-150 10 ms		Response Time⁴
MT-30 33:1 MT-70 70:1	HT-60 60:1	3M-70 70:1	2M-150, 1ML-150, 1MH-150 150:1		Optical Resolution (D:S)
MT-30 SF0 1520 mm (60 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in) MT-70 SF2 1250 mm (49 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in)	HT-60 SF0 1520 mm (60 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in)	3M-70 SF0 1520 mm (60 in) CF2 200 mm (7.9 in)	2M-150, 1ML-150, 1MH-150 SF0 1520 mm (60 in) CF2 200 mm (7.9 in)		Focus Distance
MT-30 CF1 2.3 mm (0.09 in) CF2 6.1 mm (0.24 in) MT-70 SF2 17.9 mm (0.7 in) CF1 1.1 mm (0.04 in) CF2 2.9 mm (0.11 in)	HT-60 CF1 1.3 mm (0.05 in) CF2 3.3 mm (0.13 in)	3M-70 CF2 2.9 mm (0.11 in)	2M-150, 1ML-150, 1MH-150 SF0 10.1 mm (0.4 in) CF2 1.3 mm (0.05 in)		Smallest Measurement Spot

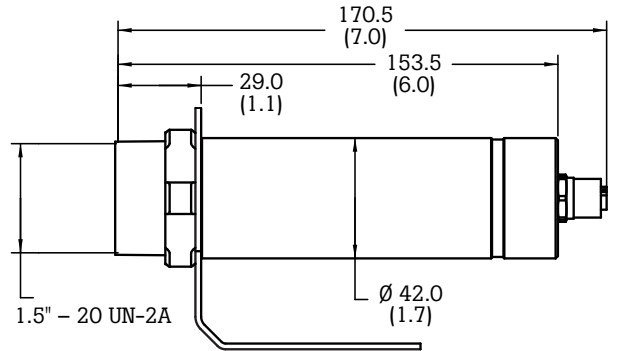
Laser: laser available per standard (except LT-07, LT-15, LTB-30, LTD-04, and P3 models).
2-wire devices require an additional power supply via USB.

Dimensions

2-Wire and 6-Wire model

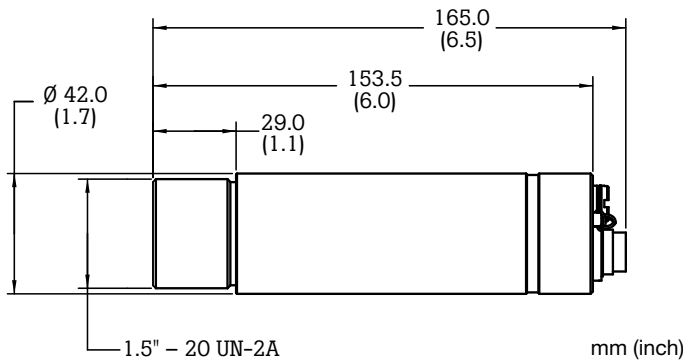


4-Wire model



mm (inch)

12-Wire model



mm (inch)

Intrinsic Safety Option

Intrinsically safe sensing models (T40- ... -IS)

ATEX/IECEX/CCC-IS certification*

ATEX	II 2G Ex ib IIC T4 Gb (Gas); II 2D Ex ib IIIC T135°C Db -20°C ≤ Ta ≤ +80°C (Dust)
IECEX	Ex ib IIC T4 Gb (Gas); Ex ib IIIC T135°C Db -20°C ≤ Ta ≤ +80°C (Dust)

* Not available for sensors with plastic lens

The Fluke Process Instruments Guarantee

The Thermalert 4.0 Series is supported by a 2 year warranty. With a network of trained representatives and agents in over one hundred countries and offices located in the U.S., Germany and China, we provide local service and support.

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