

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
- Flame models
- 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	$\pm 1\%$ of reading or $\pm 1.0\text{ }^\circ\text{C}$ ($2.0\text{ }^\circ\text{F}$) for $T_{\text{meas}} > 0\text{ }^\circ\text{C}$ ($32\text{ }^\circ\text{F}$) for $T_{\text{meas}} \leq 0\text{ }^\circ\text{C}$ ($32\text{ }^\circ\text{F}$): $\pm [1.0\text{ }^\circ\text{C} + 0.1 * (0\text{ }^\circ\text{C} - T_{\text{meas}})]$ with T_{meas} in $^\circ\text{C}$ $\pm [2.0\text{ }^\circ\text{F} + 0.1 * (32\text{ }^\circ\text{F} - T_{\text{meas}})]$ with T_{meas} in $^\circ\text{F}$				$\pm (3\text{ }^\circ\text{C} + 1\%$ of reading) for $T_{\text{meas}} > 75\text{ }^\circ\text{C}$ ($167\text{ }^\circ\text{F}$)
Repeatability²	$\pm 0.3\text{ }^\circ\text{C}$ ($0.6\text{ }^\circ\text{F}$) or 0.3% of reading ³				$\pm 1\text{ }^\circ\text{C}$ ($2\text{ }^\circ\text{F}$) 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 $23\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$ ($73\text{ }^\circ\text{F} \pm 9\text{ }^\circ\text{F}$), $\epsilon = 1.0$, and calibration geometry

² at ambient temperature $23\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$ ($73\text{ }^\circ\text{F} \pm 9\text{ }^\circ\text{F}$)

³ whichever is greater

⁴ 90% value

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

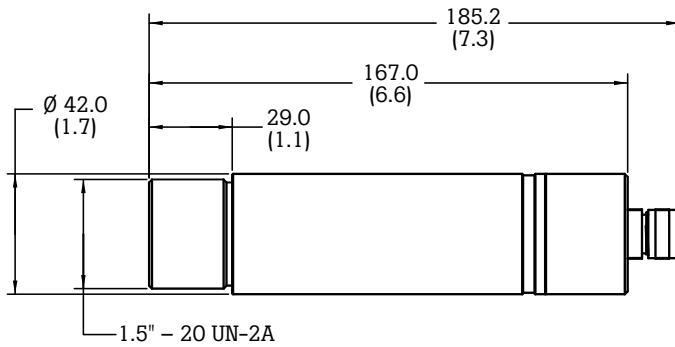
⁶ 10 s for T target $< 150\text{ }^\circ\text{C}$ ($302\text{ }^\circ\text{F}$)

MT	HT	3M	2M	1M	CO2	CO	NOX	
MT-30 200 to 1000 °C (392 to 1832 °F) MT-70 450 to 2250 °C (842 to 4082 °F)	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)	CO2-30 Flame Detection 120 to 1650 °C (250 to 3002 °F)	CO-30	NOX-30	
3.9 µm	2.2 µm	2.3 µm	1.6 µm	1 µm	4.24 µm	4.64 µm	4.47 µm	
±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)			± 1.0% of reading for temperature > 700 °C ± 2.0 % of reading or ± 6 K for Tmeas ≤ 700 °C		± 1.0% of reading or ± 5 K	± 1.0% of reading + 2 °C
±0.3 °C (0.6 °F) or 0.3% of reading ³		± (1 °C + 0.25% of reading)			± 0.5% of reading for Tmeas > 700 °C ± 1% of reading or ± 3 °C for Tmeas ≤ 700 °C		± 0.5% of reading or ± 2.5 °C	± 0.5% of reading
MT-30, MT-70 130 ms	HT-60 130 ms	3M-70 20 ms	2M-150, 1ML-150, 1MH-150 10 ms		CO2-30, CO-30, NOX-30 130 ms			
MT-30 33:1 MT-70 70:1	HT-60 60:1	3M-70 70:1	2M-150, 1ML-150, 1MH-150 150:1		CO2-30, CO-30, NOX-30 33:1			
MT-30 SFO 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 SFO 1520 mm (60 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in)	3M-70 SFO 1520 mm (60 in) CF2 200 mm (7.9 in)	2M-150, 1ML-150, 1MH-150 SFO 1520 mm (60 in) CF2 200 mm (7.9 in)		CO2-30, CO-30, NOX-30 SFO 1520 mm (60 in)			
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 SFO 10.1 mm (0.4 in) CF2 1.3 mm (0.05 in)					

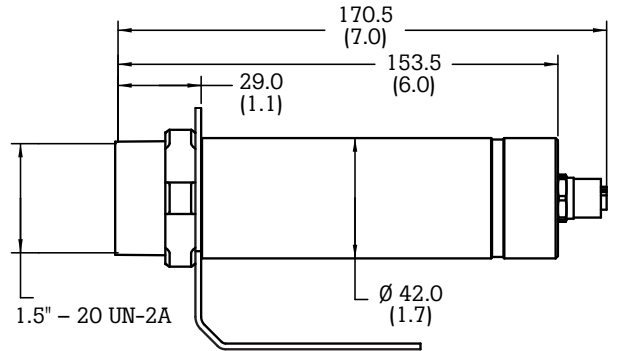
Laser: laser available per standard (except LT-07, LT-15, LTB-30, LTD-04, P3, CO2, CO and NOX models).
 2-wire devices require an additional power supply via USB.

Dimensions

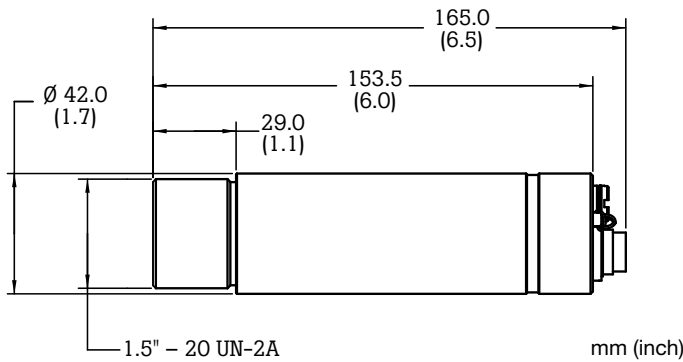
2-Wire and 6-Wire model



4-Wire model



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.

Fluke Process Instruments

Americas

Everett, WA USA
Tel: +1 800 227 8074 (USA and Canada, only)
+1 425 446 6300
solutions@flukeprocessinstruments.com

EMEA

Berlin, Germany
Tel: +49 30 4 78 00 80
info@flukeprocessinstruments.de

China

Beijing, China
Tel: +8610 6438 4691
info@flukeprocessinstruments.cn

Japan

Tokyo, Japan
Tel: +81 03 6714 3114
info@flukeprocessinstruments.jp

Asia East and South

India Tel: +91 22 6249 5028
Singapore Tel: +65 6799 5578
sales.asia@flukeprocessinstruments.com

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