FLUKE®

Process Instruments

Thermalert® 4.0

Datasheet

Highlights

- Wide temperature range from –40 to 2300 °C (–40 to 4172 °F)
- Multiple spectral models for any kind of application, 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

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 24 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 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	**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 Accuracy[1]	±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				±(3 °C + 1% of reading) for T_{meas} > 75 °C (167 °F)
Repeatability[2]	±0.3 °C (0.6 °F) or 0.3% of reading[3]				±1 °C (2 °F) or 0.5% of reading[3]
Response Time[4]	**LT-07, LT-15**[5]**:** 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)	**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-07** CF0 50 mm (2 in) **LT-15** SF0 1520 mm (60 in) **LT-30, LTB-30** SF0 1520 mm (60 in) CF1 76 mm (3 in) CF2 200 mm (7.9 in) **LT-50** SF0 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** SF0 1520 mm (60 in) **G5-70** SF2 1250 mm (49 in)	**G7-70** SF2 1250 mm (49 in)	**P7-30** SF0 1520 mm (60 in)	**P3-20** SF4 500 mm (20 in)
Smallest Measurement Spot	**LT-07** CF 7.1 mm (0.28 in) **LT-15** SF0 101.3 mm (3.99 in) **LT-30, LTB-30** SF0 46.1 mm (1.81 in) CF1 2.3 mm (0.09 in) CF2 6.1 mm (0.24 in) **LT-50** SF0 30.4 mm (1.2 in) CF2 4 mm (0.16 in) **LT-70** SF2 17.9 mm (0.7 in) CF2 2.9 mm (0.11 in)	**G5-30** SF0 46.1 mm (1.81 in) **G5-70** SF2 17.9 mm (0.7 in)	**G7-70** SF2 17.9 mm (0.7 in)	**P7-30** SF0 46.1 mm (1.81 in)	**P3-20** SF4 25 mm (0.98 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*
[6] *10 s for T target < 150 °C (302 °F)*

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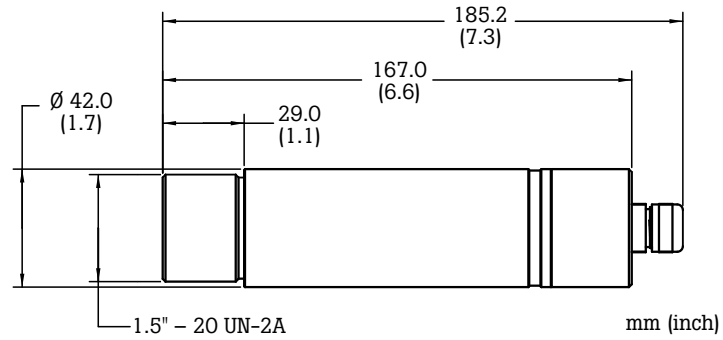
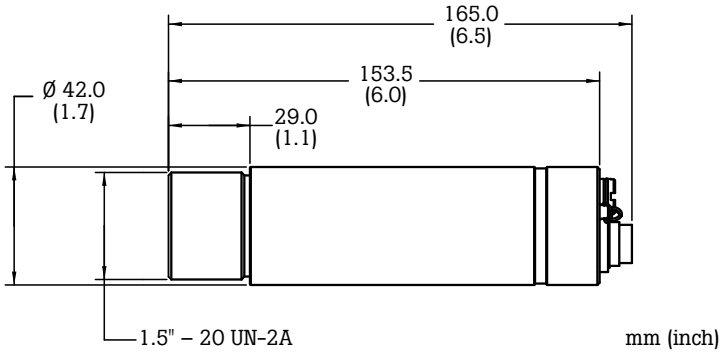
MT	HT	3M	2M	1M	
MT-30 200 to 1000 °C (392 to 1832 °F) **MT-70** 450 to 2250 °C (842 to 4082 °F)	**HT-60** 500 to 2000 °C (932 to 3632 °F)	**3M-70** 100 to 600 °C (212 to 1112 °F)	**2M-150** 250 to 1400 °C (482 to 2552 °F)	**1ML-150** 500 to 1650 °C (932 to 3002 °F) **1MH-150** 650 to 2300 °C (1202 to 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 Accuracy**[1]
±0.3 °C (0.6 °F) or 0.3% of reading[3]		± (1 °C + 0.25% of reading)			**Repeatability**[2]
MT-30, MT-70 130 ms	**HT-60** 130 ms	**3M-70** 20 ms	**2M-150, 1ML-150, 1MH-150** 10 ms		**Response Time**[4]
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 SF0 46.1 mm (1.81 in) 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** SF0 25.3 mm (1 in) CF1 1.3 mm (0.05 in) CF2 3.3 mm (0.13 in)	**3M-70** SF0 21.7 mm (0.85 in) 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, and P3 models).
2-wire devices require an additional power supply via USB.

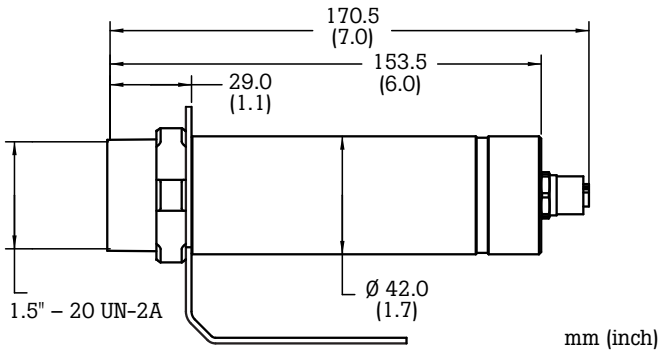
Dimensions



2-Wire and 6-Wire model



12-Wire model



4-Wire model