

# More Precision.



## optris® CT LT

Precise noncontact temperature measurement  
from -50 to 975°C



### FEATURES

- One of the smallest infrared sensors worldwide with 22:1 optical resolution
- Rugged and usable up to 180°C ambient temperature without cooling
- Separate electronics with easy accessible programming keys and LCD backlit display
- Selectable analog output: 0/4 - 20 mA, 0 - 5 V, 0 - 10 V, thermocouple type K or J
- Optional USB, RS485, RS232 interface, relay outputs (2x optically isolated), CAN-Bus, Profibus DP, Ethernet
- Installation of up to 32 sensing heads

#### General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	sensing head: -20 - 180°C (130°C at LT02) electronics: 0 - 85°C
Storage temperature	sensing head: -40 - 180°C (130°C at LT02) electronics: -40 - 85°C
Relative humidity	10 - 95%, non condensing
Vibration (sensor)	IEC 68-2-6: 3 G, 11 - 200 Hz, any axis
Shock (sensor)	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	sensing head 40 g electronics 420 g

#### Electrical specifications

Outputs/analog	channel 1: 0/4 - 20 mA, 0 - 5/10 V, thermocouple J, K channel 2: sensing head temperature (-20 - 180°C as 0 - 5 V or 0 - 10 V), alarm output
Alarm output	Open - collector (24 V / 50 mA)
Optional	relay: 2 x 60 V DC/42 V AC <sub>eff</sub> ; 0.4 A; optically isolated
Outputs/digital (optional)	USB, RS232, RS485 (optional), CAN-Bus, Profibus DP, Ethernet
Output impedances	mA max. 500 Ω (with 8 - 36 V DC) mV min. 100 kΩ load impedance thermocouple 20 Ω
Inputs	programmable functional inputs for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length	1 m (standard), 3 m, 8 m, 15 m
Current draw	max. 100 mA
Power supply	8 - 36 V DC

#### Measurement specifications

Temperature range (scalable via programming keys or software)	-50 - 975°C (LT22) -50 - 600°C (LT15) -50 - 600°C (LT02)
Spectral range	8 - 14 μm
Optical resolution (90% energy)	22:1 (precision glass optics) 15:1 (precision glass optics) 2:1 (with flat front window)
CF-lens (optional)	0.6 mm @ 10 mm (LT22) 0.8 mm @ 10 mm (LT15) 2.5 mm @ 23 mm (LT02)
System accuracy (at ambient temperature 23 ±5°C)	±1% or ±1°C <sup>1),2)</sup>
Repeatability (at ambient temperature 23 ±5°C)	±0.5% or ±0.5°C <sup>1),2)</sup>
Temperature resolution (display)	0.1°C
NETD <sup>2),3)</sup>	0.05 K (LT22 / LT15) 0.1 K (LT02)
Response time	150 ms (95%)
Emissivity/Gain (adjustable via programming keys or software)	0.100 - 1.100
Transmissivity/Gain (adjustable via programming keys or software) ε	0.100 - 1.100
Signal processing (parameter adjustable via programming keys or software, respectively)	peak hold, valley hold, average; extended hold function with threshold and hysteresis

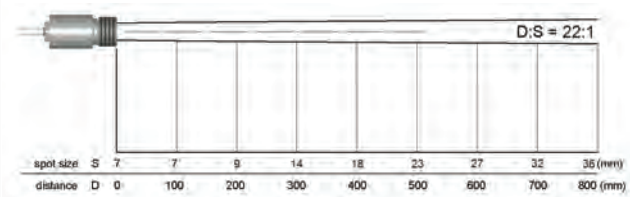
<sup>1)</sup> whichever is greater

<sup>2)</sup> at object temperatures > 0°C, ε = 1

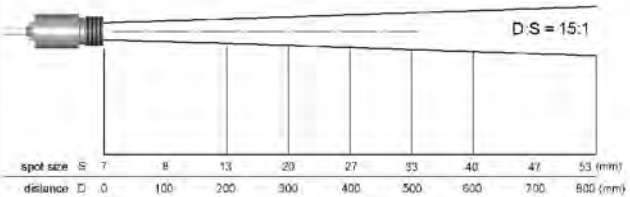
<sup>3)</sup> at time constant 200 ms and T<sub>obj</sub> 25°C

## Optical specifications

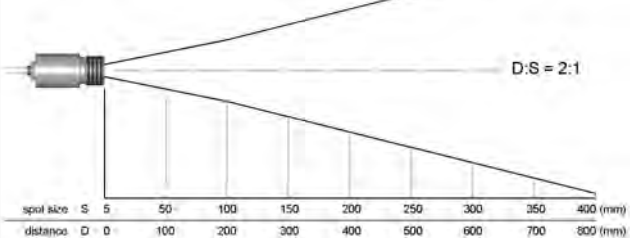
### 22:1 optics



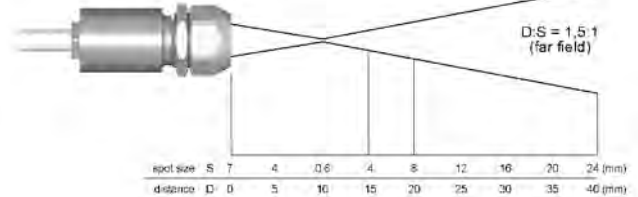
### 15:1 optics



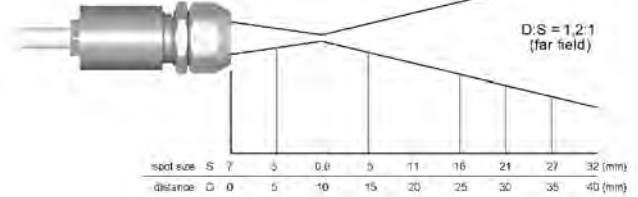
### 2:1 optics



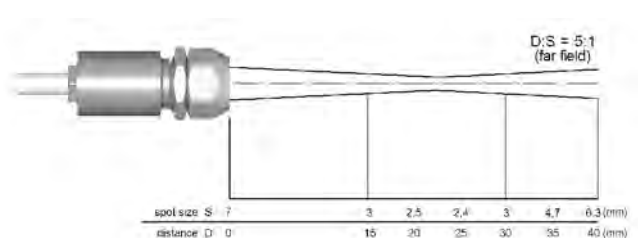
### 22:1 optics with CF-lens



### 15:1 optics with CF-lens

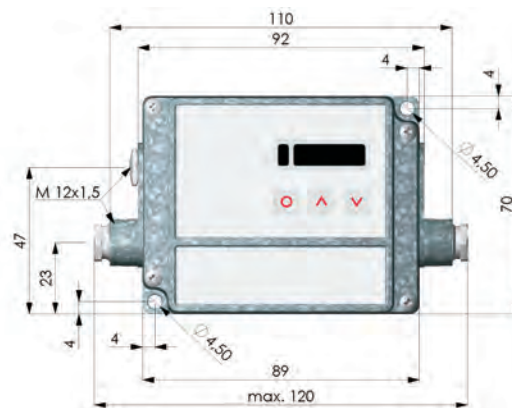
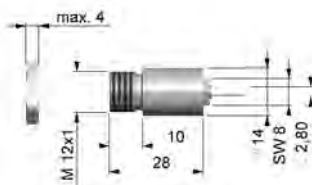


### 2:1 optics with CF-lens

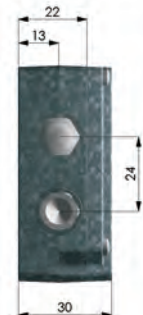


## Dimensions

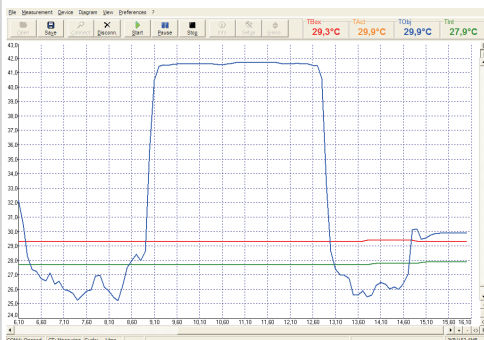
### Sensing head



### Electronics



## Compact Connect Software



- Software for easy sensor setup and remote controlling, supports multi tasking
- Graphic display for temperature trends and automatic data logging for analysis and documentation with 1 ms response time
- Adjustment of signal processing functions and programming of outputs and functional inputs of the sensor
- Automatic emissivity adjustment
- The software CompactConnect allows to customize the sensor to application needs of the user