

**Two-wire infrared thermometer for temperature measurement of metals from 250 °C to 1600 °C**

**Features:**

- Accurate temperature measurements of metals, secondary metal processing and ceramic materials
- Temperature ranges from 250 °C to 1600 °C, measuring spots up from 0.5 mm and response times up from 10 ms
- Standard two-wire interface for reliable data transfer and easy integration into a PLC
- Innovative double-laser sighting for exact marking of measurement targets
- Fast sensor parameterisation and real-time measurement via USB
- Dependable in ambient temperatures up to 85 °C without additional cooling



**General specification**

Environmental rating	IP 65 (NEMA-4) front mountable at vacuum processes (up to 10 <sup>-3</sup> mbar)
Ambient temperature	-20 °C ... 85 °C (50 °C with laser ON)
Storage temperature	-40 °C ... 85 °C
Relative humidity	10 – 95 %, non-condensing
Vibration	IEC 68-2-6: 3 G, 11 – 200 Hz, any axis
Shock	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	600 g

**Electrical specification**

Output / analog	4 – 20 mA
Loop resistance	Max. 1000 Ω <sup>1)</sup>
Output / alarm	0 – 30 V / 500 mA (open collector)
Output / digital	Uni-/ bidirectional, 9,6 kBaud, 0/3 V digital level, USB optional
Cable length (connector version only)	3 m / 8 m / 15 m
Current draw (laser)	45 mA at 5 V 20 mA at 12 V 12 mA at 24 V
Power supply	5 – 30 V DC

**Measurement specification**

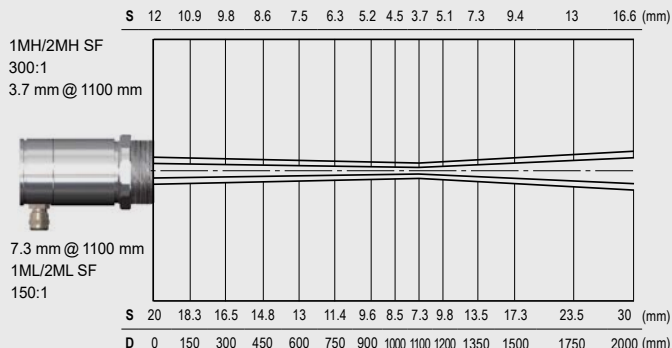
Temperature range (scalable via software)	250 °C ... 800 °C (2ML) 385 °C ... 1600 °C (2MH)
Spectral range	1.6 µm
Optical resolution (90 % energy)	150:1 (2ML) 300:1 (2MH)
System accuracy (at T <sub>amb</sub> = 23 ± 5 °C)	±(0.3 % of reading + 2 °C)
Repeatability (at T <sub>amb</sub> = 23 ± 5 °C)	±(0.1 % of reading + 1 °C)
Temperature resolution	0.1 K
Response time (90 % signal)	10 ms
Emissivity/ Gain (adjustable via sensor or software)	0.100 – 1.100
IR window correction (adjustable via software)	0.100 – 1.000
Signal processing (parameter adjustable via software)	Peak hold, valley hold, average; extended hold function with threshold and hysteresis
Software	optris® Compact Connect

<sup>1)</sup> In dependence on supply voltage

# optris® CSlaser 2M

## Optical parameter

### Chart of SF optics



### Further optics:

D:S = 300:1  
(2MH)

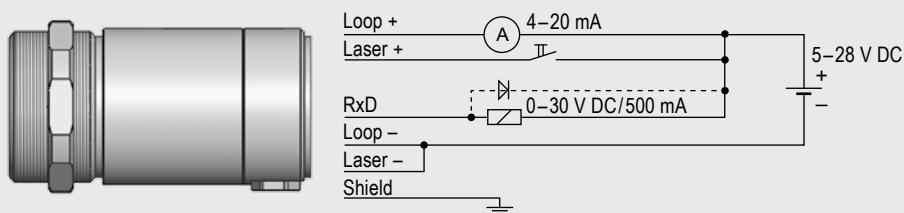
... CF2	0.5 mm @ 150 mm
... CF3	0.7 mm @ 200 mm
... CF4	1.5 mm @ 450 mm
... FF	12 mm @ 3600 mm

D:S = 150:1  
(2ML)

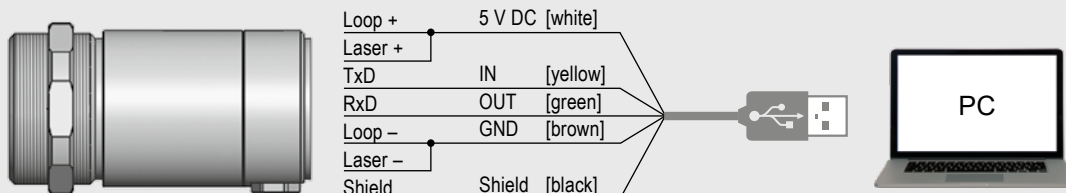
... CF2	1.0 mm @ 150 mm
... CF3	1.3 mm @ 200 mm
... CF4	3.0 mm @ 450 mm
... FF	24 mm @ 3600 mm

## Connections

### Analog mode of operation

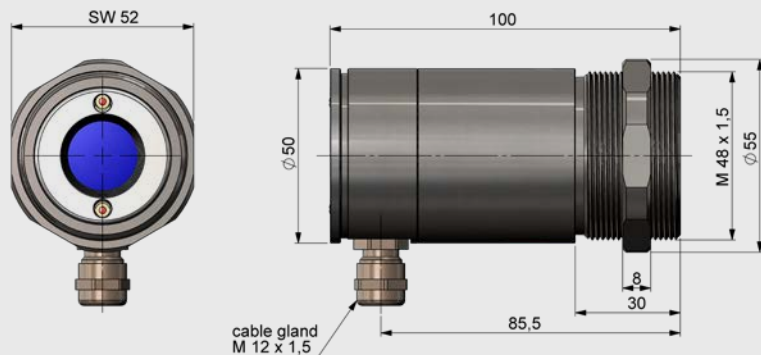


### Digital mode of operation



## Dimensions

### Dimensions CSlaser hs LT



### Electrical connections / emissivity adjustment (sensor back side)

