optris
infrared thermometers

optris® CSmicro 3M

Low cost micro size infrared thermometer for precise temperature measurement of metal from 50°C to 600°C

Features

- Size: M12x1, 28 mm long, stainless steel housing
- Miniaturized Infrared Thermometer with 2.3 µm spectral response for measurements of metals, of secondary metal processing, metal oxides and ceramic materials
- For measurements on metal surfaces with a very low start temperature of 50°C
- Green LED alarm indication, aiming support, self diagnostic or temperature code indication
- Scalable analog output: 0-10 V or 0-5 V and additional simultaneous alarm output
- Adjustable signal processing
- Optional USB programming interface and software
- Wide power range: 5-30 V DC

General Specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 85°C (sensing head) -20°C to 80°C (electronics)
Storage temperature	-40°C to 85°C (sensing head and electronics)
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	42 g

Electrical Specifications

Output/analog	0-5 V or 0-10 V 1/10/100 mV/°C
Output/alarm	24 V/50 mA (open collector)
Output/digital	uni-/bidirectional, 9.6 kBaud, 0/3V digital level, USB optional
Input (0-10 V)	Programmable functional input for external emissivity setting/ambient temperature adjustment, triggered signal output or peak-hold function
LED-functions	alarm indication, automatic aiming support, self diagnostic, temperature indication (via. temp.code)
Cable length head - electronics: after electronics:	 0.5 m (standard), 3 m 0.5 m (standard), 3 m
Power supply	5-30 V DC
Current draw	9 mA

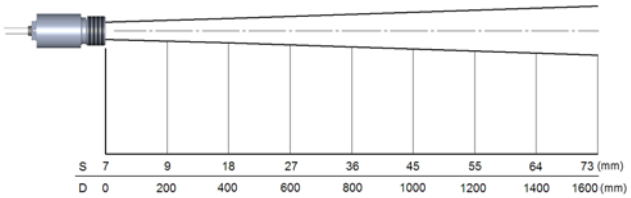
Measurement Specifications

Temperature range[1] (scalable via software)	50°C to 350°C (3ML) 100°C to 600°C (3MH)
Spectral range	2.3 µm
Optical resolution (90 % energy)	22:1 (3ML) 33:1 (3MH)
Optics	SF, CF, CF1
System accuracy[2] (at ambient temp. 23 ±5°C)	± (0.3% of reading + 2°C)
Repeatability (at ambient temp. 23 ±5°C)	± (0.1% of reading + 1°C)
Temperature resolution	0.1 K
Response time[3] (90%)	25 ms - 999 s (adjustable)
Emissivity/Gain (adjustable via 0-5 V DC input or software)	0.100 - 1.100
Transmissivity (adjustable via software)	0.100 - 1.100
Signal processing (parameter adjustable via software)	peak hold, valley hold, average; extended hold function with threshold and hysteresis
Dimensions of electronics	length: 35 mm diameter: 12 mm
Software	optris CompactConnect

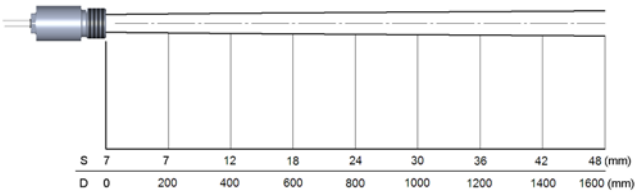
[1] $T_{object} > T_{sensing\ head} + 25°C$
[2] $\varepsilon = 1$, *Response time 1 s*
[3] *with dynamic adaptation at low signal levels*

Optical Specifications

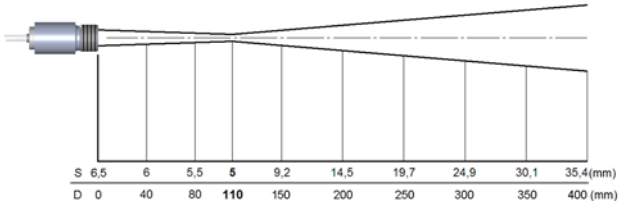
Optics CSmicro 3ML SF, D:S = 22:1



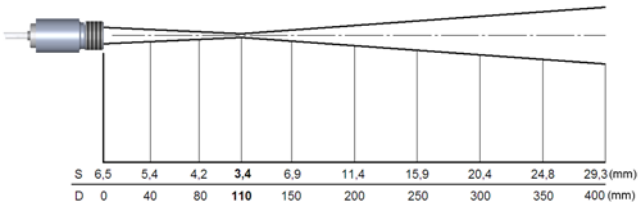
Optics CSmicro 3MH SF, D:S = 33:1



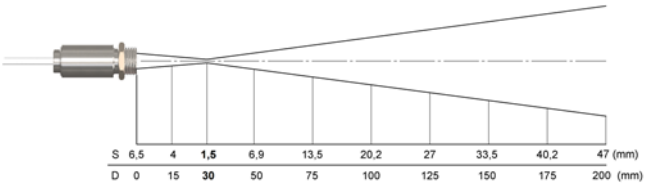
Optics CSmicro 3ML CF, D:S = 22:1 (far field 9:1)



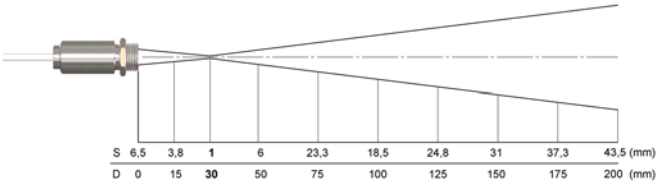
Optics CSmicro 3MH CF, D:S = 33:1 (far field 11:1)



Optics CSmicro 3ML CF1, D:S = 22:1 (far field 3.5:1)

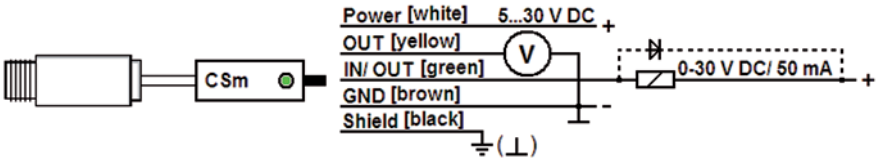


Optics CSmicro 3MH CF1, D:S = 33:1 (far field 4:1)

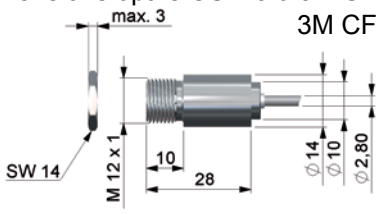


Interfaces/Dimensions

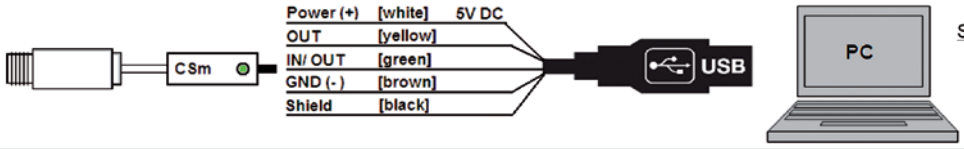
Analog connection with open collector alarm output



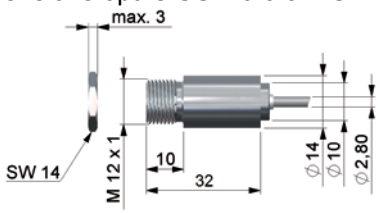
Dimensions optris CSmicro 3M SF
3M CF



Digital connection with USB adapter cable



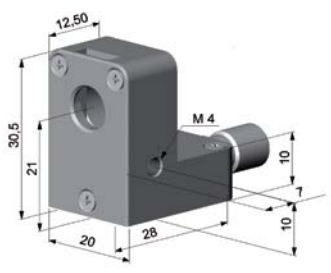
Dimensions optris CSmicro 3M CF1



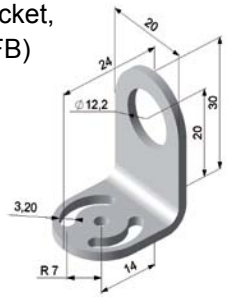
Accessories (examples)

Mounting bolt

Air purge collar



Mounting bracket, fixed (ACCTFB)



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Optris GmbH • Ferdinand-Buisson-Str. 14 • 13127 Berlin • Germany
Tel.: +49 30 500 197-0 • Fax: +49 30 500 197-10
Email: sales@optris.com • Internet: www.optris.com

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