

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

Features:

- Miniaturized infrared thermometer for temperature measurements of metal, metal oxide and ceramic material
- Special spectral range of 2.3 μm with very low starting temperature of 50 °C
- Green LED alarm indication, aiming support, self diagnostic or temperature code indication
- Scalable analog output: 0 – 5/10 V or 4 – 20 mA (two-wire); additional simultaneous alarm output
- Easy programming via smartphone app (IR mobile) or Windows software (Compact Connect)
- Stainless steel housing with compact dimensions



General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20 ... 85 °C (sensing head) -20 ... 80 °C (electronics) -20 ... 75 °C (electronics / mA version) ¹⁾
Storage temperature	-40 ... 85 °C (sensing head and electronics)
Relative humidity	10–95 %, non condensing
Vibration	IEC 60068-2-6 / -64
Shock	IEC 60068-2-27 (25 G and 50 G)
Weight	42 g

Electrical specifications

Output / analog	0 – 5 or 10 V or 4 – 20 mA
Output / alarm	0 – 30 V / 50 mA (open collector) (mA version: 500 mA)
Output / digital	Uni-/ bidirectional, 9.6 kBaud, 0/3 V digital level, USB optional
LED functions	Alarm indication, automatic aiming support, self diagnostic, temperature indication (via. temp.code)
Input (0–10 V)	Programmable functional input for external emissivity setting ²⁾ / ambient temperature adjustment ²⁾ , triggered signal output or peak-hold function
Cable length head – electronics: after electronics:	0.5 m (standard), 3 m 0.5 m (standard), 3 m, 6 m
Power supply	5–30 V DC
Current draw	9 mA (mV version)

Measurement specifications

Temperature range ³⁾ (scalable via software)	50 ... 350 °C (3ML) 100 ... 600 °C (3MH)
Spectral range	2.3 μm
Optical resolution (90 % energy)	22:1 (3ML) 33:1 (3MH)
Optics	SF, CF, CF1
System accuracy ⁴⁾ (at ambient temp. 23 ±5 °C)	±(0.3 % of reading + 1 °C)
Repeatability (at ambient temp. 23 ±5 °C)	±(0.1 % of reading + 1 °C)
NETD ⁵⁾	30 mK (3ML) 50 mK (3MH)
Response time ⁶⁾ (90 %)	8 ms (mA version: 20 ms)
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® Compact Connect (Windows) IR mobile (Android)

¹⁾ mA version: For Vcc (supply voltage) 5 – 12 V DC/ the electronic's max. ambient temperature is 65 °C at Vcc >12 V DC

²⁾ mV version only

³⁾ T_{Object} > T_{Sensing head} + 25 °C

⁴⁾ ε = 1, response time 1 s

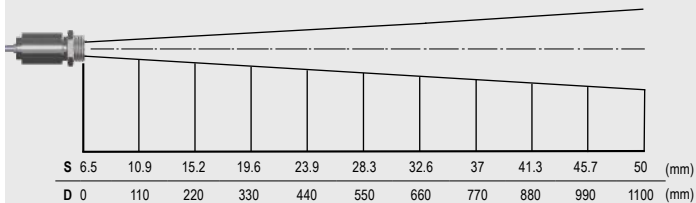
⁵⁾ At time constant of 200 ms and T_{Obj} 150 °C (3ML) / 300 °C (3MH)

⁶⁾ With dynamic adaption at low signals

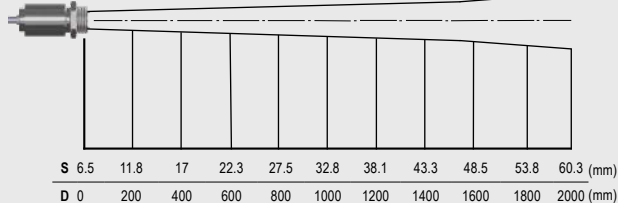
optris® CSmicro 3M

Optical parameters

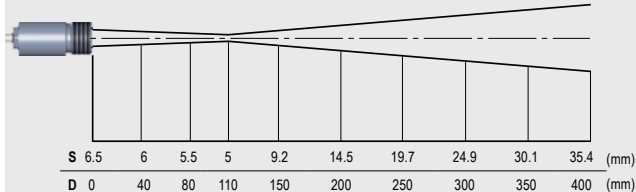
CSmicro 3ML SF optics, D:S = 22:1



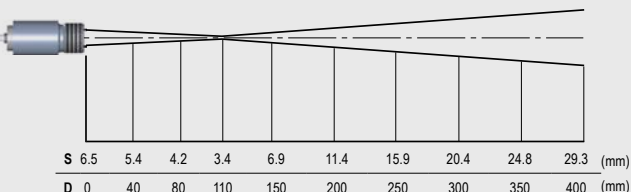
CSmicro 3MH SF optics, D:S = 33:1



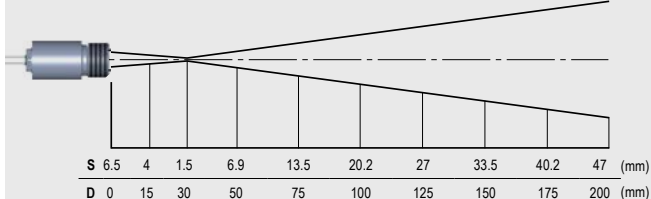
CSmicro 3ML CF optics, D:S = 22:1 (far field 9:1)



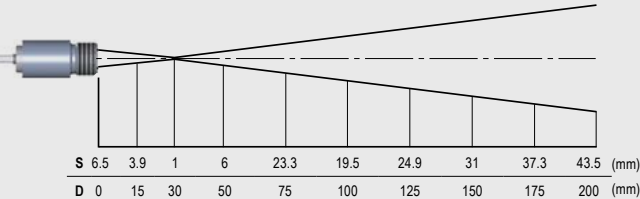
CSmicro 3MH CF optics, D:S = 33:1 (far field 11:1)



CSmicro 3ML CF1 optics, D:S = 22:1 (far field 3,5:1)

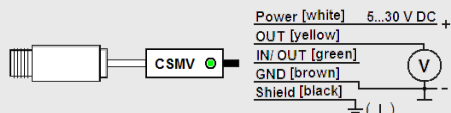


CSmicro 3MH CF1 optics, D:S = 33:1 (far field 4:1)

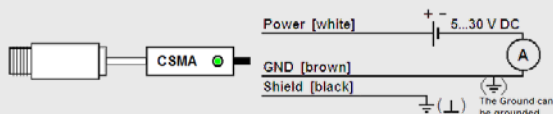


Connections

Connection mV version



Connection mA version

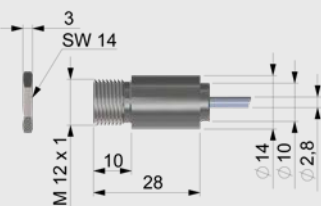


The CSmicro can be connected to a smartphone via the IR app connector

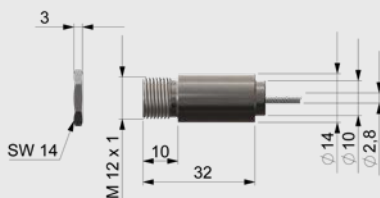


Dimensions

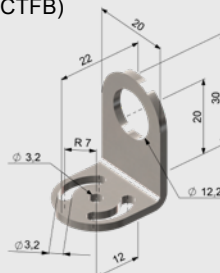
Dimensions optris® CSmicro 3M SF/3M CF



Dimensions optris® CSmicro 3M CF1



Mounting bracket, fixed (ACCTFB)



Air purge with integrated CF optics (ACCTAPLCF)

