

# Temperaturmanagement



## Temperaturfühler / Temperature sensor UETF-IR-CHT3M

Precise non-contact temperature measurement of metal from 50°C to 2500°C



### Features

- Miniaturized infrared thermometer with 2.3  $\mu\text{m}$  wave length range for measurements of metals, of secondary metal processing, metal oxides and ceramic materials
- Very small sensing head of 14mm diameter and 28mm length fits everywhere and is usable up to 85°C ambient temperature without cooling
- For measurements on metal surfaces with a very low start temperature of 50°C
- Short wave length range of 2.3  $\mu\text{m}$  to reduce error of reading with measurements on materials with unknown emissivity

### General Specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	-20°C to 85°C (sensing head) 0°C to 85°C (electronics)
Storage temperature	-40°C to 125°C (sensing head) -40°C to 85°C (electronics)
Relative humidity	10 – 95%, non condensing
Vibration	IEC 68-2-6: 3G, 11-200 Hz, any axis
Shock	IEC 68-2-27: 50G, 11 ms, any axis
Weight	40 g (sensing head) 420 g (electronics)

### Electrical Specification

Output / analog	0/4 – 20 mA, 0-5/10V, thermocouple J, K, alarm
Output / alarm	24V/50 mA (open collector)
Optinal	Relay: 2x60V DC / 42V AC <sub>eff</sub> ; 0.4A; optically isolated
Output / digital (optional)	USB, RS232; RS485; CAN, Profibus DP, Ethernet
Output impedances	mA max. 500 $\Omega$ (with 8-36V DC) mV min. 100k $\Omega$ load impedance thermocouple 20 $\Omega$
Input	Programmable functional input for external emissivity adjustment, ambient temperature compensation, trigger (reset of hold functions)
Cable length	3m
Power supply	8-36 V DC
Current draw	Max. 100 mA

### Measurements Specifications

Temperature range (scalable vis programming keys or software)	50°C – 400°C (3ML) 100°C – 600°C (3MH) 150°C – 1000°C (3MH1) <sup>2)</sup> 200°C – 1500°C (3MH2) <sup>2)</sup> 250°C – 1800°C (3MH3) <sup>2)</sup> 350°C – 2500°C (3MH4) <sup>2)</sup>
Spectral range	2.3 $\mu\text{m}$
Optical resolution (90% energie)	22:1 (3ML) 33:1 (3MH) 75:1 (3MH1 – 3MH4)
System accuracy <sup>3)</sup> (at ambient temperature 23 $\pm$ 5°C)	$\pm$ 0,3% of reading + 2°C
Repeatability (at ambient temperature 23 $\pm$ 5°C)	$\pm$ 0,1% of reading + 1°C
Temperature resolution	0,1 K
Exposure time <sup>4)</sup> (90% signal)	1 ms
Emissivity / Gain (adjustable via programming keys or software)	0,100 – 1,100
Transmissivity (adjustable via programming keys or software)	0,100 – 1,100
Signal processing (parameter adjustable via programming keys or software, respectively)	Peak hold, valley hold, average; extended hold function with theshold and hysteresis
Software	CS-Serie + USB

<sup>1)</sup>  $T_{\text{object}} > T_{\text{sensing head}} + 25^\circ\text{C}$

<sup>2)</sup> Specification valid at  $T_{\text{object}} \geq \text{start of measurement range} + 50^\circ\text{C}$

<sup>3)</sup>  $\epsilon = 1$ , Response time 1 s

<sup>4)</sup> with dynamic adaptation at low signal levels

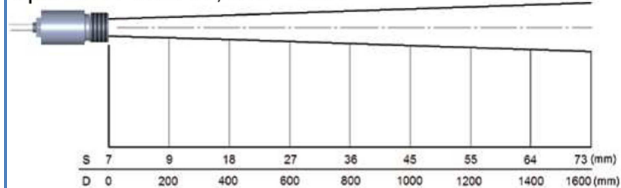
Änderungen und Irrtümer vorbehalten/ Specifications subject to change without notice.

# Temperaturmanagement

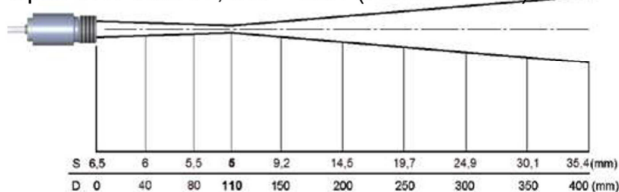


## Optical Parameter

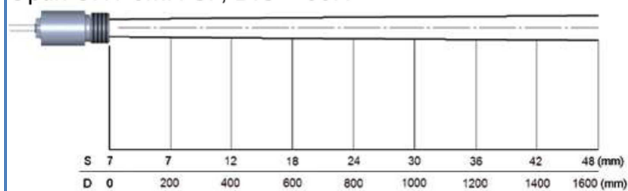
Optik CHT 3ML SF, D:S = 22:1



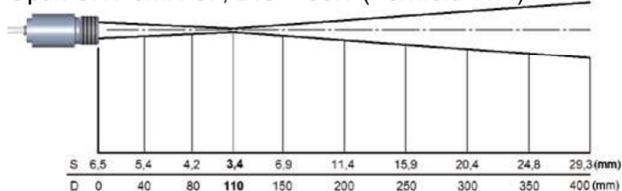
Optik CHT 3ML CF, D:S = 22:1 (Fernfeld = 9:1)



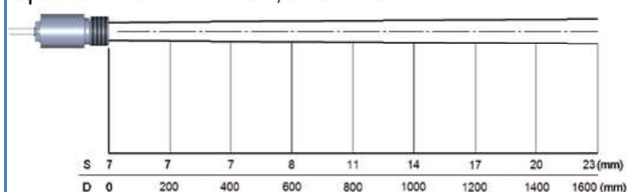
Optik CHT 3MH SF, D:S = 33:1



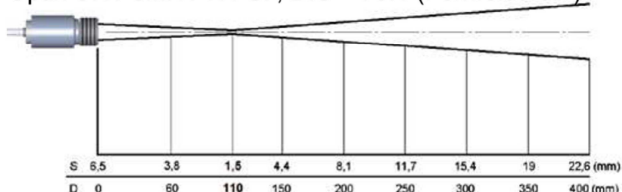
Optik CHT 3MH CF, D:S = 33:1 (Fernfeld 11:1)



Optik CHT 3MH1-H4 SF, D:S = 75:1

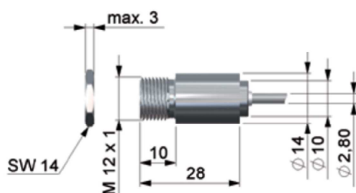


Optik CHT 3MH1-H4 CF, D:S = 75:1 (Fernfeld 40:1)

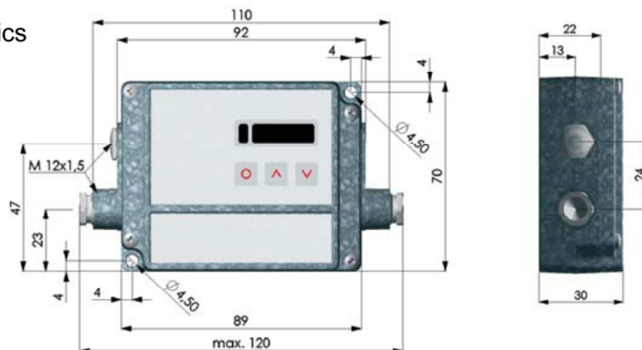


## Dimension

Sensing head

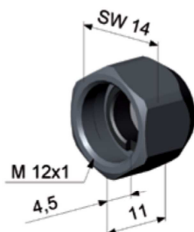


Electronics

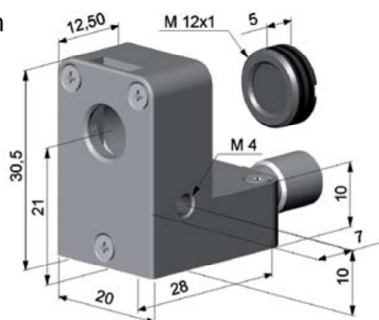


## Equipment (Examples)

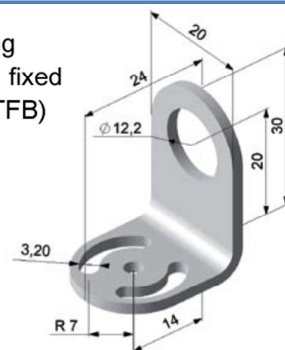
CF-lens  
(ZACCTCFHT)



Air purge collar with  
integrated CF-lens  
(ZACCTAPLCFHT)



Mounting  
bracket, fixed  
(ZACCTFB)



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