Infrared Pyrometer

TIN-SH

- 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

KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
Head Office:
+49(0)6192 299-0
+49(0)6192 23398
info.de@kobold.com
www.kobold.com

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Description

The pyrometer TIN-SH is equipped with one of the world's smallest infrared sensors with a high optic resolution of 22:1. Additionally, it offers a high variability due to selectable analog outputs as well as several digital interfaces in the electronics box.

Technical Details

General Specifications

Material sensing head:	Stainless steel
Material electronic box:	Die casting zinc
Environmental rating:	IP 65 (NEMA-4)
Ambient temperature [1]:	-20 ... +180 °C -20 ... +85 °C (electronics)
Storage temperature:	-40 ... +130 °C (sensing head) -40 ... +85 °C (electronics)
Relative humidity:	10 - 95 %, non condensing
Vibration (sensor):	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock (sensor):	IEC 60068-2-27 (25G and 50G)
Weight:	40 g (sensing head) 420 g (electronics)

Electrical Specifications

Outputs / analog:	Channel 1:0 / 4 - 20 mA, 0 - 5 / 10 V, thermocouple J, K Channel 2: sensind head temperature (-20 ... +180 °C as 0 - 5 V or 0 - 10 V), alarm output
Output / alarm:	24 V / 50 mA (open collector)
Optional:	Relay: 2 x 60 V_{DC}/ 42 V ACeff; 0.4 A; optically isolated
Outputs / digital (optional):	USB, RS232, RS485, 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:	3 m
Power Supply:	8 - 36 V_{DC}
Current draw:	Max. 100 mA

Measurement Specifications

Temperature range (scalable via programming keys or software):	-50 ... +975 °C
Spectral range:	8 - 14 µm
Optical resolution (90 % energy):	22:1 (precision glass optics)
CF-lens (optional):	0.6 mm @ 10 mm (with LT22)
System accuracy [2] [3] (at ambient temp. 23 ±5 °C):	±1 % or ±1 °C
Repeatability 2), 3) (at ambient temp. 23 ±5 °C):	±0.5 % or ±0.5 °C
Temperature resolution (display):	0.1 K
NETD 3) 4):	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):	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
Software:	for Windows®, download at www.kobold.com/qr/TIN

[1] The LCD displays capacity may be limited at ambient temperatures below 0 °C
[2] Whichever is greater
[3] At object temperatures >0 °C, ε = 1
[4] At time constant 200 ms and T_{Obj} 25 °C

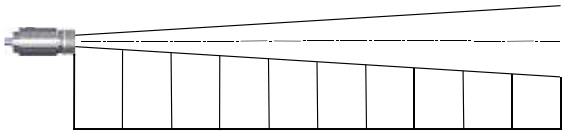
1/10 - 2023

Order Details Model TIN-SH (Example: TIN-SH N7 S 20 3 0)

Model	Measuring range	Analog output	Optics / Spectral range	Cable length	Laser
TIN-SH = High Accuracy pyrometer (2-part)	**N7** = -50 ... +975 °C	**S** = Channel 1: 0/4 - 20 mA, 0 - 5 / 10 V, Thermoelement J, K; Channel 2: Sensing Head Temperature (-20 ... +180 °C as 0 - 5 V or 0 - 10 V)	**20** = 22:1/ 8 - 14 µm	**3** = 3 m	**0** = without laser pointer

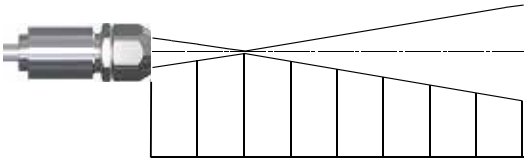
Optical Specifications

Optics SF, D:S = 22:1



S	6.5	10.9	15.2	19.6	23.9	28.3	32.6	37	41.3	45.7	50	(mm)
D	0	110	220	330	440	550	660	770	880	990	1100	(mm)

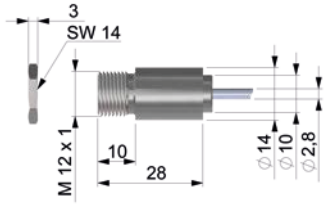
Optics CT LT CF, D:S = 22:1 (far field = 1.5:1)



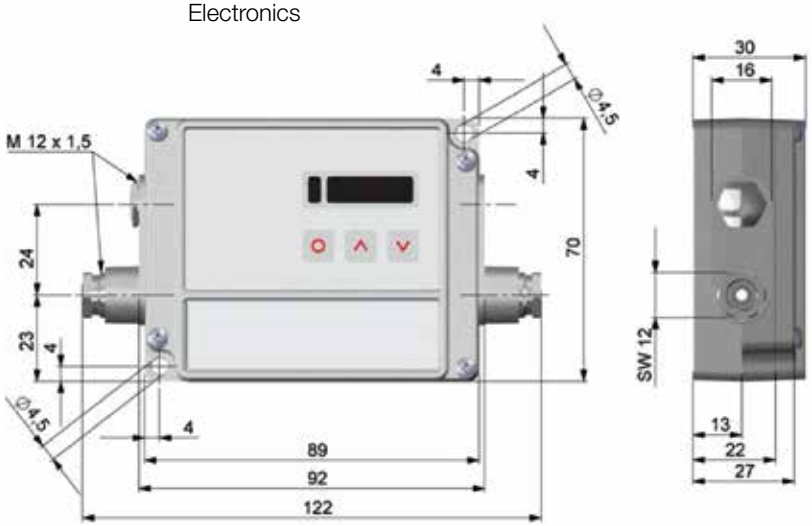
S	7	3.8	0.6	4.4	8.2	12	15.8	19.6	23.4	(mm)
D	0	5	10	15	20	25	30	35	40	(mm)

Dimensions [mm]

Sensing head (standard)



Electronics



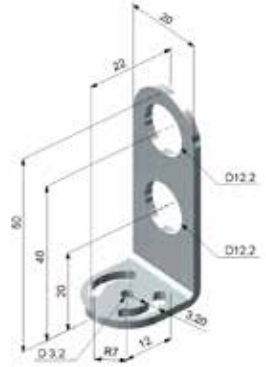
Accessories for TIN

Designation	Code	Description	Image
TIN-Z...	**TCF**	CF-lens for TIN-SS/-SH	
	TFB	Mounting bracket, fixed for TIN-SS/-SH, adjustable in one axis	
	TAB	Mounting bracket, fixed for TIN-SS/-SH, adjustable in two axis	
	HIA	USB Interfacekit for TIN-SH with Windows Software	
	MLS	OEM laser sighting aid for TIR-SH to connect to the electronics box	
	TRA	Carrier rail mounting plate for TIN-SH to connect to the electronics box	
	TF2	Mounting bracket, for TIN-SS/-SH, adjustable in one axis, probe and laser sighting aid	
	TAP	Air purge collar for TIN-SS/-SH, with mounting fork, adjustable in two axis	
	TAP2	Air purge collar for TIN-SH combinable with mounting brackets TFB/TAB/TF2	

CF-lens model TIN-ZTCF

Mounting bracket, fixed model TIN-ZTFB

Mounting bracket, adjustable in one axis model TIN-ZTF2

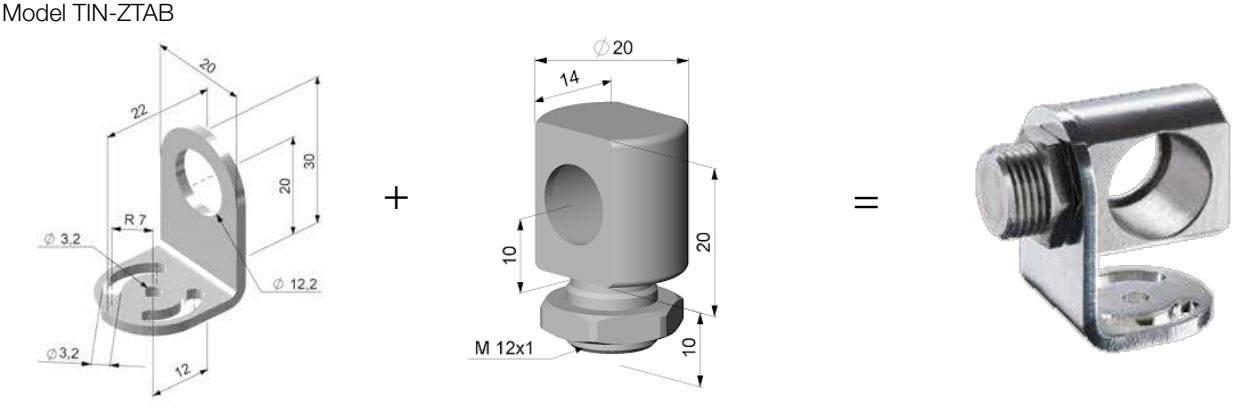


USB Interfacekit model TIN-ZSIA with Micro-USB plug and adapter USB-C and USB-A

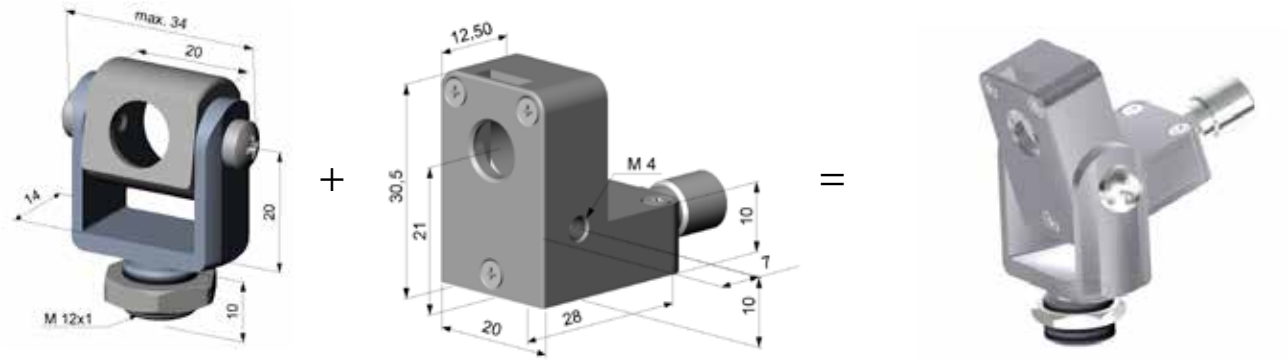
(Software Download at www.kobold.com/qr/TIN)

OEM laser sighting aid model TIN-ZMLS

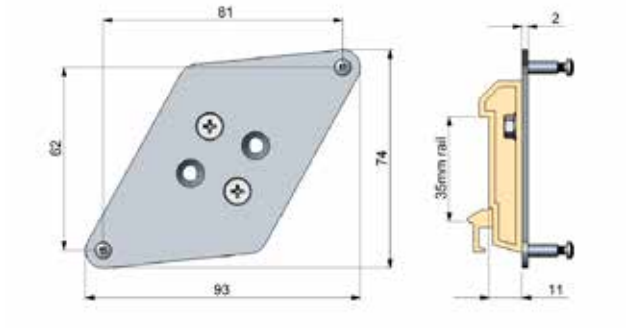
Mounting bracket, fixed for TIN-SS/-SH, adjustable in one axis,
Model TIN-ZTAB



Free blowing offset, with mounting fork, adjustable in two axis,
Model TIN-ZTAP



Carrier rail mounting plate,
model TIN-ZTRA



Air purge collar for TIN-SH combinable with mounting brackets
Typ TIN-ZTAP2