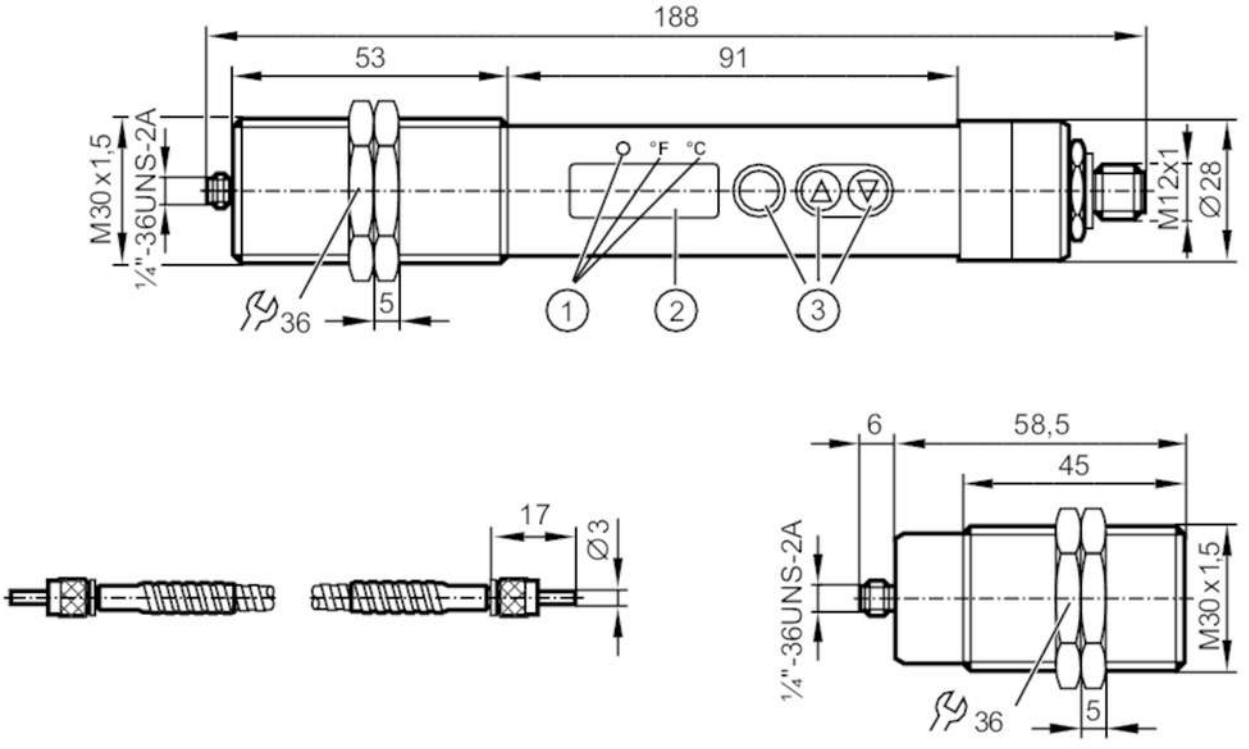
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Infrared temperature sensor

TW-150KLBM30-KFDKG/US



1 LEDs Display unit / switching status
2 7-segment LED display 4-digit
3 programming buttons

CE IO-Link

Product characteristics			
Number of inputs and outputs		Number of digital outputs: 1; Number of analogue outputs: 1	
Measuring range		300...1600 °C	572...2912 °F
Communication interface		IO-Link	
Application			
Application		tempering temperatures; glass melting; graphite; ceramics; metals; forging; sintering; heat treatment; rolling	
Electrical data			
Operating voltage	[V]	18...32 DC; (to SELV/PELV)	
Current consumption	[mA]	< 50	
Min. insulation resistance	[MΩ]	100; (50 V DC)	
Protection class		III	
Reverse polarity protection		yes	
Power-on delay time	[s]	< 1	
Inputs / outputs			
Number of inputs and outputs		Number of digital outputs: 1; Number of analogue outputs: 1	
Inputs			
Test input		type 3 (IEC 61131-2)	

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Outputs			
Total number of outputs		2	
Output signal		switching signal; analogue signal; IO-Link; (configurable)	
Electrical design		PNP	
Number of digital outputs		1	
Output function		normally open / normally closed; (parameterisable)	
Max. voltage drop switching output DC	[V]	2.5	
Permanent current rating of switching output DC	[mA]	150	
Number of analogue outputs		1	
Analogue current output	[mA]	4...20	
Max. load	[Ω]	500	
Short-circuit protection		yes	
Type of short-circuit protection		pulsed	
Short-circuit proof		yes	
Overload protection		yes	
Detection zone			
Wave length range	[µm]	1...1.7	
Measuring/setting range			
Measuring range		300...1600 °C	572...2912 °F
Set point SP		301...1600 °C	574...2912 °F
Reset point rP		300...1599 °C	572...2910 °F
Analogue start point		300...1400 °C	572...2552 °F
Analogue end point		500...1600 °C	932...2912 °F
In steps of		1 °C	1 °F
Resolution			
Resolution of switching output	[K]	1	
Resolution of analogue output	[K]	0.2; (+ 0.03% of the set measuring span)	
Resolution of display	[K]	1	
Accuracy / deviations			
Accuracy	[K]	< ± 0,5 %; (of measured value, min. 4 K (degree of emission = 1, T = 23 °C))	
Repeatability	[K]	1	
Response times			
Response time	[ms]	2; (T > 600 °C)	
Software / programming			
Adjustment of the switch point		programming buttons	
Parameter setting options		analogue range; normally open / normally closed; switch-on/ switch-off delay; Damping; Peakhold; emissivity; simulation function	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	

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IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
SIO mode		yes	
Required master port type		A	
Process data analogue		16	
Process data binary		1	
Min. process cycle time	[ms]	3.6	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	719
Operating conditions			
Ambient temperature	[°C]	0...65	
Note on ambient temperature		fibre optics and measuring head: -20...250 °C	
Storage temperature	[°C]	-20...80	
Max. relative air humidity	[%]	95; (non condensing)	
Protection		IP 65	
Tests / approvals			
EMC		DIN EN 61000-6-2	
		DIN EN 61000-6-4	
Shock resistance		DIN EN 60068-2-27	30 g (11 ms)
Vibration resistance		DIN EN 60068-2-6	5 g (10...2000 Hz)
MTTF	[years]	74	
Mechanical data			
Weight	[g]	899.5	
Housing		threaded type	
Dimensions	[mm]	M30 x 1.5 / L = 188	
Thread designation		M30 x 1.5	
Fibre optic connection		¼"-36UNS-2A	
Materials		threaded sleeve: stainless steel (303/1.4305); polyester	
Lens material		tempered optical glass	
Displays / operating elements			
Display		Display unit	2 x LED, yellow
		switching status	1 x LED, yellow
		function display	7-segment LED display, 4-digit
		measured values	7-segment LED display, 4-digit
Operating elements		3	pushbuttons
Accessories			
Items supplied		lock nuts: 2	
		fibre optic: 2 m	
		Measuring head	
Remarks			
Remarks		Use a screened cable to protect infrared temperature sensors from interference.	
		The screen must be connected to the housing of the sensor via the connector.	
		On delivery the sensor is premounted and calibrated and is supplied with 2 m fibre optic.	
		If the fibre optic is replaced the sensor has to be recalibrated (ZC0062).	
Pack quantity		1 pcs.	

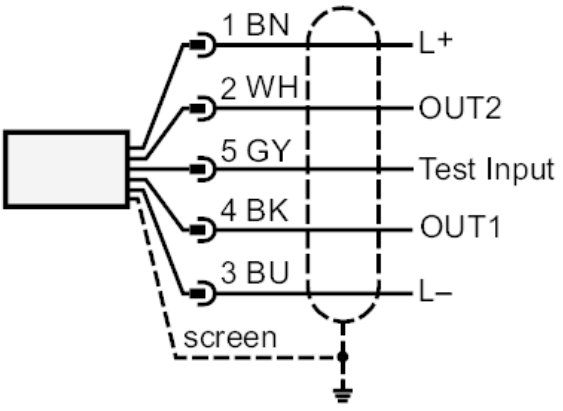
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Electrical connection

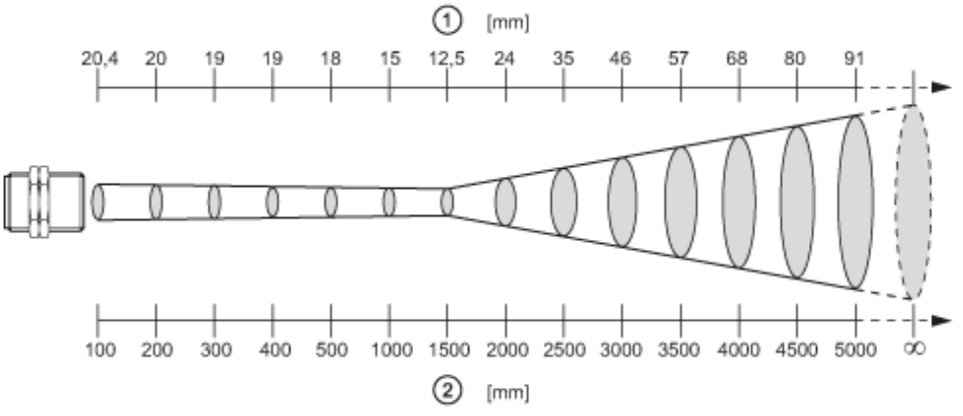
Connection



OUT1:	switching output / IO-Link
OUT2:	analogue output
	Core colours :
BK =	black
BN =	brown
BU =	blue
GY =	grey
WH =	white

Connector: 1 x M12

Diagrams and graphs



1 diameter of the measured spot

2 measuring distance