Baumer
Passion for Sensors

Temperature sensor

PT55

Article number: 96004370

Overview

- Precision measurement from -50 ... 250 °C
- Integrated 4 ... 20 mA transmitter with high accuracy
- Compact housing with touch screen
- Convenient installation and easy operation
- IO-Link Dual Channel for easy commissioning
- In addition to the standard lengths, custom lengths up to 3000 mm are available on request



Picture similar

Technical data

Performance characteristics	
Pt100 accuracy class (EN 60751)	1/1 B ± (0.3 + 0.005 × t)°C 1/1 A ± (0,15 + 0,002 × t)°C 1/3 B ± 1/3 × (0.3 + 0.005 × t)°C 1/6 B ± 1/6 × (0.3 + 0.005 × t)°C
Max. measuring error	± 0.06 % FSR @ 25 °C Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2)
Thermal response time, T50	RTD element and transmitter combined < 2.5 s , Ø4 mm < 6.5 s , Ø6 mm < 10.5 s , Ø8 mm
Temperature coefficient	< 0.025 K/K Factor of change in ambient temperature from 25°C
Process temperature	Refer to section "Operating conditions"
Process conditions	
Process temperature	-50 … 125 °C , without cooling neck -50 … 250 °C , with cooling neck
SIP/CIP compatibility	< 30 min, without cooling neck @ medium temperature up to 150 °C
Process connection	
Connection variants	Refer to section "Dimensional drawings"
Sensor length	Refer to section "Ordering information" Other lengths ≤ 3000 mm on request
Sensor diameter outside	ø 6 mm ø 8 mm
Mounting position	Any, top, bottom, side
Standard response tip	ø 6 mm ø 8 mm
Fast response tip	ø 4 mm

Process connection	
Sensor tube material	AISI 316L (1.4404)
Ambient conditions	
Operating temperature range	-30 … 70 °C -10 … 70 °C , optimal display readability
Storage temperature range	-40 … 85 °C
Degree of protection (EN 60529)	IP67 IP69K , with appropriate mating connector
Humidity	≤ 100 % RH , condensing
Vibration (sinusoidal) (EN 60068-2-6)	1.6 mm p-p (2 … 25 Hz), 4 g (25 … 100 Hz), 1 octave / min. GL, test 2
Shock (EN 61373)	300m/s² @ 15ms
Housing	
Style	Compact transmitter, Ø50 mm
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)
Electrical connection	
Connector	M12-A, 4-pin, stainless steel
Power supply	
Voltage supply range	15 … 35 V DC 18 … 30 V DC , with IO-Link
Power-up time	< 1500 ms @ 24 V
Current consumption (no load)	3.5 mA … 23 mA , 2-wire 16 mA typ., 25 mA max., 3-wire mode
Reverse polarity protection	Yes
Compliance and approvals	
EMC	EN 61326-1 EN 61326-2-3 Deviation during immunity testing ≤ 0.2% FSR

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Output signals

Switching output	
Output type	PNP NPN Digital (push-pull)
Switching logic	High-Active Low-Active
Voltage drop	< 2 V, switching output
Current rating	100 mA , max.
Off leak current	< 160 µA , max.
Damping	0 … 60 s , programmable

4 ... 20 mA	
Accuracy	± 0.05 % FSR
Step response time, T90	< 25 ms
Load resistance	Rs ≤ (V DC - 15 V)/23 mA, 2-wire mode Rs ≤ (V DC - 10 V)/23 mA, 3- & 4-wire mode
Temperature drift (by ambient)	< 0.1 % FSR/K (± 1.6 µA/K) Factor of change in ambient temperature from 25°C
Ripple immunity	< 1 % FSR (1 Vrms, 50Hz...1kHz)
Effect of variations in supply voltage	< 0.01 % FSR/V (± 1.6 µA/V), deviating from 24 VDC
Damping	0 … 60 s , programmable

IO-Link interface	
IO-Link version	1.1
Device profile	Smart Sensor Profile
IO-Link port type	Class A
Baud rate	38,4 kbaud (COM2)
Cycle time	≥ 14 ms
Process data length	48 bit
SIO-mode	Yes
Process data (cyclic)	Process temperature Switch state State of alert
Diagnostic data (acyclic)	CPU temperature Operation
Adjustable data (acyclic)	Switch parameters Current output limit values Display configuration Tags Password for access
Dual Channel	IO-Link / SIO Mode
Dual Channel 2	Analogue / SIO Mode

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Display

User configurable data

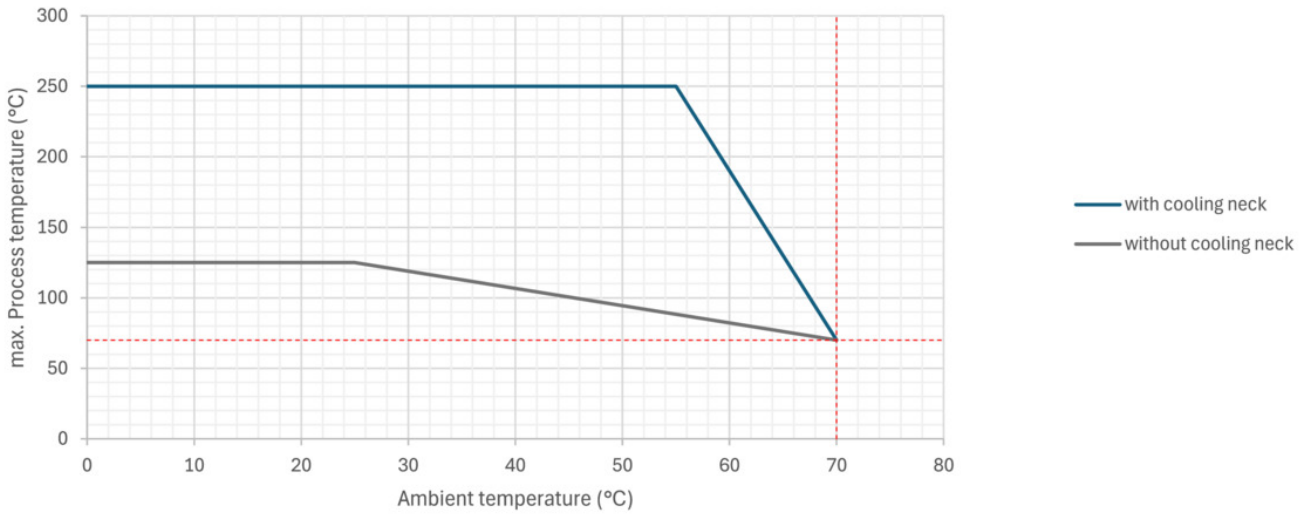
Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	°C °F K

General information

Panel type	Graphical LCD
Display range	-9999 … 99999
Max. digit height	21.8 mm
Material	Polycarbonate

Operating conditions

Ordering key	Process connection	BCID	Process pressure (bar)	Continuous Process temperature Standard @ Tamb ≤ 20 °C (° C)	Process temperature with cooling neck @ Tamb ≤ 20 °C (° C)
T650/T660	Tube without connection	T65/T66	-1 … 40	-50 … 125	-50 … 250
G070	G 1/2 A ISO 228-1	G07	-1 … 100	-50 … 125	-50 … 250
G500	G 1/4 A DIN ISO 1179-2	G50	-1 … 100	-50 … 125	-50 … 250
G510	G 1/2 A DIN ISO 1179-2	G51	-1 … 100	-50 … 125	-50 … 250
N020	1/2-14 NPT	N02	-1 … 100	-50 … 125	-50 … 250



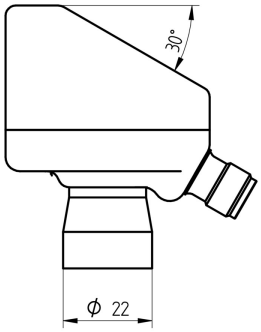
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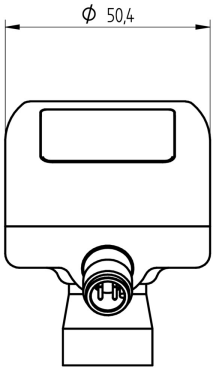
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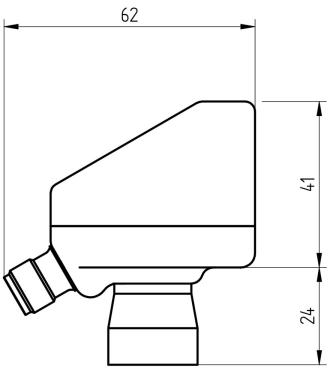
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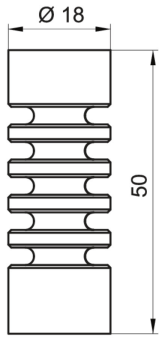
Dimensional drawings (mm)

Housing



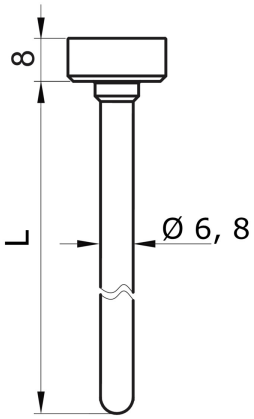




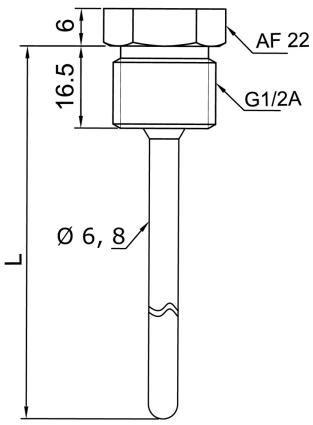


Cooling neck

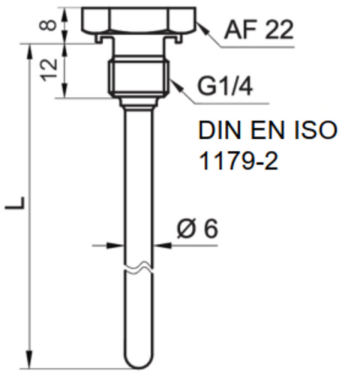
Process connection



Sleeve (Ø 6 mm (T65), Ø 8 mm (T66))



G 1/2 A ISO 228-1 (BCID: G06)



G 1/4 A DIN EN ISO 1179-2 (3852-E) (G50)

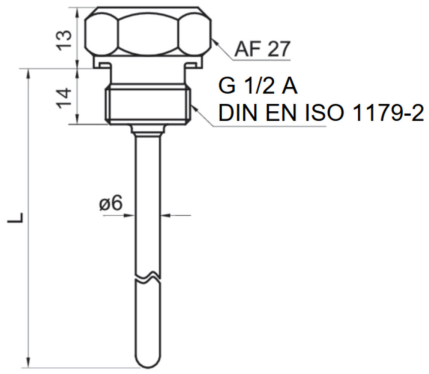
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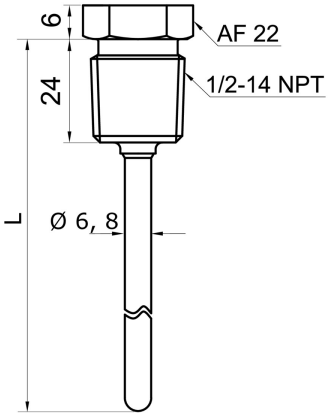
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Dimensional drawings (mm)

Process connection



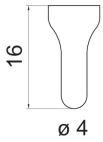
G 1/2 A DIN EN ISO 1179-2 (3852-E) (G51)



1/2-14 NPT (BCID: N02)

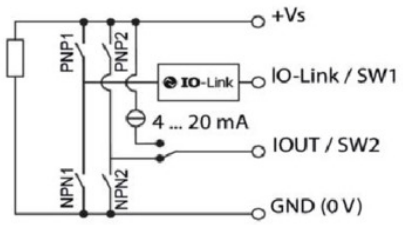
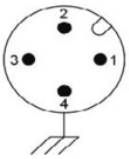


Standard response tip



Fast response tip

Electrical connection

Equivalent circuit	Function	Pin assignment	Coding	Operating mode	Used pins
	+Vs	1		IO-Link / dual channel	1, 2, 3, 4
	Iout / SW2	2		analog 3-wire	1, 2, 3
	GND (0 V)	3		analog 2-wire	1, 2
	IO-Link / SW1	4			
	Frame Ground	Plug thread			

Ordering information

Ordering key - Configuration possibilities see website

	PT55	**-**	**####**	**.**	**#**	**#**	**#**	**#**	**#**	**2**	**2**	**1**	**.**	**2**	**0**	**#**	**0**	**0**	**0**	**#**	**####**
Product																					
	PT55																				

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Ordering information

Ordering key - Configuration possibilities see website

	PT55	-	####	.	#	#	#	#	#	2	2	1	.	2	0	#	0	0	0	#	####
Process connection																					
Sleeve Ø 6 (T65)			T650																		
Sleeve Ø 8 (T66)			T660																		
G 1/2 A ISO 228-1 (G06)			G060																		
G 1/4 A DIN EN ISO 1179-2 (3852-E) (G50)			G500																		
G 1/2 A DIN EN ISO 1179-2 (3852-E) (G51)			G510																		
1/2-14 NPT (N02)			N020																		
Sensor tip																					
Rod 6 mm, tip 6 mm					1																
Rod 6 mm, tip 4 mm					2																
Rod 8 mm, tip 8 mm					3																
Rod 8 mm, tip 4 mm					4																
Sensor element																					
Pt100 1/1 B EN 60751, single, 2-wire						1															
Pt100 1/3 B EN 60751, single, 2-wire						3															
Pt100 1/6 B EN 60751, single, 2-wire						5															
Pt100 1/1 A EN 60751, single, 2-wire						7															
Pt100 1/1 B EN 60751, single, 4-wire						A															
Pt100 1/3 B EN 60751, single, 4-wire						B															
Pt100 1/6 B EN 60751, single, 4-wire						C															
Pt100 1/1 A EN 60751, single, 4-wire						D															
Cooling neck																					
Without cooling neck							0														
With cooling neck							4														
Process temperature																					
-50...125°C								1													
-50...250°C								3													
Max. process pressure																					
40 bar									2												
100 bar									3												
Interface																					
IO-Link Dual Channel, 4...20 m										2											
Electrical connection																					
M12-A, 4 pin, stainless steel, with integrated transmitter											2										
Display																					
With display												1									
Wetted parts material																					
AISI 316L (1.4404)														2							
Surface roughness																					
Industrial standard															0						
Gasket material																					
NBR																1					
FKM																2					
EPDM																3					
Without																0					
Explosion protection																					
Without																	0				
Industrial approvals																					
Standard																		0			

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Ordering information

Ordering key - Configuration possibilities see website

	PT55	-	####	.	#	#	#	#	#	2	2	1	.	2	0	#	0	0	0	#	####
Special approvals																					
Standard																			0		
Configuration																					
Factory settings																				0	
Customer-specific																				1	
Sensor tube length (mm)																					
20																					0020
30																					0030
50																					0050
100																					0100
150																					0150
200																					0200
300																					0300
Customer lengths on request [20 - 3000]																					####

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