

# PT55

Industrial RTD temperature sensor with touch display

Article number: 96004370

## Overview

- Can be individually configured to your requirements
- Precision measurement from -50 ... 250 °C
- Integrated 4 ... 20 mA transmitter with high accuracy
- Compact housing with touch screen
- All parts welded together
- Convenient installation and easy operation
- IO-Link Dual Channel for easy commissioning



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
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### 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
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
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### 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	$R_s \leq (V_{DC} - 15 V)/23 \text{ mA}$ , 2-wire mode $R_s \leq (V_{DC} - 10 V)/23 \text{ mA}$ , 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 V <sub>rms</sub> , 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

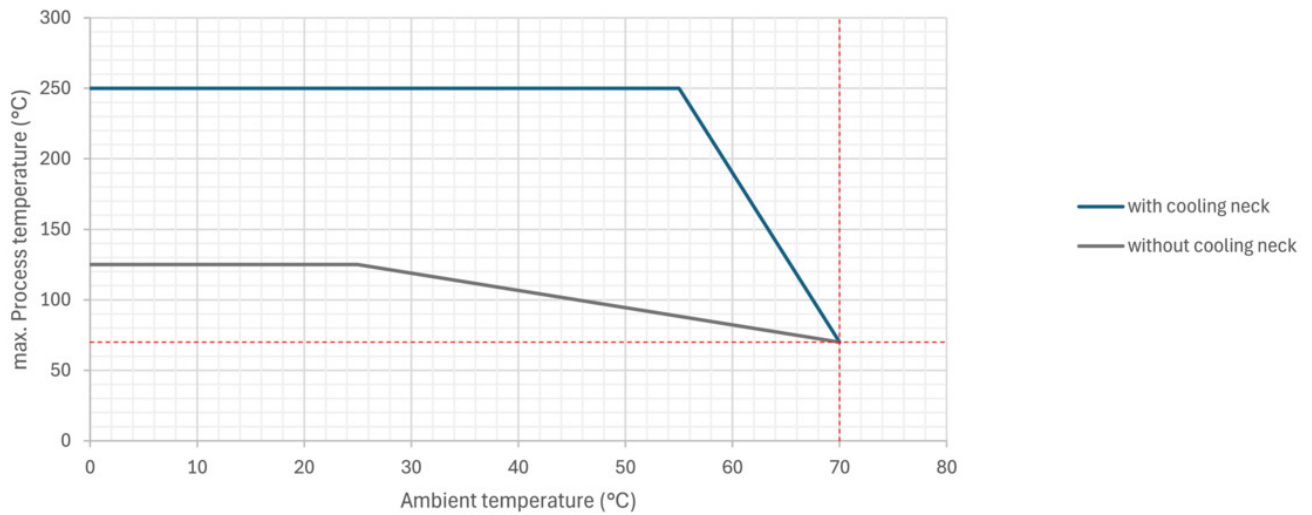
Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	°C °F K

### General information

Panel type	FSTN 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 with cooling neck
				Process temperature Standard @ Tamb ≤ 20 °C (° C)	@ Tamb ≤ 20 °C (° C)
T650	Tube without connection	T65	-1 ... 40	-50 ... 125	-50 ... 250
G060	G 1/2 A ISO 228-1	G06	-1 ... 100	-50 ... 125	-50 ... 250
G500	G 1/4 A DIN 3852-E	G50	-1 ... 100	-50 ... 125	-50 ... 250
G510	G 1/2 A DIN 3852-E	G51	-1 ... 100	-50 ... 125	-50 ... 250
N020	1/2-14 NPT	N02	-1 ... 100	-50 ... 125	-50 ... 250



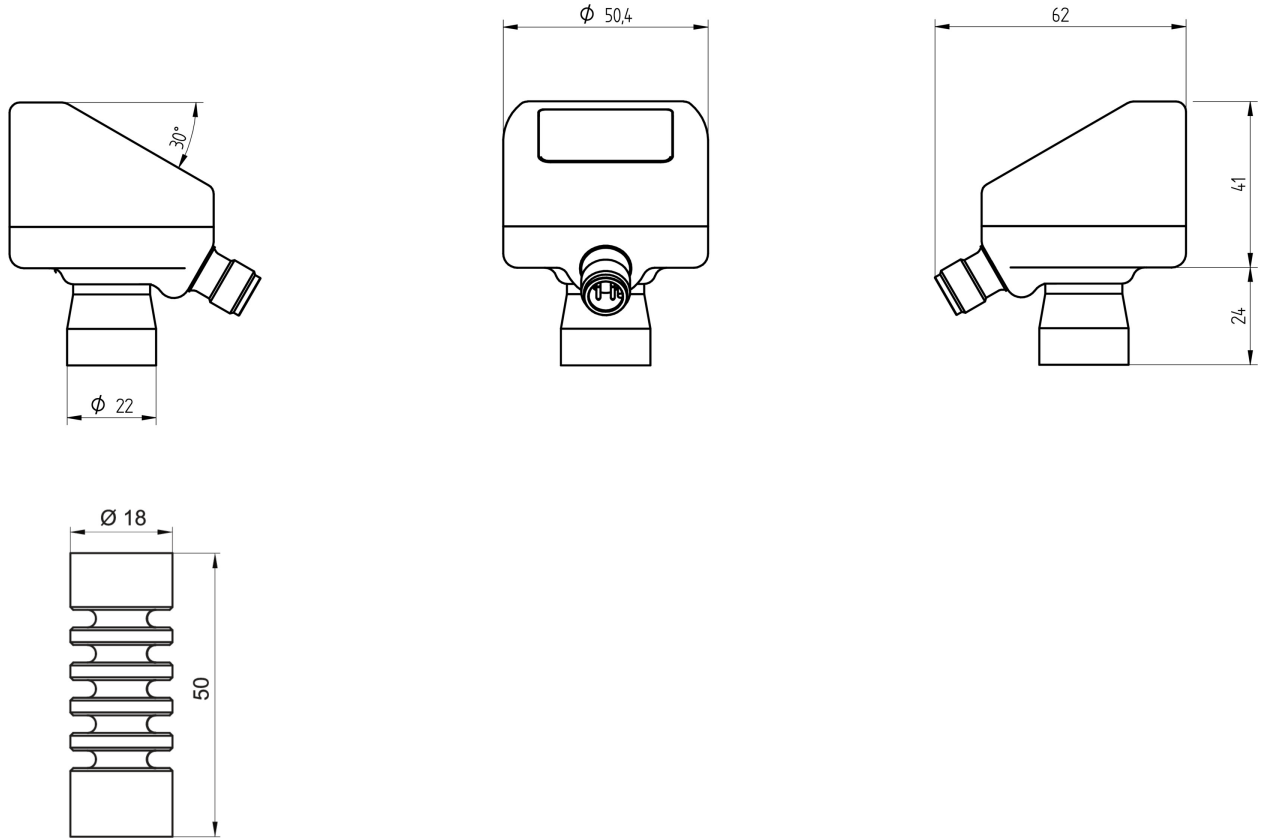
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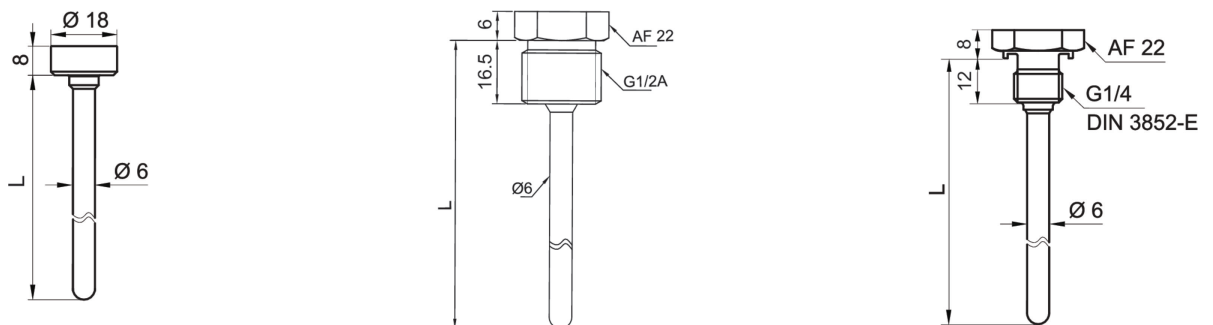
## Dimensional drawings (mm)

### Housing



Cooling neck

### Process connection



Without thread (BCID: T65)

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

G 1/4 A DIN 3852-E (BCID: G50)

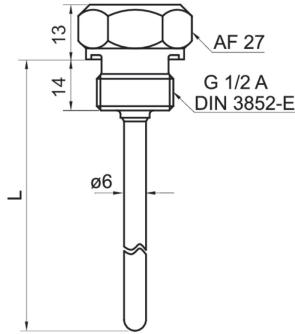
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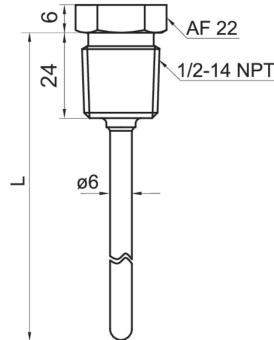
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## Dimensional drawings (mm)

### Process connection



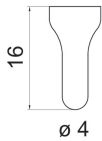
G 1/2 A DIN 3852-E (BCID: G51)



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

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

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## Ordering information

Ordering key - Configuration possibilities see website

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

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## Ordering information

Ordering key - Configuration possibilities see website

PT55 - #### . # # # # # 2 2 1 . 2 0 # 0 0 0 # ####

### Configuration

Factory settings	0
Customer-specific	1

### Sensor tube length (mm)

20	20
30	30
50	50
100	100
150	150
200	200
300	300