

PT55H

Hygienic compact 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
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 4 mm Ø 6 mm Ø 8 mm
Sensor tube material	AISI 316L (1.4404)

Process connection

Surface roughness wetted parts	Ra ≤ 0.8 µm Ra ≤ 0.8 µm, electropolished, optional Ra ≤ 0.4 µm, optional Ra ≤ 0.4 µm, electropolished, optional
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Ambient conditions

Operating temperature range	-30 ... 70 °C , with display -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.
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

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Technical data

Compliance and approvals

EMC	EN 61326-1 EN 61326-2-3 Deviation during immunity testing ≤ 0.2% FSR
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Compliance and approvals

Hygiene	3-A (74-07) EHEDG EL Class I
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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 _{rms} , 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

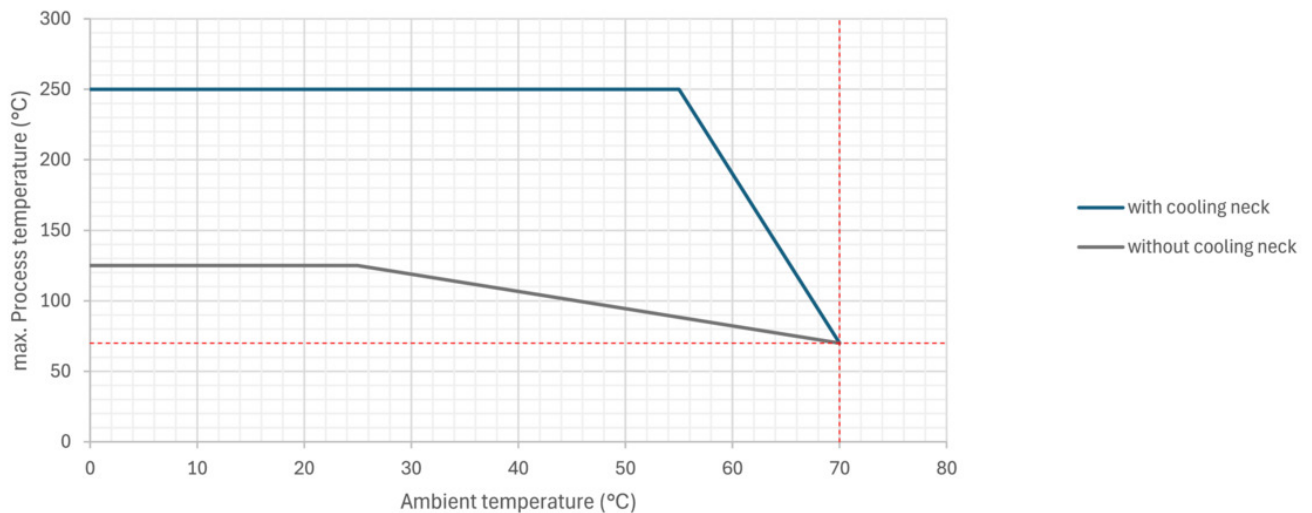
Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	°C °F K

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)
A020	M12 × 1.5 hygienic	A02	-1 ... 40	-50 ... 125	-50 ... 250
A030	G 1/2 A hygienic	A03	-1 ... 40	-50 ... 125	-50 ... 250
B010	BHC 3A DN 38	B01	-1 ... 40	-50 ... 125	-50 ... 250
C040	ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5	C04	-1 ... 40	-50 ... 125	-50 ... 250
V020	Varivent type N, Ø 68	V02	-1 ... 16	-50 ... 125	-50 ... 250



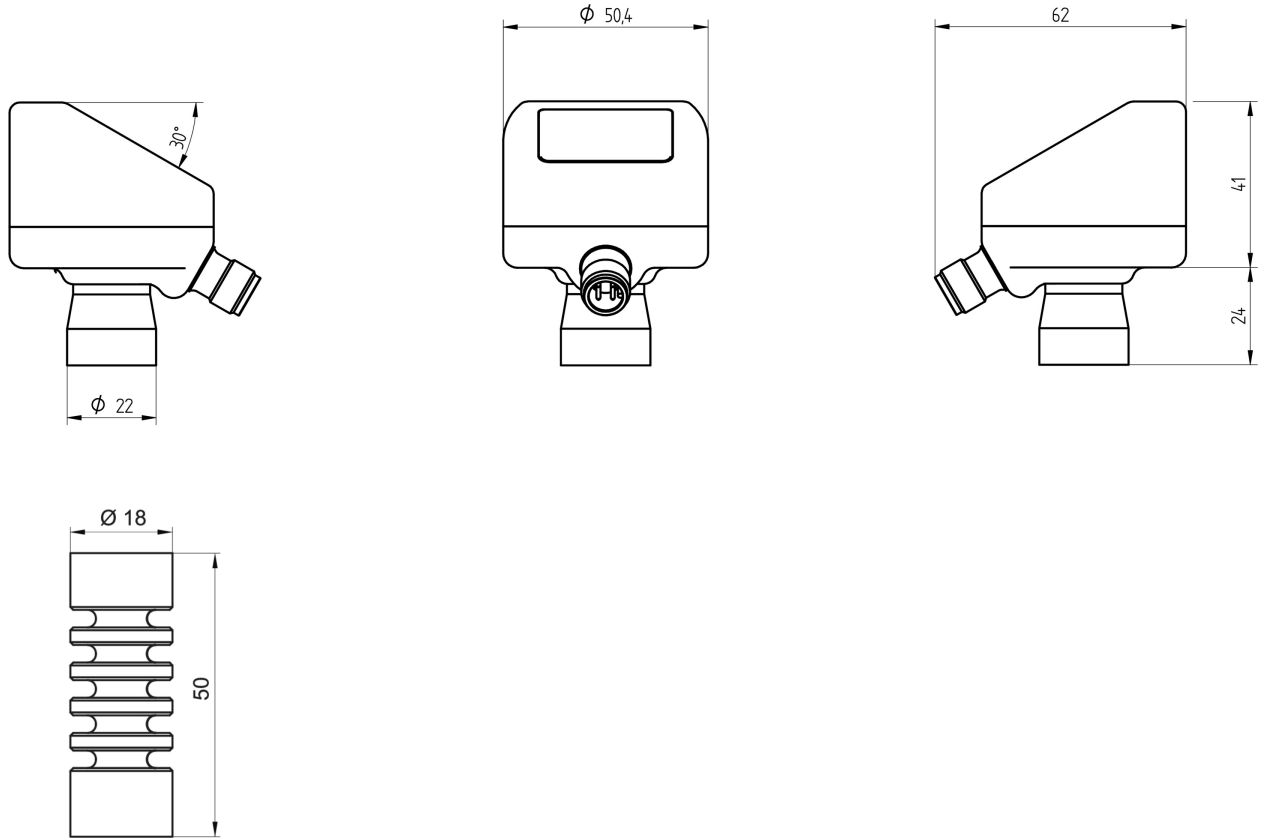
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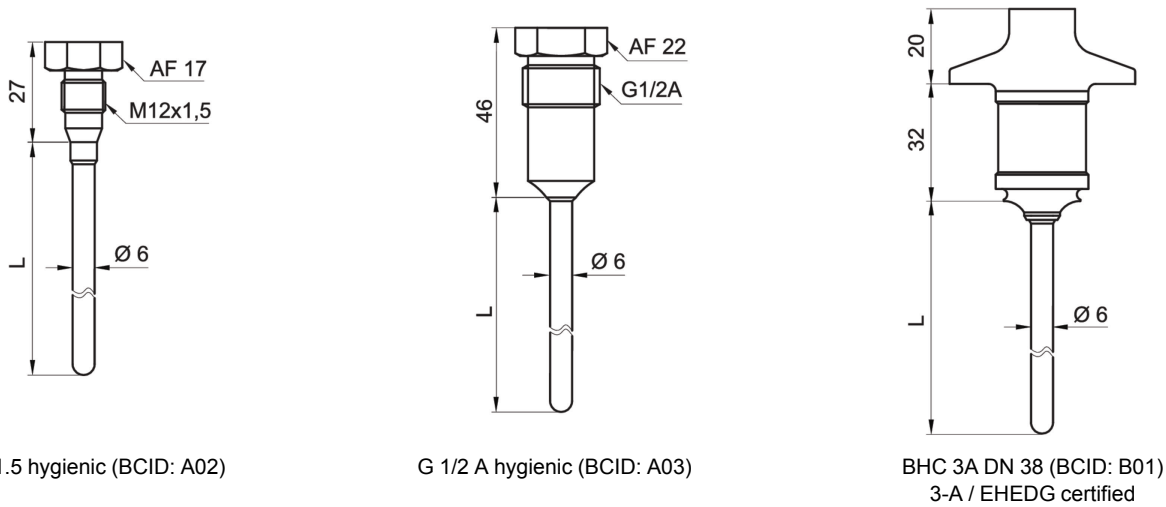
Dimensional drawings (mm)

Housing



Cooling neck

Process connection



M12 × 1.5 hygienic (BCID: A02)

G 1/2 A hygienic (BCID: A03)

BHC 3A DN 38 (BCID: B01)
3-A / EHEDG certified

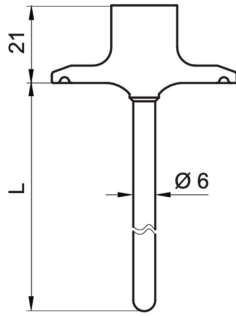
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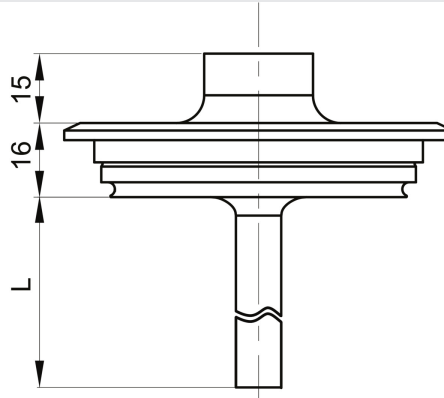
Article number: 96004370

Dimensional drawings (mm)

Process connection



Tri-Clamp Ø 50.5 (BCID: C04),
3-A / EHEDG certified



Varivent® DN 32 ... 125; 1 1/2" ... 6" (Type N),
Ø 68 (BCID: V02),
3-A / EHEDG certified



Standard response tip



Fast response tip

Electrical connection

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

Ordering information

Ordering key - Configuration possibilities see website

Product	PT55H - #### . # # # # # 2 2 1 . 2 # 0 0 0 # # ####
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Ordering information

Ordering key - Configuration possibilities see website

PT55H - #### . # # # # # 2 2 1 . 2 # 0 0 0 # # ####

Process connection

M12 x 1.5 hygienic (A02) ⁽¹⁾	A020
G 1/2 A hygienic (A03) ⁽¹⁾	A030
BHC 3A DN38 (B01)	B010
ISO 2852 (Tri-Clamp) DN38 (C04)	C040
Varivent® DN 32 ... 125; 1 1/2 ... 6 (Type N), Ø 68 (V02)	V020

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 mA	2
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Electrical connection

M12-A, 4 pin, stainless steel, with integrated transmitter	2
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Display

With display	1
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Wetted parts material

AISI 316L (1.4404)	2
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Surface roughness

Ra ≤ 0.8 µm	1
Ra ≤ 0.4 µm	2
Electropolished, Ra ≤ 0,8 µm	3
Electropolished, Ra ≤ 0,4 µm	4

Gasket material

Without	0
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Explosion protection

Without	0
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Industrial approvals

Standard	0
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Ordering information

Ordering key - Configuration possibilities see website

PT55H - #### . # # # # # 2 2 1 . 2 # 0 0 0 # # ####

Special approvals

Standard	0
3-A / EHEDG	3

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

(1) Without 3A / EHEDG