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Screw-in RTD temperature probe with plug connector according to DIN EN 175301



- **For temperatures between -50 and +260 °C**
- **Vibration-resistant design**
- **Plug connector locked against contact, protection type IP65**
- **Available with transmitter**
- **GL approval for basic types 902044/20 and 902044/21 (max. insertion length 200 mm)**

Vibration-resistant screw-in RTD temperature probes allow temperatures to be measured under pressure in engines, compressors, plant engineering, and shipbuilding.

The plug connectors between the protection fitting and the connecting cable are locked against contact and have protection type IP65 when connected.

The measuring insert is a Pt100 temperature sensor according to DIN EN 60751, class B in 2-wire circuit as standard. Other versions with Pt500 or Pt1000 are also possible.

The connection can be carried out in a 2-wire or 4-wire circuit as required.

Basic types 902044/25 to 902044/29 are available as versions with transmitters (output 4 to 20 mA).

Technical data

Connection	Basic types 902044/15, 902044/20, 902044/25, 902044/28, and 902044/80: DIN EN 175301-803 plug connectors, Pg9 Basic types 902044/16, 902044/21, 902044/26, 902044/29, and 902044/81: DIN EN 175301-803 plug connectors, Pg11 Max. conductor cross section 1.5 mm^2, IP65, ambient temperature -40 to +125 °C For versions with transmitters: ambient temperature -40 to +85 °C
Process connection	Thread, stainless steel 1.4301/1.4571
Protection tube	Stainless steel 1.4571, Ø 8 mm, Ø 6 mm stepped down to 3.3 mm, Max. pressure load 50 bar at 200 °C (basic types 902044/20 and 902044/21)
Measuring insert	Pt100 temperature sensor, DIN EN 60751, class B in 2-wire or 4-wire circuit, exchangeable. Shorter fitting lengths in connection with unfavorable fitting conditions (heat dissipation error) can result in an exceedance of the tolerance class. The measuring insert is not exchangeable for versions equipped with transmitters.
Protection type	IP65 when connected
Response times	Basic types 902044/15 and 902044/16: $t_{0.5}$ = < 2 s, $t_{0.9}$ = < 4 s, in water with 0.2 m/s, Ø 6 mm stepped down to Ø 3.3 mm Basic types 902044/20 and 902044/21: $t_{0.5}$ = 15 s, $t_{0.9}$ = 45 s, in water with 0.2 m/s, Ø 8 mm Basic types 902044/25 to 902044/29: $t_{0.5}$ = < 2 s, $t_{0.9}$ = < 4 s, in water with 0.2 m/s, Ø 6 mm stepped down to Ø 3.3 mm Basic types 902044/80 and 902044/81: $t_{0.5}$ = 5 s, $t_{0.9}$ = 12 s, in water with 0.2 m/s, Ø 8 mm
Vibration resistance	Germanischer Lloyd, application category "D“, characteristic line 2
Approvals	Basic types 902044/20 and 902044/21 GL Germanischer Lloyd
Accessories	Thermowell, data sheet 902440

Approvals/approval marks (see "Technical data")

GL

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Technical data

Transmitter	Input	
	Measuring input	Pt100 acc. to DIN EN 60751
	Measuring range limits	-50 to +260 °C
	Measuring span	25 to 310 K (also see zero offset)
	Zero offset Data sheet 707030, page 7/10	For measuring spans < 75 K, fixed zero adjustment: -40 °C, -20 °C, 0 °C, 20 °C, and 40 °C For measuring spans ≥ 75 K: ±50 °C
	Sensor current	≤ 0.5 mA
	Sampling rate	Permanent measurement due to analog signal path
	Measuring circuit monitoring	
	Underrange	Dropping to ≤ 3.6 mA
	Overrange	Increasing to ≥ 22 mA to < 28 mA (typical 24 mA)
	Probe short circuit	≤ 3.6 mA
	Probe/cable break	Positive: ≥ 22 mA to < 28 mA (typical 24 mA)
	Output	
	Output signal	Load-independent direct current: 4 to 20 mA
	Transmission behavior	Temperature-linear
	Transmission accuracy	≤ ±0.1%
	Attenuation of the residual ripple of a voltage supply of 24 V, amplitude 10 V at 50 Hz, burden 470 Ω at load of 10 MΩ	40 dB
	Load (Rb)	Rb = (Ub - 7.5 V) ÷ 22 mA
	Load error	≤ ±0.02% per 100 Ω[a]
	Setting time for temperature changes	≤ 10 ms
	Calibration conditions	DC 24 V at approx. 22 °C
	Calibration accuracy	≤ ±0.2%[a, b] or ≤ ±0.2 K
	Overall accuracy, probe/calibration	±0.4 K (typical) at 20 °C and DC 24 V voltage supply
	Voltage supply	
	Voltage supply (Ub)	DC 7.5 to 30 V
	Reverse voltage protection	Yes
	Voltage supply influence	≤ ±0.01% per V deviation from DC 24 V[a]
	Environmental influences	
	Operating temperature range	-40 to +85 °C
	Storage temperature range	-40 to +100 °C
	Temperature influence	≤ ±0.01% per K deviation from 22 °C[a]
	Resistance to climatic conditions similar to DIN EN 60654 class D1	Relative humidity ≤ 95% annual average, no condensation
	EMC	EN 61326
	- Interference emission	Class B
	- Interference immunity	Industrial requirements

[a] All specifications refer to the measuring range end value of 20 mA.
[b] The higher value is valid.

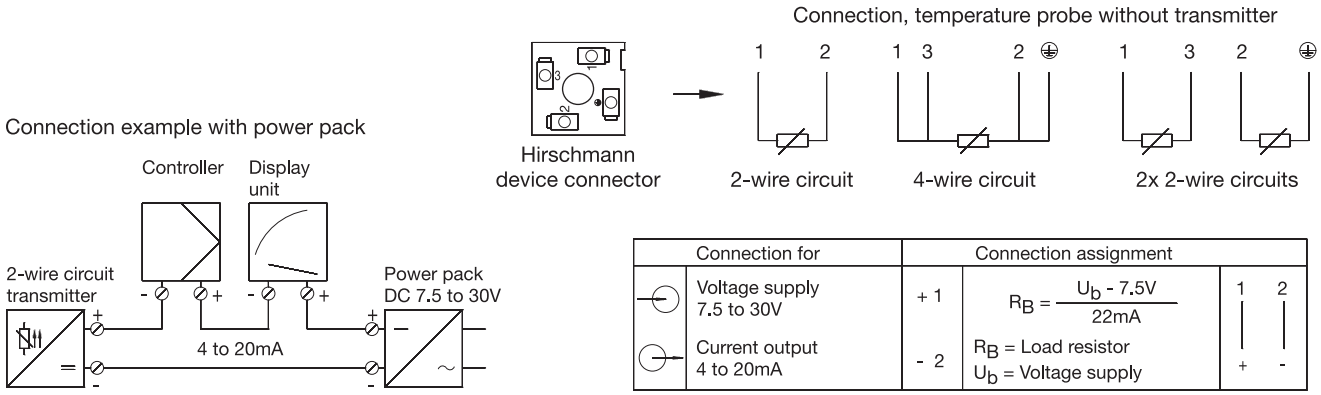
Approvals/approval marks

Approval mark	Testing agency	Certificates/certification numbers	Inspection basis	valid for
GL	Germanischer Lloyd	15 700 - 00 HH	Guidelines for the Performance of Type Approvals Chapter 2, Edition 2003	Basic type 902044/20 ... Basic type 902044/21 ...

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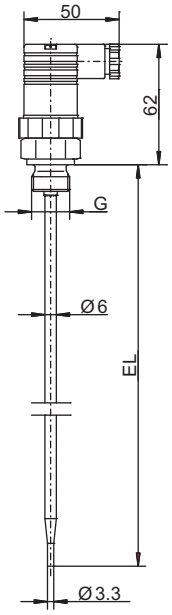
Connection diagram



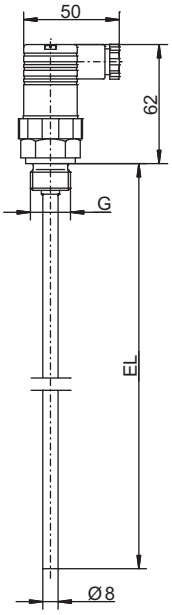
Connection for		Connection assignment		
	Voltage supply 7.5 to 30V	+ 1	$R_B = \frac{U_b - 7.5V}{22mA}$	1 2
	Current output 4 to 20mA	- 2	R_B = Load resistor U_b = Voltage supply	+ -

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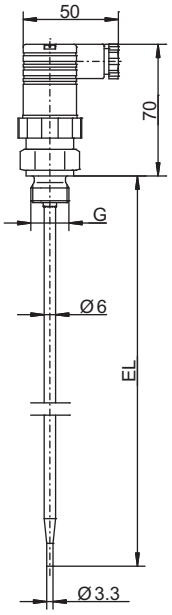
Dimensions



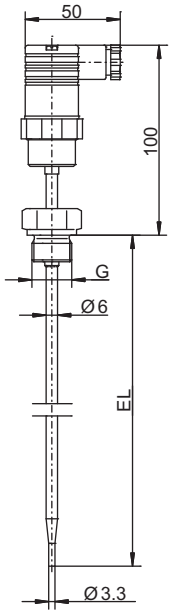
Basic type 902044/15
Basic type 902044/16



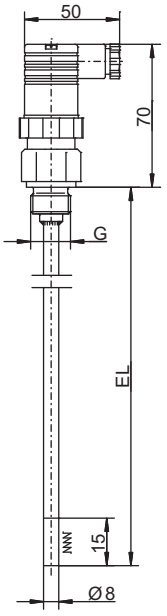
Basic type 902044/20
Basic type 902044/21



Basic type 902044/25
Basic type 902044/26



Basic type 902044/28
Basic type 902044/29

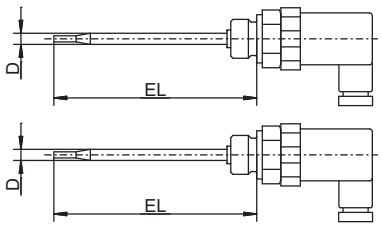


Basic type 902044/80
Basic type 902044/81

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Order details

			(1)	**Basic type**
		902044/15		Screw-in RTD temperature probe with connection socket Pg9 and stepped down protection tube according to DIN EN 175301-803 (DIN 43650)
		902044/16		Screw-in RTD temperature probe with connection socket Pg11 and stepped down protection tube according to DIN EN 175301-803 (DIN 43650)
			(2)	**Operating temperature in °C**
x	x	380		-50 to +200 °C
			(3)	**Measuring insert**
x	x	1003		1 × Pt100 in 2-wire circuit
x	x	1011		1 × Pt100 in 4-wire circuit
			(4)	**Tolerance class according to DIN EN 60751**
x	x	1		Class B (standard)
x	x	2		Class A
			(5)	**Protection tube diameter D in mm**
x	x	6		Ø 6 mm, stepped down to Ø 3.3 mm
			(6)	**Insertion length EL in mm (50 to 800 mm)**
x	x	50		50 mm
x	x	100		100 mm
x	x	150		150 mm
x	x	200		200 mm
x	x	250		250 mm
x	x	. . .		Please specify in plain text (50 mm increments)
			(7)	**Process connection**
x	x	102		Screw connection G 1/4
x	x	103		Screw connection G 3/8
x	x	104		Screw connection G 1/2
x	x	126		Screw connection M18 × 1.5
x	x	128		Screw connection M20 × 1.5
x	x	144		Screw connection (thread) 1/2-14NPT
			(8)	**Protection tube material**
x	x	26		Stainless steel 1.4571
			(9)	**Extra code**
x	x	000		Without



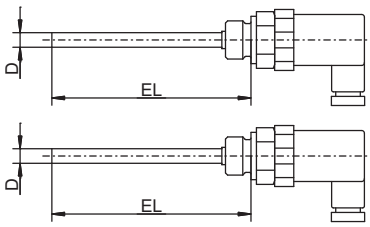
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Order code		-		-		-		-		-		-		-		/	
Order example	902044/15	-	380	-	1003	-	1	-	6	-	100	-	104	-	26	/	000

Note:
Version with machine connector M12 × 1, data sheets 902040 and 902815

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Order details

			(1)	**Basic type**
		902044/20		Screw-in RTD temperature probe with connection socket Pg9 according to DIN EN 175301-803 (DIN 43650)
		902044/21		Screw-in RTD temperature probe with connection socket Pg11 according to DIN EN 175301-803 (DIN 43650)
			(2)	**Operating temperature in °C**
x	x	380		-50 to +200 °C
			(3)	**Measuring insert**
x	x	1003		1 × Pt100 in 2-wire circuit
x	x	1011		1 × Pt100 in 4-wire circuit
x	x	2003		2 × Pt100 in 2-wire circuit
			(4)	**Tolerance class according to DIN EN 60751**
x	x	1		Class B (standard)
x	x	2		Class A
			(5)	**Protection tube diameter D in mm**
x	x	8		Ø 8 mm
			(6)	**Insertion length EL in mm (50 to 800 mm)**
x	x	50		50 mm
x	x	100		100 mm
x	x	150		150 mm
x	x	200		200 mm
x	x	250		250 mm (no GL approval)
x	x	. . .		Please specify in plain text (50 mm increments)
			(7)	**Process connection**
x	x	102		Screw connection G 1/4
x	x	103		Screw connection G 3/8
x	x	104		Screw connection G 1/2
x	x	126		Screw connection M18 × 1.5
x	x	128		Screw connection M20 × 1.5
x	x	144		Screw connection (thread) 1/2-14NPT
			(8)	**Protection tube material**
x	x	26		Stainless steel 1.4571
			(9)	**Extra code**
x	x	000		Without
x	x	062		GL approval (max. EL = 200 mm)



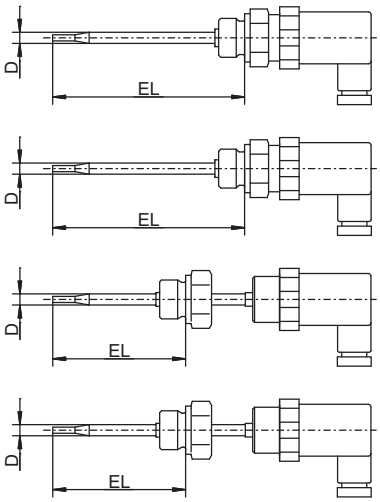
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Order code		-		-		-		-		-		-		-		/	
Order example	902044/20	-	380	-	1003	-	1	-	8	-	100	-	104	-	26	/	000

Note:
Version with machine connector M12 × 1, data sheets 902040 and 902815

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Order details

					(1)	**Basic type**
				902044/25		Screw-in RTD temperature probe with analog transmitter and connection socket Pg9 according to DIN EN 175301-803 (DIN 43650)
				902044/26		Screw-in RTD temperature probe with analog transmitter and connection socket Pg11 according to DIN EN 175301-803 (DIN 43650)
				902044/28		Screw-in RTD temperature probe with analog transmitter and connection socket Pg9 according to DIN EN 175301-803 (DIN 43650) (neck tube design for higher temperatures)
				902044/29		Screw-in RTD temperature probe with analog transmitter and connection socket Pg11 according to DIN EN 175301-803 (DIN 43650) (neck tube design for higher temperatures)
					(2)	**Operating temperature in °C**
x	x			370		-50 to +150 °C
		x	x	386		-50 to +260 °C
					(3)	**Measuring insert**
x	x	x	x	1003		1 × Pt100 in 2-wire circuit
					(4)	**Tolerance class according to DIN EN 60751**
x	x	x	x	1		Class B (standard)
x	x	x	x	2		Class A
					(5)	**Protection tube diameter D in mm**
x	x	x	x	6		Ø 6 mm, stepped down to Ø 3.3 mm
					(6)	**Insertion length EL in mm (50 to 800 mm)**
x	x	x	x	50		50 mm
x	x	x	x	100		100 mm
x	x	x	x	150		150 mm
x	x	x	x	200		200 mm
x	x	x	x	250		250 mm
x	x	x	x	. . .		Please specify in plain text (50 mm increments)
					(7)	**Process connection**
x	x	x	x	102		Screw connection G 1/4
x	x	x	x	103		Screw connection G 3/8
x	x	x	x	104		Screw connection G 1/2
x	x	x	x	126		Screw connection M18 × 1.5
x	x	x	x	128		Screw connection M20 × 1.5
x	x	x	x	144		Screw connection (thread) 1/2-14NPT
					(8)	**Protection tube material**
x	x	x	x	26		Stainless steel 1.4571
					(9)	**Extra code**
x	x	x	x	000		Without



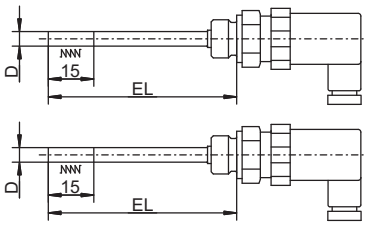
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Order code		-		-		-		-		-		-		-		/	
Order example	902044/25	-	370	-	1003	-	1	-	6	-	100	-	104	-	26	/	000

Note:
Version with machine connector M12 × 1, data sheets 902040 and 902815

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Order details

			(1)	**Basic type**
		902044/80		Screw-in RTD temperature probe with connection socket Pg9 according to DIN EN 175301-803 (DIN 43650) and flexible screw connection
		902044/81		Screw-in RTD temperature probe with connection socket Pg11 according to DIN EN 175301-803 (DIN 43650) and flexible screw connection
			(2)	**Operating temperature in °C**
x	x	380		-50 to +200 °C
			(3)	**Measuring insert**
x	x	1003		1 × Pt100 in 2-wire circuit
x	x	1011		1 × Pt100 in 4-wire circuit
x	x	2003		2 × Pt100 in 2-wire circuit
			(4)	**Tolerance class according to DIN EN 60751**
x	x	1		Class B (standard)
x	x	2		Class A
			(5)	**Protection tube diameter D in mm**
x	x	8		Ø 8 mm
			(6)	**Insertion length EL in mm (50 to 800 mm)**
x	x	50		50 mm
x	x	100		100 mm
x	x	150		150 mm
x	x	200		200 mm
x	x	250		250 mm
x	x	. . .		Please specify in plain text (50 mm increments)
			(7)	**Process connection**
x	x	104		Screw connection G 1/2
			(8)	**Protection tube material**
x	x	26		Stainless steel 1.4571
			(9)	**Extra code**
x	x	000		Without



	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)
Order code		-		-		-		-		-		-		-		/	
Order example	902044/80	-	380	-	1003	-	1	-	8	-	100	-	104	-	26	/	000

Stock versions

(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)	Part no.
902044/15	-	380	-	1003	-	1	-	6	-	100	-	104	-	26	/	000	00600899
902044/20	-	380	-	1003	-	1	-	8	-	50	-	104	-	26	/	000	00365259
902044/20	-	380	-	1003	-	1	-	8	-	100	-	104	-	26	/	000	00368414
902044/20	-	380	-	1003	-	1	-	8	-	150	-	104	-	26	/	000	00368416