

### Main features

- Sensor and connection in stainless steel, AISI 316L
- DIN form B housing
- Robust design

### Applications

- Industrial applications with industrial process connection
- Pipe systems
- Heating systems
- Water systems
- Tanks and vessels

### Technical specification

Housing	DIN form B, Aluminium
El. connection	M20, option M16, M20 marine app.
Output	Pt100/Pt1000 Ceramic terminal block. 4...20 mA temperature transmitter
Sensor tube material	Stainless steel AISI 316L (1.4404)
Sensor diameter outside	Ø 6, Ø 8 or Ø 10 mm
Sensor length	Standard tip <3000 mm Fast response tip <300 mm
Standard response tip	As outside diameter
Fast response tip	Ø 4 x 20 mm
Max. flow velocity	Air : 40 m/sec Liquid : 5m/sec.

### Sensor element, Pt100 - DIN/EN/IEC 60751

Pt100 DIN class B	$\pm (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 1/3 DIN class B	$\pm 1/3 \times (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 1/6 DIN class B	$\pm 1/6 \times (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 DIN class A	$\pm (0.15 + 0.002xt) \text{ } ^\circ\text{C}$
Single element	1 x Pt100
Double element	2 x Pt100

Connection	2-wire or 4-wire
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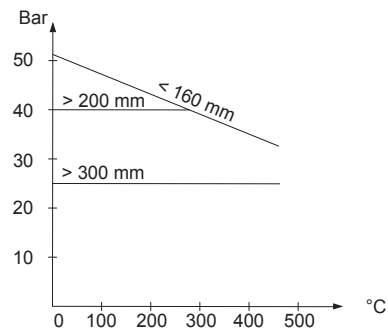
### Sensor element, Pt1000 - DIN/EN/IEC 60751

Pt1000 DIN 1/3 DIN class B	$\pm 1/3 \times (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Single element	1 x Pt1000
Connection	2-wire

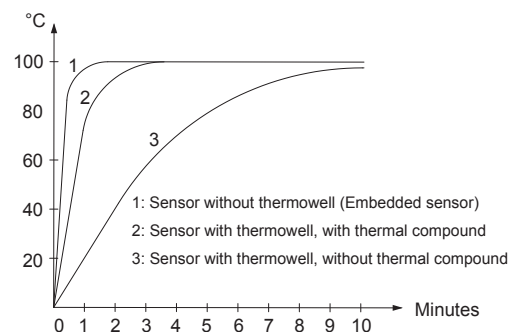
### Environment

Ambient temperature	w.terminal block	-40...160°C
	w. transmitter	-40...85°C
Process temperature		-50...400°C
Protection class		IP65
Humidity		<100% RH, condensing
Vibrations		GL, test 2

### Pressure

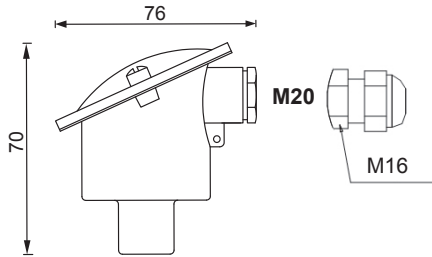


### Response time

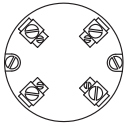


Note: When a pocket is used, the time delay increases. The delay is the time duration for the sensor to reflect the correct temperature after a sudden temperature change in the media.

**Dimensions (mm), connection diagram and construction details**



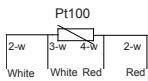
**Ceramic terminal block**



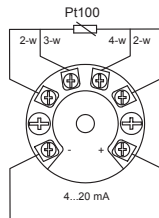
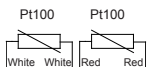
**Temperature transmitter**



Single element



Double element

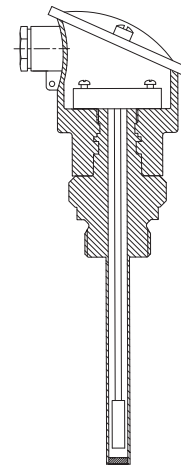
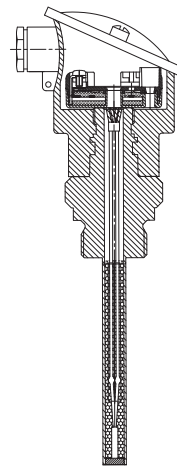
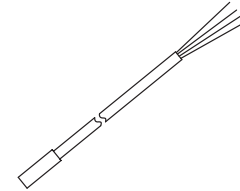


**Embedded sensor**

Not with replaceable sensor

Faster response time see page 1

**Cable sensor insert**



**Transmitter, type FlexTop 2202 - Standard**

Input	Pt100
Output	4...20 mA
Accuracy	
Input	<0.25°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2202	

**Transmitter, type FlexTop 2211 - Performance**

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA
Accuracy	
Input	<0.1°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2211	

**Transmitter, type FlexTop 2221 - Standard**

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA / HART
Accuracy	
Input	<0.1°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701 By HART terminal/modem
For further information please see data sheet for FlexTop 2221	

### ATEX data for temperature transmitters

#### Transmitter, type FlexTop 2202 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...28 VDC
Internal inductivity	$L_i \leq 10 \mu\text{H}$
Internal capacity	$C_i \leq 10 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 28 \text{VDC}$ I: $\leq 0.1\text{A}$ P: $\leq 0.75 \text{W}$

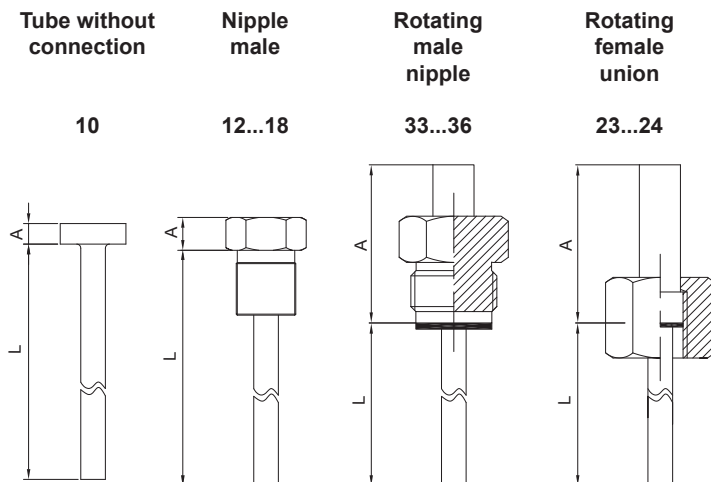
#### Transmitter, type FlexTop 2221 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...30 VDC (Ex nA : 12...30 VDC)
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 30 \text{VDC}$ I: $\leq 0.1\text{A}$ P: $\leq 0.75 \text{W}$

#### Transmitter, type FlexTop 2211 - ATEX

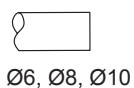
Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	6.5...30 VDC
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	U: $\leq 30 \text{VDC}$ I: $\leq 0.1\text{A}$ P: $\leq 0.75 \text{W}$

### Dimensions (mm) for process connections and immersion tube

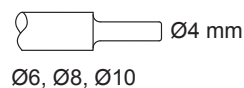


Connection	Code	A	A/F	L
Without	10	5	Ø18	20...3.000
G½, R½	12/13	10	22.0	20...3.000
M18, M20	16/17	10	22.0	20...3.000
½" NPT	18	10	22.0	20...3.000
G½ nipple	33	38	27.0	20...3.000
G¾ nipple	35	38	32.0	20...3.000
G1 nipple	36	38	36.0	20...3.000
G½ union	23	38	27.0	20...3.000
G¾ union	24	38	32.0	20...3.000

Standard  
Tip



Fast  
response tip



## Ordering details TCR6

		TCR6	-	xxxx	.	x	x	x	x	.	x	x	xx	.	x	x	xx	.	xxxx
<b>Model</b>		TCR6																	
Standard temperature sensor, CombiTemp TCR6																			
<b>Electrical connection</b>																			
Cable gland, M16																			1520
Cable gland, M16, shielded																			1620
Cable gland, M20 (standard)																			1720
<b>Terminal block/Transmitter</b>																			
Flying leads	Pt100 output																		0
Ceramic terminal block	Pt100 output																		1
FlexTop 2202	4...20 mA																		±0.25°C
FlexTop 2211	4...20 mA																		±0.10°C
FlexTop 2221	4...20 mA + HART®																		±0.10°C
<b>Safety</b>																			
Standard																			0
ATEX, ia (pending)																			1
ATEX, nA (pending)																			3
<b>Configuration</b>																			
No configuration																			0
Configuration of range																			1
<b>Sensor element</b>																			
None (for Cable Sensor)																			0
1 × Pt100 Cl. B																			1
2 × Pt100 Cl. B																			2
1 × Pt100 Cl. 1/3 B																			5
2 × Pt100 Cl. 1/3 B																			6
1 × Pt100 Cl. 1/6 B																			7
2 × Pt100 Cl. 1/6 B																			8
1 × Pt100 Cl. A																			A
2 × Pt100 Cl. A																			B
1 × Pt100 Cl. B < 600°C																			C
1 × Pt1000, cl. B																			J
1 × Pt1000, cl. 1/3 B																			K
<b>Sensor insert type</b>																			
Embedded	2-wire																		sensor element
Embedded	4-wire																		1
Embedded	2x2-wire																		2
Cable sensor	4-wire, Ø8 mm only																		Pt100, 1/1 DIN B
Cable sensor	4-wire, Ø8 mm only																		Pt100, 1/3 DIN B
Cable sensor	4-wire, Ø8 mm only																		Pt100, 1/6 DIN B
Cable sensor	4-wire, Ø8 mm only																		Pt100, 1/1 DIN A
<b>Cooling neck</b>																			
None																			0
71 mm																			1
142 mm																			2
213 mm																			3
<b>Process connection</b>																			
Tube without connection																			10
Nipple, male	G½																		DIN3852 form A
Nipple, male	R½																		ISO 7/1
Nipple, male	M18×1.5																		ISO 261
Nipple, male	M20×1.5																		ISO 261
Nipple, male	½"NPT-14																		ANSI/ASME B1.20.1
Rotating male nipple	G½																		ISO 228/1 incl. NBR gasket
Rotating male nipple	G¾																		ISO 228/1 incl. NBR gasket
Rotating male nipple	G1																		ISO 228/1 incl. NBR gasket
Rotating female union	G½																		ISO 228/1 incl. NBR gasket
Rotating female union	G¾																		ISO 228/1 incl. NBR gasket
<b>Seal</b>																			
No seal																			0
NBR gasket	(-40...108°C) for rotating nipple and union only																		1
<b>Sensor diameter</b>																			
Ø6.0 mm	Welded																		5
Ø8.0 mm	Welded																		6
Ø10 mm	Welded																		8
<b>Sensor tip</b>																			
Standard	Normal response																		10
Fast	Fast response																		Not for cable sensor
																			Ø4 mm - Max. 300 mm
																			20
<b>Sensor tube length</b>																			
Length in mm (e.g. 60 mm = 0060)																			xxxx



### Main features

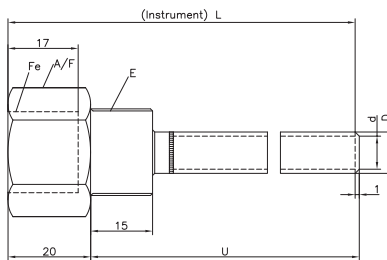
- Stainless steel, AISI 316
- Robust design

### Applications

- For threaded process connection - Ø6 and Ø8 sensor
- For hygienic process connection - Ø6 sensor

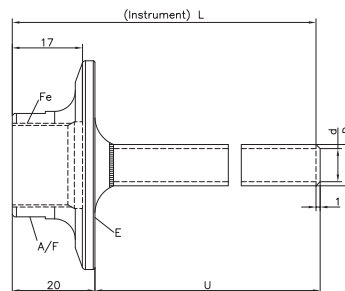
### Dimensions (mm)

#### Threaded industrial type



- L Instrument length, up to 3 m
- Fe G $\frac{1}{2}$
- A/F 27 mm
- E R $\frac{1}{2}$ , G $\frac{1}{2}$ A, G $\frac{3}{4}$ A or M20x1,5
- D Ø10 or Ø12 mm
- d Ø8 or Ø10 mm
- U Insertion length

#### Hygienic type



- L Instrument length, up to 3 m
- Fe G $\frac{1}{2}$
- A/F 25 mm
- E Clamp, ISO 2852 DN 38
- D Ø10 mm
- d Ø8 mm
- U Insertion length

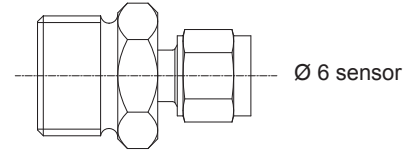
### Ordering details ZPT4

	ZPT4	-	5	xx	6	x	.	xxxx
<b>Model</b>	Thermowell	ZPT4						
<b>Instrument connection</b>	Female thread G $\frac{1}{2}$		5					
<b>Process connection</b>	R $\frac{1}{2}$ (½" BSPT)			14				
	G $\frac{1}{2}$			15				
	G $\frac{3}{4}$			34				
	M20x1.5			54				
	Clamp ISO 2852 DN 25/DN38			38				
<b>Material</b>	Stainless steel AISI 316L/1.4404				6			
<b>Sensor diameter</b>	Ø6 (outside Ø10 mm)					5		
	Ø8 (outside Ø12 mm)					7		
<b>Length (L)</b>	mm (60 mm = 0060)							0000

## Mounting accessories: Compression gland, type ZPB1



Thread size  
as per below



### Specifications for compression gland, type ZPB1

Material	Stainless steel, AISI 316
Sensor diameter	Ø 6mm

### Ordering details for compression gland

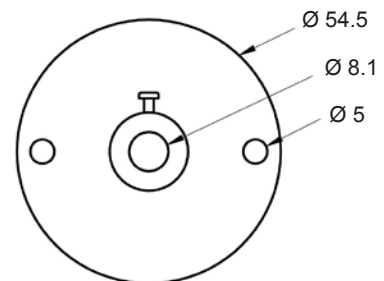
	ZPB1	-	0	14	65
<b>Model</b>					
Compression gland	ZPB1				
<b>Material</b>					
AISI 316 for Ø6 mm sensor			0		
<b>Process connection</b>					
G½A				14	65

### Ventilation duct flange, Ø8 mm sensor only

Material	Stainless steel, AISI 316
Sensor diameter	Ø 8mm

### Dimensions for ventilation duct flange

Ventilation duct flange      Order : **ZPX1-002**



### Ordering details

<b>Model</b>		
Duct flange	ZPX1.002	

### Thermal compound

Recommended within the temperature range of -40 ... +180 °C



### Ordering details for thermal compound

<b>Model</b>		
6 gram in plastic bag	ZPX1-001	