TER8
PEEK-insulated temperature sensor

Baumer
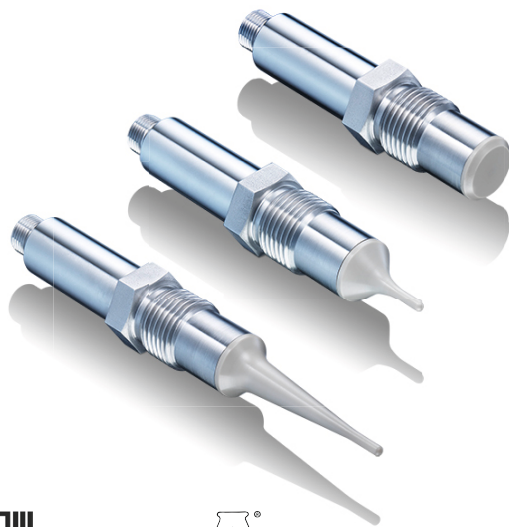Passion for Sensors

Product highlights

- 3-A fulfillment without elastomers
- Front-flush or short insertion length
- Accurate, independent on ambient temperature
- Fast response time
- Interface free tightness in process
- Compact stainless housing sealed up to IP69K
- Optional integrated 4 … 20 mA transmitter

User benefits

- Safe process with less downtime
- Free choice of mounting position even with agitators
- Less influence on process in particular with highly viscous media
- Ability for mounting in small tubes down to DN 25
- High process effectiveness
- Reliable in SIP-operation
- Long life time even in wash-down areas
- High flexibility by programmable temperature range

Technical Data

Mechanical specifications

Housing Material	■ Ø 18 mm ■ Stainless steel, AISI 304 (1.4301)
El. Connection	■ M12, 4 pins
Process connection Material	■ G1/2B hygienic ■ Stainless steel AISI 316L (1.4404)
Sensor dimensions Material	■ Front flush sensor ■ Immersion sensor, length 20 mm ■ Immersion sensor, length 50 mm ■ PEEK

Environment

Ambient temperature	■ -40 ... 85 °C
Process temperature	■ Standard: -40 ... 125 °C ■ With cooling neck: -40 ... 150 °C
Process pressure	■ Front flush < 100 °C 100 bar < 150 °C 50 bar ■ Immersion sleeve < 100 °C 50 bar < 150 °C 25 bar
Max. lateral force	■ 50 N
Protection class	■ IP67
Humidity	■ < 98 % RH, condensing
Vibration	■ IEC 60068-2-6, GL Test 2

Compliance and approvals

EMC	■ 2004/108/EC, EN 61236
Food contact	■ FDA, 1935/2004, 10/2011, 2023/2006
Hygienic design	■ 3-A

Response time
acc. IEC/EN/DIN 60751, tested with weld-in sleeve ZPW2-321

Front flush sensor	■ T50 ≤ 9 s ■ T90 ≤ 66 s
20 mm sensor	■ T50 ≤ 2.5 s ■ T90 ≤ 6.5 s
50 mm sensor	■ T50 ≤ 2.7 s ■ T90 ≤ 6.3 s

Sensor element
acc. IEC/EN/DIN 60751

Pt100 class B	■ ± (0.3 + 0.005·t) °C
Pt100 class AA (1/3 B)	■ ± 1/3 × (0.3 + 0.005·t) °C
Pt100 class 1/6 B	■ ± 1/6 × (0.3 + 0.005·t) °C
Pt100 class A	■ ± (0.15 + 0.002·t) °C

Output
selectable by configuaration

Resistance	■ Pt100 signal
Built in transmitter	■ 4 ... 20 mA

Transmitter, type TE2

Input	■ Pt100
Output	■ 4 ... 20 mA
Shunt resistance	■ ≤ 700 Ω (supply 24 V)
Accuracy Input Output Repeatability Temperature drift	 ■ < 0.25 °C (≤ 100 °C) ■ < 0.1 % of signal span (16 mA) ■ < 0.1 °C ■ Typ. < 0.003 % / °C; max. < 0.01 % / °C
Range	■ -40 ... 150 °C (programmable)
Minimum span	■ 25 °C
Supply	■ 8 ... 35 V DC ■ Reverse polarity protected
Programmability	■ By *FlexProgrammer* 9701

Note : The requirements of the respective 3-A Sanitary Standard will be only fulfilled in combination with appropriate mounting accessories. Those are marked with the 3-A logo.

TER8

PEEK-insulated temperature sensor

Diagrams

Influence from ambient temperature

Change of measured temperature

— Flush Pt100
— 20 mm Pt100
— 50 mm Pt100

°C

Temperature difference media - ambient
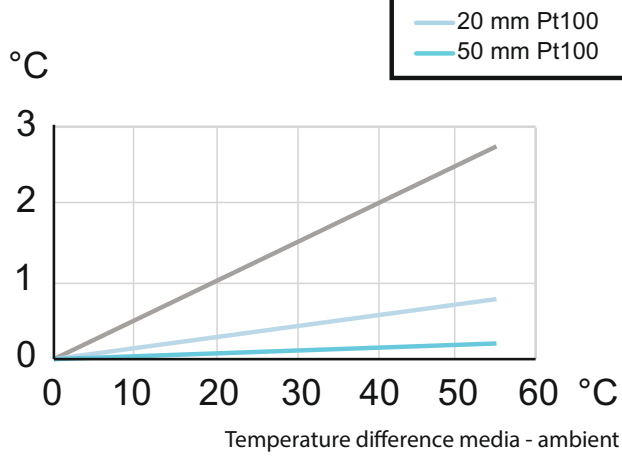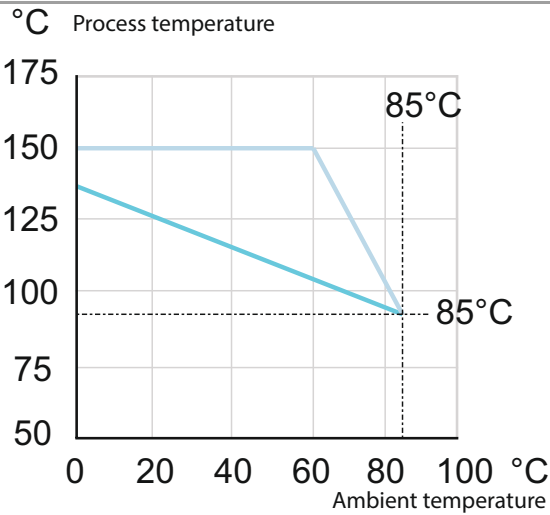
With Pt100 output
Front flush sensor   0.056 °C / °C
20 mm sensor   0.017 °C / °C
50 mm sensor   0.005 °C / °C

Test conditions:
Media temperature   Stable at 0.01 °C
Ambient temp. change   30 °C → 85 °C
Total change   55 °C
(compensated for all other possible errors)

Maximum media temperature related to ambient temperature

°C   Process temperature

85°C

85°C

Ambient temperature

— With cooling neck
— Without cooling neck

Max. ambient temp.   85 °C
Without cooling neck   media < 125 °C @ 20 °C ambient
With cooling neck   media < 150 °C @ 20 °C ambient

Electrical installation with Pt100 output

RTD
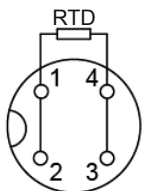
M12 plug
Pt100
2-wire (1 / 4)
3-wire (1 / 2 + 4)
4-wire (1 / 2 + 3 / 4)

Electrical installation with 4 ... 20 mA output
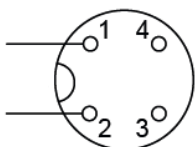
M12 plug
4 ... 20 mA
1 L+
2 L-

Baumer

Dimensional Drawings
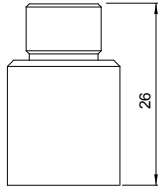
**Short housing
Pt100 output
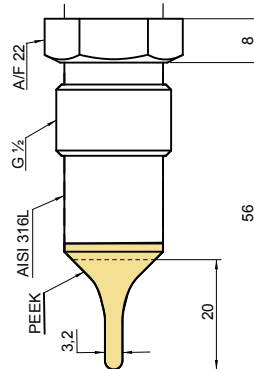M12**
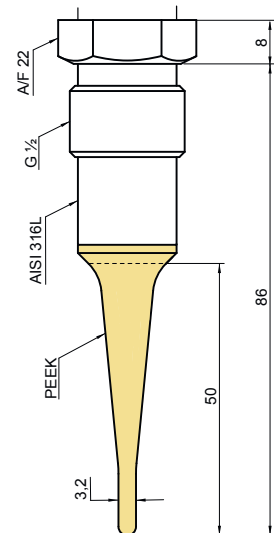
26
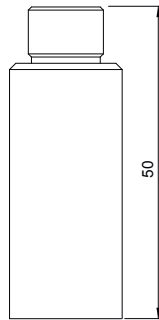
**Long housing
4 ... 20 mA output
M12**

50

Ø18

50

**Cooling
neck**

A/F 22
G ½
AISI 316L
PEEK
8
56

Front flush sensor

A/F 22
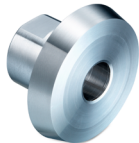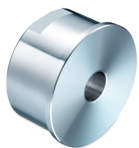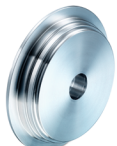G ½
AISI 316L
PEEK
8
56
20
3.2

20 mm sensor

A/F 22
G ½
AISI 316L
PEEK
8
86
50
3.2
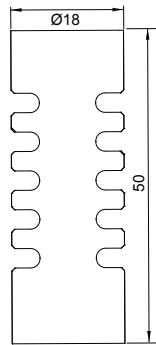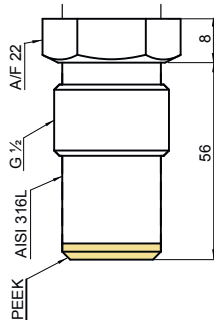
50 mm sensor

Ordering code
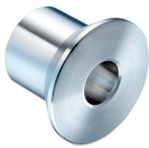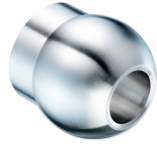
	TER8	- 1 1 3 0	. x x x x	. x A 0 3	. x x x x	. x x x x

Product	
Temperature sensor TER8	TER8

Housing	
Ø18 mm stainless steel housing, AISI 304, plug M12, 4 pin	1 1 3 0

Output	
Pt100 output	0 0
Transmitter, 4 ... 20 mA	2 0

Configuration	
None	0
4 ... 20 mA temperature range	1

Sensor element	
1×Pt100, class B	1
1×Pt100, class AA (1/3 B)	5
1×Pt100, class 1/6 B	7
1×Pt100, class A	A

Cooling neck	
None < 125 °C	0
With < 150 °C	4

Process connection (BCID)	
G1/2B hygienic (A03)	A 0 3

Sensor type	
Front flush	0 A
Immersion sleeve	0 B

Sensor tip	
Front flush	1 0
Ø 3.2 mm (for immersion sleeve)	2 0

Sensor length	
Front flush	0 0 0 0
20 mm	0 0 2 0
50 mm	0 0 5 0

Accessories

Hygienic adapters (BCID: A03)

		Description	Ordering code
		Clamp, DIN 35676 DN 25, DN 40 ISO 3852 DN 25, DN 38	ZPH1-3213
		DIN 32676 DN 50 ISO 2852 DN 51	ZPH1-3216
		DIN 11851 DN 25 DN 40 DN 50	ZPH1-3221 ZPH1-3224 ZPH1-3225
		SMS 1145 DN 51	ZPH1-3236
		Varivent® Type N	ZPH1-324E

Hygienic weld-in sleeves (BCID: A03)

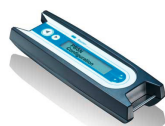|		Description	Ordering code
		Tanks, with inspection hole	ZPW2-321
		Thin wall tanks	ZPW2-322
		Tanks, pipes	ZPW2-324
		Pipe extrusion DN 25 ... DN 50 DN 65 ... DN 150	ZPW2-326 ZPW2-327

Accessories

Threaded adapter (BCID: A03)

	Description	Ordering code
	Industrial	
	G1B	ZPI1-32B
	G11/2	ZPI1-32D
	G2B	ZPI1-32E

Interfaces

	Description	Ordering code
	Programming kit for set up of the temperature sensor TER8. The set contains a *FlexProgrammer*, all cables needed, carrying strap and the *FlexProgrammer* software on a CD.	9701-0001

For dimensions please refer to the applicable product data sheet