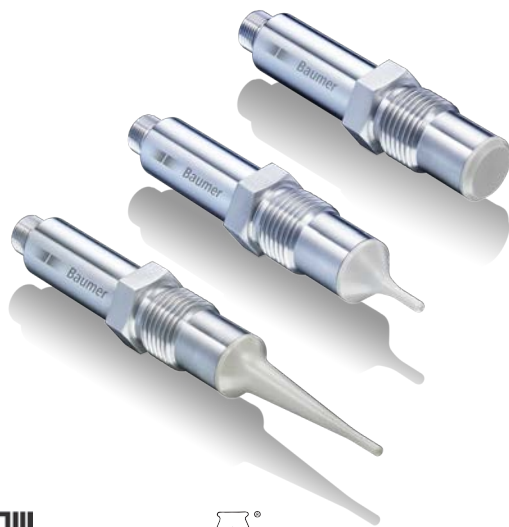


TER8

Front-flush and low-invasive resistance thermometers



Product highlights

- 3-A fulfillment without elastomers
- Front-flush or immersed types
- Accurate reading independent on ambient temperature
- Fast response time
- Hermetically sealed towards process
- Capable of SIP (Sterilization in Place)
- Compact stainless steel housing, protection up to IP69K
- Optional integrated 4 ... 20 mA transmitter

User benefits

- Safe process with less downtime
- Free choice of mounting position even with agitators and pigging systems
- Ability for mounting in small tubes down to DN 25
- High process effectiveness
- Long life time even in wash-down areas
- Reliable in SIP operation
- High flexibility by programmable output range

Technical data

Housing	
Style	■ Compact design
Overall size	■ Refer to section „Dimensional drawings“
Material	■ Stainless steel
Electrical connection	
Connector variants	■ M12, 4-pin
Ambient conditions	
Operating temperature range	■ -40 ... 85 °C
Storage temperature range	■ -50 ... 85 °C
Degree of protection (EN 60529)	■ IP67 ■ IP69K (with appropriate cable)
Humidity	■ < 98 % RH, condensing
Vibration (sinusoidal) (EN 60068-2-6)	■ 1.6 mm p-p (2 ... 25 Hz), 4 g (25 ... 100 Hz), 1 octave / min.
Process connection	
Connection variants	■ G 1/2 A hygienic ■ Others with adapters (please refer to section „Accessories“)
Material	■ AISI 316L (1.4404)
Wetted parts material	■ PEEK Natura
Immersion length	■ Front-flush ■ 20 mm ■ 50 mm
Surface roughness wetted parts	■ Ra < 0.8 µm

Process conditions

- | | |
|---------------------|---|
| Process temperature | ■ -40 ... 115 °C
■ 135 °C max. (t < 1 h) |
| Process pressure | ■ Refer to section „Process conditions“ |

Power supply [1]

- | | |
|-----------------------------|-----------------|
| Voltage supply range | ■ 8 ... 35 V DC |
| Reverse polarity protection | ■ Yes |
| Power-up time | ■ < 20 s |

Output signal

- | | |
|-----------------------------|--|
| Resistance | ■ Pt100 (4-wire) |
| Current output [1] | ■ 4 ... 20 mA (2-wire) |
| Shunt resistance | ■ $R_s \leq 680 \text{ Ohm}$ ($V_s = 24 \text{ V DC}$)
■ $R_s \leq (V_s - 8 \text{ V}) / 0.023 \text{ A}$ |
| Output range | ■ -50 ... 150 °C (programmable) |
| Min. output span | ■ 25 °C |
| Sampling interval | ■ 0.5 s |
| Damping | ■ 0.0 ... 30.0 s (programmable) |
| Max. measuring error | ■ $\pm 0.25 \text{ °C}$ |
| Max. output error | ■ $\pm 0.1 \text{ % FS}$ ($\pm 0.016 \text{ mA}$) |
| Temperature drift (ambient) | ■ $< \pm 0.003 \text{ % FS / °C typ.}$
■ $< \pm 0.01 \text{ % FS / °C max.}$ |

[1] Only applicable with integrated 4 ... 20 mA transmitter

TER8

Front-flush and low-invasive resistance thermometers

Technical data	
Performance characteristics	
Pt100 accuracy class (EN 60751)	<ul style="list-style-type: none"> ■ B ($\pm 0.3\text{ °C}$ at 0 °C) ■ A ($\pm 0.15\text{ °C}$ at 0 °C) ■ AA ($\pm 0.1\text{ °C}$ at 0 °C) ■ 1/6 B ($\pm 0.05\text{ °C}$ at 0 °C)
Response time T50	<ul style="list-style-type: none"> ■ $\leq 9.0\text{ s}$ (front-flush) ■ $\leq 2.5\text{ s}$ (20 mm) ■ $\leq 2.7\text{ s}$ (50 mm)
Response time T90	<ul style="list-style-type: none"> ■ $\leq 66.0\text{ s}$ (front-flush) ■ $\leq 6.5\text{ s}$ (20 mm) ■ $\leq 6.7\text{ s}$ (50 mm)
Factory settings [1]	
Output range	■ $0 \dots 150\text{ °C}$
Output at sensor fault	■ 23 mA
Damping	■ 0.0 s
Compliance and approvals	
EMC	<ul style="list-style-type: none"> ■ EN 61326-1 ■ EN 61000-6-2 ■ EN 61000-6-3
Hygiene	<ul style="list-style-type: none"> ■ 1935/2004/EG ■ 10/2011/EU ■ 2023/2006/EG ■ FDA (21 CFR 177.2416) ■ 3-A (74-06) [2]

[1] Only applicable with integrated 4 ... 20 mA transmitter

[2] 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.

Note:

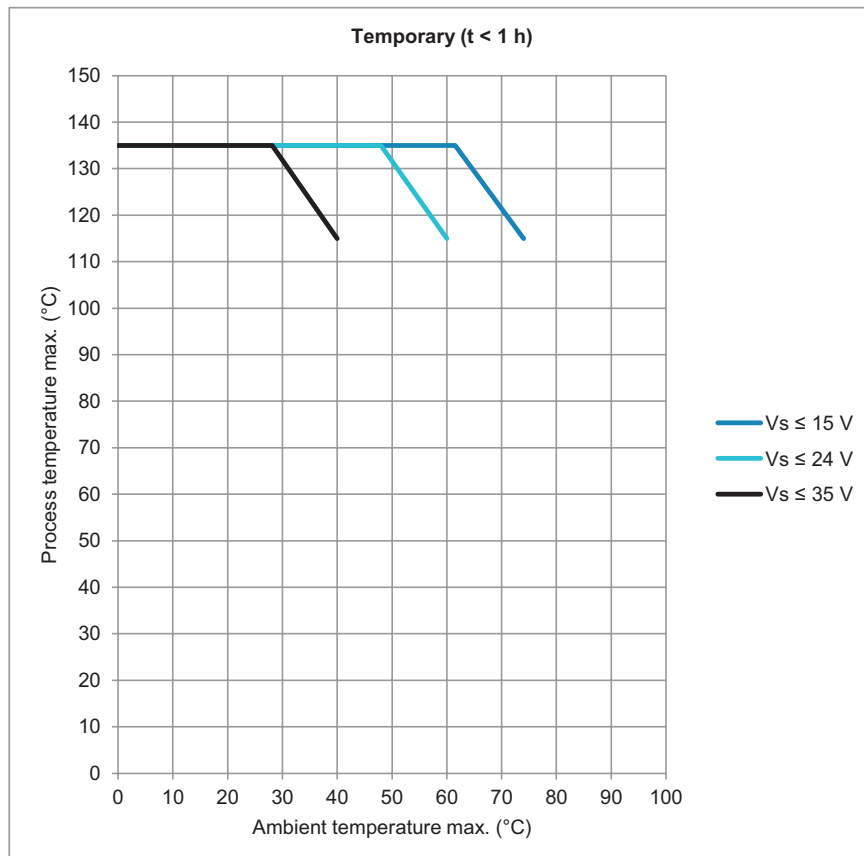
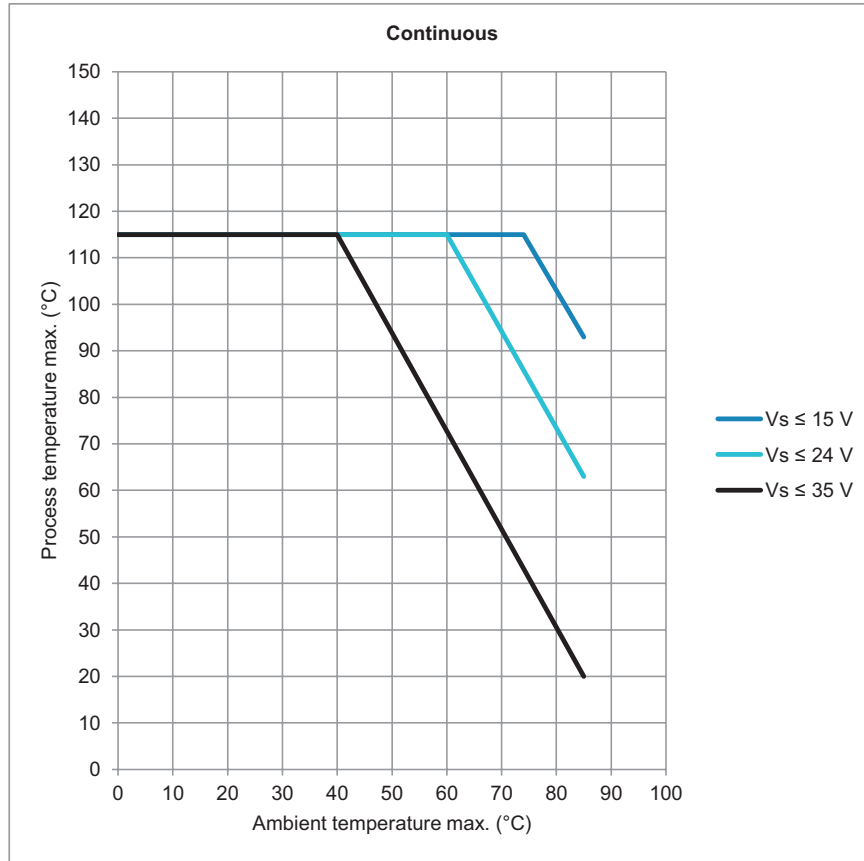
Information on product characteristics may relate to defined product options.

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Front-flush and low-invasive resistance thermometers

Process conditions

Process temperature



TER8

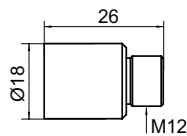
Front-flush and low-invasive resistance thermometers

Process pressure

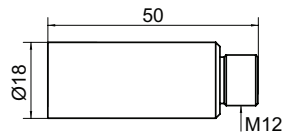
Type	Process pressure bar	Process temperature °C	Time limit
Front-flush	-1 ... 10	-40 ... 115	Unlimited
	-1 ... 5	115 ... 135	< 1 h
Immersion length 20 mm	-1 ... 10	-40 ... 115	Unlimited
	-1 ... 5	115 ... 135	< 1 h
Immersion length 50 mm	-1 ... 10	-40 ... 115	Unlimited
	-1 ... 5	115 ... 135	< 1 h

Dimensional drawings

Housing

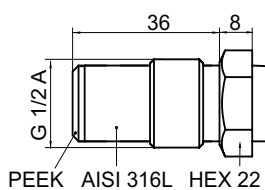


Pt100 (4-wire)
X04-130.0

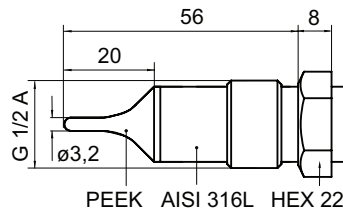


4 ... 20 mA (2-wire)
X04-130.2, X04-130.A

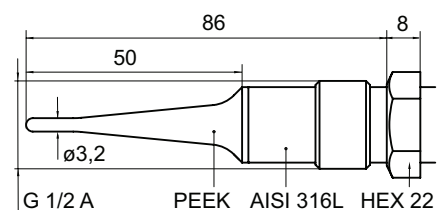
Process connection



G 1/2 A hygienic, front-flush
A03-A30.0000



**G 1/2 A hygienic,
immersion length 20 mm**
A03-B20.0020



**G 1/2 A hygienic,
immersion length 50 mm**
A03-B20.0050

Note:

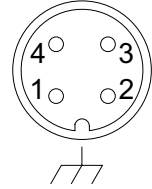
Information in format AXX-X... relates to „Baumer Connection Identifier“ (BCID) and dedicated ordering code

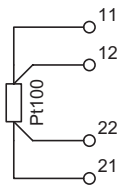
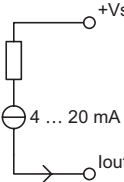
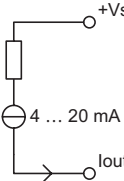
TER8

Front-flush and low-invasive resistance thermometers

Electrical connection

Pin assignment



Output signal	Equivalent circuit	Function	M12, 4 pin X04.130
Pt100 (4-wire)		Pt100 11	1
		Pt100 12	2
		Pt100 22	3
		Pt100 21	4
		Frame ground	Plug thread
4 ... 20 mA (2-wire), I_{out} at pin 2 („Output signal“ 2)		+Vs	1
		I _{out}	2
		n.c.	3, 4
		Frame ground	Plug thread
4 ... 20 mA (2-wire), I_{out} at pin 2, 3 („Output signal“ A)		+Vs	1
		I _{out}	2, 3 [3]
		n.c.	4
		Frame ground	Plug thread

[3] Internally connected

TER8

Front-flush and low-invasive resistance thermometers















Ordering information

	TER8	-	1	x	x	0	.	x	0	x	x	.	0	A	0	3	.	0	x	x	0	.	x	x	x	x
Product line	TER8																									
Front-flush and low-invasive resistance thermometers																										
Electrical connection	BCID																									
M12, 4-pin, stainless steel	X04			1	3																					
Output signal																										
Pt100 (4-wire)																										
4 ... 20 mA (2-wire), lout at pin 2																										
4 ... 20 mA (2-wire), lout at pin 2, 3																										
Configuration																										
Without																										
Output range																										
Pt100 accuracy class (EN 60751)																										
B (± 0.3 °C at 0 °C)																										
A (± 0.15 °C at 0 °C)																										
AA (± 0.1 °C at 0 °C)																										
1/6 B (± 0.05 °C at 0 °C)																										
Process connection	BCID																									
G 1/2 A hygienic	A03																									
Immersion length																										
0 mm (front-flush)																								A	3	0 0 0 0
20 mm																								B	2	0 0 2 0
50 mm																								B	2	0 0 5 0

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Front-flush and low-invasive resistance thermometers

Accessories

		Hygienic weld-in sleeves for „Process connection“ A030 (G 1/2 A hygienic, BCID: A03)	
		Description	Ordering information
		Universal use, with leak detection port Ø 30 x 34, AISI 316L (1.4404)	ZPW3-321
		Thin-walled tanks Ø 45 x 34, AISI 316L (1.4404)	ZPW3-322
		Inclined mounting Ø 35 x 34, AISI 316L (1.4404)	ZPW2-324
		Pipes with collar DN 25 ... 50, Ø 29 x 36.5, AISI 316L (1.4404)	ZPW2-326
		DN 65 ... 150, Ø 30 x 36.5, AISI 316L (1.4404)	ZPW2-327
		Hygienic adapters for „Process connection“ A030 (G 1/2 A hygienic, BCID: A03)	
		Description	Ordering information
		ISO 2852 (Tri-Clamp) DN 25; 33.7; 38, Ø 50.5, AISI 316L (1.4404)	ZPH3-3213
		DN 33.7; 38, Ø 50.5, AISI 316L (1.4404)	ZPH3-3213
		DN 40; 51, Ø 64.0, AISI 316L (1.4404)	ZPH3-3216
		DIN 32676-A (Tri-Clamp) DN 25; 32; 40, Ø 50.5, AISI 316L (1.4404)	ZPH3-3213
		DN 50; Ø 64.0, AISI 316L (1.4404)	ZPH3-3216
		DIN 32676-C (Tri-Clamp) DN 1"; 1 1/2", Ø 50.5, AISI 316L (1.4404)	ZPH3-3213
		DN 1 1/2"; Ø 50.5, AISI 316L (1.4404)	ZPH3-3213
		DN 2", Ø 64.0, AISI 316L (1.4404)	ZPH3-3216
		Varivent® DN 25; 1" (Type F), Ø 50, AISI 316L (1.4435 BN2)	ZPH3-344F
		DN 32 ... 125; 1 1/2" ... 6" (Type N), Ø 68, AISI 316L (1.4404)	ZPH3-324E

Accessories
Hygienic adapters for „Process connection“ A030 (G 1/2 A hygienic, BCID: A03)

Description

Ordering information

DIN 11851 (dairy pipe connection)

 DN 25, AISI 316L (1.4404)
 DN 40, AISI 316L (1.4404)
 DN 50, AISI 316L (1.4404)

 ZPH3-3221
 ZPH3-3224
 ZPH3-3225

SMS 1145

DN 51, AISI 316L (1.4404)

ZPH1-3236


DIN 11864-1-A (aseptic screwed union)

 DN 40, AISI 316L (1.4404)
 DN 50, AISI 316L (1.4404)

 ZPH3-3254
 ZPH3-3255

Baumer Hygienic Connection

BHC 3A DN 38, AISI 316L (1.4404)

ZPH1-32D3


Thread adapters for „Process connection“ A030 (G 1/2 A hygienic, BCID: A03)

Description

Ordering information

Industry standard

 G 1 A ISO 228-1, AISI 316L (1.4404)
 G 1 1/2 A ISO 228-1, AISI 316L (1.4404)
 G 2 A ISO 228-1, AISI 316L (1.4404)
 1-11 1/2 NPT, AISI 316L (1.4404)

 ZPI1-32B
 ZPI1-32D
 ZPI1-32E
 ZPI1-32G

Vibration fork replacement

 G 3/4 A ISO 228-1 (EH FTL GQ2), AISI 316L (1.4404)
 G 3/4 A ISO228-1 (VS Ø 21.3), AISI 316L (1.4404)
 G 1 A ISO 228-1 (EH FTL GW2), AISI 316L (1.4404)
 G 1 A ISO228-1 (VS Ø 21.3), AISI 316L (1.4404)

 ZPH1-32BA
 ZPH1-32BC
 ZPH1-32CB
 ZPH1-32CD

Hygienic interfacing

G 1 A hygienic, AISI 316L (1.4404)

ZPH1-32C0



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Front-flush and low-invasive resistance thermometers

Accessories

Blind plugs

Description

Ordering information

Blind plugs

G 1/2 A hygienic, AISI 316L (1.4404)

ZPX5-32



Welding mandrels for threaded hygienic welded connections

Description

Ordering information

Welding mandrels

G 1/2 A hygienic, Brass

ZPX6-36



Hygienic connectors with stainless steel knurl, protection up to IP69K (M12-A, 4-pin, BCID: X04)

Description

Ordering information

Female connector straight with attached cable

2 m, TPE
5 m, TPE
10 m, TPE
25 m, TPE

ESG 34AY0200
ESG 34AY0500
ESG 34AY1000
ESG 34AY2500



Female connector angular with attached cable

2 m, TPE
5 m, TPE
10 m, TPE
25 m, TPE

ESW 33AY0200
ESW 33AY0500
ESW 33AY1000
ESW 33AY2500



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Front-flush and low-invasive resistance thermometers

Accessories

Industrial connectors, protection up to IP67 (M12-A, 4-pin, BCID: X04)

Description

Ordering information

Female connector straight with attached cable



2 m, PUR
5 m, PUR
10 m, PUR

ESG 34AH0200
ESG 34AH0500
ESG 34AH1000

Female connector angular with attached cable



2 m, PUR
5 m, PUR
10 m, PUR
15 m, PUR
20 m, PUR

ESW 33AH0200
ESW 33AH0500
ESW 33AH1000
ESW 33AH1500
ESW 33AH2000

Female connector straight with attached cable, shielded



2 m, PUR
5 m, PUR
10 m, PUR

ESG 34AH0200G
ESG 34AH0500G
ESG 34AH1000G

Female connector angular with attached cable, shielded



2 m, PUR
5 m, PUR
10 m, PUR

ESW 33AH0200G
ESW 33AH0500G
ESW 33AH1000G

Female connector straight with screw terminals



PG7, PBT

ES 18A PG7

Female connector angular with screw terminals



PG7, PBT

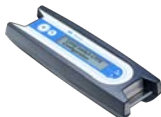
ES 14A PG7

Interfaces

Description

Ordering information

FlexProgrammer 9701



Kit for sensor parameterization, including programming interface with USB, connecting cables, carrying strap, CD-ROM with PC software and DTM drivers

9701-0001