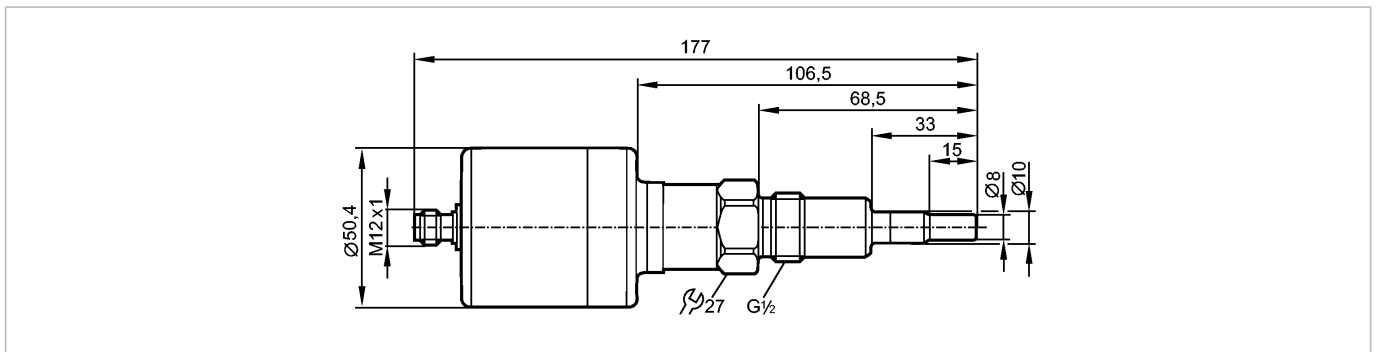


## TAD991

TAD033KLER12-A-ZKG/US

Temperature sensors



### IO-Link

Including free 5-point calibration certificate.

#### Product characteristics

Temperature transmitter  
with diagnostic output

Process connection: G 1/2 A

Installation length EL: 33 mm

Redundant sensor elements  
with backup function

Analog output 4...20 mA  
(NAMUR NE43, NE89)

Diagnostic output for drift and fault monitoring

Measuring range: -25...160 °C / -13...320 °F

Measuring element: 1 x Pt 1000 + 1 x NTC, thermally coupled, with backup function (temperature measuring even if one of the two sensor elements fails)

Factory setting: 0...150 °C / 32...302 °F

#### Application

Application liquids and gases

Pressure rating [bar] 50

Minimum installation depth [mm] 25

#### Electrical data

Electrical design DC PNP/NPN

Operating voltage [V] 18...32

Current consumption [mA] 6 (24 V)

Protection class III

Reverse polarity protection yes

#### Outputs

Output Analog output 4...20 mA  
(NAMUR NE43, NE89)  
Diagnostic output for drift and fault monitoring

Output function normally open / normally closed / heartbeat programmable, 4...20 mA analog

Current rating [mA] 250

Voltage drop [V] < 2

Short-circuit protection yes (non-latching)

Overload protection yes

Analog output 4...20 mA; Rmax [Ω]: (Ub - 15 V) x 50

#### Measuring / setting range



**TAD991**

TAD033KLER12-A-ZKG/US

**Temperature sensors**

Measuring range, (scalable)	-25...160 °C	-13...320 °F
Factory setting	0...150 °C / 32...302 °F	
Drift warning °C / °F	0.20...5.00 / 0.4...9.0	
Drift alarm °C / °F	0.20...5.00 / 0.4...9.0	
Setting range in steps of	0.05 °C	0.1 °F
Resolution		
Analog output [K]	0.05	

**Accuracy / deviations**

Analog output [K]	± 0.2 (-10...100°C); ± 0.3 (-25...-10/100...150°C); ± 0.5 (150...160°C) *)	
Temperature coefficients (in % of the span per 10 K)	< ± 0.01 **)	
Drift monitoring [K]	± 0.2 (-10...100°C); ± 0.3 (-25...-10/100...150°C); ± 0.5 (150...160°C) *)	

**Reaction times**

Power-on delay time [s]	8	
Dynamic response T05 / T09 [s]	3 / 6	
Integrated watchdog	yes	

**Software / programming**

Programming options	Drift warning / drift alarm threshold; Fail-Safe; display unit; scaling of the analog output; redundancy switching; behaviour of the diagnostic output; output polarity; normally open / normally closed	
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**Interfaces**

IO-Link Device		
Transfer type	COM1 (4.8 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9 CDV	
IO-Link Device ID	323 d / 00 01 43 h	
Profiles	Smart Sensor	
Function class	Device Identification	
Function class	Device Diagnosis	
SIO mode	yes	
Required master port class	A	
Process data analogue	1	
Process data binary	1	
Min. process cycle time [ms]	18.8	

**Environment**

Ambient temperature [°C]	-25...70	
Storage temperature [°C]	-40...85	
Protection	IP 68 / IP 69K	

**Tests / approvals**

EMC	EN 61000-6-2 EN 61000-6-3	
Shock resistance	DIN EN 68000-2-27:	50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	20 g (10...2000 Hz)
MTTF [Years]	213	

**Mechanical data**

**TAD991**

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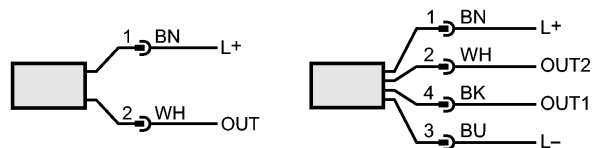
**Temperature sensors**

Process connection	G ½ A	
Materials (wetted parts)	stainless steel 316L / 1.4404; surface characteristics Ra: < 0.6	
Probe length L [mm]	33	
Installation length EL [mm]	33	
Housing materials	stainless steel 316L / 1.4404; PEI; FPM	
Tightening torque [Nm]	30...50	
Weight [kg]	0.359	

**Electrical connection**

Connection	M12 connector; gold-plated contacts
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**Wiring**



connection for 2-wire operation  
OUT: Analog output

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connection for 3-wire operation  
OUT2: Analog output  
OUT1: Diagnosis / IO-Link

**Remarks**

Remarks	cULus - Class 2 source required *) probe completely inserted into the measured medium up to the sealing chamfer **) In case of deviation from the reference condition 25 ± 5 °C
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Pack quantity [piece]	1
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**Other data**

Function class	Process Data Variables
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