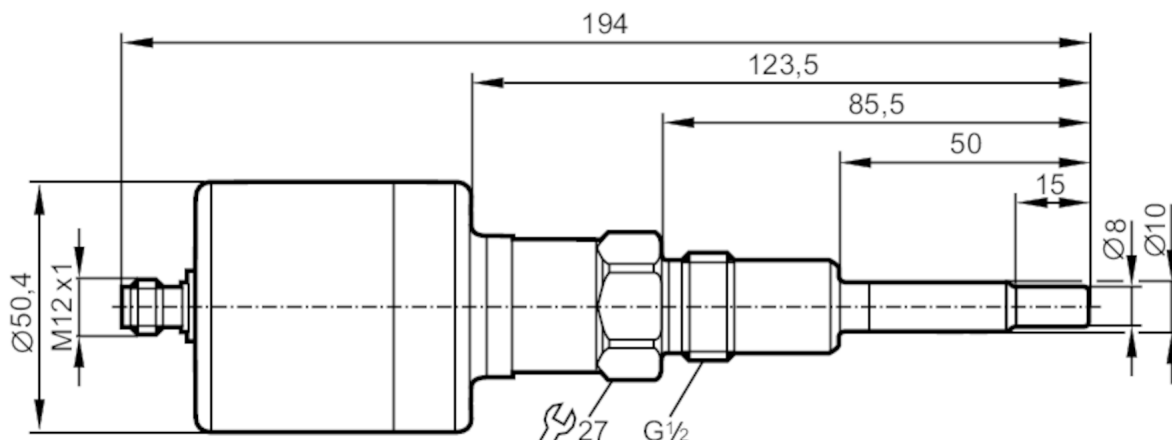


# TAD091



## Temperature transmitter with drift detection

TAD050KLER12-A-ZKG/US



CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA IO-Link

### Product characteristics

|                              |                                                           |              |
|------------------------------|-----------------------------------------------------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |              |
| Measuring range              | -25...160 °C                                              | -13...320 °F |
| Communication interface      | IO-Link                                                   |              |
| Process connection           | G 1/2 sealing cone                                        |              |
| Installation length EL [mm]  | 50                                                        |              |

### Application

|                                                |                                                                                                                                         |  |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--|
| System                                         | gold-plated contacts                                                                                                                    |  |
| Measuring element                              | 1 x Pt 1000 + 1 x NTC; (thermically coupled, with backup function (temperature measuring even if one of the two sensor elements fails)) |  |
| Media                                          | liquids and gases                                                                                                                       |  |
| Pressure rating [bar]                          | 50                                                                                                                                      |  |
| Minimum installation depth [mm]                | 25                                                                                                                                      |  |
| MAWP (for applications according to CRN) [bar] | 50                                                                                                                                      |  |

### Electrical data

|                             |                                               |  |
|-----------------------------|-----------------------------------------------|--|
| Operating voltage [V]       | 18...32 DC; (cULus - Class 2 source required) |  |
| Current consumption [mA]    | 6; (24 V)                                     |  |
| Protection class            | III                                           |  |
| Reverse polarity protection | yes                                           |  |
| Power-on delay time [s]     | 8                                             |  |
| Integrated watchdog         | yes                                           |  |

### Inputs / outputs

|                              |                                                           |
|------------------------------|-----------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analog outputs: 1 |
|------------------------------|-----------------------------------------------------------|

### Outputs

|                         |                                                          |
|-------------------------|----------------------------------------------------------|
| Total number of outputs | 2                                                        |
| Output signal           | switching signal; analog signal; IO-Link; (configurable) |
| Electrical design       | PNP/NPN                                                  |



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|                                                      |                                                                                                                                                                                          |              |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Number of digital outputs                            | 1                                                                                                                                                                                        |              |
| Output function                                      | normally open / normally closed / diagnostic signal; (configurable)                                                                                                                      |              |
| Max. voltage drop switching output DC [V]            | 2                                                                                                                                                                                        |              |
| Permanent current rating of switching output DC [mA] | 150; (200 (...60°C); 250 (...40 °C))                                                                                                                                                     |              |
| Diagnostic output                                    | Drift monitoring; Fault monitoring                                                                                                                                                       |              |
| Number of analog outputs                             | 1                                                                                                                                                                                        |              |
| Analog current output [mA]                           | 4...20                                                                                                                                                                                   |              |
| Max. load [Ω]                                        | (Ub - 15 V) x 50                                                                                                                                                                         |              |
| Short-circuit protection                             | yes                                                                                                                                                                                      |              |
| Type of short-circuit protection                     | yes (non-latching)                                                                                                                                                                       |              |
| Overload protection                                  | yes                                                                                                                                                                                      |              |
| Measuring/setting range                              |                                                                                                                                                                                          |              |
| Measuring range                                      | -25...160 °C                                                                                                                                                                             | -13...320 °F |
| Note on measuring range                              | scalable                                                                                                                                                                                 |              |
| Factory setting                                      | 0...150 °C / 32...302 °F                                                                                                                                                                 |              |
| Drift warning                                        | 0.2...5 °C                                                                                                                                                                               | 0.4...9 °F   |
| Drift alarm                                          | 0.2...5 °C                                                                                                                                                                               | 0.4...9 °F   |
| In steps of                                          | 0.05 °C                                                                                                                                                                                  | 0.1 °F       |
| Resolution                                           |                                                                                                                                                                                          |              |
| Resolution of analog output [K]                      | 0.05                                                                                                                                                                                     |              |
| Accuracy / deviations                                |                                                                                                                                                                                          |              |
| Precision analog output [K]                          | ± 0,2 (-10...130°C); ± 0,3 (130...140°C); ± 0,3 ± 0,1% MS (-25...-10/140...160°C); (probe completely inserted into the measured medium up to the sealing chamfer)                        |              |
| Temperature coefficient [% of the span / 10 K]       | < ± 0,01; (In case of deviation from the reference condition 25 ± 5 °C)                                                                                                                  |              |
| Reaction times                                       |                                                                                                                                                                                          |              |
| Dynamic response T05 / T09 [s]                       | 3 / 6                                                                                                                                                                                    |              |
| Software / programming                               |                                                                                                                                                                                          |              |
| Parameter setting options                            | drift warning/drift alarm threshold; Fail-Safe; Display unit; scaling of the analog output; redundancy switching; performance diagnostic output; switching logic; normally open / closed |              |
| Interfaces                                           |                                                                                                                                                                                          |              |
| Communication interface                              | IO-Link                                                                                                                                                                                  |              |
| Transmission type                                    | COM1 (4,8 kBaud)                                                                                                                                                                         |              |
| IO-Link revision                                     | 1.1                                                                                                                                                                                      |              |
| SDCI standard                                        | IEC 61131-9 CDV                                                                                                                                                                          |              |
| Profiles                                             | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis                                                                                                             |              |
| SIO mode                                             | yes                                                                                                                                                                                      |              |
| Required master port class                           | A                                                                                                                                                                                        |              |
| Process data analog                                  | 1                                                                                                                                                                                        |              |
| Process data binary                                  | 1                                                                                                                                                                                        |              |
| Min. process cycle time [ms]                         | 18.8                                                                                                                                                                                     |              |

# TAD091



## Temperature transmitter with drift detection

TAD050KLER12-A-ZKG/US

| Supported DeviceIDs | Type of operation | DeviceID |
|---------------------|-------------------|----------|
|                     | default           | 323      |

| Operating conditions |      |               |
|----------------------|------|---------------|
| Ambient temperature  | [°C] | -25...70      |
| Storage temperature  | [°C] | -40...85      |
| Protection           |      | IP 68; IP 69K |

| Tests / approvals    |                                                 |                     |
|----------------------|-------------------------------------------------|---------------------|
| EMC                  | DIN EN 61000-6-2                                |                     |
|                      | DIN 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                 |
| Note on approval     | Including free 5-point calibration certificate. |                     |

| Mechanical data                                   |                                                                            |         |
|---------------------------------------------------|----------------------------------------------------------------------------|---------|
| Weight                                            | [g]                                                                        | 335.5   |
| Material                                          | stainless steel (1.4435 / 316L); stainless steel (1.4404 / 316L); PEI; FKM |         |
| Materials (wetted parts)                          | stainless steel (1.4435 / 316L); stainless steel (1.4404 / 316L)           |         |
| Tightening torque                                 | [Nm]                                                                       | 30...50 |
| Process connection                                | G 1/2 sealing cone                                                         |         |
| Surface characteristics Ra/Rz of the wetted parts | Ra: < 0.6                                                                  |         |
| Installation length EL                            | [mm]                                                                       | 50      |

| Remarks       |                         |  |
|---------------|-------------------------|--|
| Remarks       | MS = set measuring span |  |
| Pack quantity | 1 pcs.                  |  |

### Electrical connection

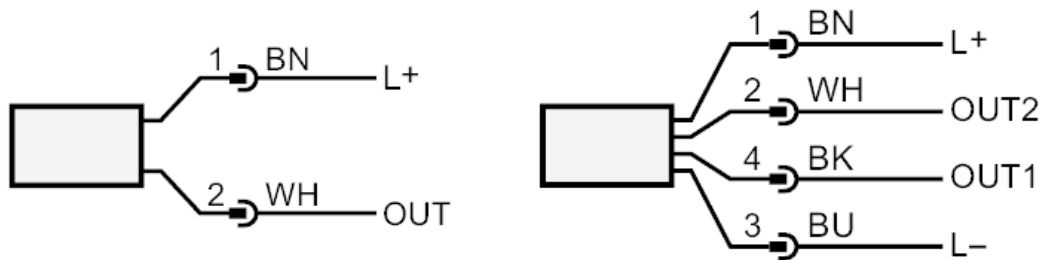
Connector: 1 x M12; coding: A; Contacts: gold-plated



## Temperature transmitter with drift detection

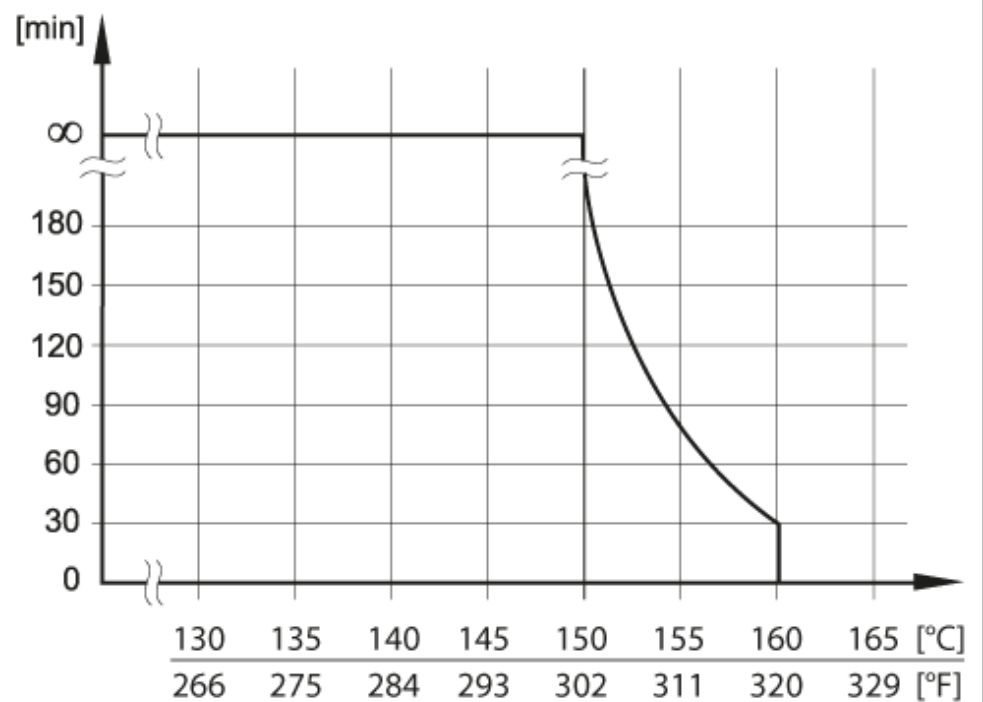
TAD050KLER12-A-ZKG/US

### Connection



OUT: connection for 2-wire operation  
 analog output  
 connection for 3-wire operation  
 OUT2: analog output  
 OUT1: diagnosis / IO-Link

### Diagrams and graphs



Maximum operation time depending on the medium temperature