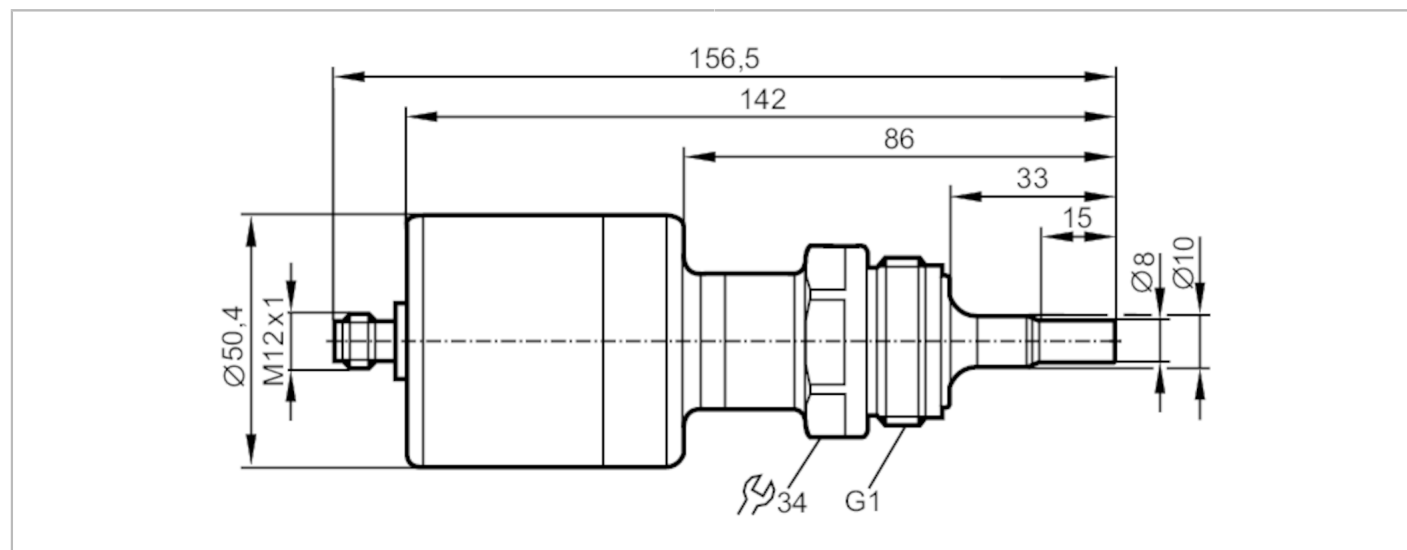


# TAD981



## Temperature transmitter

TAD033KLES30-A-ZKG/US



EC 1935/2004 EHEDG Certified



### Application

|                                 |                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Measuring element               | 1 x Pt 1000 + 1 x NTC; (thermically coupled, with backup function (temperature measuring even if one element fails)) |
| Media                           | liquids and gases                                                                                                    |
| Pressure rating [bar]           | 50                                                                                                                   |
| Minimum installation depth [mm] | 25                                                                                                                   |

### Electrical data

|                             |                                         |
|-----------------------------|-----------------------------------------|
| Operating voltage [V]       | 18...32 DC; ("supply class 2" to cULus) |
| 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 analogue outputs: 1 |
|------------------------------|-------------------------------------------------------------|



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| Outputs                                              |                                                                                                                                                                                                     |              |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Total number of outputs                              | 2                                                                                                                                                                                                   |              |
| Output signal                                        | switching signal; analogue signal; IO-Link; (configurable)                                                                                                                                          |              |
| Electrical design                                    | PNP/NPN                                                                                                                                                                                             |              |
| Number of digital outputs                            | 1                                                                                                                                                                                                   |              |
| Output function                                      | normally open / normally closed / diagnostic signal; (parameterisable)                                                                                                                              |              |
| 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                                    | diagnostic output for drift and fault monitoring                                                                                                                                                    |              |
| Number of analogue outputs                           | 1                                                                                                                                                                                                   |              |
| Analogue current output [mA]                         | 4...20                                                                                                                                                                                              |              |
| Max. load [Ω]                                        | (Ub - 15 V) x 50                                                                                                                                                                                    |              |
| Short-circuit protection                             | yes                                                                                                                                                                                                 |              |
| Type of short-circuit protection                     | pulsed                                                                                                                                                                                              |              |
| 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 analogue output [K]                    | 0.05                                                                                                                                                                                                |              |
| Accuracy / deviations                                |                                                                                                                                                                                                     |              |
| Precision analogue 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)                                                                                                                             |              |
| Response 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 analogue output; redundancy switching; performance diagnostic output; switching logic; normally open / normally closed |              |

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### Interfaces

|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| Communication interface      | IO-Link                                                                      |
| Transmission 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: Process Data Variable; Device Identification, Device Diagnosis |
| SIO mode                     | yes                                                                          |
| Required master port type    | A                                                                            |
| Process data analogue        | 1                                                                            |
| Process data binary          | 1                                                                            |
| Min. process cycle time [ms] | 18.8                                                                         |

### 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]                                        | 399                                                      |
| Materials                                         | stainless steel (1.4404 / 316L); PEI; FKM                |
| Materials (wetted parts)                          | stainless steel (1.4404 / 316L)                          |
| Process connection                                | threaded connection G 1 external thread Aseptoflex Vario |
| Surface characteristics Ra/Rz of the wetted parts | Ra: < 0.6                                                |
| Installation length EL [mm]                       | 33                                                       |

### Remarks

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

### Electrical connection

Connector: 1 x M12; Contacts: gold-plated



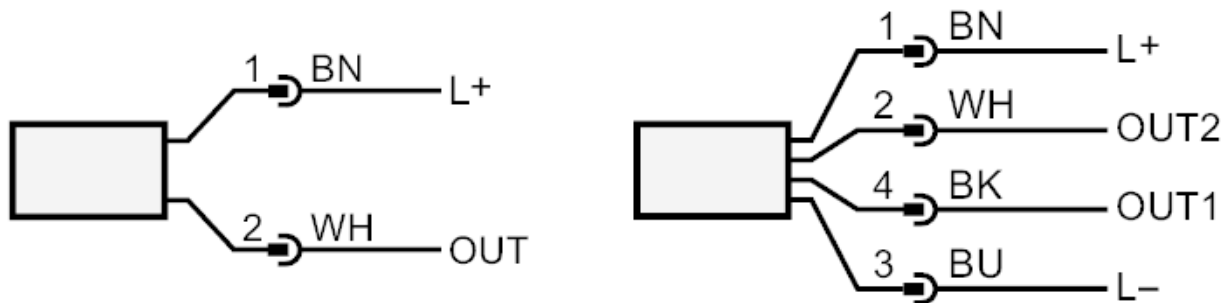
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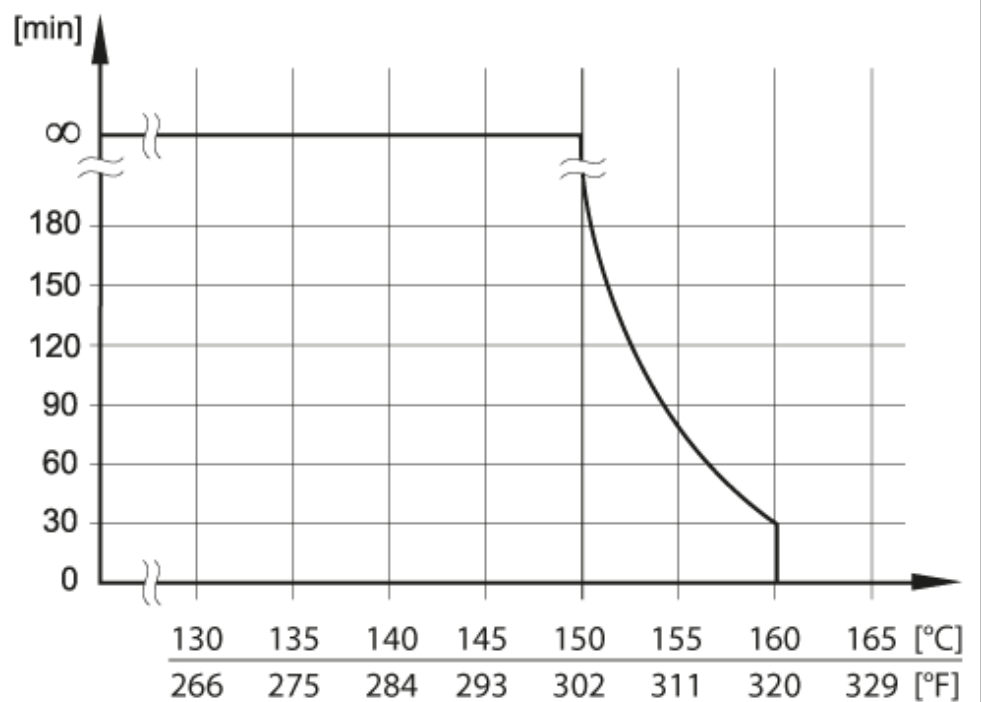
TAD033KLES30-A-ZKG/US

### Connection



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

### Diagrams and graphs



maximum operating time depending on the medium temperature