

# TCC261



## Temperature transmitter

TCC250K1ED06-A-DKG/US



1 LED



### 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 |
| Process connection           | Diameter Ø 6 mm                                           |              |
| Installation length EL [mm]  | 250                                                       |              |

### Application

|                       |                      |
|-----------------------|----------------------|
| System                | gold-plated contacts |
| Measuring element     | 1 x Pt 1000          |
| Reference element     | 1 x NTC              |
| Media                 | liquids and gases    |
| Pressure rating [bar] | 160                  |

### Electrical data

|                             |                                               |
|-----------------------------|-----------------------------------------------|
| Operating voltage [V]       | 18...32 DC; (cULus - Class 2 source required) |
| Current consumption [mA]    | 10; (24 V)                                    |
| Protection class            | III                                           |
| Reverse polarity protection | yes                                           |
| Power-on delay time [s]     | 6                                             |
| Integrated watchdog         | yes                                           |

### Inputs / outputs

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



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| Outputs                                                      |                                                                                                                         |              |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------|
| Total number of outputs                                      | 2                                                                                                                       |              |
| Output signal                                                | analog signal; IO-Link; calibration check status                                                                        |              |
| Electrical design                                            | PNP/NPN                                                                                                                 |              |
| Number of digital outputs                                    | 1                                                                                                                       |              |
| Output function                                              | normally closed; (diagnostic signal)                                                                                    |              |
| Max. voltage drop switching output DC [V]                    | 2                                                                                                                       |              |
| Permanent current rating of switching output DC [mA]         | 100                                                                                                                     |              |
| Diagnostic output                                            | calibration check status and error diagnostics                                                                          |              |
| Number of analog outputs                                     | 1                                                                                                                       |              |
| Analog current output [mA]                                   | 4...20                                                                                                                  |              |
| Max. load [Ω]                                                | (U <sub>b</sub> - 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                                              | -10...150 °C / 14...302 °F                                                                                              |              |
| Calibration check limit [K]                                  | 0.5...3                                                                                                                 |              |
| In steps of [K]                                              | 0.05                                                                                                                    |              |
| Resolution                                                   |                                                                                                                         |              |
| Resolution of analog output [K]                              | 0.05                                                                                                                    |              |
| Accuracy / deviations                                        |                                                                                                                         |              |
| Precision analog output [K]                                  | ± 0,2                                                                                                                   |              |
| Precision IO-Link [K]                                        | ± 0,2                                                                                                                   |              |
| Temperature coefficient analog output [% of the span / 10 K] | < ± 0,02; (In case of deviation from the reference condition 25 ± 5 °C)                                                 |              |
| Temperature coefficient IO-Link [% 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]                               | 1,5 / 4                                                                                                                 |              |
| Software / programming                                       |                                                                                                                         |              |
| Parameter setting options                                    | Display unit; scaling of the analog output; calibration check limit; switching logic diagnostic output; simulation mode |              |

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| Interfaces                                        |                                                                                                                           |                     |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| Communication interface                           | IO-Link                                                                                                                   |                     |
| Transmission type                                 | COM2 (38,4 kBaud)                                                                                                         |                     |
| IO-Link revision                                  | 1.1                                                                                                                       |                     |
| SDCI standard                                     | IEC 61131-9 CDV                                                                                                           |                     |
| Profiles                                          | Digital Measuring Sensor, Common Profile, Blob Transfer                                                                   |                     |
| SIO mode                                          | yes                                                                                                                       |                     |
| Required master port class                        | A                                                                                                                         |                     |
| Process data analog                               | 1                                                                                                                         |                     |
| Process data binary                               | 1                                                                                                                         |                     |
| Min. process cycle time [ms]                      | 4.4                                                                                                                       |                     |
| IO-Link resolution temperature [K]                | 0.01                                                                                                                      |                     |
| Supported DeviceIDs                               | Type of operation                                                                                                         | DeviceID            |
|                                                   | default                                                                                                                   | 1129                |
| Operating conditions                              |                                                                                                                           |                     |
| Ambient temperature [°C]                          | -25...70                                                                                                                  |                     |
| Note on ambient temperature                       | max. internal device temperature: 125 °C                                                                                  |                     |
| Storage temperature [°C]                          | -40...100                                                                                                                 |                     |
| 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                                                                                                          | 35 g (10...2000 Hz) |
| MTTF [years]                                      | 329                                                                                                                       |                     |
| Note on approval                                  | Factory certificate available as download at <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a> |                     |
| UL approval                                       | UL approval number                                                                                                        | K021                |
|                                                   | File number UL                                                                                                            | E217884             |
| Mechanical data                                   |                                                                                                                           |                     |
| Weight [g]                                        | 271.9                                                                                                                     |                     |
| Dimensions [mm]                                   | Ø 50 / L = 293.5                                                                                                          |                     |
| Material                                          | stainless steel (1.4404 / 316L); PEI; FKM; PFA                                                                            |                     |
| Materials (wetted parts)                          | stainless steel (1.4404 / 316L); PEEK                                                                                     |                     |
| Process connection                                | Diameter Ø 6 mm                                                                                                           |                     |
| Surface characteristics Ra/Rz of the wetted parts | Ra: < 0.8                                                                                                                 |                     |
| Probe diameter [mm]                               | 6                                                                                                                         |                     |
| Installation length EL [mm]                       | 250                                                                                                                       |                     |
| Remarks                                           |                                                                                                                           |                     |
| Remarks                                           | MS = set measuring span                                                                                                   |                     |
|                                                   | cULus - Class 2 source required                                                                                           |                     |
| Pack quantity                                     | 1 pcs.                                                                                                                    |                     |
| Electrical connection                             |                                                                                                                           |                     |
| Connector: 1 x M12; Contacts: gold-plated         |                                                                                                                           |                     |

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### Connection



OUT2: analog output  
OUT1: Diagnostic output / IO-Link