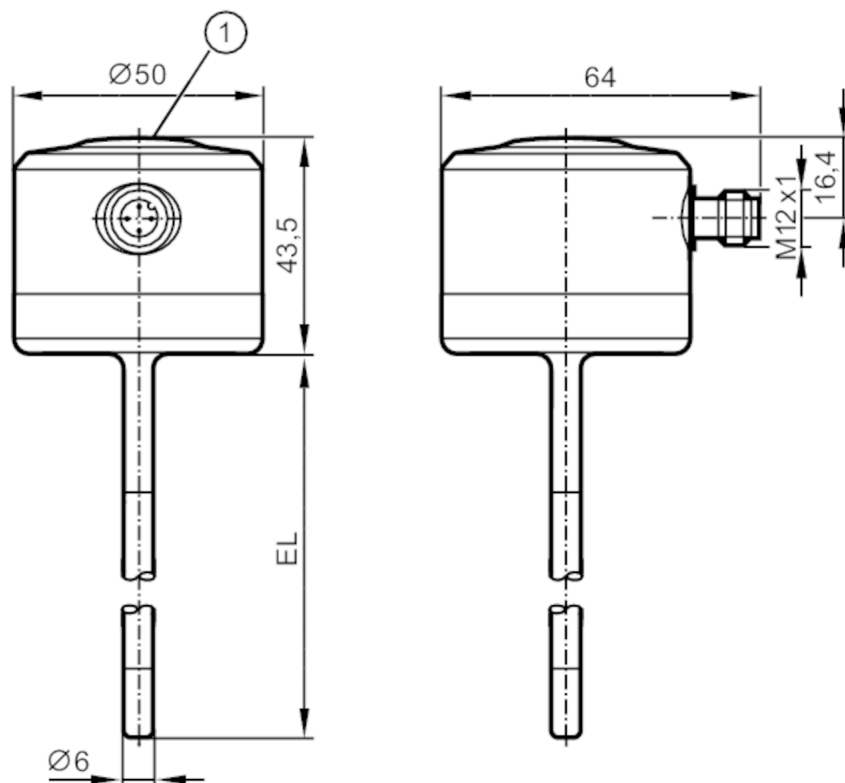


# TCC291



## Temperature transmitter

TCC350K1ED06-A-DKG/US



1 LED



### Product characteristics

|                              |                                                             |              |
|------------------------------|-------------------------------------------------------------|--------------|
| Number of inputs and outputs | Number of digital outputs: 1; Number of analogue outputs: 1 |              |
| Measuring range              | -25...160 °C                                                | -13...320 °F |
| Communication interface      | IO-Link                                                     |              |
| Process connection           | Ø 6 mm                                                      |              |
| Installation length EL [mm]  | 350                                                         |              |

### Application

|                       |                      |
|-----------------------|----------------------|
| Special feature       | 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; ("supply class 2" to cULus) |
| Current consumption [mA]    | 10; (24 V)                              |
| Protection class            | III                                     |
| Reverse polarity protection | yes                                     |
| Power-on delay time [s]     | 6                                       |
| Integrated watchdog         | yes                                     |



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| Inputs / outputs                                               |                                                                                                                           |              |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------|
| Number of inputs and outputs                                   | Number of digital outputs: 1; Number of analogue outputs: 1                                                               |              |
| Outputs                                                        |                                                                                                                           |              |
| Total number of outputs                                        | 2                                                                                                                         |              |
| Output signal                                                  | analogue 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 analogue outputs                                     | 1                                                                                                                         |              |
| Analogue 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                               | pulsed                                                                                                                    |              |
| 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 analogue output [K]                              | 0.05                                                                                                                      |              |
| Accuracy / deviations                                          |                                                                                                                           |              |
| Precision analogue output [K]                                  | ± 0,2                                                                                                                     |              |
| Precision IO-Link [K]                                          | ± 0,2                                                                                                                     |              |
| Temperature coefficient analogue 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)                                                   |              |
| Response times                                                 |                                                                                                                           |              |
| Dynamic response T05 / T09 [s]                                 | 1,5 / 4                                                                                                                   |              |
| Software / programming                                         |                                                                                                                           |              |
| Parameter setting options                                      | Display unit; scaling of the analogue output; calibration check limit; switching logic diagnostic output; simulation mode |              |
| Interfaces                                                     |                                                                                                                           |              |
| Communication interface                                        | IO-Link                                                                                                                   |              |
| Transmission type                                              | COM2 (38,4 kBaud)                                                                                                         |              |



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| 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 type          | A                                                                                                              |                   |          |         |      |
| Process data analogue              | 1                                                                                                              |                   |          |         |      |
| Process data binary                | 1                                                                                                              |                   |          |         |      |
| Min. process cycle time [ms]       | 4.4                                                                                                            |                   |          |         |      |
| IO-Link resolution temperature [K] | 0.01                                                                                                           |                   |          |         |      |
| Supported DeviceIDs                | <table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>1129</td></tr> </table> | Type of operation | DeviceID | default | 1129 |
| 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 no.                                                                                                           | K021                |
|                      | File number UL                                                                                                            | E217884             |

## Mechanical data

|                                                   |                                              |
|---------------------------------------------------|----------------------------------------------|
| Weight [g]                                        | 315.6                                        |
| Dimensions [mm]                                   | Ø 50 / L = 393.5                             |
| Materials                                         | stainless steel (316L/1.4404); PEI; FKM; PFA |
| Materials (wetted parts)                          | stainless steel (316L/1.4404); PEEK          |
| Process connection                                | Ø 6 mm                                       |
| Surface characteristics Ra/Rz of the wetted parts | Ra: < 0.8                                    |
| Probe diameter [mm]                               | 6                                            |
| Installation length EL [mm]                       | 350                                          |

## Remarks

|               |                                                       |
|---------------|-------------------------------------------------------|
| Remarks       | MS = set measuring span                               |
|               | operating voltage "supply class 2" according to cULus |
| Pack quantity | 1 pcs.                                                |

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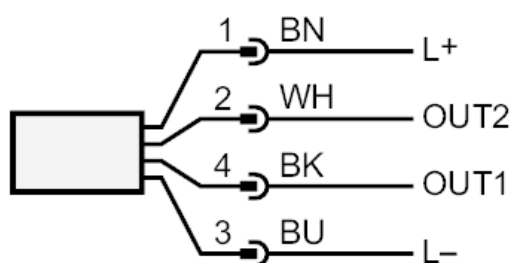
TCC350K1ED06-A-DKG/US

### Electrical connection

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



### Connection



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