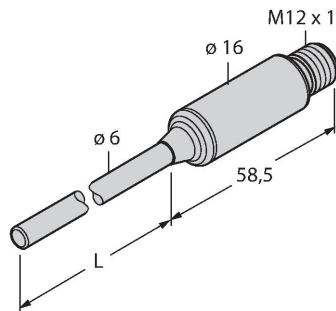


# TTMS-206A-CF-LIUPN-H1140-L100

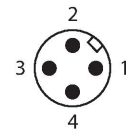
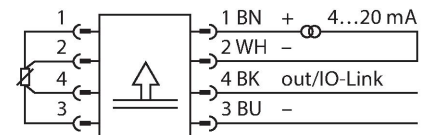
## Temperature Detection – With Current Output and PNP/NPN Transistor Switching Output



### Features

- Miniature design
- Parameterizable via IO-Link
- Analog output 4...20 mA (2-wire)
- Switching output
- Compression fitting process connection
- Bendable probe (min. bending radius: 3x outer diameter; excluding 30-mm probe tip)

### Wiring diagram



### Functional principle

All devices of the miniature transmitter series TTMS are made of stainless steel 1.4404 (AISI 316L). They are available with integrated probe or with M12 probe connection. Due to the integrated electronics, the limited temperature range must be observed, especially in the area of the M12 connector. Furthermore, the devices feature a current output (2-wire, 4...20 mA), a switching output and communication via IO-Link.

### Technical data

|                                           |                                                                      |
|-------------------------------------------|----------------------------------------------------------------------|
| Type                                      | TTMS-206A-CF-LIUPN-H1140-L100                                        |
| ID                                        | 9910660                                                              |
| <b>Temperature range</b>                  |                                                                      |
| Measuring range                           | -70...500 °C                                                         |
|                                           | -94...662 °F                                                         |
| Factory setting                           | 0...150 °C                                                           |
|                                           | 32...302 °F                                                          |
| Note                                      | Max. temperature of electronics: 80 °C/176 °F                        |
| Accuracy                                  | ±0.15 K + 0.002 •  t  (-30...300 °C)                                 |
| Measuring element                         | Pt100, DIN EN 60751, class A                                         |
| Response time                             | t <sub>05</sub> = 1.5 s / t <sub>09</sub> = 6.0 s in water @ 0.2 m/s |
| Immersion depth L                         | 100 mm                                                               |
| Outer diameter                            | 6 mm                                                                 |
| <b>Power supply</b>                       |                                                                      |
| Operating voltage U <sub>B</sub>          | 18...32 VDC                                                          |
|                                           | (UL: Class 2)                                                        |
| Current consumption                       | ≤ 20 mA                                                              |
| Voltage drop at I <sub>B</sub>            | ≤ 2 V                                                                |
| Short-circuit/reverse polarity protection | yes / yes                                                            |
| Protection class                          | IP67                                                                 |
| Insulation class                          | III                                                                  |
| <b>Outputs</b>                            |                                                                      |
| Output 1                                  | Switching output or IO-Link mode                                     |
| Output 2                                  | Analog output                                                        |

## Technical data

| Switching output                                   |                                                                                                  |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Communication protocol                             | IO-Link                                                                                          |
| Output function                                    | NO/NC programmable, PNP/NPN                                                                      |
| Note                                               | Connection to PIN 1+3+4. Please use a 3-wire cable for operation on a Turck TBEN IO-Link master. |
| Switching point accuracy                           | ± 0.3 K                                                                                          |
| Rated operational current                          | 0.15 A                                                                                           |
| Switching cycles                                   | ≥ 100 mil.                                                                                       |
| Release position                                   | -210...+640 °C                                                                                   |
| Switching point                                    | -200...+650 °C                                                                                   |
| Analog output                                      |                                                                                                  |
| Current output                                     | 4...20 mA                                                                                        |
| Note                                               | Connection to PIN 1+2                                                                            |
| Load                                               | ≤ [(V <sub>supply</sub> - 10 V)/21 mA] kΩ                                                        |
| Accuracy (Lin. + Hys. + Rep.)                      | ± 0.3 K                                                                                          |
| Remark                                             | 0.1 % of full scale applies to values > +300 °C                                                  |
| Repeatability                                      | 0.1 K                                                                                            |
| IO-Link                                            |                                                                                                  |
| IO-Link specification                              | V 1.1                                                                                            |
| Programming                                        | FDT / DTM                                                                                        |
| Transmission physics                               | corresponds to 3-wire physics (PHY2)                                                             |
| Transmission rate                                  | COM 2 / 38.4 kbps                                                                                |
| Process data width                                 | 16 bit                                                                                           |
| Measured value information                         | 15 bit                                                                                           |
| Switchpoint information                            | 1 bit                                                                                            |
| Frame type                                         | 2.2                                                                                              |
| Genauigkeit                                        | ± 0.2 K                                                                                          |
| Included in the SIDI GSDML                         | Yes                                                                                              |
| Temperature behaviour                              |                                                                                                  |
| Temperature coefficient zero point TK <sub>0</sub> | ± 0.1 % of full scale/10 K                                                                       |
| Temperature coefficient range TK <sub>s</sub>      | ± 0.1 % of full scale/10 K                                                                       |
| Environmental conditions                           |                                                                                                  |
| Ambient temperature                                | -40...+80 °C                                                                                     |
| Storage temperature                                | -40...+80 °C                                                                                     |
| Mechanical data                                    |                                                                                                  |
| Housing material                                   | Stainless steel, 1.4404 (AISI 316L)                                                              |
| Sensor material                                    | Stainless steel, 1.4404 (AISI 316L)                                                              |
| Process connection                                 | For compression fittings, thermowell or direct mounting                                          |
| Pressure resistance                                | 100 bar                                                                                          |

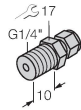
Technical data

|                                          |                                           |
|------------------------------------------|-------------------------------------------|
| Electrical connection                    | Connector, M12 × 1                        |
| Reference conditions acc. to IEC 61298-1 |                                           |
| Temperature                              | 15...+25 °C                               |
| Atmospheric pressure                     | 860...1060 hPa abs.                       |
| Humidity                                 | 45...75 % rel.                            |
| Auxiliary power                          | 24 VDC                                    |
| Tests/approvals                          |                                           |
| Approvals                                | cULus                                     |
| UL registration number                   | E345414                                   |
| MTTF                                     | 541 years acc. to SN 29500 (Ed. 99) 40 °C |

Accessories

CF-M-6-G1/4-A4

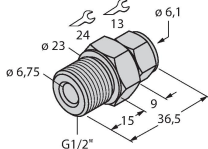
9910483



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection G1/4" male thread

CF-M-6-G1/2-A4

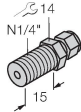
9910530



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection G1/2" male thread

CF-M-6-N1/4-A4

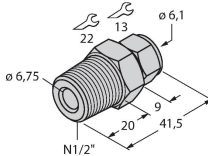
9910484



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection 1/4" NPT male thread

CF-M-6-N1/2-A4

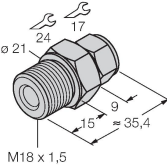
9910529



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection 1/2" NPT male thread

CF-M-6-M18-A4

9910525



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection M18 × 1 male thread

Accessories

| Dimension drawing                                                                   | Type                | ID      |                                                                                                                               |
|-------------------------------------------------------------------------------------|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------|
|    | WKC4.4T-2/TEL       | 6625025 | Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval         |
|    | RKC4.4T-2/TEL       | 6625013 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval       |
|   | RKC4.4T-2/TXL       | 6625503 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval       |
|  | WKC4.4T-2/TXL       | 6625515 | Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval         |
|  | RKC4.4T-P7X2-10/TXL | 6626184 | Connection cable, M12 female connector, straight, 4-pin, LED, cable length: 10 m, jacket material: PUR, black; cULus approval |