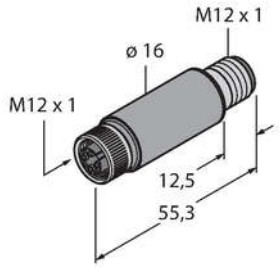
# TTMS-100-LIUPN-H1140
# Temperature Detection – Miniature Transmitter for External Probes







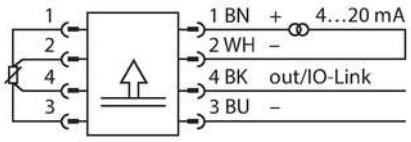
## Technical data

| | |
|---|---|
| Type | TTMS-100-LIUPN-H1140 |
| ID no. | 9910654 |
| **Temperature range** | |
| Measuring range | -210…650 °C |
| Temperature operating range | -346…1202 °F |
| Factory setting | 0…150 °C |
| | 32…302 °F |
| Measuring element | For connection to probes of the TP series |
| Response time | depending on connected temperature probe |
| Pressure resistance | 100 bar |
| Power supply | |
| Operating voltage | 15…30 VDC |
| Current consumption | ≤ 20 mA |
| Short-circuit/reverse polarity protection | yes / yes |
| Insulation class | III |
| Output 1 | Switching output or IO-Link mode |
| Output 2 | analog output |
| **Switching output** | |
| Communication protocol | IO-Link |
| Output function | NO/NC programmable, PNP/NPN |
| Switching point accuracy | ± 0.3 K |
| Rated operational current | 0.15 A |
| Release position | -210…+640 °C |
| Switching point | -200…+650 °C |
| Switching cycles | ≥ 100 mil. |

## Features

- Miniature design
- Parameterizable via IO-Link
- Analog output 4…20 mA (2-wire)
- Switching output
- For connection to external temperature probes

## Wiring diagram




## Functional principle

TP temperature probes (PT100 4-wire) can be plugged directly or via cable to the M12 connection at the TTM100 temperature transmitter.

The temperature signal is transformed into an analog output signal (2-wire 4…20mA) and a switching signal. IO-Link is available for communication and programming.

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## Technical data

| | |
|---|---|
| **Analog output** | |
| Current output | 4…20 mA |
| Load | ≤ [(Vsupply - 10 V)/21 mA] kΩ |
| Accuracy (Lin. + Hys. + Rep.) | ± 0.3 K |
| Remark | 0.1 % of full scale applies to temperatures > +300 °C |
| Repeatability | 0.1 K |
| **IO-Link** | |
| IO-Link specification | Specified acc. to version 1.1 |
| Transmission physics | corresponds to 3-wire physics (PHY2) |
| Frame type | 2.2 |
| Transmission rate | COM 2 / 38.4 kbps |
| Process data width | 16 bit |
| Measured value information | 15 bit |
| Switchpoint information | 1 bit |
| Programming | FDT / DTM |
| Genauigkeit | ± 0.2 K |
| Included in the SIDI GSDML | Yes |
| Housing material | Stainless steel, 1.4404 (AISI 316L) |
| Process connection | M12 × 1 |
| Electrical connection | Connectors, M12 × 1 |
| Protection class | IP67 |
| Ambient temperature | -40…+80 °C |
| Storage temperature | -40…+80 °C |
| **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 |
| **Temperature behaviour** | |
| Temperature coefficient span $T_{kS}$ | ± 0.1 % of full scale/10 K |
| Temperature coefficient zero point Tk0 | ± 0.1 % of full scale/10 K |
| MTTF | 541 years acc. to SN 29500 (Ed. 99) 40 °C |

## Technical data

| | |
|---|---|
| Type | TTMS-100-LIUPN-H1140 |
| ID no. | 9910654 |
| **Temperature range** | |
| Measuring range | -210…650 °C |
| Temperature operating range | -346…1202 °F |

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## Technical data

| | |
|---|---|
| Factory setting | 0…150 °C |
| | 32…302 °F |
| Measuring element | For connection to probes of the TP series |
| Response time | depending on connected temperature probe |
| **Power supply** | |
| Operating voltage | 15…30 VDC |
| Current consumption | ≤ 20 mA |
| Voltage drop at $I_e$ | ≤ 2 V |
| Short-circuit/reverse polarity protection | yes / yes |
| Protection type and class | IP67 / III |
| **Outputs** | |
| Output 1 | Switching output or IO-Link mode |
| Output 2 | analog output |
| **Switching output** | |
| Communication protocol | IO-Link |
| Output function | NO/NC programmable, PNP/NPN |
| 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 |
| Load | ≤ [(Vsupply - 10 V)/21 mA] kΩ |
| Accuracy (Lin. + Hys. + Rep.) | ± 0.3 K |
| Remark | 0.1 % of full scale applies to temperatures > +300 °C |
| Repeatability | 0.1 K |
| **IO-Link** | |
| IO-Link specification | Specified acc. to version 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 Tk0 | ± 0.1 % of full scale/10 K |

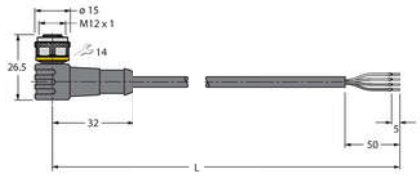
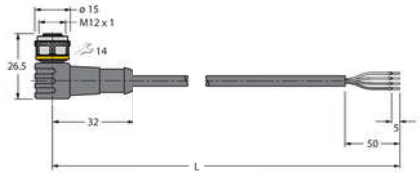
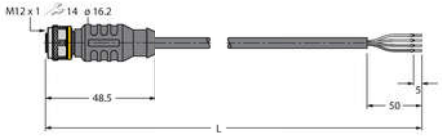
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## Technical data

| | |
|---|---|
| Temperature coefficient span $T_{kS}$ | ± 0.1 % of full scale/10 K |
| **Ambient conditions** | |
| Ambient temperature | -40…+80 °C |
| Storage temperature | -40…+80 °C |
| **Housing** | |
| Housing material | Stainless steel, 1.4404 (AISI 316L) |
| Sensor material | Stainless steel, 1.4404 (AISI 316L) |
| Process connection | M12 × 1 |
| Pressure resistance | 100 bar |
| Electrical connection | Connectors, 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 |
| MTTF | 541 years acc. to SN 29500 (Ed. 99) 40 °C |

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## Accessories

| Dimension drawing | Type | ID no. | |
|---|---|---|---|
|  | WKC4.4T-2/TEL | 6625025 | Connection cable, female M12, angled, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com |
|  | RKC4.4T-2/TEL | 6625013 | Connection cable, female M12, straight, 4-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com |
|  | RKC4.4T-2/TXL | 6625503 | Connection cable, female M12, straight, 4-pin, cable length: 2 m, sheath material: PUR, black; cULus approval; other cable lengths and qualities available, see www.turck.com |
|  | WKC4.4T-2/TXL | 6625515 | Connection cable, female M12, angled, 4-pin, cable length: 2 m, sheath material: PUR, black; cULus approval; other cable lengths and qualities available, see www.turck.com |
|  | RKC4.4T-P7X2-10/TXL | 6626184 | Connection cable, female M12, angled, 4-pin, cable length: 10m, sheath material: PUR, black; cULus approval; other cable lengths and qualities available, see www.turck.com |

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