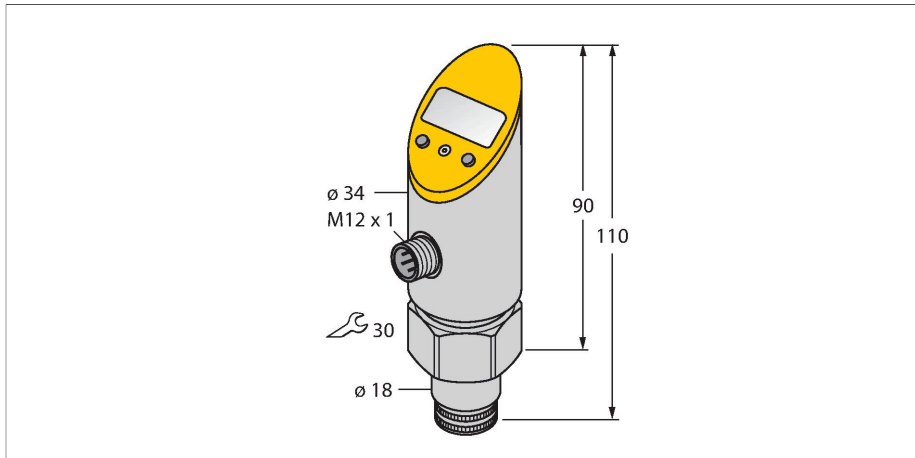


TS-400-LI2UPN8X-H1141

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

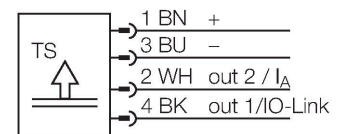
Output 2 Reprogrammable as Switching Output



Features

- Reading of adjusted values without tools
- Recessed pushbutton and keylock for secure programming
- Permanent display of temperature unit (°C, °F, K, Ohm)
- Temperature peak memory

Wiring diagram



Functional principle

The TS series is a compact processing unit with a 4-digit, 7-segment display. Available are versions with non-rotatable (TS400) or rotatable (TS500) body and various output types.

Technical data

| | |
|---|---|
| Type | TS-400-LI2UPN8X-H1141 |
| ID | 6840007 |
| Temperature range | |
| Measuring range | -50...500 °C |
| Measuring range | -58...932 °F |
| Measuring element | For connection to probes of the TP series |
| Response time | 100 ms |
| Power supply | |
| Operating voltage | 18...30 VDC |
| Current consumption | ≤ 50 mA |
| Protective measure | SELV; PELV according to EN 50178 |
| Short-circuit/reverse polarity protection | yes / yes |
| Insulation class | III |
| Outputs | |
| Output 1 | Switching output or IO-Link mode |
| Output 2 | Analog or switching output |
| Switching output | |
| Communication protocol | IO-Link |
| Output function | NO/NC programmable, PNP/NPN |
| Switching point accuracy | ± 0.2 K |
| Rated operational current | 0.2 A |

Technical data

| | |
|--|--|
| Switching frequency | ≤ 180 Hz |
| Release position | -50...+499.8 °C |
| Switching point | -49.8...+500 °C |
| Switching point distance | ≥ 0.2 K |
| Switching cycles | ≥ 100 mil. |
| Analog output | |
| Current output | 4...20 mA |
| Load | ≤ 0.5 kΩ |
| Accuracy (Lin. + Hys. + Rep.) | ± 0.2 K |
| Remark | 0.1% of full scale applies to temperatures > +200 °C |
| Repeatability | 0.1 K |
| IO-Link | |
| IO-Link specification | V 1.0 |
| 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 | 14 bit |
| Switchpoint information | 1 bit |
| Programming | FDT / DTM |
| Genauigkeit | ± 0.2 K |
| Included in the SIDI GSDML | Yes |
| Programming options | switch/release point, hysteresis/window mode, NO/NC; unit |
| Housing material | Stainless-steel/Plastic, 1.4305 (AISI 303) |
| Process connection | Cylindrical, Ø 18 mm |
| Wrench size pressure connection / coupling nut | 30 |
| Electrical connection | Connector, M12 × 1 |
| Protection class | IP67 |
| Ambient temperature | -40...+80 °C |
| Storage temperature | -40...+80 °C |
| Shock resistance | 50 g (11 ms) , acc. to IEC 68-2-27 |
| Vibration resistance | 20 g (9...2000 Hz), according to IEC 68-2-6 |
| EMV | EN 61000-4-2 ESD:4 kV CD / 8 kV AD EN 61000-4-3 HF radiated:15 V/m EN 61000-4-4 Burst:2 kV EN 61000-4-5 Surge: 1 kV, 42 Ohm EN 61000-4-6 HF conducted:10 V |

Technical data

| | |
|---|--|
| 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 |
| Display | |
| Display | 4-digit 7-segment display, rotatable by 180° |
| Switching state | 2 × LEDs, Yellow |
| Unit display | 4 x green LED (°C, °F, K, Ohm) |
| Temperature behaviour | |
| Temperature coefficient span T_{ks} | ± 0.15 % of full scale/10 K |
| Temperature coefficient zero point T_{k0} | ± 0.15 % of full scale/10 K |
| MTTF | 255 years acc. to SN 29500 (Ed. 99) 20 °C |

Technical data

| | |
|---|---|
| Type | TS-400-LI2UPN8X-H1141 |
| ID | 6840007 |
| Temperature range | |
| Measuring range | -50...500 °C |
| Measuring range | -58...932 °F |
| Measuring element | For connection to probes of the TP series |
| Response time | 100 ms |
| Power supply | |
| Operating voltage | 18...30 VDC |
| Current consumption | ≤ 50 mA |
| Voltage drop at I_o | ≤ 2 V |
| Protective measure | SELV; PELV according to EN 50178 |
| 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 or switching output |
| Switching output | |
| Communication protocol | IO-Link |
| Output function | NO/NC programmable, PNP/NPN |
| Switching point accuracy | ± 0.2 K |

Technical data

| | |
|---|--|
| Rated operational current | 0.2 A |
| Switching frequency | ≤ 180 Hz |
| Switching point distance | ≥ 0.2 K |
| Switching cycles | ≥ 100 mil. |
| Release position | -50...+499.8 °C |
| Switching point | -49.8...+500 °C |
| Analog output | |
| Current output | 4...20 mA |
| Load | ≤ 0.5 kΩ |
| Accuracy (Lin. + Hys. + Rep.) | ± 0.2 K |
| Remark | 0.1% of full scale applies to temperatures > +200 °C |
| Repeatability | 0.1 K |
| IO-Link | |
| IO-Link specification | V 1.0 |
| 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 | 14 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 T_{k0} | ± 0.15 % of full scale/10 K |
| Temperature coefficient span T_{ks} | ± 0.15 % of full scale/10 K |
| Ambient conditions | |
| Ambient temperature | -40...+80 °C |
| Storage temperature | -40...+80 °C |
| Vibration resistance | 20 g (9...2000 Hz), according to IEC 68-2-6 |
| Shock resistance | 50 g (11 ms) , acc. to IEC 68-2-27 |
| EMV | EN 61000-4-2 ESD:4 kV CD / 8 kV AD EN 61000-4-3 HF radiated:15 V/m EN 61000-4-4 Burst:2 kV EN 61000-4-5 Surge: 1 kV, 42 Ohm EN 61000-4-6 HF conducted:10 V |
| Mechanical data | |
| Housing material | Stainless-steel/Plastic, 1.4305 (AISI 303) |

Technical data

| | |
|---|---|
| Process connection | Cylindrical, Ø 18 mm |
| Wrench size pressure connection / coupling nut | 30 |
| 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 |
| Display | |
| Display | 4-digit 7-segment display, rotatable by 180° |
| Switching state | 2 × LEDs, Yellow |
| Unit display | 4 x green LED (°C, °F, K, Ohm) |
| Programming options | switch/release point, hysteresis/window mode, NO/NC; unit |
| MTTF | 255 years acc. to SN 29500 (Ed. 99) 20 °C |