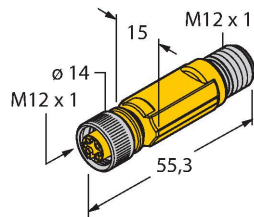


TTM-100-LIUPN-H1140

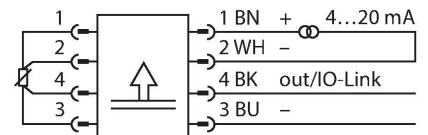
Temperature Detection – With Current Output and PNP/NPN Transistor Switching Output



Features

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

Wiring diagram



Technical data

Type	TTM-100-LIUPN-H1140
ID no.	9910632
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
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.

Functional principle

TP temperature probes (PT100 4-wire) can be plugged directly or via cable to the M12 connection at the TTM-100 temperature transmitter.

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

Technical data

Analog output	
Current output	4...20 mA
Load	$\leq [(V_{\text{supply}} - 10 \text{ V})/21 \text{ mA}] \text{ k}\Omega$
Accuracy (Lin. + Hys. + Rep.)	$\pm 0.3 \text{ K}$
Remark	0.1 % of full scale applies to temperatures $> +300 \text{ }^\circ\text{C}$
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	$\pm 0.2 \text{ K}$
Included in the SIDI GSDML	Yes
Housing material	Stainless-steel/Plastic, 1.4404 (AISI 316L)
Process connection	M12 \times 1
Electrical connection	Connectors, M12 \times 1
Protection class	IP67
Ambient temperature	$-40\dots+80 \text{ }^\circ\text{C}$
Storage temperature	$-40\dots+80 \text{ }^\circ\text{C}$
Reference conditions acc. to IEC 61298-1	
Temperature	$15\dots+25 \text{ }^\circ\text{C}$
Atmospheric pressure	860...1060 hPa abs.
Humidity	45...75 % rel.
Auxiliary power	24 VDC
Temperature behaviour	
Temperature coefficient span T_{KS}	$\pm 0.1 \text{ \% of full scale}/10 \text{ K}$
Temperature coefficient zero point T_{K0}	$\pm 0.1 \text{ \% of full scale}/10 \text{ K}$
MTTF	541 years acc. to SN 29500 (Ed. 99) $40 \text{ }^\circ\text{C}$
Technical data	
Type	TTM-100-LIUPN-H1140
ID no.	9910632
Temperature range	
Measuring range	$-210\dots650 \text{ }^\circ\text{C}$
Temperature operating range	$-346\dots1202 \text{ }^\circ\text{F}$

Technical data

Factory setting	0...150 °C
	32...302 °F
Note	Max. temperature of electronics: 80 °C/176 °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 _o	≤ 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	≤ [(V _{supply} - 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

Technical data

Temperature behaviour	
Temperature coefficient zero point T_{k0}	± 0.1 % of full scale/10 K
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/Plastic, 1.4404 (AISI 316L)
Process connection	M12 × 1
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

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