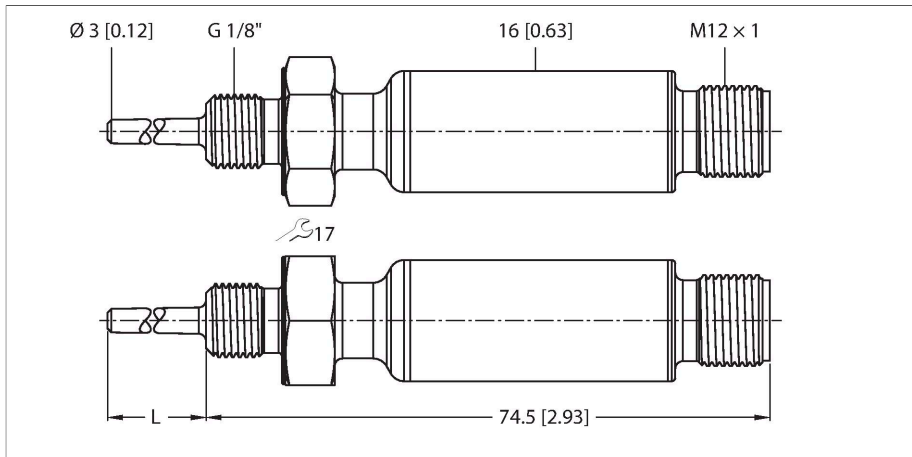


TTMS-103A-G1/8-LIUPN-H1140-L013

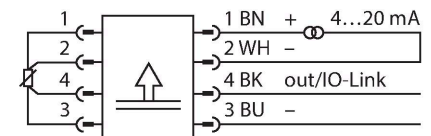
Temperature Detection – Stainless Steel Transmitter with Integrated Probe



Features

- Miniature design
- Parameterizable via IO-Link
- Analog output 4...20 mA (2-wire)
- Switching output
- Process connection G1/8" male thread

Wiring diagram

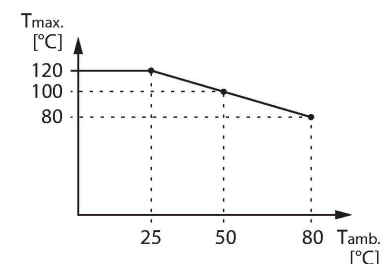


Technical data

Type	TTMS-103A-G1/8-LIUPN-H1140-L013
ID	9910650
Temperature range	
Measuring range	-50...120 °C
Temperature operating range	-58...248 °F
Factory setting	0...150 °C
	32...302 °F
Accuracy	± 0.15 °C + 0.002 • t (-30...350 °C)
Measuring element	Pt-100 probe, DIN EN 60751, class A
Response time	t 0.5 = 1.5 s / t 0.9 = 6.0 s in water at 0.2 m/s
Immersion depth (L)	13 mm
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
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

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

Release position	-210...+640 °C
Switching point	-200...+650 °C
Switching cycles	≥ 100 mil.
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	V 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	G 1/8" male thread
Electrical connection	Connector, 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-103A-G1/8-LIUPN-H1140-L013
ID	9910650

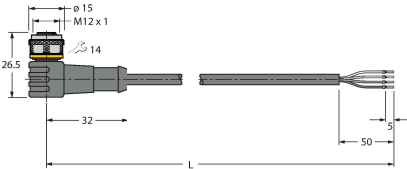
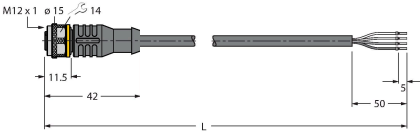
Technical data


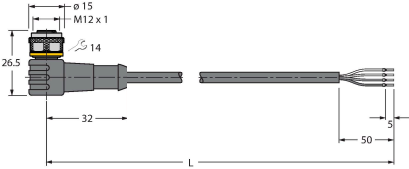
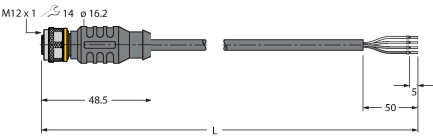
Temperature range	
Measuring range	-50...120 °C
Temperature operating range	-58...248 °F
Factory setting	0...150 °C
	32...302 °F
Accuracy	0.15 °C + 0.002 • t (-30...350 °C)
Measuring element	Pt-100 probe, DIN EN 60751, class A
Response time	t 0.5 = 1.5 s / t 0.9 = 6.0 s in water at 0.2 m/s
Immersion depth (L)	13 mm
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
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 _{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	V 1.1
Programming	FDT / DTM
Transmission physics	corresponds to 3-wire physics (PHY2)

Technical data

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
Temperature coefficient span T _{KS}	± 0.1 % of full scale/10 K
Ambient 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	G 1/8" male thread
Pressure resistance	100 bar
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
MTTF	541 years acc. to SN 29500 (Ed. 99) 40 °C

Accessories

Dimension drawing	Type	ID	
	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

Dimension drawing	Type	ID	
	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