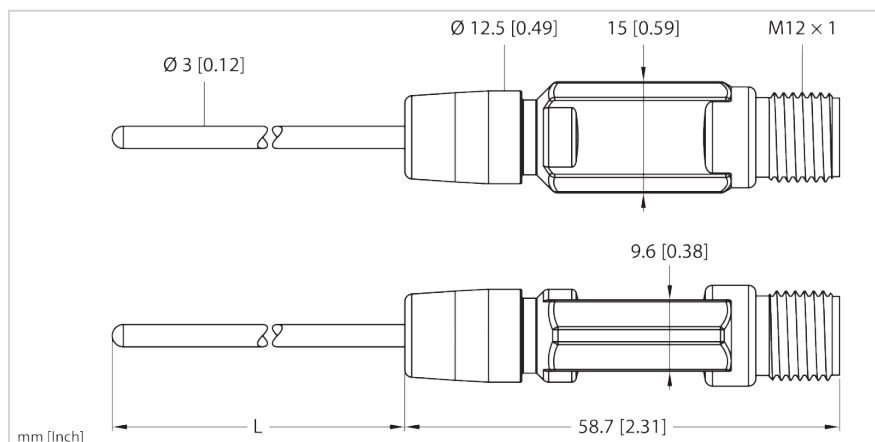


TTM-203A-CF-LIUPN-H1140-L200

Temperature detection

With current output and PNP/NPN transistor switching output



Type designation	TTM-203A-CF-LIUPN-H1140-L200
Ident-No.	100046638

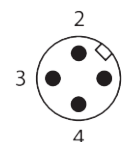
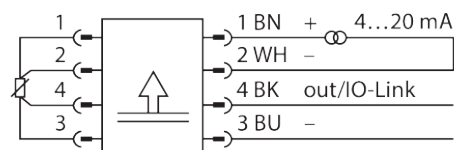
Technical data

General data	
Detection type	medium contact
Measuring principle	Media-contacting
Application area	
Immersion depth (L)	200 mm
Measuring element	Pt100, DIN EN 60751, class A
Pressure resistance	100 bar
Detection area/measuring range	
Factory setting	0...150 °C
Factory setting	32...302 °F
Measuring range	-70...500 °C
Measuring range	-94...662 °F
Temperature	
Temperature measuring range	-70...500 °C
Power supply	
Operating voltage U_B	8...32 VDC
	(UL: Class 2)
Operating voltage U_B	18...32 VDC

Features

- Miniature design
- Factory setting 0...150 °C
- Parametrizable via IO-Link
- Analog output 4...20 mA (2-wire)
- Switching output
- Compression fitting process connection
- Bendable probe (min. bending radius: 3 × outer diameter; excluding 30-mm probe tip)

Wiring Diagram



Technical data

Power supply	
Voltage drop at I_e	$\leq 2 \text{ V}$
Electrical data	
Output function	NO/NC programmable, PNP/NPN
Short-circuit protection	yes
Wire break/reverse polarity protection	yes
Current consumption	$\leq 20 \text{ mA}$
Insulation class	III
Response time	$t_{05} = 1.5 \text{ s} / t_{09} = 6.0 \text{ s}$ in water @ 0.2 m/s
Interfaces	
Communication protocol	IO-Link
Outputs	
Accuracy (Lin. + Hys. + Rep.)	$\pm 0,3 \text{ K}$
Current output	$4 \dots 20 \text{ mA}$
Release position	$-210 \dots +640$
Switching point	$-200 \dots +650 \text{ }^\circ\text{C}$
Load	$\leq [(V_{\text{supply}} - 10 \text{ V})/21 \text{ mA}] \text{ k}\Omega$
Note	Connection to PIN 1+3+4. Please use a 3-wire cable for operation on a Turck TBEN IO-Link master.
Note	Connection to PIN 1+2
Output 1	Switching output or IO-Link mode
Output 2	Analog output
Rated operational current	$0,15 \text{ A}$
Remark	0.1% of full scale applies to values $> +300 \text{ }^\circ\text{C}$
Switching cycles	$\geq 100 \text{ Mio.}$
Switching point accuracy	$\pm 0,3 \text{ K}$
Accuracy/deviation	
Accuracy	$\pm 0.15 \text{ K} + 0.002 \cdot t \text{ (-30} \dots 300 \text{ }^\circ\text{C)}$
Repeatability	$0,1 \text{ K}$
Temperature coefficient range TK_s	$\pm 0,1 \%$ v.E./10 K
Temperature coefficient zero point TK_0	$\pm 0,1 \%$ v.E./10 K
IO-Link	
IO-Link specification	V 1.1
Transmission physics	corresponds to 3-wire physics (PHY2)
Transmission rate	COM 2 / 38.4 kbps

Functional principle

The TTM miniature transmitters are available with integrated probe.

Due to the integrated electronics, the limited temperature range must be observed, especially in the area of the M12 connector.

Technical data

Process data width	16 bit
Measured value information	15 bit
Switching point information	1 bit
Frame type	2.2
Programming	FDT / DTM
Genauigkeit	±0,2 K
Included in the SIDI GSDML	Yes

Mechanical data

Design	Without display (integrated probe)
Construction type designation	TTM
Housing material	Stainless-steel/Plastic, 1.4404 (AISI 316L)
Electrical connection	Connector, M12 x 1
Outer diameter	3 mm
Process connection	For compression fittings, thermowell or direct mounting
Sensor material	Stainless steel, 1.4404 (AISI 316L)
Mounting conditions	Immersion sensor

Ambient conditions

Ambient temperature	-40...+80 °C
Storage temperature	-40...+80 °C
Protection class	IP67

Tests/approvals

UL registration number	E345414
Approvals	cULus
MTTF	541 Years acc. to SN 29500 (Ed. 99) 40 °C
MTBF	162 Jahre

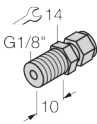
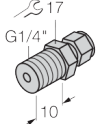
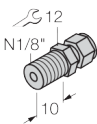
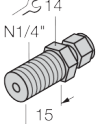
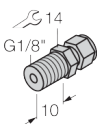
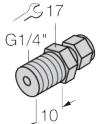
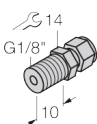
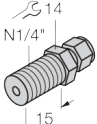
Reference conditions

Auxiliary power	24 VDC
Atmospheric pressure	860...1060 hPa abs.
Humidity	45...75 % rel.
Temperature	15...+25 °C

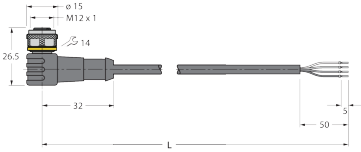
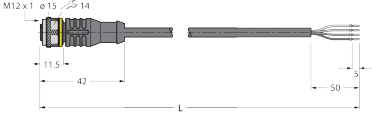
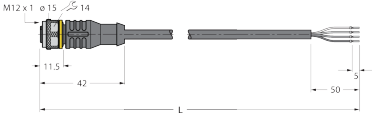
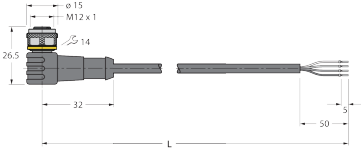
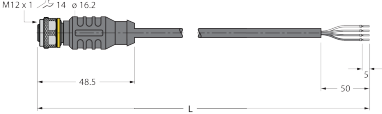
Comments

Note	Max. temperature of electronics: 80 °C/ 176 °F
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Mounting accessories

CF-M-3-G1/8-A4	9910405	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection G1/8" male thread	CF-M-3-G1/4-A4	9910407	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection G1/4" male thread
					
CF-M-3-N1/8-A4	9910406	Compression fitting for direct mounting of temperature probes; probe diameter 6 mm; process connection 1/8" NPT male thread	CF-M-3-N1/4-A4	9910408	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection 1/4" NPT male thread
					
CF-P-3-G1/8-A4	9910409	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection G1/8" male thread	CF-P-3-G1/4-A4	9910411	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection G1/4" male thread
					
CF-P-3-N1/8-A4	9910410	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection 1/8" NPT male thread	CF-P-3-N1/4-A4	9910412	Compression fitting for direct mounting of temperature probes; probe diameter 3 mm; process connection 1/4" NPT male thread
					

Connection accessories

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