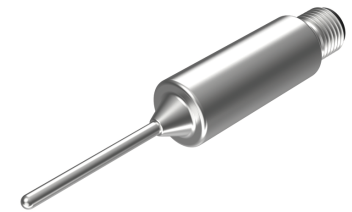
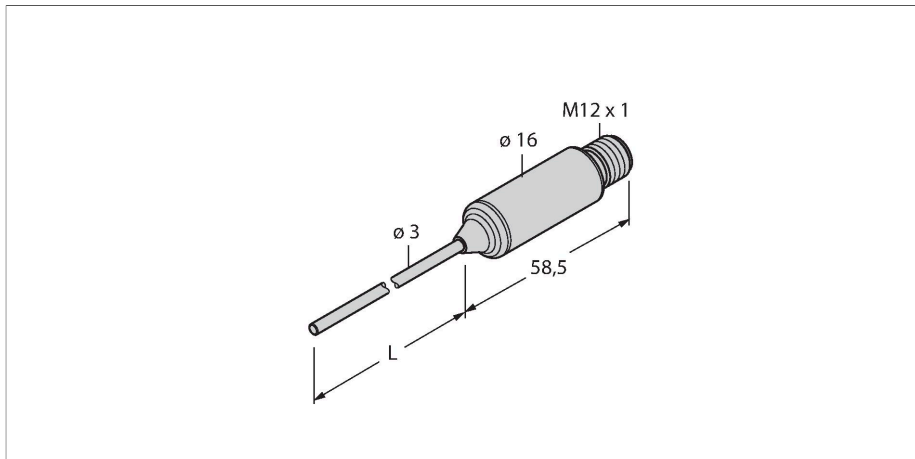


# TTMS-203A-CF-LIUPN-H1140-L150

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



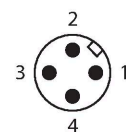
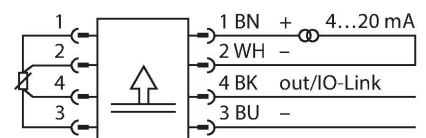
### Technical data

Type	TTMS-203A-CF-LIUPN-H1140-L150
ID	9910658
<b>Temperature range</b>	
Measuring range	-210...650 °C
Measuring range	-346...1202 °F
Note	Max. temperature of electronics: 80 °C/176 °F
Accuracy	$\pm 0.15 K + 0.002 \cdot  t $ (-30...300 °C)
Measuring element	Pt-100 probe, DIN EN 60751, class A
Response time	$t_{05} = 1.5 s / t_{09} = 6.0 s$ in water @ 0.2 m/s
Immersion depth (L)	150 mm
Outer diameter	3 mm
<b>Power supply</b>	
Operating voltage	15...30 VDC
Current consumption	$\leq 20$ mA
Voltage drop at $I_o$	$\leq 2$ V
Short-circuit/reverse polarity protection	yes / yes
Protection type and class	IP67 / III
<b>Outputs</b>	
Output 1	Switching output or IO-Link mode
Output 2	Analog output
<b>Switching output</b>	
Communication protocol	IO-Link
Output function	NO/NC programmable, PNP/NPN

### Features

- Miniature design
- Parameterizable via IO-Link
- Analog output 4...20 mA (2-wire)
- Switching output
- Compression fitting process connection
- Bendable probe (min. bending radius: 3x outer diameter; excluding 30-mm probe tip)

### Wiring diagram



### 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

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
<b>Analog output</b>	
Current output	4...20 mA
Note	Connection to PIN 1+2
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
<b>IO-Link</b>	
IO-Link specification	V 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
<b>Temperature behaviour</b>	
Temperature coefficient zero point TK <sub>0</sub>	± 0.1 % of full scale/10 K
Temperature coefficient range TK <sub>s</sub>	± 0.1 % of full scale/10 K
<b>Environmental conditions</b>	
Ambient temperature	-40...+80 °C
Storage temperature	-40...+80 °C
<b>Mechanical data</b>	
Housing material	Stainless steel, 1.4404 (AISI 316L)
Sensor material	Stainless steel, 1.4404 (AISI 316L)
Process connection	For compression fittings, thermowell or direct mounting
Pressure resistance	100 bar
Electrical connection	Connector, M12 × 1
<b>Reference conditions acc. to IEC 61298-1</b>	
Temperature	15...+25 °C

## Technical data

Atmospheric pressure	860...1060 hPa abs.
Humidity	45...75 % rel.
Auxiliary power	24 VDC
<b>Tests/approvals</b>	
Approvals	cULus
UL registration number	E345414
MTTF	541 years acc. to SN 29500 (Ed. 99) 40 °C

## Accessories

Dimension drawing	Type	ID	
	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