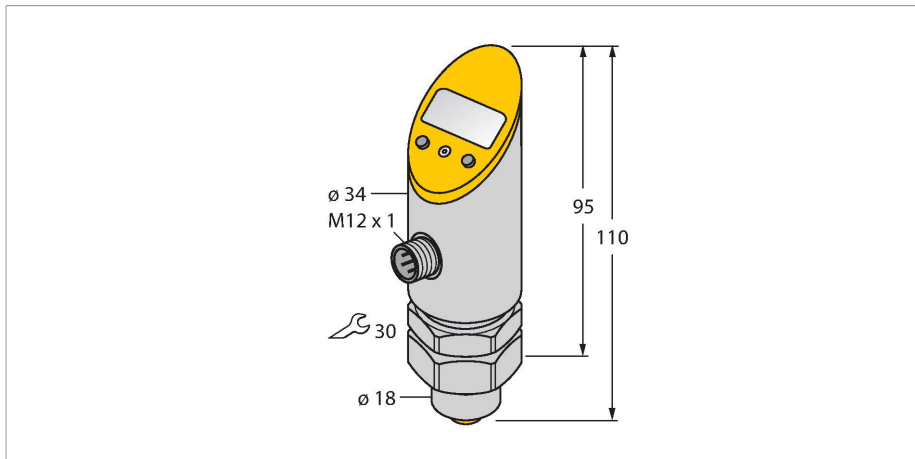


# TS-500-LI2UPN8X-H1141

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

### Output 2 Reprogrammable as Switching Output



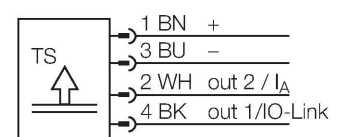
#### Technical data

Type	TS-500-LI2UPN8X-H1141
ID	6840015
<b>Temperature range</b>	
Measuring range	-50...500 °C
Measuring range	-58...932 °F
Measuring element	For connection to probes of the TP series
Response time	100 ms
<b>Power supply</b>	
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
<b>Outputs</b>	
Output 1	Switching output or IO-Link mode
Output 2	Analog or switching output
<b>Switching output</b>	
Communication protocol	IO-Link
Output function	NO/NC programmable, PNP/NPN
Switching point accuracy	± 0.2 K
Rated operational current	0.2 A
Switching frequency	≤ 180 Hz
Release position	-50...+499.8 °C
Switching point	-49.8...+500 °C

#### Features

- Housing is rotatable after plugging the process connection
- 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

Switching point distance	≥ 0.2 K
Switching cycles	≥ 100 mil.
<b>Analog output</b>	
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
<b>IO-Link</b>	
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
<b>Reference conditions acc. to IEC 61298-1</b>	
Temperature	15...+25 °C
Atmospheric pressure	860...1060 hPa abs.
Humidity	45...75 % rel.
Auxiliary power	24 VDC

## Technical data

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-500-LI2UPN8X-H1141
ID	6840015
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
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

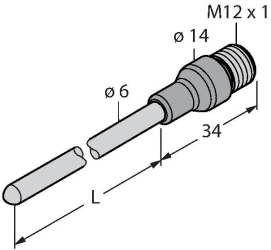
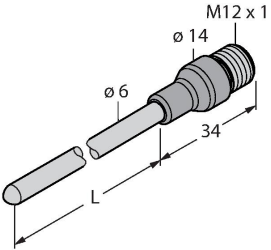
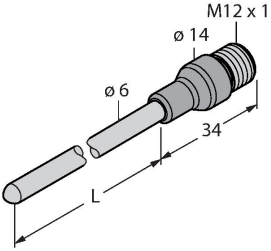
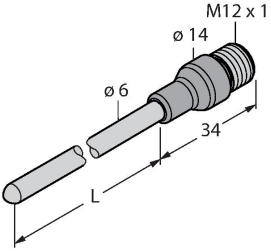
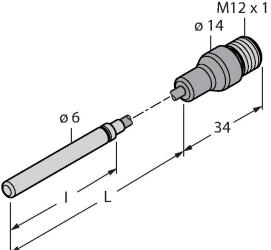
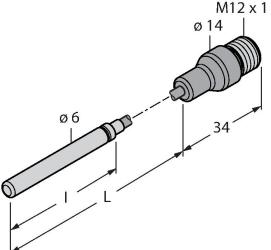
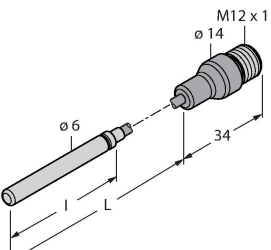
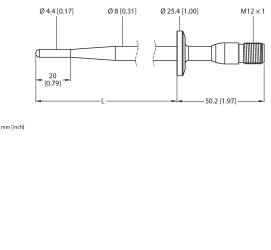
## Technical data

Accuracy (Lin. + Hys. + Rep.)	± 0.2 K
Remark	0.1% of full scale applies to temperatures > +200 °C
Repeatability	0.1 K
<b>IO-Link</b>	
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
<b>Temperature behaviour</b>	
Temperature coefficient zero point Tk0	± 0.15 % of full scale/10 K
Temperature coefficient span T <sub>KS</sub>	± 0.15 % of full scale/10 K
<b>Ambient conditions</b>	
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
<b>Mechanical data</b>	
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
<b>Reference conditions acc. to IEC 61298-1</b>	
Temperature	15...+25 °C
Atmospheric pressure	860...1060 hPa abs.
Humidity	45...75 % rel.
Auxiliary power	24 VDC
<b>Display</b>	
Display	4-digit 7-segment display, rotatable by 180°

## Technical data

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

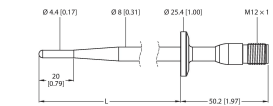
## Accessories

	<p><b>TP-206A-CF-H1141-L200</b></p> <p>9910477</p> <p>temperature detector for liquid and gaseous media</p>		<p><b>TP-206A-CF-H1141-L100</b></p> <p>9910475</p> <p>temperature detector for liquid and gaseous media</p>
	<p><b>TP-206A-CF-H1141-L150</b></p> <p>9910476</p> <p>temperature detector for liquid and gaseous media</p>		<p><b>TP-206A-CF-H1141-L300</b></p> <p>9910478</p> <p>temperature detector for liquid and gaseous media</p>
	<p><b>TP-306A-CF-H1141-L1000</b></p> <p>9910479</p> <p>temperature detector for liquid and gaseous media</p>		<p><b>TP-306A-CF-H1141-L2000</b></p> <p>9910480</p> <p>temperature detector for liquid and gaseous media</p>
	<p><b>TP-306A-CF-H1141-L5000</b></p> <p>9910481</p> <p>temperature detector for liquid and gaseous media</p>		<p><b>TP-504A-TRI3/4-H1141-L035</b></p> <p>9910429</p> <p>temperature detector for liquid and gaseous media</p>

TP-504A-TRI3/4-H1141-L100

9910430

temperature detector for liquid and gaseous media

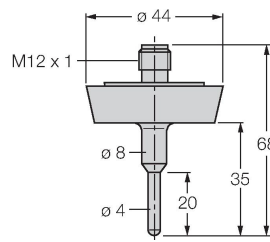


mm (inch)

TP-504A-DN25K-H1141-L035

9910431

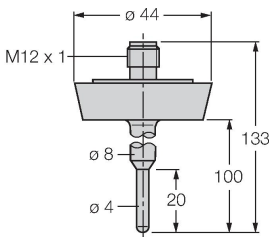
temperature detector for liquid and gaseous media



TP-504A-DN25K-H1141-L100

9910432

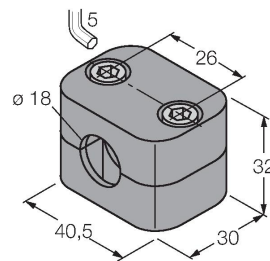
temperature detector for liquid and gaseous media



BSS-18

6901320

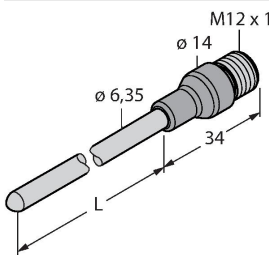
Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene



TP-206.35A-CF-H1141-L100

9910819

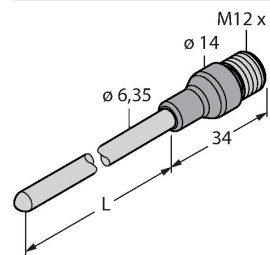
temperature detector for liquid and gaseous media



TP-206.35A-CF-H1141-L150

9910820

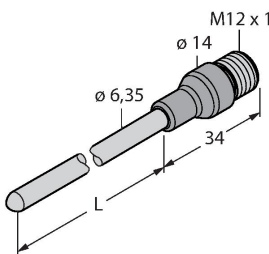
temperature detector for liquid and gaseous media



TP-206.35A-CF-H1141-L200

9910821

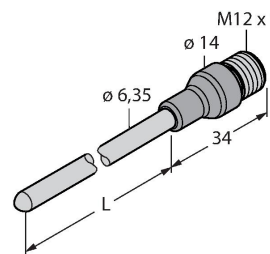
temperature detector for liquid and gaseous media



TP-206.35A-CF-H1141-L300

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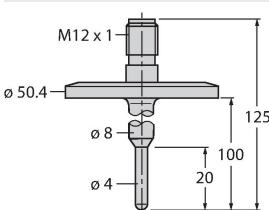
temperature detector for liquid and gaseous media



TP-504A-TRI1.5-H1141-L100

9910860

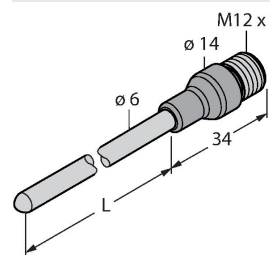
temperature detector for liquid and gaseous media



TP-206KK1-CF-H1141-L100

100017085

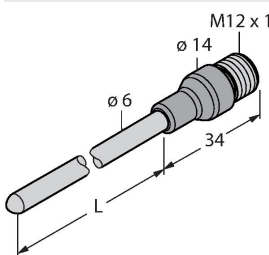
temperature detector for liquid and gaseous media



TP-206KK1-CF-H1141-L150

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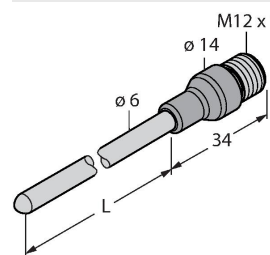
temperature detector for liquid and gaseous media



TP-206KK1-CF-H1141-L200

100017083

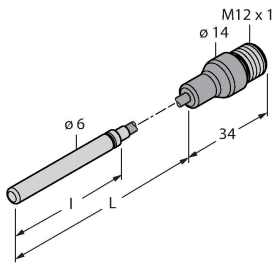
temperature detector for liquid and gaseous media



TP-306A-CF-H1141-L5500

100024018

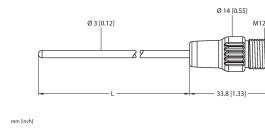
temperature detector for liquid and gaseous media



TP-203KK1-CF-H1141-L150

100045292

temperature detector for liquid and gaseous media



## 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 <a href="http://www.turck.com">www.turck.com</a>
	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 <a href="http://www.turck.com">www.turck.com</a>
	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 <a href="http://www.turck.com">www.turck.com</a>
	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 <a href="http://www.turck.com">www.turck.com</a>
	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 <a href="http://www.turck.com">www.turck.com</a>