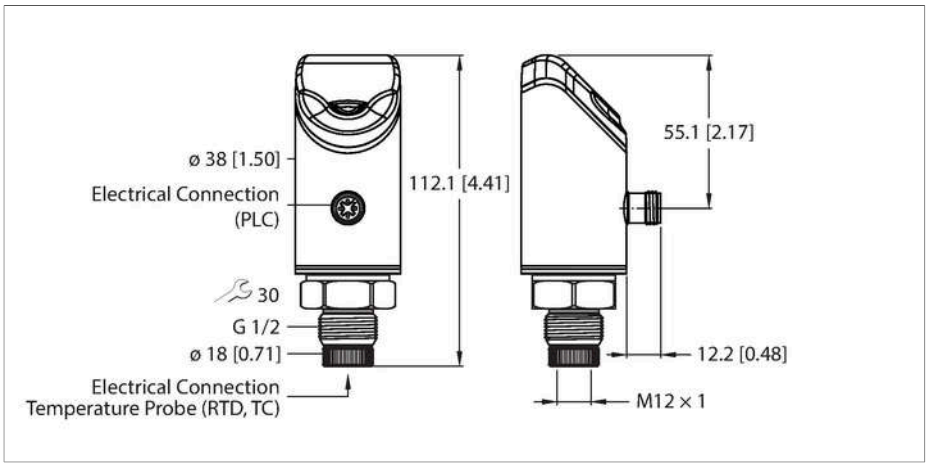
TS720-2UPN8-H1141
Temperature Detection – With 2 PNP/NPN Transistor Switching Outputs





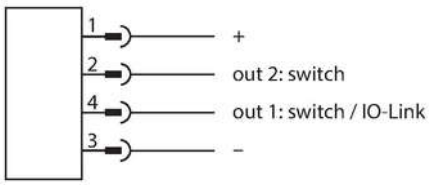
Technical data

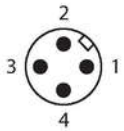
Type	TS720-2UPN8-H1141
Ident. no.	100003633
Temperature range	
Temperature display range	-210…1820 °C
	-346…3308 °F
Measuring element	For connection to probes of the TP series
Response time	100 ms
Electrical data	
Operating voltage	10…33 VDC
Protective measure	SELV, PELV according to DIN EN 61140
Short-circuit/reverse polarity protection	yes / yes
Power consumption	≤ 3 W
Insulation class	III
Outputs	
Output 1	Switching output or IO-Link mode
Output 2	switching output
Switching output	
Communication protocol	IO-Link
Output function	NO/NC programmable, PNP/NPN
Switching point accuracy	± 0.2 K
Rated operational current	0.25 A
Switching point distance	≥ 0.2 K
Switch point:	Probe dependent: (min. measuring range) … (max. measuring range — 0.2 K)
Release point(s)	Probe dependent: (min. measuring range — 0.2 K) … (max. measuring range)

Features

- Processor unit for connecting sensors from the TP product series
- Automatic probe detection
- 4-digit, two-colored, 12-segment display, rotatable by 180°
- Upper part of housing can be rotated up to 340°
- 10…33 VDC
- NO/NC contact, PNP/NPN output, IO-Link
- Various IO-Link mapping profiles can be selected

Wiring diagram





Functional principle

The TS+ product series is a compact processing unit with a 4-digit, 12-segment display that can be freely rotated by 340°. Compact units with (TS700) and without (TS720) temperature sensors as well as different output variants are available.

TS720-2UPN8-H1141| 15-01-2021 09-43 | Technical modifications reserved

Technical data

Switching cycles	≥ 100 mil.
Repeatability	0.1 K
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A
Transmission physics	corresponds to 3-wire physics (PHY2)
Frame type	2.2
Transmission rate	COM 2 (38.4 kBaud)
Programming	FDT/DTM/selection of various mapping profiles
Genauigkeit	± 0.1 K
Included in the SIDI GSDML	Yes
Programming	
Programming options	Switching logic (PNP, NPN, Auto*), switching/release point; hysteresis/window mode; NO/NC; unit; IO-Link mapping profile; factory settings
Mechanical data	
Housing material	Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV
Electrical connection	Connectors, M12 × 1
Protection class	IP6K6K / 6K7 / 6K9K
	According to ISO 20653
Electromagnetic compatibility (EMC)	EN 61326-2-3: 2013 minimum operating quality: +3.0 K under worst-case conditions
Environmental conditions	
Ambient temperature	-40…+80 °C
Storage temperature	-40…+85 °C
Shock resistance	50 g (11 ms) , DIN EN 60068-2-27
Vibration resistance	20 g (10…3000 Hz), DIN EN 60068-2-6
Reference conditions acc. to IEC 61298-1	
Temperature	15…+25 °C
Atmospheric pressure	860…1060 hPa abs.
Humidity	10…95 % rel.
Auxiliary power	24 VDC
Display	
Display	4-digit, two-colored (green/red), 12-segment display, rotatable by 180°
Switching state	2 × LEDs, Yellow
Unit display	4 x green LED (°C, °F, K, Ohm)

TS720-2UPN8-H1141| 15-01-2021 09-43 | Technical modifications reserved

Status LEDs

LED	Color	Status	Description
PWR	Green	On	Operating voltage applied Device is operational
		Flashing	Operating voltage applied IO-Link communication active (inverted flash with T on 900 ms and T off 100 ms)
FLT	Red	On	Error displayed (For error pattern in combination with LEDs see manual)
		Off	No errors displayed
°C	Green	On	Temperature in °C
°F	Green	On	Temperature in °F
K	Green	On	Temperature in K
Ω	Green	On	Resistance in Ω
LOC	Yellow	On	Device locked
		Flashing	"Lock/unlock" process is active
		Off	Device unlocked
I and II (switching point of LEDs)	Yellow	On	Switching output -NO: switching point exceeded/within window (active output) -NC: switching point undershot/outside window (active output)
		Off	Switching output -NO: switching point undershot/outside window (inactive output) -NC: switching point exceeded/within window (inactive output)

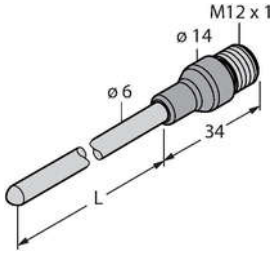
For detailed description of the display patterns and flashing codes, see manual

IO-Link process data image

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Byte n	14 Bit Process Value (TEMP)														State Out 2	State Out 1

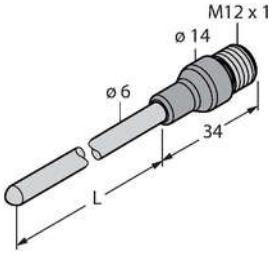
Accessories

TP-206A-CF-H1141-L100 9910475



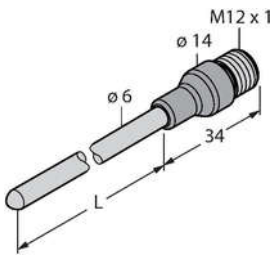
temperature detector for liquid and gaseous media

TP-206A-CF-H1141-L150 9910476



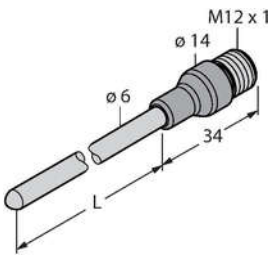
temperature detector for liquid and gaseous media

TP-206A-CF-H1141-L200 9910477



temperature detector for liquid and gaseous media

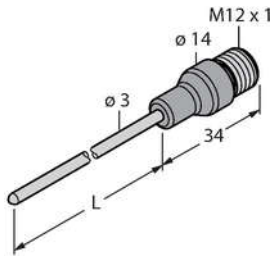
TP-206A-CF-H1141-L300 9910478



temperature detector for liquid and gaseous media

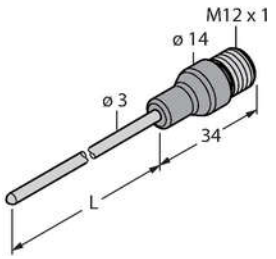
TS720-2UPN8-H1141| 15-01-2021 09-43 | Technical modifications reserved

TP-203A-CF-H1141-L100	9910402



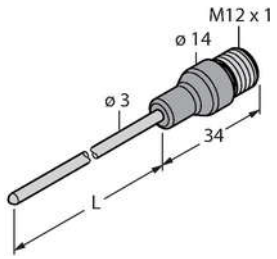
temperature detector for liquid and gaseous media

TP-203A-CF-H1141-L150	9910403



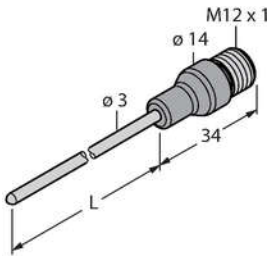
temperature detector for liquid and gaseous media

TP-203A-CF-H1141-L200	9910482



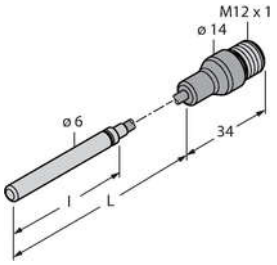
temperature detector for liquid and gaseous media

TP-203A-CF-H1141-L300	9910474



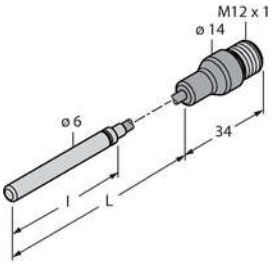
temperature detector for liquid and gaseous media

TP-306A-CF-H1141-L1000	9910479



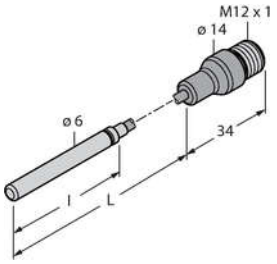
temperature detector for liquid and gaseous media

TP-306A-CF-H1141-L2000	9910480



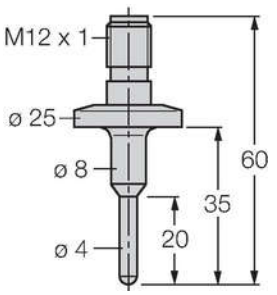
temperature detector for liquid and gaseous media

TP-306A-CF-H1141-L5000	9910481



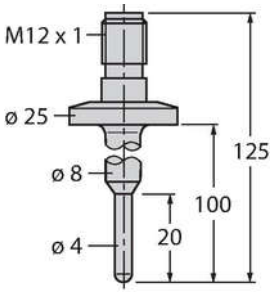
temperature detector for liquid and gaseous media

TP-504A-TRI3/4-H1141-L035	9910429



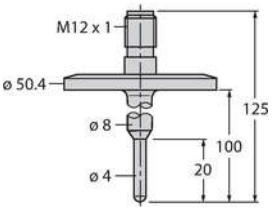
temperature detector for liquid and gaseous media

TP-504A-TRI3/4-H1141-L100	9910430



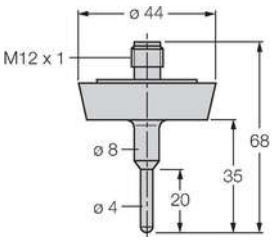
temperature detector for liquid and gaseous media

TP-504A-TRI1.5-H1141-L100	9910860



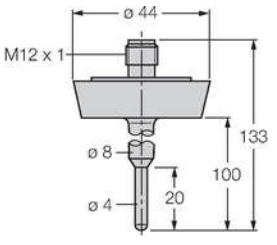
temperature detector for liquid and gaseous media

TP-504A-DN25K-H1141-L035	9910431



temperature detector for liquid and gaseous media

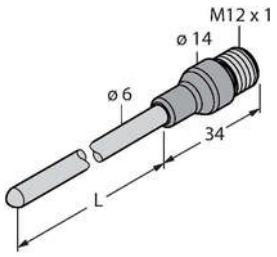
TP-504A-DN25K-H1141-L100	9910432



temperature detector for liquid and gaseous media

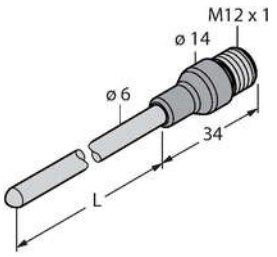
TS720-2UPN8-H1141| 15-01-2021 09-43 | Technical modifications reserved

TP-206KK1-CF-H1141-L100	100017085



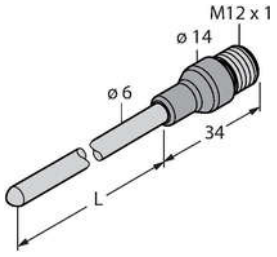
temperature detector for liquid and gaseous media

TP-206KK1-CF-H1141-L150	100017084



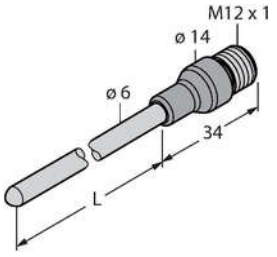
temperature detector for liquid and gaseous media

TP-206KK1-CF-H1141-L200	100017083



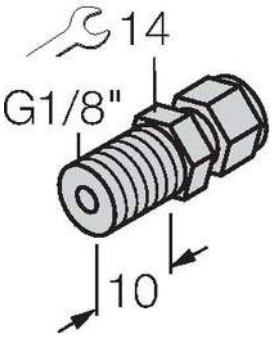
temperature detector for liquid and gaseous media

TP-206KK1-CF-H1141-L500	100017082



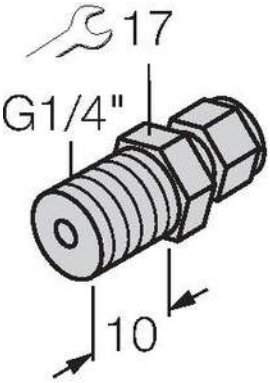
temperature detector for liquid and gaseous media

CF-M-3-G1/8-A4	9910405



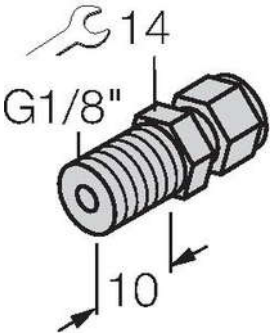
Compression fitting for direct mounting of temperature sensors; sensor diameter 3 mm; process connection G1/8" male thread

CF-M-3-G1/4-A4	9910407



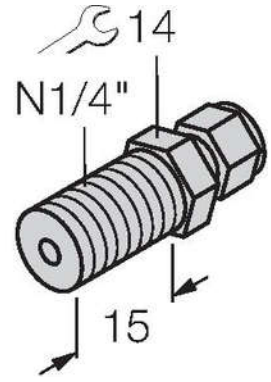
Compression fitting for direct mounting of temperature sensors; sensor diameter 3 mm; process connection G1/4" male thread

CF-M-3-N1/8-A4	9910406



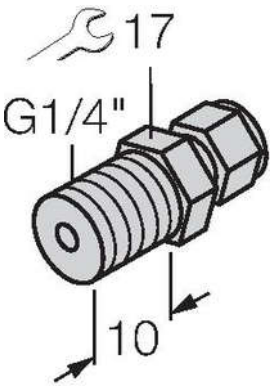
Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection 1/8" NPT male thread

CF-M-3-N1/4-A4	9910408



Compression fitting for direct mounting of temperature sensors; sensor diameter 3 mm; process connection 1/4" NPT male thread

CF-M-6-G1/4-A4	9910483



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection G1/4" male thread

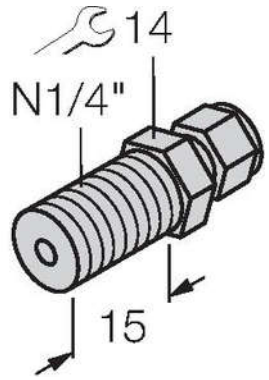
CF-M-6-G1/2-A4	9910530



Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection G1/2" male thread

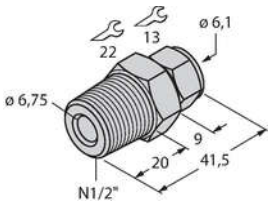
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CF-M-6-N1/4-A4	9910484



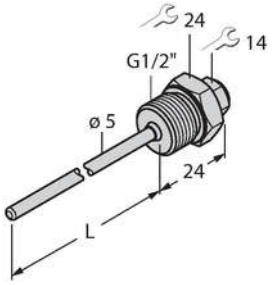
Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection 1/4" NPT male thread

CF-M-6-N1/2-A4	9910529



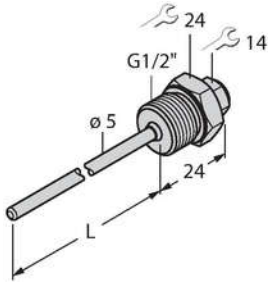
Compression fitting for direct mounting of temperature sensors; sensor diameter 6 mm; process connection 1/2" NPT male thread

THW-3-G1/2-A4-L050	9910443



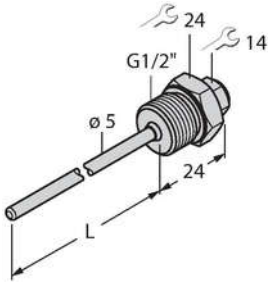
Protective tube for mounting temperature sensors; sensor diameter 3 mm; process connection G1/2" external thread; immersion depth 50 mm

THW-3-G1/2-A4-L100	9910444



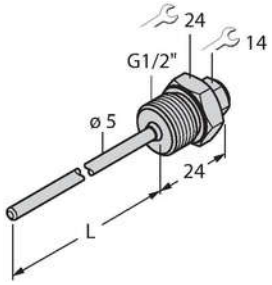
Protective tube for mounting temperature sensors; sensor diameter 3 mm; process connection G1/2" external thread; immersion depth 100 mm

THW-3-G1/2-A4-L200	9910487



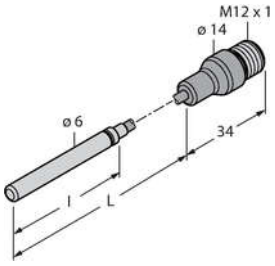
Protective tube for mounting temperature sensors; sensor diameter 3 mm; process connection G1/2" external thread; immersion depth 200 mm

THW-3-G1/2-A4-L250	9910446



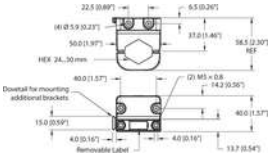
Protective tube for mounting temperature sensors; sensor diameter 3 mm; process connection G1/2" external thread; immersion depth 250 mm

TP-306A-CF-H1141-L5500	100024018



temperature detector for liquid and gaseous media

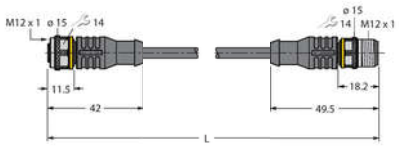
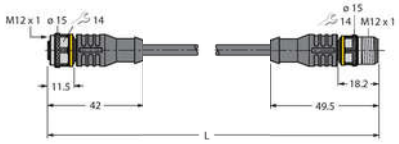
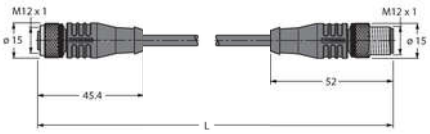
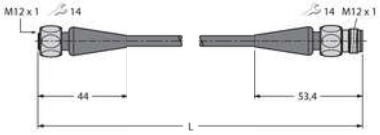
FAM-30-PA66	100018384



Mounting bracket; variable wrench size 24–30 mm; removable labeling plate 20 × 9 mm

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Accessories

Dimension drawing	Type	Ident. no.	
	RKC4.4T-2-RSC4.4T/TEL	6625208	Connection cable, M12 female plug, 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-RSC4.4T/TXL	6625608	Extension cable, M12 female, straight, 4-pin to M12 male, straight, 4-pin; cable length: 2 m, jacket material: PUR, black; cULus approval; other cable lengths and qualities available, see www.turck.com
	HT-WAK4-2-HT-WAS4/S2430	8038668	High-temperature-resistant extension cable, M12 female, straight, 4-pin to M12 male, straight, 4-pin; cable length: 2 m, jacket material: PTFE, white; other cable lengths and qualities available, see www.turck.com
	RKH4.4-2-RSH4.4/TFG	6933472	Food and Beverage extension cable, M12 female, straight, 4-pin to M12 male, straight, 4-pin; cable length: 2 m, jacket material: TPE, gray; approval: Ecolab, FDA; other cable lengths and qualities available, see www.turck.com

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