TFP Ø 50 mm / 55 mm
Available until 31.03.2022

TFP Ø 18 mm
No longer available!

Successor: TSB
One sensor for all applications!

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HYGIENIC BY DESIGN
ANDERSON-NEGELE

Temperature Sensor with Thread G1/4" FLEXadapt

FLEXadapt ESF

Application/Specified usage

· Temperature measurement in weld-in thermowells and adapter

Application examples

· For mounting in existing weld-in thermowells and adapter with cap nut G1/4"

Features

· Sensor made of stainless steel
· Sensor tip spring-loaded at TFP-414, -414.2 and TFP-614, -614.2
· Changing or demounting without opening the process and electrical disconnecting

Options/Accessories

· 2x Pt100 (not retrofittable)
· Programmable transmitter
· Programming adapter MPU-P 9701
· Integrated transmitter for HART-Protocol
· Integrated transmitter MPU-LCD with display in connecting head
· Pt100-chip with other classes of accuracy, (1/3 B, 1/10 B)
· Electrical connection via M12 plug (standard at TFP-614, option for TFP-414)
· Pre-assembled connecting cable for M12 plug
· Fixed cable in other lengths and other materials available

Build-In systems

Suitable build-in systems for temperature sensors TFP-414, -614, -814 you will find in product information **Process Connection FLEXadapt ESF**.

Authorisations

FDA

Temperature sensor TFP-414

Temperature sensor TFP-614 with transmitter MPU-M

Temperature sensor		
Process connection	thread G1/4" standard	weld-in thermowell / screw-in thermowell e. g. Hengesbach Quicktemp-Hülse zeh / TP136 – T500
Insertion length EL	TFP-414, TFP-414.2, TFP-614 TFP-814	61 mm, 115 mm + 2 mm spring travel 61 mm, 115 mm
Materials	connection head pipe	stainless steel 1.4301 (AISI 304) stainless steel 1.4404 (AISI 316L)
Operating pressure		acc. to manufacturer information of the thermowell
Temperature ranges	ambient sensor tip	-50...+80 °C -50...+250 °C
Measurement resistor	acc. to DIN EN 60751	Pt100
Electrical connection	TFP-414, TFP-414.2 TFP-614 TFP-814	cable gland M16x1.5 M12 plug 1.4301 (AISI 304), as option M12 plug 1.4301 (AISI 304) fixed cable (LIYY 4x 0.25 mm²) standard 2.5 m
Protection class		IP 69 K (with electrical connection M12 plug)

Transmitter MPU-4, MPU-H, MPU-M		
Temperature ranges	ambient storage	-40...+85 °C -55...+90 °C
Measuring ranges	MPU-4, MPU-H, MPU-M	standard: -10...40 °C, 0...50 / 100 / 150 / 200 °C special ranges free programable
Accuracy	input	< ±0.25 °C
Temperature drift	zero, span	< 0.01 % / K
Supply	MPU-4, MPU-H, MPU-M accuracy	8...35 V DC 0.01 % / V (reference: 12 V DC)
Output	signal accuracy burden	analog 4...20 mA < ±0.1 % of measurement range < 600 Ω (at U_B = 24 V)
Humidity	without condensation	0...98 %

Accuracy classes of temperature sensors | Tolerances for Pt100 acc. to DIN EN 60751			
Pt100	**A**	**1/3 B**	**1/10 B**
0 °C / 100 Ω	±0.15 K / ±0.06 Ω	±0.10 K / ±0.04 Ω	±0.03 K / ±0.01 Ω
100 °C / 138.5 Ω	±0.35 K / ±0.13 Ω	±0.27 K / ±0.10 Ω	±0.08 K / ±0.03 Ω

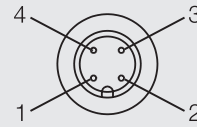## Electrical connection without transmitter

With 1x M12 plug
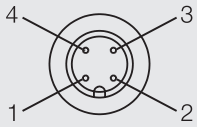
Configuration 1st M12 plug

1 2   3 4

Pt100

With 1x M12 plug and 2x Pt100
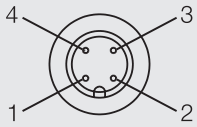
Configuration 2nd M12 plug

1   4 2   3

1. Pt100   2. Pt100
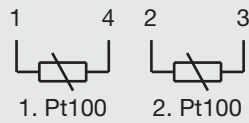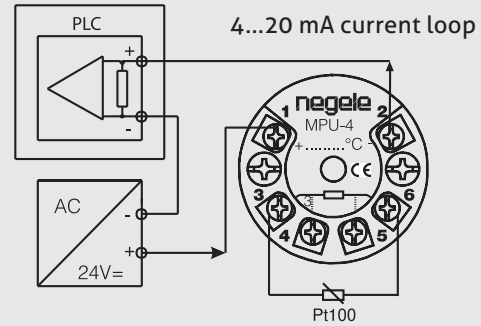
With cable gland
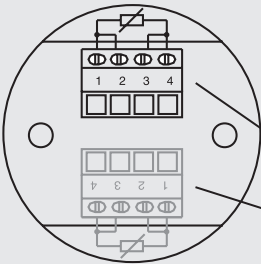
Configuration strip terminal

1 2   3 4
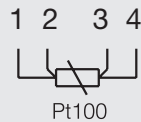
Pt100

clamps for 1st Pt100

clamps for 2nd Pt100
(at version 2x Pt100)

With fixed cable

Fixed cable connection
with 1x Pt100

wh ye   bn gn   standard
rd rd   wh wh PTFE

Pt100

Fixed cable connection
with 2x Pt100 (LIYY)

wh ye   bn gn 1st Pt100
rd bu   pk gy 2nd Pt100
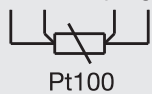
Pt100

Fixed cable connection
with 2x Pt100 (PTFE)

rd rd   wh 1st Pt100
vt vt   ye 2nd Pt100

Pt100

Electrical connection with transmitter

With M12 plug

Configuration M12 plug

1: +supply
2: -supply 4...20 mA
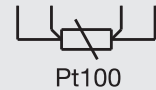3: not connected
4: not connected

With cable gland

PLC

4...20 mA current loop

negele
MPU-4
+..........°C -

AC

24V=

Pt100

TFP-414 | TFP-414.2

Ø 57

55

24,5

Ø 3

Insertion length EL + 2 mm spring travel

TFP-614 with MPU-M

ø18

46,5

24

G1/4"

ø3

Insertion length EL + 2 mm spring travel

TFP-814

2,5m

26

ø18

24

G1/4"

ø3

Insertion length EL

TFP-614 | TFP-624

ø18

26

24

G1/4"

ø3

Insertion length EL + 2 mm spring travel
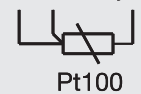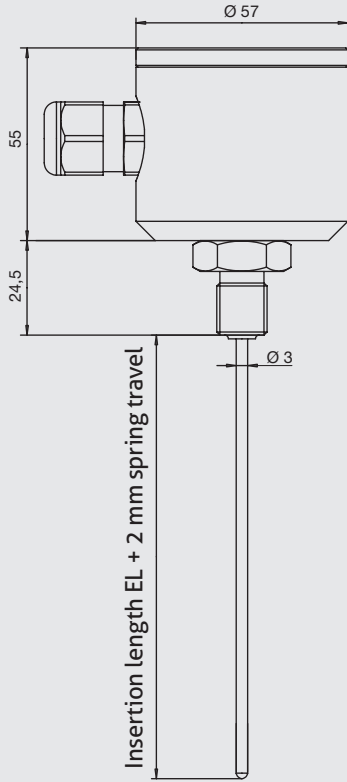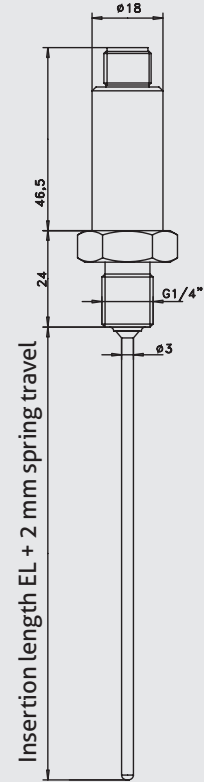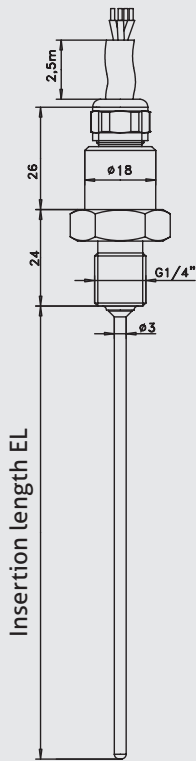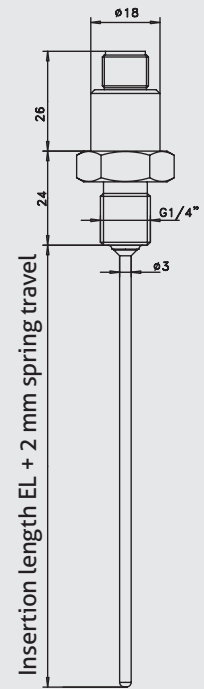
Mechanical connection/Installation

· Check the compatibility of the sensor to the used immersion sleeve.

Conventional usage

· Not suitable for applications in explosive areas.
· Not suitable for applications in security-relevant equipments (SIL).

Transport/Storage

· No outdoor storage
· Dry and dust free
· Not exposed to corrosive media
· Protected against solar radiation
· Avoiding mechanical shock and vibration
· Storage temperature -55 °C...+90 °C
· Relative humidity max. 98 %

Reshipment

· Sensors shall be clean and must not be contaminated with dangerous media!
· Use suitable transport packaging only to avoid damage of the equipment!

Cleaning/Maintenance

· In case of using pressure washers, dont't point nozzle directly to electrical connections!

Standards and guidelines

· You have to comply with applicable regulations and directives.

Disposal

· Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
· Take the device directly to a specialized recycling company and do not use municipal collection points.

Note on CE

· Applicable directives:
  Electromagnetic Compatibility Directive 2014/30/EU
· Compliance with the applicable EU directives is identified by the CE label on the product.
· The operating company is responsible for complying with the guidelines applicable to the entire installation.

Temperature Transmitter MPU-LCD with Display

Application/Specified usage

· 4…20 mA transmitter with LCD for Pt100 temperature sensor
· For installation in temperature sensor
· Sensor monitoring

Features

· 4-digit display with green backlight
· Temperature measurement in °C and °F
· Easy range select by one button
· Lower costs for wiring because of 2-wire technology

Note

See product information "MPU-LCD" for details.

Option MPU-LCD (display in the connection head)

Accessories

PVC-cable with M12-connection made of 1.4305, IP 69 K, unshielded
M12-PVC / 4-5 m   PVC-cable 4-pin, length 5 m
M12-PVC / 4-10 m   PVC-cable 4-pin, length 10 m
M12-PVC / 4-25 m   PVC-cable 4-pin, length 25 m

PVC-cable with M12-connection, brass nickel-plated, IP 67, shielded
M12-PVC / 4G-5 m   PVC-cable 4-pin, length 5 m
M12-PVC / 4G-10 m   PVC-cable 4-pin, length 10 m
M12-PVC / 4G-25 m   PVC-cable 4-pin, length 25 m

Programming adapter
MPU-P 9701   Programming adapter for
                                       MPU-4, MPU-H and MPU-M

PVC-cable with M12-connection

Programming adapter MPU-P 9701

Order code for version with 1x Pt100

TFP-414 (connection head Ø 57 mm and spring-loaded sensor tip)
TFP-614 (connection head Ø 18 mm and spring-loaded sensor tip, electrical connection via M12 plug)
TFP-814 (connection head Ø 18 mm, electrical connection 2.5 m PVC-cable)

Sensor length EL
61 (length 61 mm)
115 (length 115 mm)
xxx (special length)

Diameter thermowell in mm
3

Diameter sensor tip in mm
3

Accuracy class Pt100
A
1/3B
1/10B

Electrical connection (only selectable for TFP-414)
PG (cable gland M16x1.5)
M12 (M12 plug, standard with MPU-LCD)

Transmitter only for TFP-414
X (without)
MPU-4 (programmable)
MPU-H (HART-protocol)
MPU-LCD (with display)

Transmitter only for TFP-614
X (without)
MPU-M (programmable)

Measurement range (only for types with transmitter; not at MPU-LCD)
-10...40 (measurement range -10...+40 °C)
0...50 (measurement range 0...+50 °C)
0...100 (measurement range 0...+100 °C)
0...150 (measurement range 0...+150 °C)
0...200 (measurement range 0...+200 °C)
xx...yy (special range)

! **TFP Ø 50 mm / 55 mm**
Available until 31.03.2022

TFP Ø 18 mm
No longer available!

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TFP-414 /	115 /	3 /	3 /	A /	M12 /	MPU-4 /	0...150

Order code for version with 2x Pt100

TFP-414.2	(connection head Ø 57 mm and spring-loaded sensor tip, no transmitter possible!)
TFP-614.2	(connection head Ø 18 mm and spring-loaded sensor tip, electrical connection via M12 plug, no transmitter possible!)

Sensor length EL
61   (length 61 mm)
115   (length 115 mm)
xxx   (special length)

Diameter thermowell in mm
3

Diameter sensor tip in mm
3

Accuracy class Pt100
A
1/3B
1/10B

Electrical connection (only selectable for TFP-414.2)
PG   (cable gland M16x1.5)
M12   (M12 plug)

TFP-414.2 /	**115 /**	**3 /**	**3 /**	**A /**	**M12**

!	**TFP Ø 50 mm / 55 mm**	✓	**Successor: TSB**
	Available until 31.03.2022		**One sensor for all applications!**
	TFP Ø 18 mm		**Successor: TSM**
	No longer available!		**New, modular and better!**

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