

Temperature Sensor with Double-Pt100

Type-tested for usage in milk heating facilities




Application / Specified Usage

- Redundant temperature measurement in a UHT-plant

Application Example

- Synchronous measurement for a local display and for a recorder

Hygienic Design / Process Connection

- Flow optimized, hygienic and easy sterilizable installation by build-in system ESP or sleeve EMZ or build-in system EHG.
- Product contacting materials compliant to FDA
- Sensor made of stainless steel
- Additional process connections:
Tri-Clamp, dairy flange (DIN 11851), DRD, Varivent, APV, BioControl
- Build-in system ESP in accordance with 3-A-Standard 74-06
- Build-in system CLEANadapt EHEDG-certified

Features / Advantages

- Two galvanically isolated analog outputs
- Redundant measurement system in one sensor
- Electrical connection via M12-plugs
- Deliverable with and without integrated transmitters
- Suitable for pipes from DN 10 up to DN 150
- Factory calibration certificate
- Configuration protocol MPU-4

Options / Accessories

- Programable transmitters MPU-4
- Pt100 chip with other classes of accuracy (1/3B, 1/10B)
- Pre-assembled connecting cable for M12-plug

Authorizations



TFP-68P with ESP-G



TFP-61 with EMZ-132



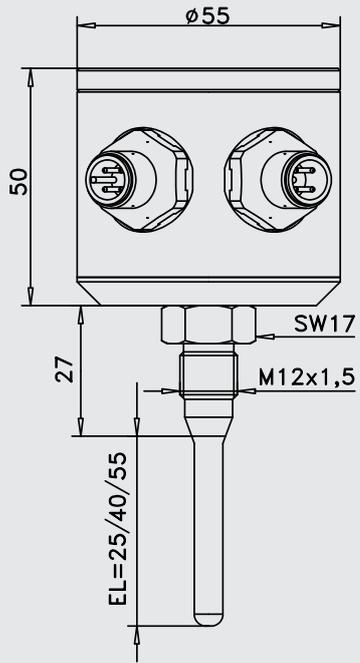
Build-in system EHG-1/2"



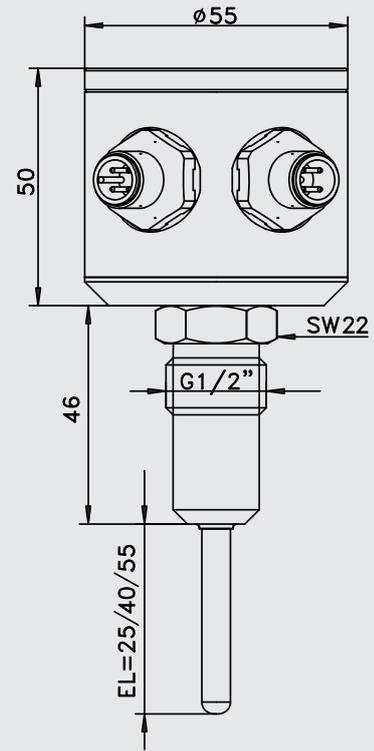
Temperature Sensor		
Process Connection	thread	M12 x 1,5, G1/2" CLEANadapt combined with Negele weld-in sleeves, build-in systems, adapter sleeves torque 10 Nm maximal with M12 torque 20 Nm maximal with G1/2"
	thread	G3/8" PHARMadapt ESP with thermowell
Materials	connection head thermowell (sensor) thermowell	stainless steel 1.4305 stainless steel 1.4404 stainless steel 1.4435
Weight		750 g maximal
Operating Pressure		10 bar max.
	with thermowell	40 bar max.
Temperature Ranges	ambient	-50...+80 °C
	sensor tip	-50...+250 °C
Sensing Resistor	acc. to DIN EN 60751	2 x Pt100
Electrical Connection		2 x M12-plug, 1.4305, 4 pin
Protection Class		IP 69 K

Transmitter MPU-4		
Temperature Ranges	ambient	-40...+85 °C
	storage	-55...+90 °C
Measuring Ranges	standard	-10...40 °C, 0...50 / 100 / 150 / 200 °C special ranges free programmable
Accuracy	input	< ±0,25 °C
Temperature Drift	zero, span	< 0,01 % / K
Supply		8...35 V DC
	accuracy	0,01 % / V (reference: 12 V DC)
Output	signal	analog 4...20 mA
	accuracy	< ±0,1 % of measurement range
	burden	< 600 Ω (at U _B = 24 V)
Humidity	without condensation	0...98 %

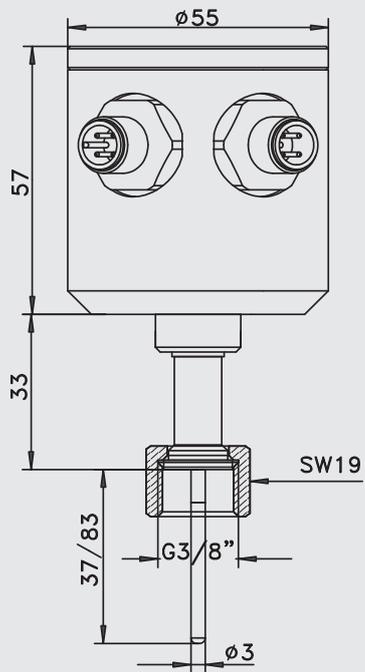
TFP-42.2 / ...



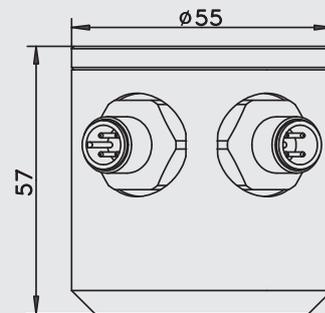
TFP-41.2 / ...



TFP-58P.2 / ...



Higher connecting head at version with two transmitters



Conventional Usage

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

Mechanical Connection / Installation

- Use Negele **CLEANadapt** or **PHARMadapt ESP** system for safe operation of measuring point!
- Pay attention to the maximum torque (see page 2)!
- Use a welding mandril for correct installation of **CLEANadapt** weld-in fittings. Please pay attention to the weld-in and installation details in the **CLEANadapt** product information.
- Do not use non-conducting sealants such as PTFE (Teflon) or similar.

Conditions for a measuring point according to 3-A-Standard 74-06

- The sensors TFP-58P.2 and -68P don't need a 3-A approval, because they are not product contacting.
- Only with the build-in system ESP-G with pipe diameter > DN25, ISO 20 and 1" and ESP-E allowed.
- The corresponding PHARMadapt ESP build-in system is 3-A certified.
- Details on the mounting position, self-draining and the position of the leakage hole can be found in the PHARMadapt ESP product information.

Standards and Guidelines

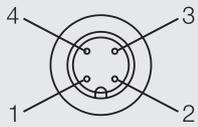
- You have to comply with applicable regulations and directives.

Advice to EMC

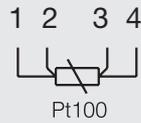
- The device agrees to following standards:
EMC directive 2004/108/EC.
- You have to guarantee the EMC directives for the entire equipment.

Electrical connection without transmitter

M12-plug (sensor 1)

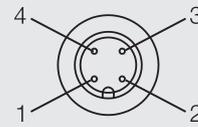


Configuration M12-plug



Electrical connection with transmitter

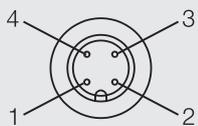
M12-plug (sensor 1)



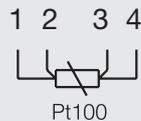
Configuration M12-plug

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

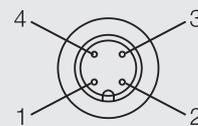
M12-plug (sensor 2)



Configuration M12-plug



M12-plug (sensor 2)



Configuration M12-plug

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

Cleaning / Maintenance



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

Reshipment



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

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...+90 °C
- Relative humidity maximum 98 %

Disposal



- This instrument is not subject to the WEEE directive 2002/96/EC and the respective national laws.
- Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points.

Temperature sensor with process connection CLEANadapt M12		
Temperature sensor	2 x Pt100	
Diameter thermowell	6 mm	
Diameter sensor tip	6 mm	
Process connection	M12 x 1,5 hygienic	
Electrical connection	2 x M12-plug	
2-point-calibration certificate	50 °C, 150 °C	
Type-tested for	Milk heating facilities	
Control code	W - M 6/08	
For connecting to external transmitters		
Order code	insertion length	suitable for pipes
TFP-42.2 / 025 / 6MM / 6MM / 2M12-MV	25 mm	DN 25 up to DN 40
TFP-42.2 / 040 / 6MM / 6MM / 2M12-MV	40 mm	DN 50 up to DN 65
TFP-42.2 / 055 / 6MM / 6MM / 2M12-MV	55 mm	DN 80 and DN 100
With two integrated transmitters, configuration protocol MPU-4		
Order code	insertion length	suitable for pipes
TFP-62 / 025 / 6MM / 6MM / 2M12-MV	25 mm	DN 25 up to DN 40
TFP-62 / 040 / 6MM / 6MM / 2M12-MV	40 mm	DN 50 up to DN 65
TFP-62 / 055 / 6MM / 6MM / 2M12-MV	55 mm	DN 80 and DN 100

Process connections



According process connections you will find in the product information **CLEANadapt**.

Temperature sensor with process connection CLEANadapt G1/2"		
Temperature sensor	2 x Pt100	
Diameter thermowell	6 mm	
Diameter sensor tip	6 mm	
Process connection	G1/2" hygienic	
Electrical connection	2 x M12-plug	
2-point-calibration certificate	50 °C, 150 °C	
Type-tested for	Milk heating facilities	
Control code	W - M 6/08	
For connecting to external transmitters		
Order code	insertion length	suitable for pipes
TFP-41.2 / 025 / 6MM / 6MM / 2M12-MV	25 mm	DN 25 up to DN 40
TFP-41.2 / 040 / 6MM / 6MM / 2M12-MV	40 mm	DN 50 up to DN 65
TFP-41.2 / 055 / 6MM / 6MM / 2M12-MV	55 mm	DN 80 and DN 100
With two integrated transmitters, configuration protocol MPU-4		
Order code	insertion length	suitable for pipes
TFP-61 / 025 / 6MM / 6MM / 2M12-MV	25 mm	DN 25 up to DN 40
TFP-61 / 040 / 6MM / 6MM / 2M12-MV	40 mm	DN 50 up to DN 65
TFP-61 / 055 / 6MM / 6MM / 2M12-MV	55 mm	DN 80 and DN 100

Process connections



According process connections you will find in the product information **CLEANadapt**.

Temperature sensor with process connection PHARMadapt ESP

Temperature sensor	2 x Pt100
Diameter thermowell	3 mm
Diameter sensor tip	3 mm
Process connection	G3/8" coupling nut
Electrical connection	2 x M12-plug
2-point-calibration certificate	50 °C, 150 °C
Type-tested for	Milk heating facilities
Control code	W - M 6/08

For connecting to external transmitters

Order code	insertion length	suitable for pipes
TFP-58P.2 / 037 / 3MM / 3MM / 2M12-MV	37 mm	DN 10 bis DN 80
TFP-58P.2 / 083 / 3MM / 3MM / 2M12-MV	83 mm	DN 100 bis DN 150

With two integrated transmitters, configuration protocol MPU-4

Order code	insertion length	suitable for pipes
TFP-68P / 037 / 3MM / 3MM / 2M12-MV	37 mm	DN 10 bis DN 80
TFP-68P / 083 / 3MM / 3MM / 2M12-MV	83 mm	DN 100 bis DN 150

Process connections



According process connections you will find in the product information [PHARMadapt ESP](#).

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

