Temperature Sensors with G1/2" Hygienic

TempSCAN

Application
- temperature measurement in pipes and vessels
- front flush mounting
- high accuracy temperature measurement

Application Examples
- controlling of CIP- / SIP-process
- measurement in vessels with agitators
- temperature measurement in UHT-plants

Hygienic Design / Process Connection
- hygienic measurement point which is easy to sterilize (EHEDG, 3A-certificates)
- because of elastomer free sealing system, the connection will be without gaps and crevices
- CIP-/ SIP-cleaning up to 140°C
- food compatible materials according to FDA
- sensor completely made of stainless steel resp. PEEK (only front flush)
- adapters available for all current process connections

Features
- front flush mounting available
- available with and without integrated transmitter
- defined position of the cable entry

Options / Accessories
- 2xPt100
- transmitter mpu-4 for different ranges, output 4-20mA
- Pt100 chip with other classes of accuracy, e.g. 1/3 DIN B, 1/10 DIN B
- integrated LC-display mpu-LCD in the connecting head
- transmitters for PROFIBUS, HART, EX-zone
- fast response sensor tip 3mm and 4mm
- neck tube for temperature up to 250°C
- cables available in PTFE and other lengths


TFP-44


TFP-41


TFP-51


TFP-161


TFP-181


TFP-164


TFP-184

Order Code

Temperature sensor	Model head Ø55mm	Insertion length [mm]	Transmitter	Range	Electrical connection	Diameter sensor tip	Further options
TFP-41 TFP-51 TFP-... / ..2 TFP-44	neck tube 2xPt100 front flush	50, 100, 150, 250mm special length (for all sensors, except "front flush"	without* mpu-4 mpu-4p (programmable) mpu-10 (Profibus PA) mpu-4ex (EX-zone) mpu-H (HART Protocol) mpu-LCD (integ. display)	-10...+40°C 0...50°C 0...100°C 0...150°C 0...200°C	PG* M12	3mm 4mm 6mm* (for all sensors except 'front flush')	1/3B 1/10B 2xPG** 2xM12**
Order example:		TFP-41/ 100 / mpu-4 / 0...150°C / M12 / 4mm / 1/3B				** only for model 2xPt100.	

Temperature sensor	Model head Ø19mm	Insertion length [mm]	Transmitter mpu-m	Range	Electrical connection	Diameter sensor tip	Further options
TFP-161 TFP-181 TFP-164 TFP-184	cable front flush cable and front flush	50, 100, 150, 250mm special length (for all sensors, except 'front flush')	.m	-10...+40°C 0...50°C 0...100°C 0...150°C 0...200°C	M12* cable* M12* cable*	3mm 4mm 6mm*	1/3B 1/10B PTFE cable (TFP-181 and TFP-184 only)
Order example:		TFP-161/ 100 .m / 0...150°C / 4mm				*standard, no declaration needed.	

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Specifications TFP- -41, -44, -51, -161, -164, -181, -184

Specification Temperature Sensor

Process connection	G1/2" hygienic	weld-in sleeve e.g. EMK-132 or EHG-25 / 1/2"
Insertion length	standard	0, 50, 150, 250mm
Material	head	stainless steel 303 (1.4305)
	protection tube	316 L (1.4404)
	TFP-44, -164, -184	PEEK
Sensing resistor	acc. ITS 90	1xPt100 class A
Protection class		IP69K

Temperature range	ambient	-50...+80°C
	sensor tip	-50...+250°C
	TFP-44, -164, -184	-50...+150°C
Operating pressure		max. 10bar
	TFP-44, -164, -184	max. 6bar
Electrical connection	cable junction	M16x1,5 (PG)
	plug-in	M12-plug
		303 (1.4305) 4pins.
	fixed cable 2,5m	LIYY 4x0,25mm²
	option (>90°C)	PTFE 4x0,14mm²

Transmitter mpu-4, -4p, -10, -4ex, -HART

Temperature range	standard	-10...+40, 0...50°C
		0...100 / 150 / 200°C
Accuracy		<±0,1% (full scale)
Temperature drift	zero, span	<0,01%/K (full scale)
Electrical connection	supply	8...35VDC
Output	analog	4-20mA
Temperature range	ambient	-40...+85°C
	storage	-40...+120°C
Humidity	without condensate	0...98%

Transmitter mpu-m

Temperature range	standard	-10...+40, 0...50°C
		0...100 / 150 / 200°C
Accuracy		<±0,2% full scale
Temperature drift	zero, span	<0,02% full scale /K
Electrical connection	supply	12...36VDC
Output	analog	4-20mA
Temperature range	ambient	-50...+80°C

Accuracy Class Pt100
Tolerances of Pt100 acc. ITS 90

Pt100	class B	class A	class 1/3B	class 1/10B
0°C 100Ω	±0,3K ±0,12Ω	±0,15K ±0,06Ω	±0,10K ±0,04Ω	±0,03K ±0,01Ω
100°C 138,5Ω	±0,8K ±0,30Ω	±0,35K ±0,13Ω	±0,27K ±0,10Ω	±0,08K ±0,03Ω

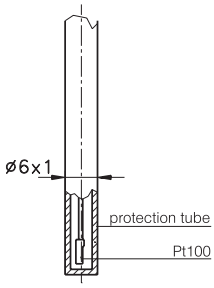
Option: mpu-LCD
integrated LC-Display in the connection head
Specifications: please look on separate product informations

temperatur sensor with mpu-LCD (view from top)

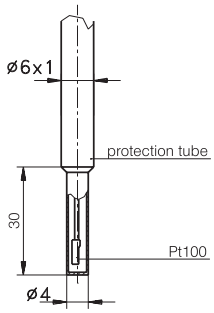
Features
- 4-digit display with green backlight
- temperature measurement in °C und °F
- easy range select by one button
- direct connection to the PLC
- lower costs for wiring because of 2-wire technology
- suitable for sensor monitoring

Sensor tip diameter and response time
All temperature sensors are available with smaller sensor tips, to ensure a shorter response time. The below-mentioned times are according to a PT100 sensor in boiling water.

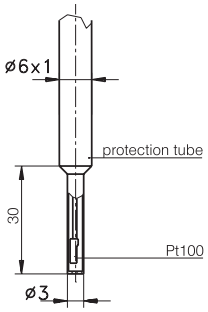
Sensor tip ø6mm
validity: t_{50}≤3,0s
90%-time: t_{90}≤8,0s



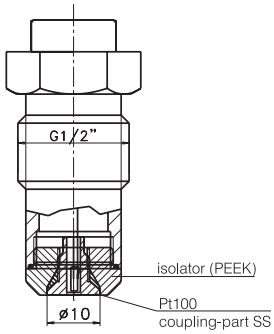
Sensor tip ø4mm
validity: t_{50}≤2,4s
90%-time: t_{90}≤6,5s



Sensor tip ø3mm
validity: t_{50}≤0,5s
90%-time: t_{90}≤1,5s



Sensor front flush
validity: t_{50}≤5,7s
90%-time: t_{90}≤33,2s



Accessories

Simulator hsg-3

Calibration Device htr

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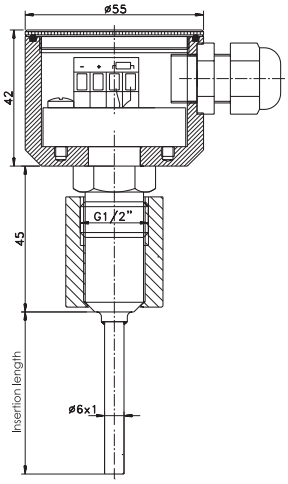
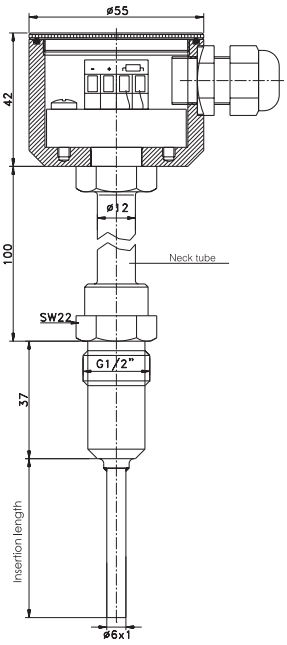
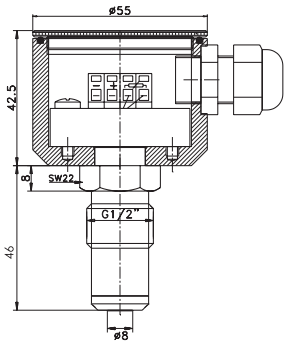
Drawings



TFP-41



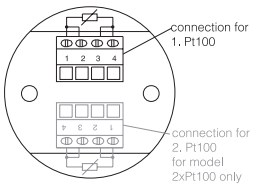
TFP-51



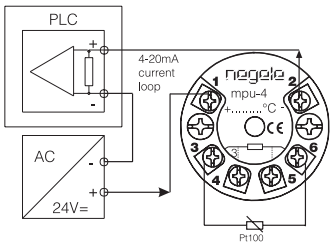
TFP-44/00

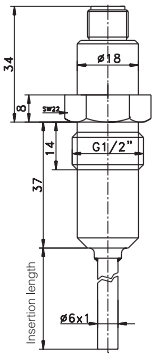
Electrical connections

without transmitter

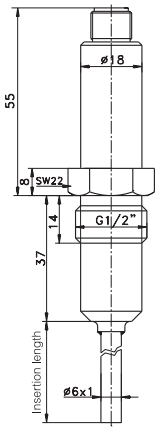


with transmitter
mpu-4, -4p, -4ex, -10, -HART

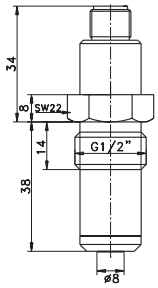




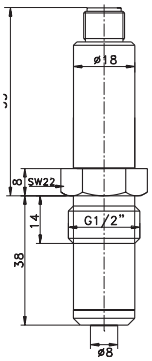
TFP-161



TFP-161.m

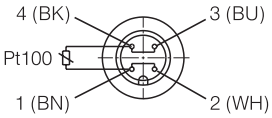


TFP-164

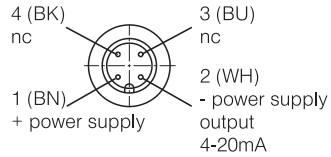


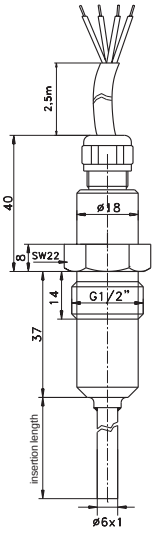
TFP-164.m

without transmitter
M12 connection
(view from the top)

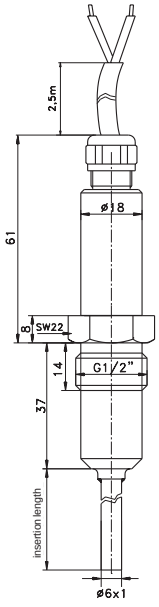


with transmitter mpu-m
M12 connection
(view from the top)

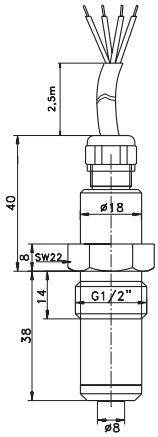




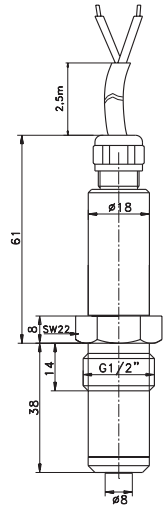
TFP-181



TFP-181.m

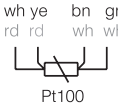


TFP-184

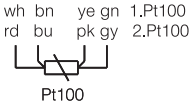


TFP-184.m

without transmitter
cable connection



option 2xPt100
cable connection



with transmitter mpu-m
cable connection

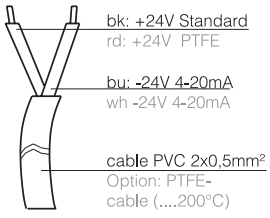


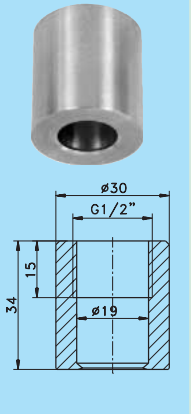
Table Torque

Thread size	Sealing system	Torque min. [Nm]	Torque max. [Nm]
G1/2"	PEEK / SS	5	10
G1/2"	SS / SS	5	20

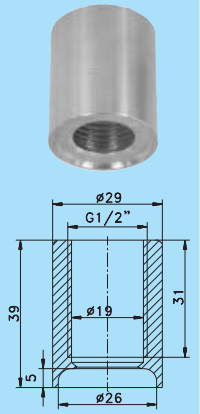
Important information: Use only Negele weld-in systems, to guarantee a safe function of the measurement point!

Process connection G1/2" hygienic

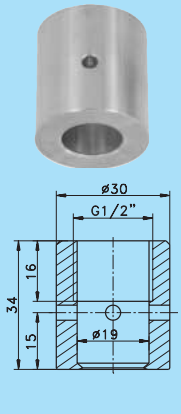
Cylindrical weld-in fitting (standard)	Cyl. fitting with weld-on ring (standard)	Cylindrical fitting with control-holes	Weld-in fitting with collar	Weld-in ball	Dummy flange BST
for vessels	for installation in pulled-out pipes	for vessels, with leakage detection	for thick- walled vessels	for sloped installation	to close existing measurement point



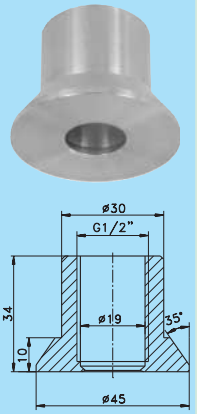
EMZ-132



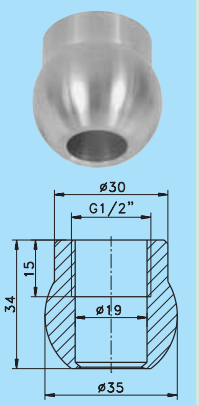
EMS-132



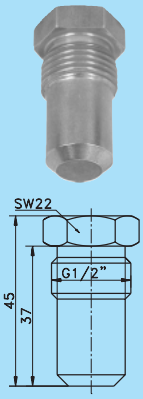
EMZ-131



EMK-132



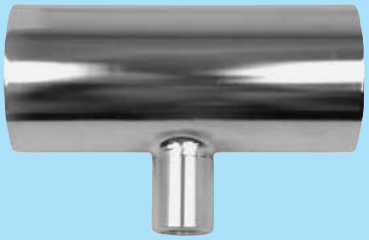
KEM-132

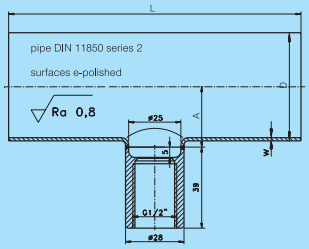


BST-130

Dimension table EHG-... / 1/2"

Type	DN	L[mm]	A[mm]
EHG-25 / 1/2"	25	100	15
EHG-40 / 1/2"	40	120	22
EHG-50 / 1/2"	50	140	29
EHG-65 / 1/2"	65	160	38
EHG-80 / 1/2"	80	180	46





Overview of all available process connections

Thread size	TriClamp	Dairy flange (DIN11851)	DRD (press ring optional available)	Varivent-Inline	APV-Inline	BioControl	Adapter G1/2" hyg. / G1" hyg.
G1/2" adapter							
Pipe size							
DN25	AMC-132/1"-1,5"	AMK-132/25		AMV-132/25	-	-	AMG-1
DN40	AMC-132/1"-1,5"	AMK-132/40		AMV-132/40	AMA-132	AMB-50/1/2" and AMB-65/1/2" from DN40 up to DN100	
DN50	AMC-132/2"	AMK-132/50	AMK-132/50	AMV-132/40	AMA-132		
DN65	AMC-132/3"	AMK-132/65	(only one size)	AMV-132/40	AMA-132		
DN80	AMC-132/80	AMK-132/80		AMV-132/40	AMA-132		
DN100	AMC-132/4"	AMK-132/100		AMV-132/40	AMA-132		

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