PT Compact
PT Compact plus

Screw - in resistance thermometer

Description

The resistance thermometer „PT Compact" is designed for temperature measurement in processes with medium and low pressure. Measurement ranges between -200°C and +600°C cover the majority of your temperature measuring tasks.

The thermometers are available with platinum sensors PT100 or PT1000 in 2 -, 3 -, 4 or 2x2-wire connections. If the measuring signal has to be transmitted over longer distances, the PT Compact plus is available with an integrated transmitter. This transmitter converts the resistance of the platinum sensor into a linear temperature signal of 4-20 mA or 0-10 V.

Different process connections, as well as adjustable compression fittings underline the variability of this measuring instrument. To achieve fast reaction times a version with a tapered stem is also available.

The electrical connection is realized with an L-plug according to DIN EN 175301-803A. Optionally an M12x1 connection is available.

All thermometer parts which get in contact to the process medium are made of stainless steel. The housing and the replaceable measuring insert are bolted together by a knurled nut. This allows the exchange of the measuring insert without removing the whole thermometer from the process.

Features

O   compact dimensions

O   easy handling

O   cost-efficient

O   short delivery times

O   optional with transmitter 4-20mA or 0-10V

O   service friendly

O   customized solutions

Models

O   -50°C up to +200°C   (-60...400°F)

O   -50°C up to +400°C   (-60...750°F)

O   -50°C up to +600°C   (-60...1100°F)

O   -200°C up to +600°C   (-300...1100°F)

Measuring ranges (with transmitter)

O   0...50°C; 0...100°C; 0...120°C

O   0...200°F; 0...500°F; -50...300°F

O   according to customer requirements

Applications

O   engineering

O   heating and cooling circuits,
    air condition technology

O   plant construction

O   environment engineering

Models: TEP11
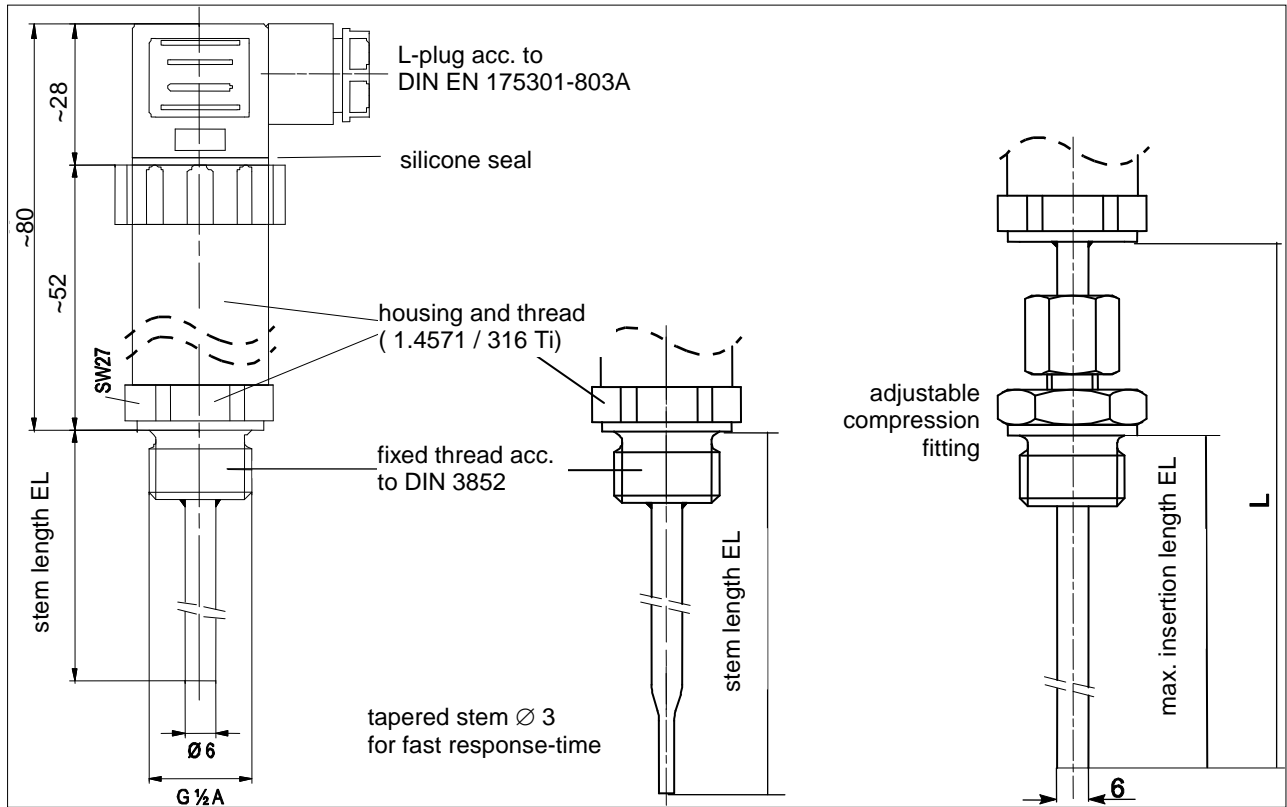**TES11, TES12, TES13, TES14**

Technical data

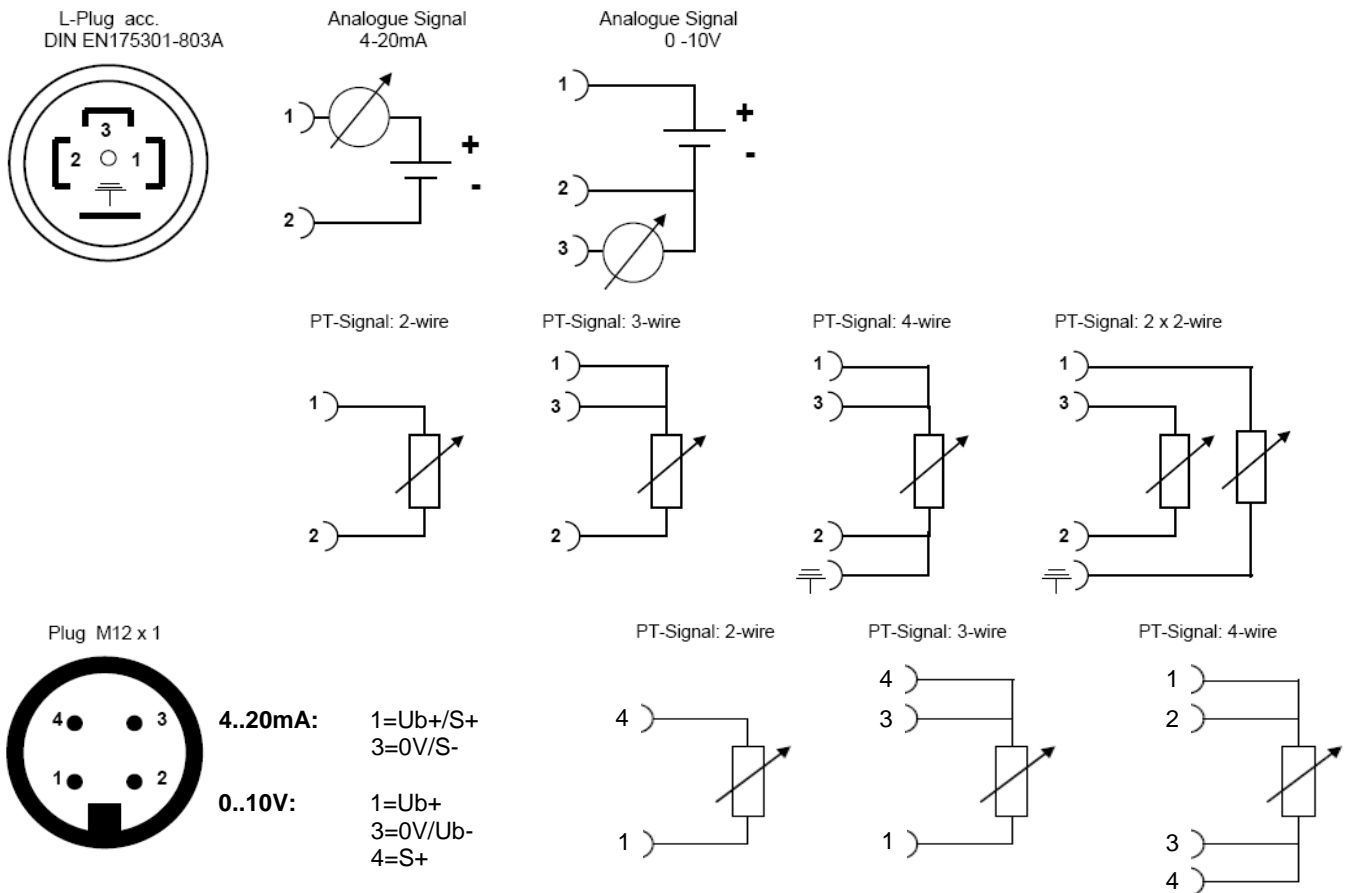|	PT Compact		PT Compact plus
Model	TES11 -> 2-wire TES12 -> 3-wire TES13 -> 4-wire TES14 -> 2 x 2-wire		TEP11 -> 4-20 mA TEP11 -> 0-10 V
Sensor	PT100 class B optional PT100 class A	PT1000 class B optional PT1000 class A	PT100 class B optional PT100 class A
Output signal and supply voltage	PT100	PT1000	4-20 mA, 2-wire supply voltage: 10 – 30 V DC ripple < 10% 0-10 V, 3-wire supply voltage: 12 – 30 V DC, ripple < 10%
Error signal			sensor burnout: 23mA sensor short circuit: 3.3 mA
Temperature range	standard: -50°C up to +200°C (-60...400°F) -50°C up to +400°C (-60...750°F) -50°C up to +600°C (-60...1100°F) -200°C up to +600°C (-300...1100°F)		
Measuring range	see temperature range	see temperature range	selectable measuring range: 0°C up to +50°C 0°C up to +100°C 0°C up to +120°C standard version: minimum range 50K maximum range 250K high temperature versions: minimum range 150K maximum range 800K
Process connections	fixed thread: G ½ A, G ¼ A, G ⅜ A, G ¾ A, ½"NPT, ¼"NPT, M14x1.5 adjustable compression fitting: G ½ A, G ⅜ A, G ¼ A, ½"NPT other connections on request		
Material	stainless steel 1.4571 (316 Ti) other materials or coatings on request		

Stem length and pressure ranges[1]	• ∅3mm fast reaction version with tapered stem up to 12 bar[1]:
	    stem length 25mm: ∅3 x 0.3mm
	    stem length 50mm up to 100mm: ∅6 x 0.3mm with tapered stem ∅3 x 0.3mm
	    from stem 150mm: ∅8 x 1.75mm with tapered stem to ∅6 x 0.3mm with tapered stem ∅3 x 0.3mm
	    3mm versions are only available for temperature ranges up to 400°C
	
	• ∅6 x 0.75mm from stem 25mm to 500mm: up to 40bar[1]
	
	• ∅8 x 1.75mm from stem 25mm to 1000mm: up to 100bar[1]
	
	• special solid machined parts for pressure up to 600 bar[1]		

Accuracy			transmitter: <0.5% of measuring range
Ambient temperature	at connector max. 125°C with transmitter max. 85°C		
Storage temperature	-40°C up to +85°C		
Electrical connection	L-plug acc. to DIN EN 175301-803 form A optional: round connector, 4-pin, M12x1		
EMC-resistance			emitted interference acc. DIN EN 61326 immunity acc. to DIN EN 61326
Protection class	IP65 acc. to DIN EN 60529 / IEC 529		

[1] Pressure ranges refer to static pressure; Rating depends on:
- process medium
- process pressure and temperature
- flow rate
- Stem design (length, diameter, wall thickness)

Dimensions

L-plug acc. to DIN EN 175301-803A

silicone seal

housing and thread (1.4571 / 316 Ti)

fixed thread acc. to DIN 3852

tapered stem ⌀ 3 for fast response-time

adjustable compression fitting

~28

~80

~52

SW27

stem length EL

⌀ 6

G ½A

stem length EL

max. insertion length EL

L

6

Wiring Diagrams

L-Plug acc. DIN EN175301-803A

Analogue Signal 4-20mA

Analogue Signal 0 -10V

PT-Signal: 2-wire

PT-Signal: 3-wire

PT-Signal: 4-wire

PT-Signal: 2 x 2-wire

Plug M12 x 1

4..20mA: 1=Ub+/S+ 3=0V/S-

0..10V: 1=Ub+ 3=0V/Ub- 4=S+

PT-Signal: 2-wire

PT-Signal: 3-wire

PT-Signal: 4-wire

Configuration PT-Compact

Transmitter	4-20 mA	TEP11
	0-10 V	TEP11
Without transmitter	2 wire	TES11
	3 wire	TES12
	4 wire	TES13
	2x2 wire	TES14

Temperature range, stem and process connection

Diameter	3 mm - tapered, fast reaction stem, not for temperature ranges +600°C		1
	6 mm - standard		2
	8 mm		3
Temperature range	-200°C ... +600°C (-300…1100°F)		1
	-50°C ... +200°C (-60…400°F)		2
	-50°C ... +400°C (-60…750°F)		3
	-50°C ... +600°C (-60…1100°F)		4
Process connection	G 1/2 A		1
	G 1/4 A		2
	G 3/8 A		3
	1/2" NPT		4
	1/4" NPT		5
	M14 x 1,5		6
	G 3/4 A		7
	others (please add plain text)		
Sensor	PT 100	☐	
	PT 1000 (only for models TES, without transmitter)	☐	
Type of process connection	fixed	☐	
	adjustable	☐	
Stem length	50 mm (~2") only with fixed thread	☐	
	75 mm (~3") only with fixed thread	☐	
	100 mm (~4")	☐	
	160 mm (~6")	☐	
	200 mm (~8")	☐	
	300 mm(~12")	☐	
	400 mm (~16")	☐	
	500 mm (~20")	☐	
	other length …………….	☐	
Measuring range	0…50°C	☐	
	0…100°C	☐	
	0…120°C	☐	
	0…200°F	☐	
	0…500°F	☐	
	customer specific ……………..	☐	

Options

Sensor	Class A		☐
Neck tube	Standard for temperature-ranges up to 400°C	50 mm	☐
	Standard for temperature-ranges up to 600°C	100 mm	☐
	customer specific …………		☐
Round connector M12x1, 4-pin			☐

Configuration example: PT Compact plus with transmitter 4-20mA
Stem diameter 6mm
Temperature range -50…200°C (-60…400°F)
Fixed thread G1/2 A
Stem length 200mm
Measuring range 0…200°F

TEP11X221xxx   (the last three digits= xxx are assigned from tecsis)

Subject to technical modifications