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 pressures. 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 circuit. 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 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 thermometer from the process. Even an upgrade is possible from PT Compact to PT Compact plus or to TC400, a compact RTD with LED-display and switching output, without opening the process connection.

Features

- O compact dimensions
- O easy handling
- O cost-efficient
- O short delivery times
- O optional with transmitter 4-20mA or 0-10V
- O simple exchange
- 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 customers requirements

Applications

- O engineering
- O heating and cooling circuits, air condition technology
- O plant construction
- O environment engineering

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

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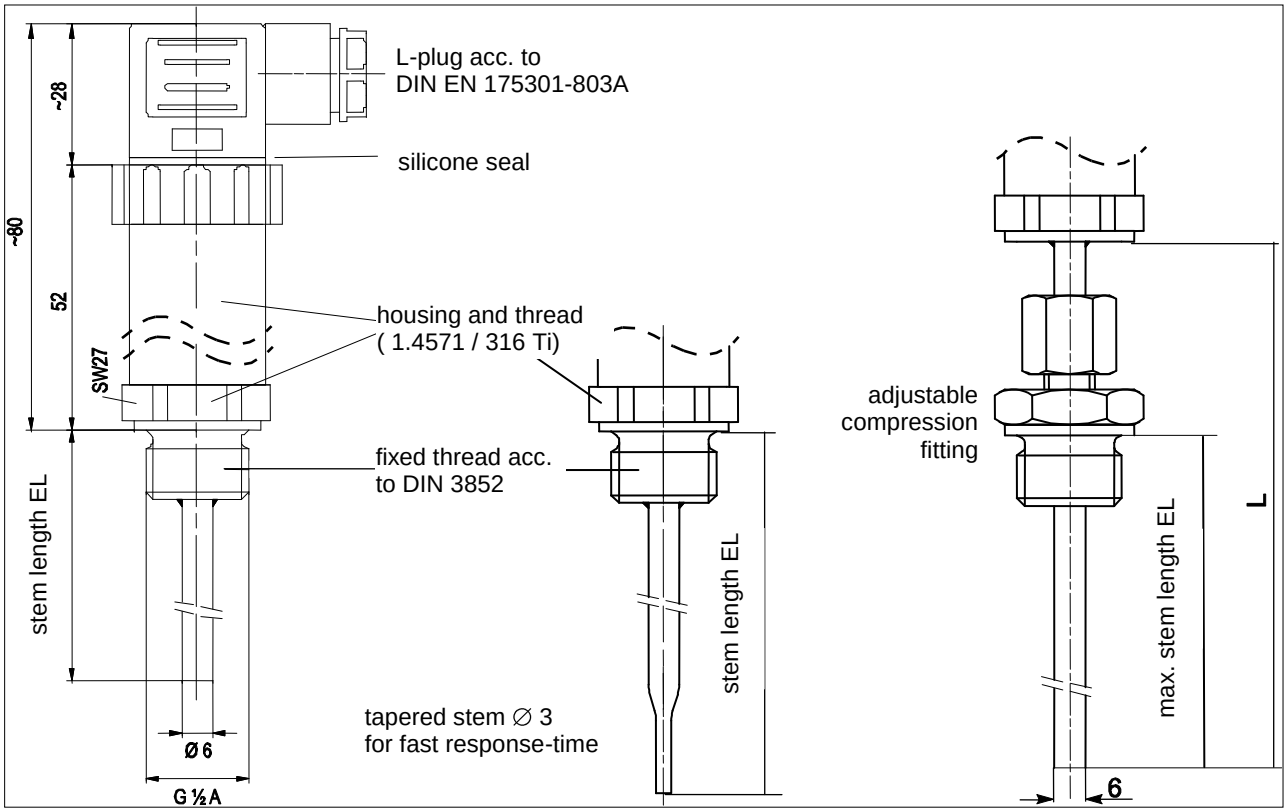
Technical data

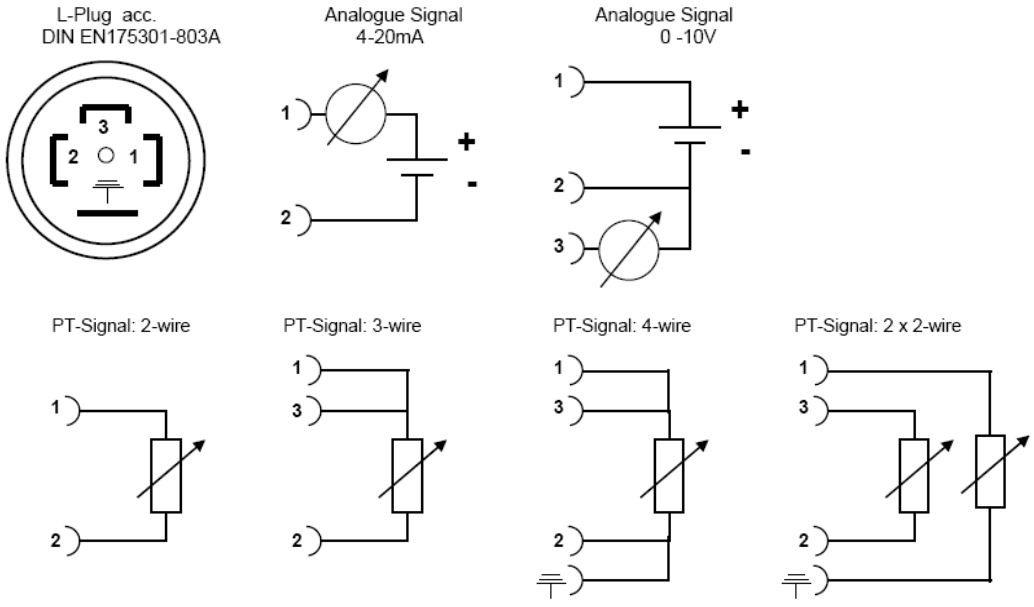
	PT Compact		PT Compact plus
Model	TES11 -> 2-wire TES12 -> 3-wire TES13 -> 4-wire TES14 -> 2 x 2-wire		TEP11 -> 4-20 mA TEP11 -> 0-10 V
Sensor	PT100 class B optional PT100 class A	PT1000 class B optional PT1000 class A	PT100 class B optional PT100 class A
Output signal and supply voltage	PT100	PT1000	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: 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 • ∅6 x 0,75mm from stem 50mm to 500mm: up to 40bar[1)] • ∅8 x 1,75mm from stem 50mm to 1000mm: up to 100bar[1)] • special parts manufactured from full material for pressures 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 breakdown effect 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)

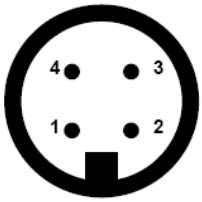
Dimensions



Wiring Diagrams



Plug M12 x 1



4..20mA:	1=Ub+/S+	3=0V/S-	
0..10V:	1=Ub+	3=0V/Ub-	4=S+

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			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

PT Compact USB

Resistance Thermometer

Programmable via USB-interface

Description

The PT Compact USB is an additional member of the tecsis PT Compact series. The measuring range can be programmed according to the customers demands with especially developed software. The communication between the thermometer and a PC is done via an USB connection. Programming-Kits are not needed.

There are two models of the PT Compact USB. The standard model for temperatures from –50°C up to +200°C and a high temperature model for temperatures up to +600°C, which includes a 100 mm neck tube.

The output signal of the PT Compact USB is an analogue 4…20 mA signal.

In order to program the measuring range, it is necessary to remove the measuring insert from the housing. The USB-interface is placed directly on the electronic board of the thermometer.

Precautions have to be taken to avoid ESD-damages, while programming the electronics. You do not have to remove the thermowell of the PT Compact, in order to program the range, thus you do not have to stop your process.

All mechanical parts of the PT Compact USB are refered to the PT Compact-series. Different process connections, adjustable compression fittings, various stem-diameters and lengths are available. To achieve very fast response times, we provide a version with a tapered stem. All medium-affecting parts as well as the housing are made of stainless steel.

The electrical connection is made by a plug according to DIN EN 175301-803. Optionally a M12x1 connection is available

Features

- O simple programming, without programming unit
- O integrated USB-interface
- O high accuracy: 0,2% of measuring range
- O reprogrammable
- O Output signal: 4..20 mA
- O Service friendly

Models

- O -50°C up to +200°C (-60..+400°F)
- O -50°C up to +600°C (-60..+1100°F)

Measuring range

Individual setting

Factory setting: maximum temperature range

Applications

- O engineering
- O heating and cooling circuits, air condition technology
- O plant construction
- O environment engineering

Model: TEU11

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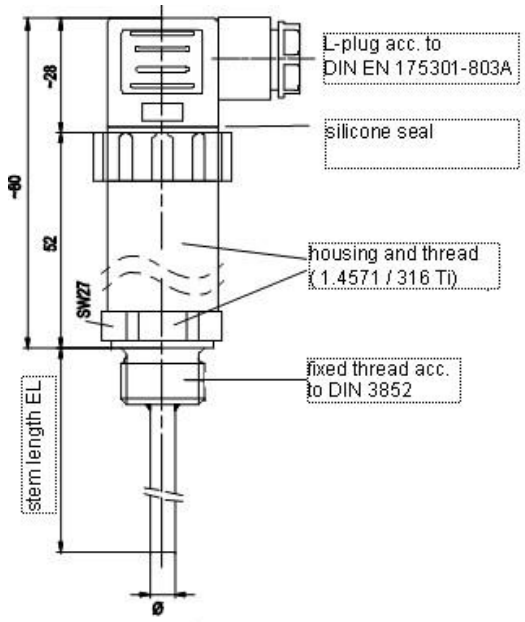
Technical data

	PT Compact USB
Output signal	4-20 mA 0…10V on request
Sensor	PT100 Class B Optional PT100 Class A
Supply voltage	4-20 mA, 2-wire supply voltage: 10 – 30 V DC ripple < 10%
Error signal	sensor burnout: 23mA sensor short circuit: 3,3 mA
Temperature Range	-50°C … +200°C / -60 ...+400°F (standard) -50°C … +600°C / -60..+1100°F (high temperature)
Measuring range	factory setting: maximum temperature range, or acc. to customer requirements minimum measuring range: 30K maximum measuring range: temperature range
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 • ∅6 x 0,75mm from stem 50mm to 1000mm: up to 40bar[1)] • ∅8 x 1,75mm from stem 50mm to 1000mm: up to 100bar[1)] • special parts manufactured for pressures up to 600 bar[1)]
Ambient temperature	max. 85°C
accuracy	Transmitter: 0,2% (related to maximum temperature range)
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
USB-interface	Mini USB – Form B 5-pins USB 1.0 transfer rate: 1,5 Mbit/s
EMC-resistance	acc. to DIN EN 61326 (with screened connection cable)
Vibration resistance	dependend on the stem length for stem lengths up to 100mm: resistant up to 20g acc. DIN EN 60068-2-6
Shock resistance	shock resistant acc. DIN EN 837
Protection class	IP65 acc. to DIN EN 60529 / IEC 529

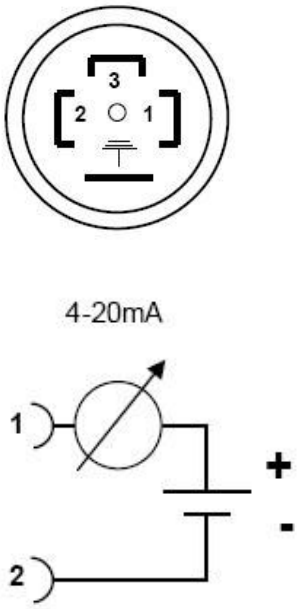
[1)] Pressure ranges refer to static pressure; Rating depends on:
- process medium
- process pressure and temperature
- flow rate
- Stem design (length, diameter, wall thickness)

Article Key	Accessories
EZE53X011004	USB-Cable Mini-USB FormB
TEZ01X999003	CD1129 (Programming software + Drivers)

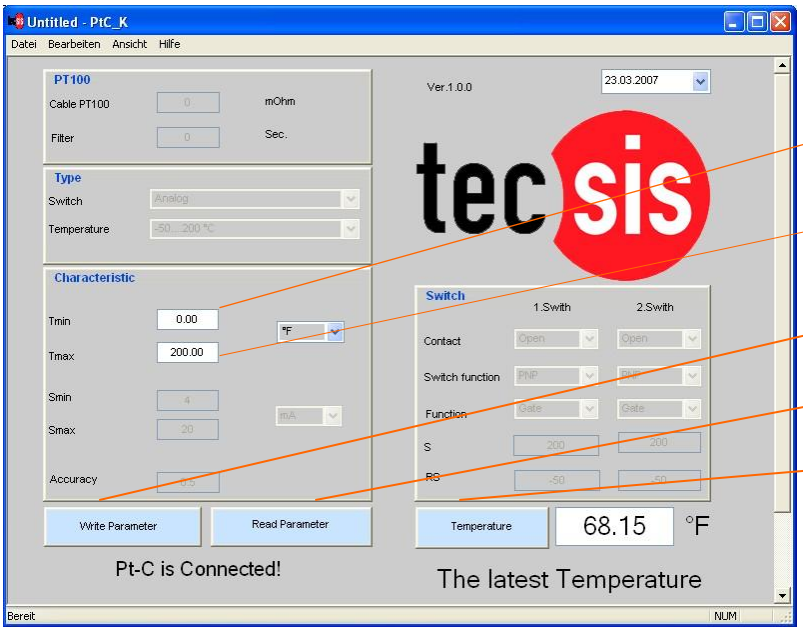
Dimensions



Wiring diagram



Programming-Software for setting the measuring range via USB



temperature at 4mA

temperature at 20mA

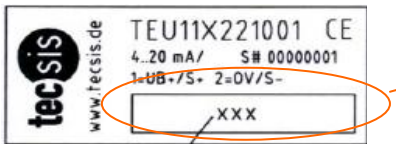
write parameters to transmitter

read out transmitter settings

show actual temperature

In order to set the measuring range, the plug connector must be removed and the measuring insert has to be taken out of the housing. After that the USB connection from PC to the interface on the board must be established. A detailed description, how to program the thermometer is given in the instruction manual.

Drivers and programming software can be procured direct at tecsis.



Free space for filling in the actual measuring range.

The measuring-range setting ex factory accords the maximum temperature range. Other ranges can be set on customers demand.

Configuration

Output signal	4-20 mA (0-10V on demand)		_ _ TEU11	
Stem, temperature range and process connection				
diameter	3mm - tapered, fast reaction stem		1	
	6mm - standard		2	
	8 mm		3	
temperature range	-50°C ... +200°C (-60…400°F)		2	
	-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
	M14x1,5			6
	G 3/4 A			7
	others			
Type of process connection	fixed		☐	
	adjustable		☐	
stem length	50 mm (~2") only with fixed threads		☐	
	75 mm (~3") only with fixed threads		☐	
	100 mm (~4")		☐	
	160 mm (~6")		☐	
	200 mm (~8")		☐	
	300 mm (~12")		☐	
	400 mm (~16")		☐	
	500 mm (~20")		☐	
	other length		☐	
Options				
sensor	PT100 Class A		☐	
neck tube	(Standard for temperature-range -50..600°C)	100mm	☐	
	other length	……	☐	
Round connector M12x1, 4-pin			☐	

Subject to technical modifications