



Resistance Thermometers according to DIN

Ignition Protection Exia



measuring
•
monitoring
•
analysing

TWL-Exia



Fieldbus
FOUNDATION

HART
COMMUNICATION FOUNDATION

PROFI
PROCESS FIELD BUS
BUS



- Measuring range: -80...+600 °C
- Pt 100-sensor class A respectively class B
- Output: resistance or analogue 4-20 mA
- Thermowells according to DIN 43772
- Special sensor length available
- Option: head transmitter with HART® protocol, or PROFIBUS®/Fieldbus
- For ATEX applications, ignition protection Exia



T2

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Description

The KOBOLD resistance thermometers model TWL comprise a rugged installation fitting made of stainless steel with thread, flange or weld-on connection, a connection head form B out of aluminium casting and a removable measuring insert (exceptions are models TWL-ST, -SN and -SA). The measuring insert can be replaced without emptying the process (TWL-ST, -SN, -SA excepted). The instruments are supplied with the ignition protection Exia as a standard and therefore can be installed in relevant hazardous areas.

A Pt 100 temperature sensor according to IEC 751, category A or B is fitted in the measuring insert as standard. Depending on customer request the temperature sensor can be carried out as 2-, 3- or 4-wire circuit.

Alternatively these sensors can be designed as single or double resistance thermometers. Exceptional the 4-wire version, which can only be build with one Pt 100 due to lack of space.

As an option the resistance thermometers can be supplied with a head transmitter. Transmitter with a standard 4-20 mA signal and transmitter with HART® protocol or with PROFIBUS®/Fieldbus are there to choose from.

Beside the available resistance thermometers according to DIN-standard, there are customised versions relating to the immersion length, the connection head, the materials, the process connection or the tolerance classes deliverable on request.

Head Transmitter

Resistance thermometers with head transmitter are used whenever a measuring signal must be transported long distance without any disturbance.

The head transmitter which is encapsulated in epoxide resin is located right in the connection head and delivers a temperature-linear output signal of 4-20 mA. The head transmitter is available with standardised communication systems just like HART® protocol or PROFIBUS®/Fieldbus.


Applications

The resistance thermometers are favourably used for the temperature measurement in liquids, solids and gaseous media. The reliable watertightness of this installation method for gauge pressure and vacuum is an important criteria for selection.

Application areas are located in the air-conditioning and cooling industry, the heating-, furnace-, mechanical- and apparatus construction as well as in the complete industry.

For all applications in hazardous areas, the instruments are supplied with the ignition protection Exia.

Technical Data

Meas. principle:	temperature depending resistor
Meas. range:	-80 ... +600 °C, (-40 ... +85 °C TWL-ST)
Sensor:	Pt 100, single- or double-sensor (1 x Pt 100 or 2 x Pt 100)
Accuracy:	class A or class B (others on request)
Ambient temperature:	-40 ... +150 °C (-40 ... +85 °C TWL-ST) with ceramic terminal base -40 ... +85 °C with transmitter -40 ... +85 °C for room temperature sensor
Operating Pressure:	max. 250 bar (depending on TWL version, see order details)
Connection head:	form B with chain except TWL-ST : Aluminium or polycarbonate connection head TWL-SN and TWL-SA: without connection head
Materials:	
- Sensor:	stainless steel 1.4404 (exception: TWL-D and TWL-ST, others on request)
- Neckpipe:	stainless steel 1.4404 (exception: TWL-D, others on request)
- Connection head:	aluminium, painted (TWL-ST: Polycarbonate)
- Terminal base:	ceramic (without transmitter)
Process connection:	thread G ½ male, G1 male flange DN 25 weld-on sleeve Ø 24 h7, others on request
Sensor wiring:	2-, 3- or 4-wire
Protection:	connection head IP 65 sensor IP 68
ATEX-approval:	 II 1 GD Exia IIC T4...T6/ Ex iaD 20 IP65 T85 °C -20 °C ≤ Ta ≤ +60 °C
Head transmitter:	
- Output:	analogue output 4-20 mA
- Communication:	HART®-protocol, PROFIBUS®/Fieldbus
- Minimum meas. span:	standard transmitter 25 K transmitter with HART® 10 K transmitter with PROFIBUS®/ Fieldbus™ 5 K
- Supply voltage:	8-35 V _{DC} for standard transmitter and transmitter with HART® 9-32 V _{DC} for transmitter with PROFIBUS®/Fieldbus™

Ambient resistance thermometer, protection Exia, p_{max} Atmospheric pressure

Model	Sensor length "EL"	Process connection	Sensor type/ category	Wiring	Connection head	Head transmitter	Special option
TWL-ST	24 = 24 mm XX ¹⁾ = special length	0 = wall mounting	1 = 1 x Pt 100 cat. B 2 = 2 x Pt 100 cat. B 3 = 1 x Pt 100 cat. A 4 = 2 x Pt 100 cat. A	2 = 2-wire 3 ⁴⁾ = 3-wire 4 ²⁾ = 4-wire	P = polycarbonate A = aluminium	0 = without A ³⁾ = programmable transmitter 2-wire (5333D) B ³⁾ = transmitter with HART® protocol 2-wire (5337D) C ³⁾ = transmitter PROFIBUS®/Fieldbus™ (5350B) for options A, B, C choose sensor wiring code "3"	0 = without Y = acc. description

¹⁾ Please specify special length in writing ²⁾ Only with 1x Pt100 ³⁾ Please specify measuring range in writing ⁴⁾ Necessary for head transmitter

Screw-in resistance thermometer with cable, protection Exia, male according to DIN 43772, p_{max} 10 bar

Model	Immersion length "EL"	Process connection	Sensor type/ category	Wiring	Connection cable ³⁾	Head transmitter	Special option
TWL-SN	10 = 100 Ø 6 mm 16 = 160 Ø 6 mm 25 = 250 Ø 6 mm 40 = 400 Ø 6 mm XX ¹⁾ = special length	2 = G ½ male	1 = 1 x Pt 100 cat. B -80...+600 °C 2 = 2 x Pt 100 cat. B -80...+600 °C 3 = 1 x Pt 100 cat. A -80...+600 °C 4 = 2 x Pt 100 cat. A -80...+600 °C	2 = 2-wire 3 = 3-wire 4 ²⁾ = 4-wire	S = silicone cable P = PTFE cable Y = special length and/or material (to be specified in writing)	0 = without	0 = without Y = acc. description

¹⁾ Please specify special length in writing ²⁾ Only with 1x Pt100 ³⁾ Please specify special length cable 'CL' (standard model 1000 mm) in writing

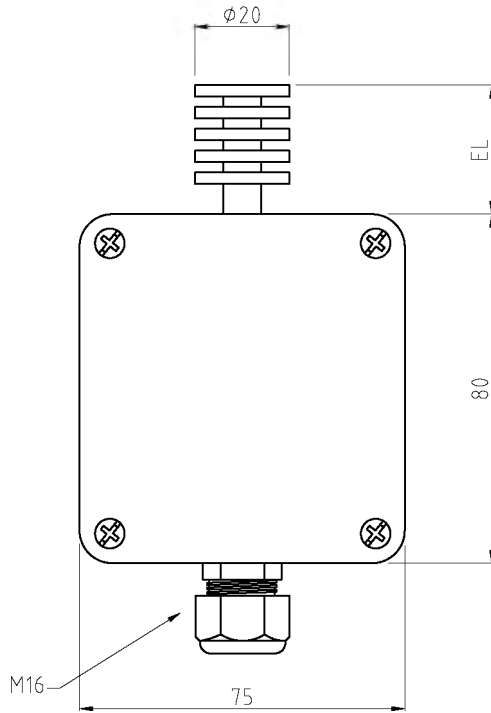
Insertion resistance thermometer with cable, protection Exia, p_{max} 10 bar

Model	Immersion length "EL"	Process connection	Sensor type/ category	Wiring	Connection cable ³⁾	Head transmitter	Special option
TWL-SA	10 = 100 Ø 6 mm 16 = 160 Ø 6 mm 25 = 250 Ø 6 mm 40 = 400 Ø 6 mm XX ¹⁾ = special length	0 = ohne	1 = 1 x Pt 100 cat. B -80...+600 °C 2 = 2 x Pt 100 cat. B -80...+600 °C 3 = 1 x Pt 100 cat. A -80...+600 °C 4 = 2 x Pt 100 cat. A -80...+600 °C	2 = 2-wire 3 = 3-wire 4 ²⁾ = 4-wire	S = silicone cable P = PTFE cable Y = special length and/or material (to be specified in writing)	0 = without	0 = without Y = acc. description

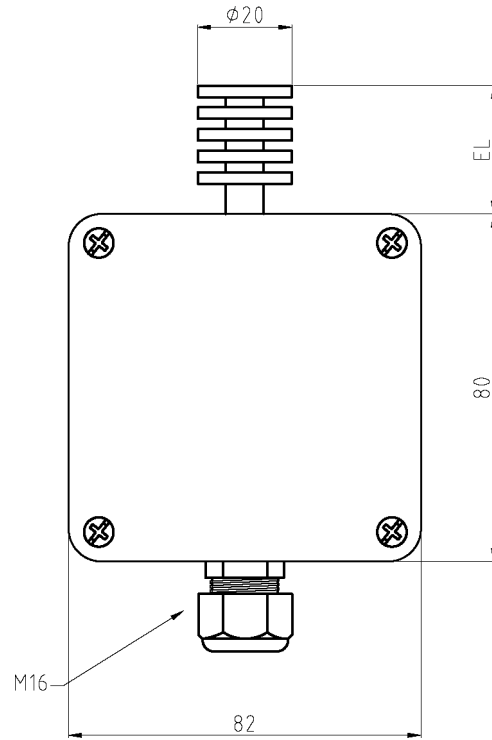
¹⁾ Please specify special length in writing ²⁾ Only with 1x Pt100 ³⁾ Please specify special length cable 'CL' (standard model 1000 mm) in writing

Dimensions [mm]

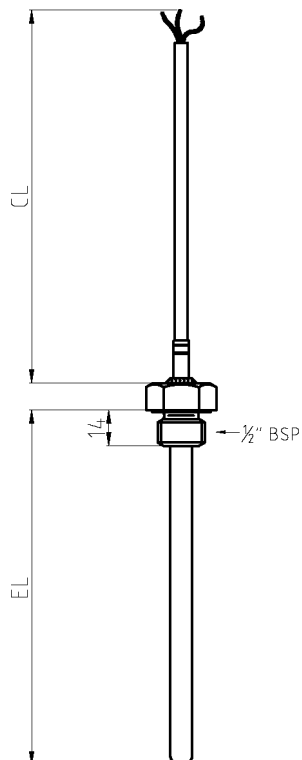
TWL-ST240...A...



TWL-ST240...P...



TWL-SN...



TWL-SA...

