

SITRANS T measuring instruments for temperature

Resistance thermometers

Technical description

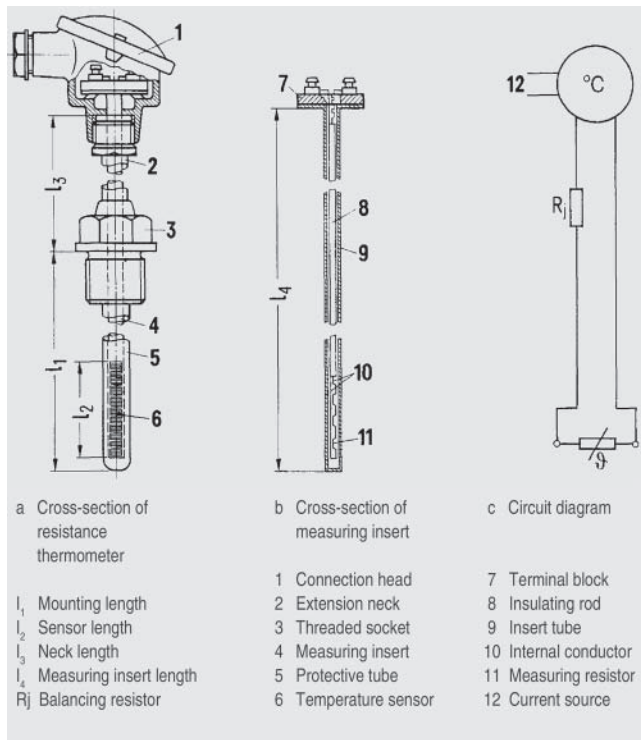
Design

A resistance thermometer comprises

- the measuring resistor (metal; platinum, Pt or nickel, Ni) and
- the mounting and connection parts required in each case.

In the standard version, the measuring resistors are embedded in ceramic. In the case of special vibration resistance requirements, the Pt measuring resistors are double-wound and fused into glass.

- Measuring resistors of class B are supplied. A range of resistors of class A or 1/3 to 1/10 class B is available on request.
- Single and double resistance thermometers are available.



Components and circuitry of a resistance thermometer

To protect the measuring resistor for industrial measurements and to enable easy replacement, it is fixed in a measuring insert (4) which in turn is fitted in a protective tube (5). The measuring insert is spring-mounted in the connection head (1) of the protective tube using two screws. The internal conductor (10) in the measuring insert connects the measuring resistor (11) to the terminals on the terminal block.

Depending on the measuring range and the accuracy required, the thermometers are connected in two-wire, three-wire or four-wire systems to the output devices.

The measuring inserts are therefore available with two, three or four internal conductors. If the resistance of the internal conductor is negligibly small, measuring inserts with only two internal conductors can be used for the three-wire and four-wire systems.

Exact balancing of the internal conductor under operating conditions is only possible with three conductors. If the resistance of the internal conductor is greater than 0.2Ω , its magnitude is indicated on the mounting flange of the measuring insert.

Function

Measuring resistor

Measuring resistors	Measuring resistors are suitable for temperatures from
Made of platinum	-200 ... +850 °C (-328 ... +1562 °F)
Made of nickel	-60 ... +150 °C (-76 ... 302 °F), briefly up to 180 °C (356 °F)

The measuring resistor changes with the temperature in accordance with a certain reproducible series of calibration data (see the table "Calibration data for platinum measuring resistors (to DIN EN 60751)" under "Technical data").

The changes in resistance are transmitted as changes in voltage to indicators, recorders or controllers directly via copper wires or via transmitters. The type of measuring circuit depends on the instrument to be connected and the required measuring range. The measuring resistors are balanced at 0 °C (32 °F) to $100 \Omega \pm 0.12 \Omega$. The calibration values of the resistors (i.e. the dependence of the resistor on the temperature) and the permissible deviations are specified in DIN EN 60751 (IEC 751) (see the table "Error limits according to DIN EN 60751" under "Technical Specifications").

Measuring resistors of class B are supplied. A range of resistors of class A or 1/3 to 1/10 class B is available on request.

Measuring principle of the resistance temperature measurement

The thermometer is heated up by the thermometer current compared to the material to be measured. The heating-up error thus produced increases with the square of the thermometer current and linearly with the resistance of the measuring resistor. Apart from the magnitude of the thermometer current, the error depends on the design of the thermometer and on the heat transfer between the protective tube and the medium. A high measuring power is required for output instruments operating according to the deflection method. To keep the heating-up error within permissible limits, the thermometer current should not be greater than 10 mA in this case.

When measuring the temperature of gases with very small flow velocities, a considerably greater heating-up error occurs than in measurements with very fast gases or liquids. The heating-up error is negligibly small with high flow velocities.

Protection fitting/protective tubes

Suitable protective fittings are used for installation in pipelines, tanks etc. depending on the mechanical or chemical requirements.

The materials for the protective tubes or combinations of different protective tube materials must be carefully selected in order to meet the requirements due to static pressure, flow and temperature. Furthermore, the indication response should be as fast as possible.

Installation examples with the suitable protective tube materials can be found under "Technical data" in the table "Installation examples and material of protective tubes".

The type of installation of the protective tubes depends on the application. The protective tubes are screwed into the pipelines in the case of operating pressures up to approx. 90 bar. Tapered protective tubes which can be welded in are available for higher pressures. Thermometers for measuring furnace temperatures are fixed using flanges.

Owing to the different operating conditions, no guarantee can be given for protective fittings. The manufacturer is responsible for damages and measuring errors caused by wrong installation in compliance with the General Terms of Delivery if the instruments have been installed by the manufacturer and if the specifications for the operating conditions furnished by the customer were correct and sufficiently detailed.

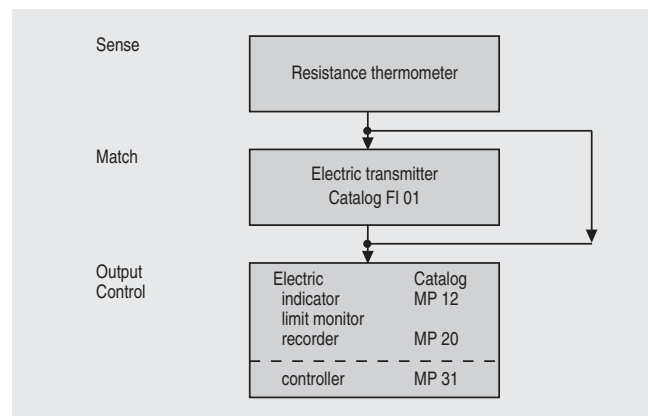
SITRANS T measuring instruments for temperature

Resistance thermometers

Technical description

Integration

Instrument combination for measuring and controlling temperature



Instrument combination with resistance thermometer as sensor

Installation examples and materials of protective tubes

Measuring point	Max. operating temp. °C (°F)	Protective tube material name	No.
A. Steam power plants			
Water and steam lines (Screw-in and welding-type thermometers)	300 (572)	Bronze Sn Bz 6 (only for water)	2.1020
	400 (752)	St 35.8	1.0305
	540 (1004)	13 CrMo 44	1.7335
	570 (1058)	10 CrMo 9 10	1.7380
Flue gas	550 (1022)	St 35.8, enamelled	1.0305
Pulverized coal/air mixture line	100 (212)	St 35.8 (with baffle rod)	1.0305
Water treatment	30 (86)	X 6 CrNiTi 18 10 or	1.4541
		X 6 CrNiMoTi 17 122	1.4571
B. Paper mills			
In paper pulp (cylindrical paper mills, hand-made paper, refiner)	60 (140)	X 6 CrNiMoTi 17 122	1.4571
C. Pulp production		For all tanks with internal lining: only flange-type thermometers	
1. Sulfite pulp			
Boiling acid in vat, peetz tank and acid tower	150 (302)	X 6 CrNiMoTi 17 122	1.4571
Hypochlorite tower, alkali tower	40 (104)	X 6 CrNiMoTi 17 122	1.4571
Sulphite lye evaporation, heat exchanger, preheater and lye collecting tank	140 (284)	X 6 CrNiMoTi 17 122	1.4571
2. Sulfate pulp			
Vat, lye heater Black, green and white lye tanks	In vat 180 (356) otherwise 80 (176)	X 6 CrNiTi 18 10 or	1.4541
		X 6 CrNiMoTi 17 122	1.4571
Cellulose multiple-stage bleaching (moist chloric gases present)	40 (104)	Hastelloy C (59 Ni; 16 Mo; 15,5 Cr; 5,5 Fe; 3,8 W) or X 6 CrNiMoTi 17 122 with Ti protective sleeve	1.4571
Sulfate lye evaporation, heat exchanger, preheater and lye collecting tank	140 (284)	X 6 CrNiMoTi 17 122	1.4571

Measuring point	Max. operating temp. °C (°F)	Protective tube material name	No.
D. Dye works			
Jigger, automatic yarn skein dyeing machine	110 (230)	X 6 CrNiMoTi 17 122	1.4571
E. Food and drink industries			
1. Breweries			
Brewing water	80 (176)	Bronze Sn Bz 6 or X 6 CrNiTi 18 10	2.1020
Mash			
• Hot wort	100 (212)	Bronze or X 6 CrNiTi 18 10	1.4541
• Cold wort	4 (39,2)	X 6 CrNiTi 18 10	1.4541
2. Sugar factories			
Salt removal in sugar juice	100 (212)	X 6 CrNiTi 18 10	1.4541
3. Cereals production			
Salt removal in whey	20 (68)	X 6 CrNiTi 18 10	1.4541
4. Malt houses			
Steeping water	100 (212)	Bronze Sn Bz 6	2.1020
5. Yeast production			
Yeast cooling	4 (39,2)	X 6 CrNiTi 18 10	1.4541
Yeast fermentation	33 (91,4)	X 6 CrNiMoTi 17 122	1.4571

F. Chemical and petrochemical industries

Corrosion-resistant steel, material Nos. 1.4541 and 1.4571, can be used for many applications. The numerous substances to be measured in these industrial branches render it sometimes difficult to recommend suitable protective tube materials. If required, please contact our representatives in these cases.

SITRANS T measuring instruments for temperature

Resistance thermometers

Protective tubes, installation

Technical specifications

Calibration data for platinum measuring resistors (to DIN EN 60751)

°C	(°F)	Ω
-200	(-328)	18.52
-180	(-292)	27.10
-160	(-256)	35.34
-140	(-220)	43.88
-120	(-184)	52.11
-100	(-148)	60.26
-80	(-112)	68.33
-60	(-76)	76.33
-40	(-40)	84.27
-30	(-22)	88.22
-20	(-4)	92.16
-10	(14)	96.09
0	(32)	100.00
10	(50)	103.90
20	(68)	107.79
30	(86)	111.67
40	(104)	115.54
50	(122)	119.40
60	(140)	123.24
80	(176)	130.90
100	(212)	138.51
120	(248)	146.07
140	(284)	153.58
160	(320)	161.05
180	(356)	168.48
200	(392)	175.86
220	(428)	183.19
240	(464)	190.47
260	(500)	197.71
280	(536)	204.90
300	(572)	212.05
320	(608)	219.15
340	(644)	226.21
360	(680)	233.21
380	(716)	240.18
400	(752)	247.09
420	(788)	253.96
440	(824)	260.78
460	(860)	267.56
480	(896)	274.29
500	(932)	280.98
520	(968)	287.62
540	(1004)	294.21
560	(1040)	300.75
580	(1076)	307.25
600	(1112)	313.71
620	(1148)	320.12
640	(1184)	326.48
660	(1220)	332.79
700	(1292)	345.28
750	(1382)	360.64
800	(1472)	375.70
850	(1562)	390.48

Error limits acc. to DIN EN 60 751

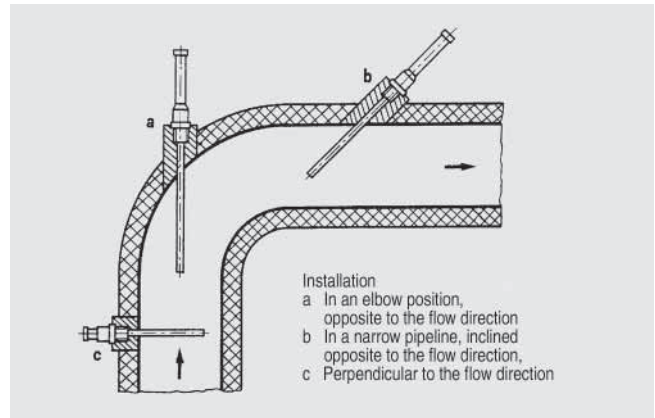
The resistance thermometers are divided into two classes according to their error limits:

Class	Error limits in °C
A	$0,15 + 0,002 t ^{1)}$
B	$0,3 + 0,005 t $

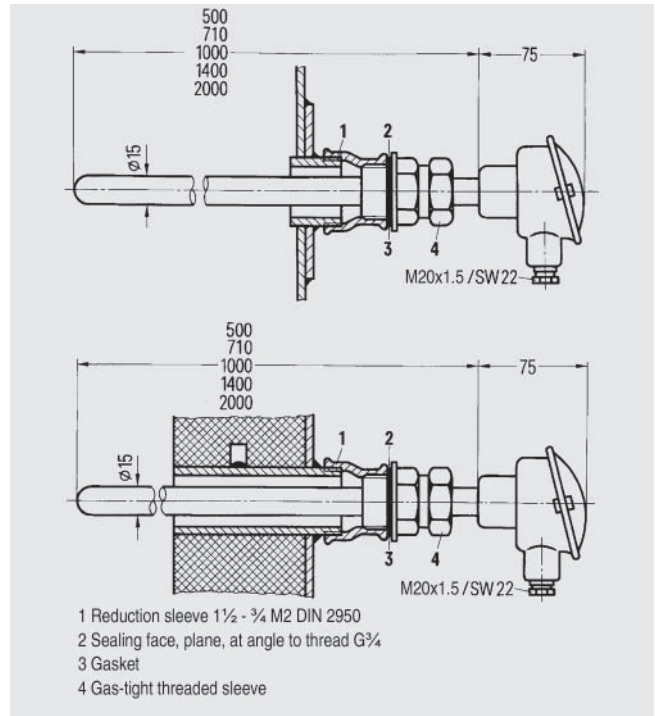
1) $|t|$ is the numerical value of the temperature in °C without consideration of the sign

Integration

Protective tubes in a pipeline



Flue gas resistance thermometer



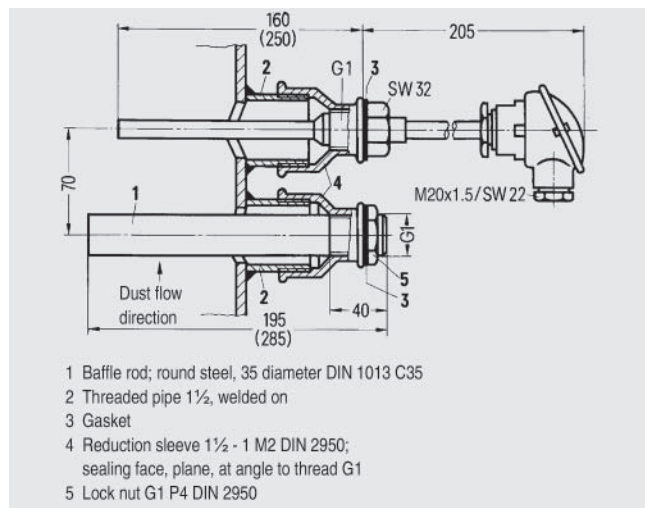
Fitted in a sheet-metal duct (top) and a flue gas duct (bottom)

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Resistance thermometers

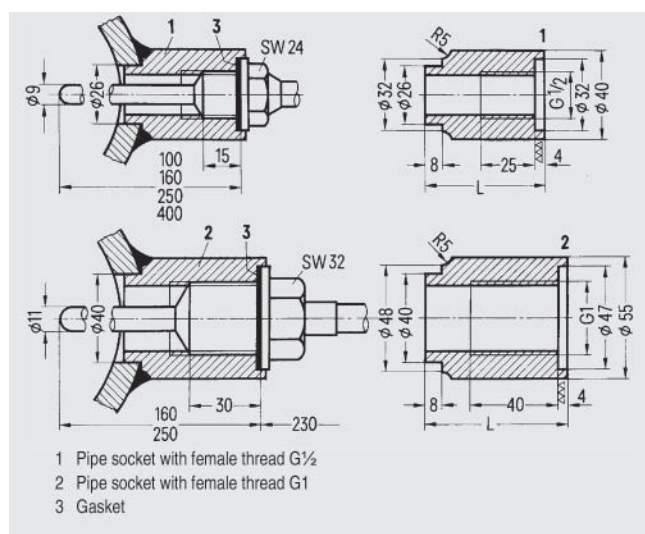
Protective tubes, installation

Screw-in resistance thermometer



In a pulverized coal line, with baffle rod

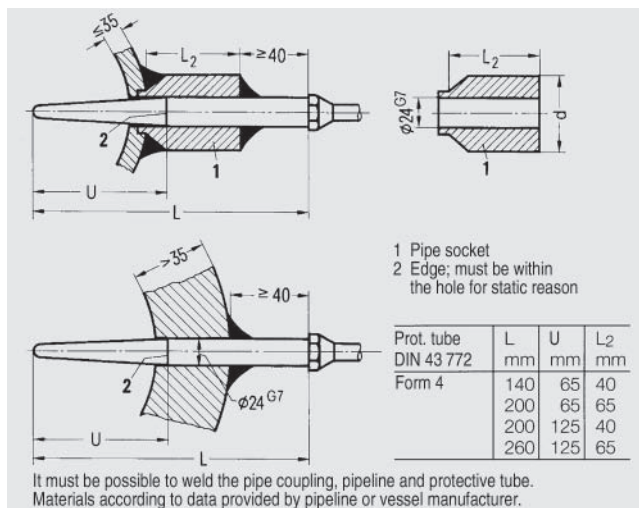
Welding-type protective tubes, mounted



At top for low-pressure, with screw socket G 1/2; at bottom for high-pressure, with screw socket G1

It must be possible to weld the pipe coupling and pipeline. Material according to data provided by pipeline or vessel manufacturer.

Welding-type protective tubes, mounted



Top: Wall thickness ≤ 35 mm; mounting using welded coupling; bottom: Wall thickness > 35 mm

SITRANS T measuring instruments for temperature

Resistance thermometers

Temperature transmitters for mounting in the connection head

Overview



The following temperature transmitters are available for mounting in the connection head:

SITRANS TH100

Programmable two-wire temperature transmitter (4 to 20 mA), without electrical isolation, only for Pt100 resistance thermometers.

SITRANS TH200

Programmable two-wire temperature transmitter (4 to 20 mA), electrical isolation for resistance thermometers and thermocouple elements.

SITRANS TH300

Two-wire temperature transmitter with HART communication (4 to 20 mA), electrical isolation for resistance thermometers and thermocouple elements.

SITRANS T3K PA

Temperature transmitter with PROFIBUS PA connection, electrical isolation for resistance thermometers and thermocouple elements.

Note:

- SITRANS TH100/TH200/TH300 can be fitted instead of the terminal block or in the high hinged cover.
- SITRANS T3K PA can only be fitted in the high hinged cover of the connection head.
- If using intrinsically-safe temperature sensors any installed temperature transmitters must also be intrinsically-safe.

Selection and Ordering Data

Detailed information on the transmitters can be found for the respective products under "Transmitters for temperature".

Transmitter to be fitted	Order code
To order the sensor with a built-in temperature transmitter, add "-Z" to the Order No. of the sensor, and supplement by the following Order code:	
• SITRANS TH100	
- without Ex	T10
- EEx ia IIC and EEx n for zone 2	T11
- FM	T13
• SITRANS TH200	
- without Ex	T20
- EEx ia IIC and EEx n for zone 2	T21
- FM (IS, I, NI)	T23
• SITRANS TH300	
- without Ex	T30
- EEx ia IIC und EEx n for zone 2	T31
- FM (IS, I, NI)	T33
• SITRANS T3K PA	
- without Ex	K30
- EEx ia IIC (ATEX)	K31
- intrinsic safety (FM)	K33
Customer-specific setting of the built-in transmitter (specify settings in plain text)	Y11

Resistance thermometers

Questionnaire for temperature sensors (resistance thermometers and thermocouples)

General information

Customer:
 Address:
 Contact partner:
 Purchasing dept.: Tel.:
 Sales dept.: Tel.:
 Process dept.: Tel.:
 Inquiry:
 Quotation:
 Place and date:

Operating conditions

1. Application:
(e.g. exhaust gas measurement)
2. Location:
(e.g. pipe bend, tank)
3. Mounting position:
(e.g. vertical, 45° against flow)
4. Temperature (measuring point):
 Operating temperature:
 Temperature range:
5. Medium:
6. Pressure:
 Nominal pressure:
 Operating pressure:
7. Flow:
8. Vibrations:
9. Miscellaneous:
(e.g. vessel or pipe materials, PTFE lining)

Ambient conditions

(e.g. seawater atmosphere, chemical plant)
 Definition:

Special information

1. Mounting of temperature transmitter in connection head:

2. Packaging regulations:

Miscellaneous

Please additionally provide the following: rough sketch, installation diagram, section of drawing, photo

Sensor design

1. Measuring element
(type and standard) (e.g. Pt100 or TC type K)
 - 1.1. Tolerance:
 - 1.2. Design:
(e.g. Pt100 or 2, 3 or 4-wire system)
 - 1.3. Degree of protection/type of protection:
2. Protective fitting:
 - 2.1. Protective tube:
(dimensions/material)
 - 2.2. Mounting:
(dimensions/material)
 - 2.3. Neck tube:
(dimensions/material)
 - 2.4. Mounting length/nominal length:
3. Material certificates:
4. Connection:
 - 4.1. Connection head/box:
 - 4.2. Cable:
(dimensions/insulation/standard)
 - 4.3. Other:
5. Tests:

6. Accessories:

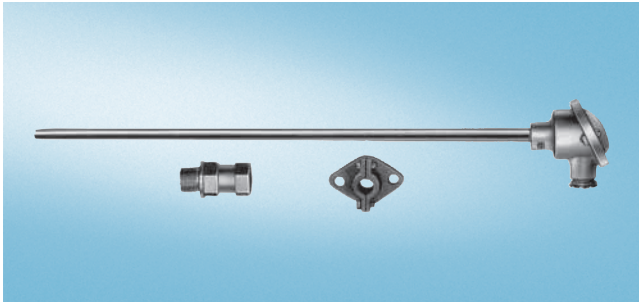
7. Supplementary requirements:

SITRANS T measuring instruments for temperature

Resistance thermometers

Flue gas resistance thermometers with connection head

Overview



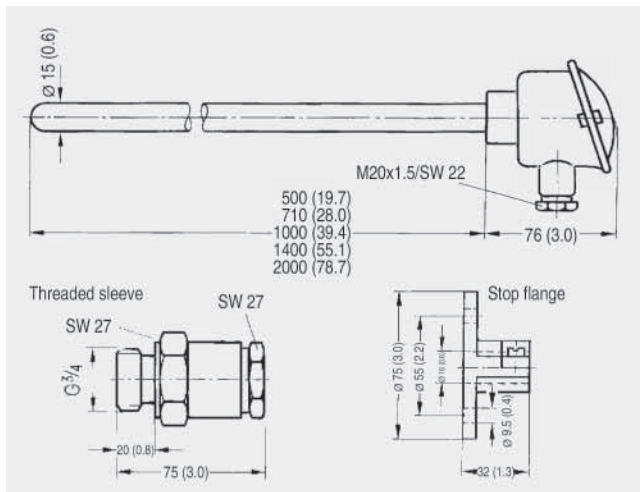
The flue gas resistance thermometer with connection head is suitable for the temperature range from -50 to +600 °C (-58 to +1112 °F) and can also be supplied with a built-in temperature transmitter.

Please order mounting flange or threaded sleeve separately.

Technical specifications

Design	According to DIN 43764: Thermometer without mount
Protective tube	
• Form	1, DIN 43772; cylindrical, 15 mm diameter (0.59 inch), wall thickness 3 mm (0.12 inch), seamless
• Material	St 35.8, mat. No. 1.0305, enamelled
• Loading capacity	1 bar (14.5 psi) above atmospheric, to DIN 43772
Measuring insert	Replaceable, with measuring insert tube (8 mm diameter (0.31 inch)) made of stainless steel; terminal block with clamping springs

Dimensional drawings



Flue gas resistance thermometer with connection head, dimensions in mm (inches)

Selection and Ordering data

Order No.

Flue gas resistance thermometer

Measuring resistor (winding) embedded in ceramic
1 Pt100 measuring resistor, three-wire circuit

Mounting length/ mm (inch):	Weight/ kg (lb):
• 500 (19.7)	0.9 (1.98)
• 710 (28.0)	1.1 (2.43)
• 1000 (39.4)	1.5 (3.31)
• 1400 (55.1)	1.9 (4.19)
• 2000 (78.7)	2.7 (5.95)

7MC1000-1BA2
7MC1000-2BA2
7MC1000-3BA2
7MC1000-4BA2
7MC1000-5BA2

Connection head, form B,

made of cast light alloy, with 1 cable inlet and

- screw cover
- standard hinged cover
- high hinged cover

1
4
6

Further designs

Please add "-Z" to Order No. and specify Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text.
- TAG plate made of stainless steel specify TAG No. in plain text
- Calibration carried out at one point, specify desired temperature in plain text (order equivalent number of times for several calibration points).

Y01
Y15
Y33

Accessories

Order No.

Mounting flange

Adjustable, to DIN 43734;
Material: GTW 35, mat. No. 0.8035, for protective tube diameter 15 mm (0.59 inch), 0.3 kg (0.66 lb)

7MC2998-5CA

Gas-tight threaded sleeve

Material: 9 SMnPb 28
Material No. 1.0718, for protective tube diameter 15 mm (0.59 inch), 0.4 kg (0.88 lb)

- G $\frac{3}{4}$ internal thread with gasket
- G $\frac{1}{2}$ internal thread with gasket

7MC2998-5DA
7MC2998-5DC

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

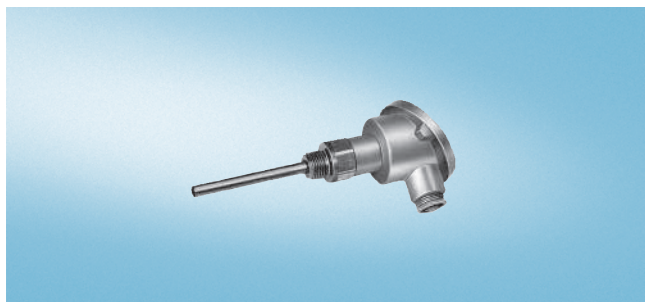
Individual parts: Measuring inserts, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

Low-pressure screw-in resistance thermometers with connection head, without neck tube

Overview

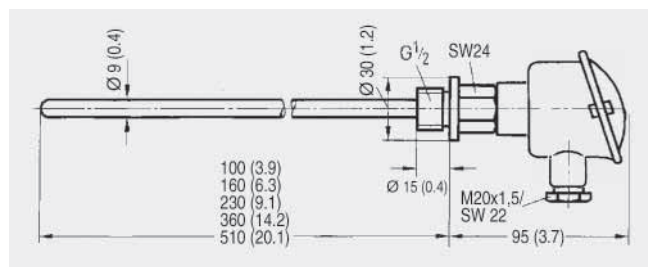


The low-pressure screw-in resistance thermometer with connection head (no neck tube) is suitable for the temperature range from -50 to +400 °C (-58 to +752 °F) and can also be supplied with a built-in temperature transmitter.

Technical specifications

Design	According to DIN 43765: Screw-in thermometer
Protective tube	
• Form	Similar to 2G, DIN 43772; cylindrical, 9 mm (0.35 inch) diameter, wall thickness 1 mm (0.04 inch)
• Loading capacity	to 20 bar (290.1 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)
Screw socket	G $\frac{1}{2}$; suitable is gasket 21 x 26, similar to form C or D, DIN 7603
Measuring insert	Replaceable, with measuring insert tube (6 mm diameter (0.24 inch) made of stainless steel; terminal block with clamp-in springs
Response times (to VDI/VDE 3 522)	
• In water with flow velocity $v = 0.4$ m/s (1.31 ft/s)	$t_{0.5} = 25$ s, $t_{0.9} = 75$ s
• In air with flow velocity $v = 1$ m/s (3.28 ft/s)	$t_{0.5} = 2$ min, $t_{0.9} = 6.3$ min
Explosion protection	II 1/2G EEx ia IIC T4/T6

Dimensional drawings



Low-pressure screw-in resistance thermometer with connection head, without neck tube, dimensions in mm (inches)

Selection and Ordering data

Order No.

Low-pressure screw-in resistance thermometer with connection head, without neck tube

Protective tube and screw socket
X 6 CrNiMoTi 17 122, mat. No. 1.4571
Protective tube to DIN 43,772, form: similar to 2G
Measuring resistors embedded in ceramic, one Pt100 measuring resistor: three-wire circuit, Two Pt100 measuring resistors: two-wire circuit

Measuring insert not explosion protected

One Pt100 measuring resistor,

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 100 (3.9)	0.6 (1.32)
• 160 (6.3)	0.7 (1.54)
• 230 (9.1)	0.8 (1.76)
• 360 (14.2)	0.9 (1.98)
• 510 (20.1)	1.0 (2.20)

7MC1006-1DA1
7MC1006-2DA1
7MC1006-3DA1
7MC1006-4DA1
7MC1006-5DA1

Two Pt100 measuring resistors

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 100 (3.9)	0.6 (1.32)
• 160 (6.3)	0.71 (1.57)
• 230 (9.1)	0.81 (1.79)
• 360 (14.2)	0.91 (2.01)
• 510 (20.1)	1.01 (2.23)

7MC1006-1DB1
7MC1006-2DB1
7MC1006-3DB1
7MC1006-4DB1
7MC1006-5DB1

Measuring insert with explosion protection

One Pt100 measuring resistor

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 100 (3.9)	0.6 (1.32)
• 160 (6.3)	0.7 (1.54)
• 230 (9.1)	0.8 (1.76)
• 360 (14.2)	0.9 (1.98)
• 510 (20.1)	1.0 (2.20)

7MC1006-1DE1
7MC1006-2DE1
7MC1006-3DE1
7MC1006-4DE1
7MC1006-5DE1

Two Pt100 measuring resistors

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 100 (3.9)	0.6 (1.32)
• 160 (6.3)	0.71 (1.57)
• 230 (9.1)	0.81 (1.79)
• 360 (14.2)	0.91 (2.01)
• 510 (20.1)	1.01 (2.23)

7MC1006-1DF1
7MC1006-2DF1
7MC1006-3DF1
7MC1006-4DF1
7MC1006-5DF1

Connection head, form B,

- made of cast light alloy, with 1 cable inlet and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel, with 1 cable inlet and screw cover

1
4
6
7

Further designs

Please add "Z" to Order No. and specify Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text.
- TAG plate made of stainless steel specify TAG No. in plain text
- Calibration carried out at one point, specify desired temperature in plain text (order equivalent number of times for several calibration points).

Y01
Y15
Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

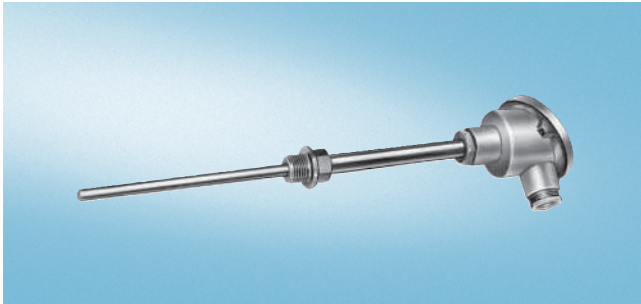
Individual parts: Measuring inserts and connection heads, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

Low-pressure screw-in resistance thermometers with connection head, with neck tube

Overview

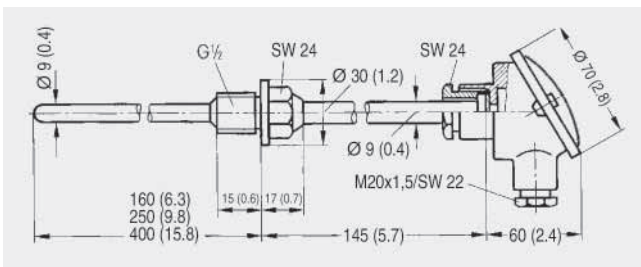


The low-pressure screw-in resistance thermometer with connection head and neck tube is suitable for the temperature range from -50 to +600 °C (-58 to +1112 °F) and can also be supplied with a built-in temperature transmitter.

Technical specifications

Design	According to DIN 43765: Screw-in thermometer
Protective tube	
• Form	2G, DIN 43772; cylindrical, 9 mm (0.35 inch) diameter, wall thickness 1 mm (0.04 inch)
• Loading capacity	to 20 bar (290.1 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)
Screw socket	G½; suitable is gasket 21 x 26, similar to form C or D, DIN 7603
Measuring insert	Replaceable, with measuring insert tube (6 mm diameter (0.24 inch) made of stainless steel; terminal block with clamp-springs
Response times (to VDI/VDE 3 522)	
• In water with flow velocity $v = 0.4$ m/s (1.31 ft/s)	$t_{0.5} = 25$ s, $t_{0.9} = 75$ s
• In air with flow velocity $v = 1$ m/s (3.28 ft/s)	$t_{0.5} = 2$ min, $t_{0.9} = 6.3$ min
Explosion protection	II 1/2G EEx ia IIC T4/T6

Dimensional drawings



Low-pressure screw-in resistance thermometer with neck tube, dimensions in mm (inches)

Selection and Ordering data

Order No.

Low-pressure screw-in resistance thermometer with connection head and neck tube

Protective tube and screw socket
X 6 CrNiMoTi 17 122, mat. No. 1.4571
Protective tube to DIN 43772,
form: 2G
Measuring resistors embedded in ceramic,
one Pt100 measuring resistor: three-wire
circuit, Two Pt100 measuring resistors:
two-wire circuit

Measuring insert not explosion protected

One Pt100 measuring resistor

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.8 (1.76)
• 250 (9.84)	0.9 (1.98)
• 400 (15.7)	1.0 (2.20)

7MC1007-5DA1
7MC1007-6DA1
7MC1007-7DA1

Two Pt100 measuring resistors

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.9 (1.98)
• 250 (9.84)	1.0 (2.20)
• 400 (15.7)	1.1 (2.43)

7MC1007-5DB1
7MC1007-6DB1
7MC1007-7DB1

Measuring insert with explosion protection

One Pt100 measuring resistor

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.8 (1.76)
• 250 (9.84)	0.9 (1.98)
• 400 (15.7)	1.0 (2.20)

7MC1007-5DE1
7MC1007-6DE1
7MC1007-7DE1

Two Pt100 measuring resistors

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.9 (1.98)
• 250 (9.84)	1.0 (2.20)
• 400 (15.7)	1.1 (2.43)

7MC1007-5DF1
7MC1007-6DF1
7MC1007-7DF1

Connection head, form B,

- made of cast light alloy,
with 1 cable inlet and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel,
with 1 cable inlet and screw cover

1
4
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Further designs

Please add "-Z" to Order No. and specify
Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text.
- TAG plate made of stainless steel
specify TAG No. in plain text
- Calibration carried out at one point, specify
desired temperature in plain text (order
equivalent number of times for several
calibration points).

Y01
Y15
Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

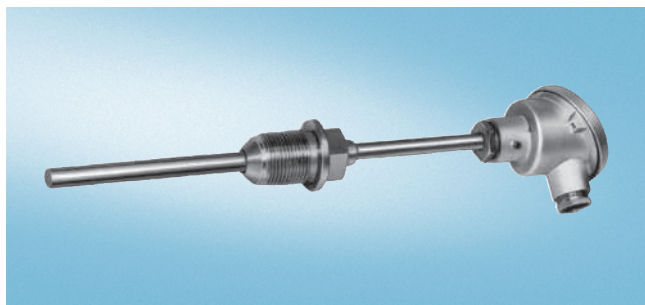
Individual parts: Measuring inserts and connection heads, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

High-pressure screw-in resistance thermometers

Overview

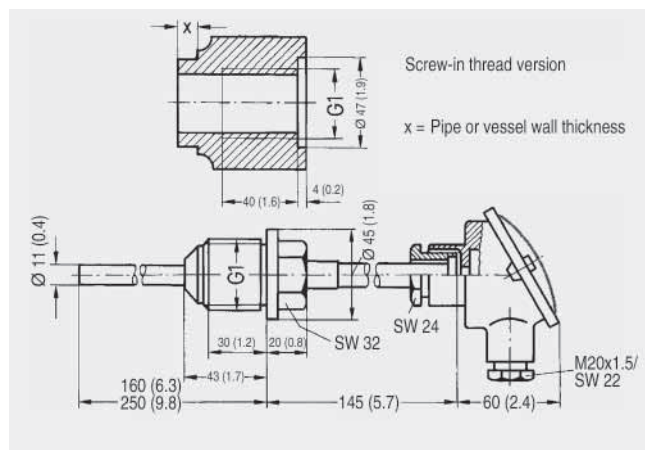


The high-pressure screw-in resistance thermometer with connection head and neck tube is suitable for the temperature range from -50 to +600 °C (-58 to +1112 °F) and can also be supplied with a built-in temperature transmitter.

Technical specifications

Design	According to DIN 43765: Screw-in thermometer
Protective tube	
• Form	2G, DIN 43772; cylindrical, 11 mm (0.43 inch) diameter, wall thickness 2 mm (0.08 inch)
• Loading capacity	to 50 bar (725.2 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)
Screw socket	G1; suitable is gasket 33 x 39, similar to form C or D, DIN 7603
Measuring insert	Replaceable, with measuring insert tube (6 mm diameter (0.24 inch) made of stainless steel; terminal block with clamp- ing springs
Response times (to VDI/VDE 3 522)	
• In water with flow velocity $v = 0.4 \text{ m/s}$ (1.31 ft/s)	$t_{0.5} = 32 \text{ s}$, $t_{0.9} = 96 \text{ s}$
• In air with flow velocity $v = 1 \text{ m/s}$ (3.28 ft/s)	$t_{0.5} = 2.2 \text{ min}$, $t_{0.9} = 6.8 \text{ min}$

Dimensional drawings



High-pressure screw-in resistance thermometer with neck tube, dimensions in mm (inches)

Selection and Ordering data

Order No.

High-pressure screw-in resistance thermometer with connection head and neck tube

Protective tube and screw socket
X 6 CrNiMoTi 17 122, mat. No. 1.4571
Protective tube to DIN 43772,
form: 2G

One Pt100 measuring resistor

embedded in ceramic, three-wire circuit

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.83 (1.83)
• 250 (9.84)	0.93 (2.05)

7MC1008-6DA1

7MC1008-7DA1

Two Pt100 measuring resistors

embedded in ceramic, two-wire circuit

Mounting length U_1 / mm (inch):	Weight/ kg (lb):
• 160 (6.3)	0.86 (1.20)
• 250 (9.84)	0.94 (2.07)

7MC1008-6DB1

7MC1008-7DB1

Connection head, form B,

- made of cast light alloy,
with 1 cable inlet and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel,
with 1 cable inlet and screw cover

1
4
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Further designs

Please add "-Z" to Order No. and specify
Order code(s) and plain text.

Order code

- Different design (mounting length, protec-
tive tube material etc.), specify in plain text.
- TAG plate made of stainless steel
specify TAG No. in plain text
- Calibration carried out at one point, specify
desired temperature in plain text (order
equivalent number of times for several
calibration points).

Y01

Y15

Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

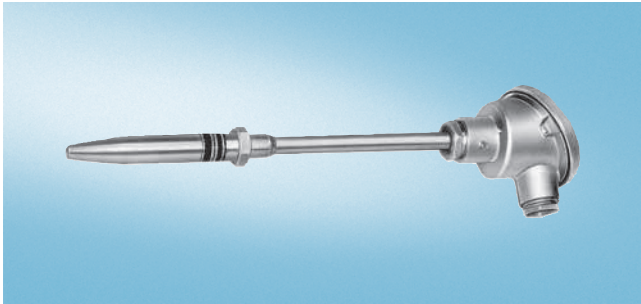
Individual parts: Measuring inserts and connection heads, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

High-pressure welding-type resistance thermometers

Overview

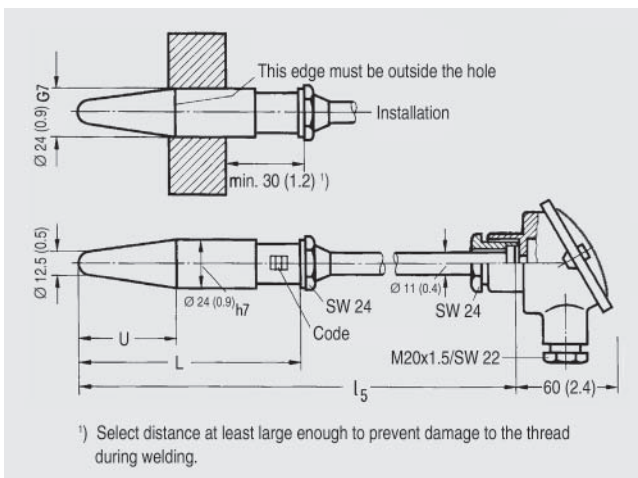


The high-pressure welding type resistance thermometer with connection head and neck tube is suitable for the temperature range from -50 to 540 or 550 °C (-58 to 1004 or 1022 °F) and can also be supplied with a built-in temperature transmitter.

Technical specifications

Design	According to DIN 43767: Welding-type thermometer
Protective tube	
• Form	4, DIN 43772; tapered, for welding in; with female thread M18 x 1.5 for neck tube
• Loading capacity	to 450 bar (6527 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)
Neck tube	Stainless steel, unscrewable
Measuring insert	Replaceable, with measuring insert tube made of stainless steel; terminal block with clamping springs
Response times (to VDI/VDE 3 522)	
• In water with flow velocity $v = 0.4 \text{ m/s}$ (1.31 ft/s)	$t_{0.5} = 25 \text{ s}$, $t_{0.9} = 80 \text{ s}$
Explosion protection	II 1/2G EEx ia IIC T4/T6

Dimensional drawings



High-pressure welding-type resistance thermometer with connection head and neck tube, dimensions in mm (inches)

Selection and Ordering data

Order No.

High-pressure welding-type resistance thermometer

Measuring resistor: Winding embedded in ceramic, protective tube to DIN 43772, form 4

1 Pt100 measuring resistor/three-wire circuit

- Measuring insert not explosion protected
 - max. 540 °C (1004 °F), protective tube 13 CrMo 44, mat. No. 1.7335
 - max. 550 °C (1022 °F), protective tube X 6 CrNiMoTi 17 122, mat. No. 1.4571
- Measuring insert with explosion protection
 - max. 550 °C (1022 °F), protective tube X 6 CrNiMoTi 17 122, mat. No. 1.4571

7MC1010 - GA 2

7MC1010 - FA 2

7MC1010 - FE 2

2 Pt100 measuring resistors/two-wire circuit

- Measuring insert not explosion protected
 - max. 540 °C (1004 °F), protective tube 13 CrMo 44, mat. No. 1.7335
 - max. 550 °C (1022 °F), protective tube X 6 CrNiMoTi 17 122, mat. No. 1.4571
- Measuring insert with explosion protection
 - max. 550 °C (1022 °F), protective tube X 6 CrNiMoTi 17 122, mat. No. 1.4571

7MC1010 - GB 2

7MC1010 - FB 2

7MC1010 - FF 2

Mounting length U	Protective tube length L	Total length without connection head l ₅	Weight with one/two measuring resistors
mm (inch)	mm (inch)	mm (inch)	kg (lb)

		305 (12.0)	0.78 (1.7)/ 0.79 (1.7)	1
	140 (5.5)	365 (14.4)	0.82 (1.8)/ 0.83 (1.8)	2
65 (2.6)		395 (15.6)	0.85 (1.9)/ 0.86 (1.9)	3
		365 (14.4)	0.95 (2.1)/ 0.96 (2.1)	4
	200 (7.9)	395 (15.6)	0.98 (2.2)/ 1.00 (2.2)	5
		365 (14.4)	0.95 (2.1)/ 0.96 (2.1)	6
125 (4.9)	200 (7.9)	395 (15.6)	0.98 (2.2)/ 1.00 (2.2)	7
		260 (10.2)	1.15 (2.5)/ 1.20 (2.7)	8

Connection head, form B

- made of cast light alloy, with 1 cable bushing and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel, with 1 cable bushing and screw cover

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Further designs

Please add "-Z" to Order No. and specify Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text.
- TAG plate made of stainless steel specify TAG No. in plain text
- Calibration carried out at one point, specify desired temperature in plain text (order equivalent number of times for several calibration points).

Y01

Y15

Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

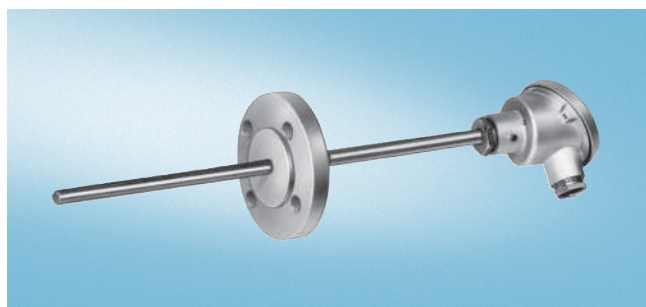
Individual parts: Measuring inserts and connection heads, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

Flange-type resistance thermometer with connection head

Overview



The flange-type resistance thermometer with connection head can be installed in tanks and pipelines; it is suitable for a temperature range from -50 to +600 °C (-58 to +1112 °F) and can also be supplied with a built-in temperature transmitter.

Technical specifications

Protective tube

- Form 2F, DIN 43772; cylindrical, 11 mm (0.43 inch) diameter, wall thickness 2 mm (0.08 inch)
- Material X 6 CrNiMoTi 17 122, mat. No. 1.4571
- Loading capacity to 40 bar (580 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)

Flange Nominal diameter DN 25, nominal pressure PN 40 (ASME on request)

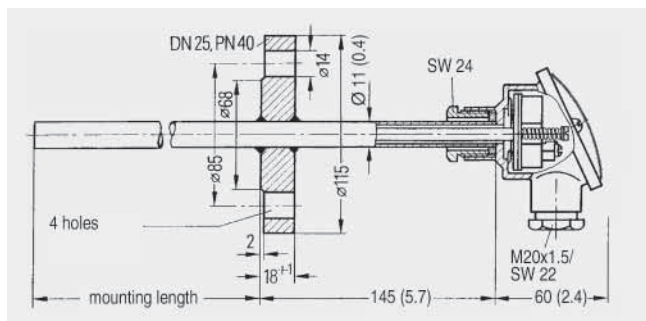
Measuring insert Replaceable, with measuring insert tube (6 mm diameter (0.24 inch) made of stainless steel; terminal block with clamping springs

Response times (to VDI/VDE 3 522)

- In water with flow velocity $v = 0.4 \text{ m/s}$ (1.31 ft/s) $t_{0.5} = 32 \text{ s}$, $t_{0.9} = 96 \text{ s}$
- In air with flow velocity $v = 1 \text{ m/s}$ (3.28 ft/s) $t_{0.5} = 2.2 \text{ min}$, $t_{0.9} = 6.8 \text{ min}$

Explosion protection II 1/2G EEx ia IIC T4/T6

Dimensional drawings



Flange-type resistance thermometer with connection head, dimensions in mm (inches)

Selection and Ordering data

Order No.

Flange-type resistance thermometer With connection head

Protective tube to DIN 43772, form: 2F
one Pt100 measuring resistor: three-wire circuit, two Pt100 measuring resistors: two-wire circuit

Measuring insert not explosion protected

One Pt100 measuring resistor

Mounting length/ mm (inch):	Weight/ kg (lb):
• 160 (6.3)	1.5 (3.31)
• 250 (9.84)	1.5 (3.31)

7MC1017-1FA1

7MC1017-2FA1

Two Pt100 measuring resistors

Mounting length/ mm (inch):	Weight/ kg (lb):
• 160 (6.3)	1.6 (3.53)
• 250 (9.84)	1.6 (3.53)

7MC1017-1FB1

7MC1017-2FB1

Measuring insert with explosion protection

One Pt100 measuring resistor

Mounting length/ mm (inch):	Weight/ kg (lb):
• 160 (6.3)	1.5 (3.31)
• 250 (9.84)	1.5 (3.31)

7MC1017-1FE1

7MC1017-2FE1

Two Pt100 measuring resistors

Mounting length/ mm (inch):	Weight/ kg (lb):
• 160 (6.3)	1.6 (3.53)
• 250 (9.84)	1.6 (3.53)

7MC1017-1FF1

7MC1017-2FF1

Connection head, form B

- made of cast light alloy, with 1 cable inlet and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel, with 1 cable inlet and screw cover

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Further designs

Please add "-Z" to Order No. and specify Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text. Y01
- TAG plate made of stainless steel specify TAG No. in plain text Y15
- Calibration carried out at one point, specify desired temperature in plain text (order equivalent number of times for several calibration points). Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

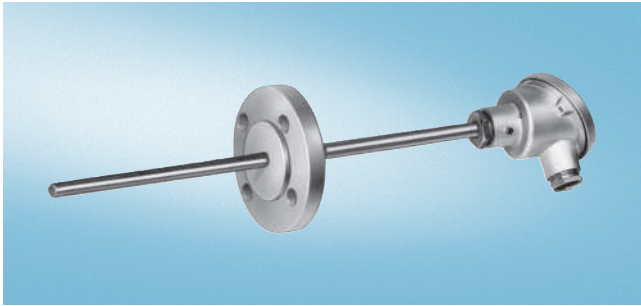
Individual parts: Measuring inserts and connection heads, see "Accessories".

SITRANS T measuring instruments for temperature

Resistance thermometers

Flange-type resistance thermometer with reduced response time, with connection head

Overview



The flange-type resistance thermometer with connection head with reduced response time can be installed in tanks and pipelines; it is suitable for a temperature range from -50 to +600 °C (-58 to +1112 °F). The sensor is also available with a built-in temperature transmitter.

Technical specifications

Protective tube

- **Form** 3, DIN 43772; cylindrical, 12 mm (0.47 inch) diameter, wall thickness 2.5 mm (0.1 inch), tapered towards tip; tip cylindrical over length of 47 mm (1.85 inch), 9 mm (0.35 inch) diameter, wall thickness 1.5 mm (0.06 inch)
- **Material** X 6 CrNiMoTi 17 122, mat. No. 1.4571
- **Loading capacity** to 40 bar (580 psi) (loading capacity dependent on material, temperature, flow rate, mounting length etc., see DIN 43772 for details)

Flange Nominal diameter DN 25, nominal pressure PN 40 (ASME on request)

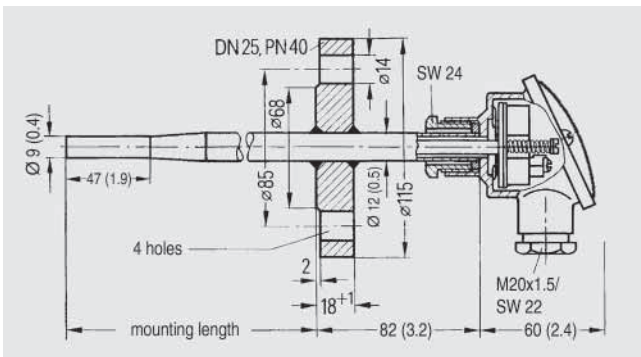
Measuring insert Replaceable, with measuring insert tube (6 mm diameter (0.24 inch) made of stainless steel; terminal block with clamping springs

Response times (to VDI/VDE 3 522)

- In water with flow velocity $v = 0.4 \text{ m/s}$ (1.31 ft/s) $t_{0.5} = 22 \text{ s}$, $t_{0.9} = 66 \text{ s}$
- In air with flow velocity $v = 1 \text{ m/s}$ (3.28 ft/s) $t_{0.5} = 2.1 \text{ min}$, $t_{0.9} = 6.5 \text{ min}$

Explosion protection II 1/2G EEx ia IIC T4/T6

Dimensional drawings



Flange-type resistance thermometer with reduced response time; with connection head, dimensions in mm (inches)

Selection and Ordering data

Order No.

Flange-type resistance thermometer with reduced response time with connection head

Protective tube to DIN 43772, form: 3
one Pt100 measuring resistor: three-wire circuit, two Pt100 measuring resistors: two-wire circuit

Measuring insert not explosion protected

One Pt100 measuring resistor

Mounting length/ mm (inch):	Weight/ kg (lb):
• 225 (8.9)	1.5 (3.31)
• 285 (11.2)	1.5 (3.31)
• 345 (13.6)	1.5 (3.31)

7MC1041-1AA0
7MC1041-2AA0
7MC1041-3AA0

Two Pt100 measuring resistors

Mounting length/ mm (inch):	Weight/ kg (lb):
• 225 (8.9)	1.6 (3.53)
• 285 (11.2)	1.6 (3.53)
• 345 (13.6)	1.6 (3.53)

7MC1041-1AB0
7MC1041-2AB0
7MC1041-3AB0

Measuring insert with explosion protection

One Pt100 measuring resistor

Mounting length/ mm (inch):	Weight/ kg (lb):
• 225 (8.9)	1.5 (3.31)
• 285 (11.2)	1.5 (3.31)
• 345 (13.6)	1.5 (3.31)

7MC1041-1EA0
7MC1041-2EA0
7MC1041-3EA0

Two Pt100 measuring resistors

Mounting length/ mm (inch):	Weight/ kg (lb):
• 225 (8.9)	1.6 (3.53)
• 285 (11.2)	1.6 (3.53)
• 345 (13.6)	1.6 (3.53)

7MC1041-1EB0
7MC1041-2EB0
7MC1041-3EB0

Connection head, form B

- made of cast light alloy, with 1 cable inlet and
 - screw cover
 - standard hinged cover
 - high hinged cover
- made of stainless steel, with 1 cable inlet and screw cover

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Further designs

Please add "-Z" to Order No. and specify Order code(s) and plain text.

Order code

- Different design (mounting length, protective tube material etc.), specify in plain text.
- TAG plate made of stainless steel specify TAG No. in plain text
- Calibration carried out at one point, specify desired temperature in plain text (order equivalent number of times for several calibration points).

Y01
Y15
Y33

To order a temperature transmitter installed in the connection head, see "Temperature transmitters for installation in the connection head" (page 3/43).

Individual parts: Measuring inserts and connection heads, see "Accessories".

3

SITRANS T measuring instruments for temperature

Resistance thermometers

Accessories
Measuring inserts, not explosion protected

Design

Components (design to DIN 43762)

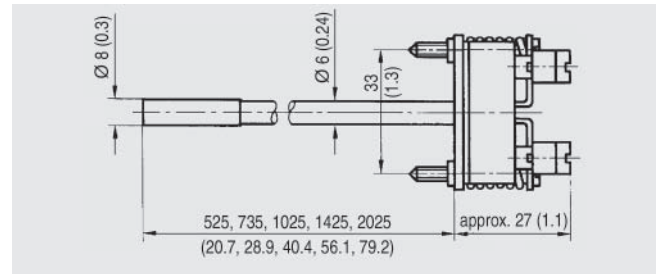
- Measuring insert with resistor,
- insert tube with retaining plate,
- terminal block with clamping springs and 2 or 3 internal conductors of Cu-Ni sheathed wire for each Pt100 measuring resistor.

The resistance of the internal conductors is stated on the measuring insert if it is greater than 0.2 Ω .

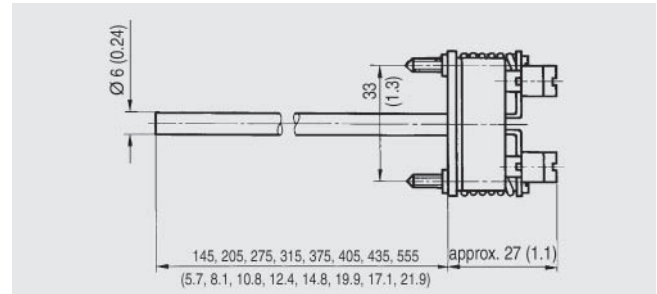
The measuring inserts have a filling of Al_2O_3 powder which surrounds the measuring resistor and the internal conductors and results in a high vibration resistance (for temperatures up to 600 °C (1112 °F)). The winding is embedded in a ceramic body.

If the vibrations at the measuring location are greater than normal, the special vibration-proof measuring inserts should be used (for temperatures up to 450 °C (842 °F)). The measuring resistor is embedded in an homogeneous, fused glass body.

Dimensional drawings



Measuring insert for flue gas resistance thermometers, dimensions in mm (inches)



Measuring insert for low-pressure, high-pressure and flange-type resistance thermometers, dimensions in mm (inches)

Selection and Ordering data

Order No.

Measuring insert for flue gas resistance thermometer 7MC1000

for temperatures to 600 °C (1112 °F), stainless steel measuring insert tube
Measuring resistor: Winding embedded in ceramic

Measuring insert not explosion protected

One Pt100 measuring resistor/three-wire circuit

Measuring insert length mm (inch):	Mounting length of the resistance thermometer mm (inch):	Weight kg (lb):	
• 525 (20.7)	500 (19.7)	0.22 (0.49)	7MC1900-1EA
• 735 (28.9)	710 (28.0)	0.27 (0.60)	7MC1900-2EA
• 1025 (40.4)	1000 (39.4)	0.32 (0.71)	7MC1900-3EA
• 1425 (56.1)	1400 (55.1)	0.42 (0.93)	7MC1900-4EA
• 2025 (79.7)	2000 (78.7)	0.62 (1.37)	7MC1900-5EA

Selection and Ordering data

Order No.

Measuring insert for low-pressure, high-pressure and flange-type resistance thermometers

Measuring resistor: Winding embedded in ceramic (max. 600 °C (1112 °F))

Measuring insert not explosion protected

One Pt100 measuring resistor/three-wire circuit

Measuring insert length	Screw-in thermometer without neck tube, 7MC1006	Screw-in thermometer with neck tube, 7MC1007 and 7MC1008	Screw-in thermometer 7MC1010	Flange-type thermometer 7MC1017	Flange-type thermometer 7MC1041	Weight	
mm (inch)	mm (inch)	mm (inch)	Total length without connection head mm (inch)	Mounting length mm (inch)	Mounting length mm (inch)	kg (lb)	
• 145 (5.7)	100 (3.9)	–	–	–	–	0.15 (0.33)	7MC1910-1JA
• 205 (8.1)	160 (6.3)	–	–	–	–	0.16 (0.35)	7MC1910-2JA
• 275 (10.8)	230 (9.1)	–	–	–	–	0.17 (0.37)	7MC1910-3JA
• 315 (12.4)	–	160 (6.3)	305 (12.0)	160 (6.3)	225 (8.9)	0.18 (0.40)	7MC1910-4JA
• 375 (14.8)	–	–	365 (14.4)	–	285 (11.2)	0.19 (0.42)	7MC1910-5JA
• 405 (15.9)	360 (14.2)	250 (9.8)	395 (15.6)	250 (9.8)	–	0.20 (0.44)	7MC1910-6JA
• 435 (17.1)	–	–	–	–	345 (13.6)	0.20 (0.44)	7MC1910-8JA
• 555 (21.1)	510 (20.1)	400 (15.8)	–	–	–	0.21 (0.46)	7MC1910-7JA

SITRANS T measuring instruments for temperature

Resistance thermometers

Accessories

Measuring inserts, not explosion protected

Selection and Ordering data

Order No.

Measuring insert for low-pressure, high-pressure and flange-type resistance thermometers

Measuring resistor: Winding embedded in ceramic (max. 600 °C (1112 °F))

Two Pt100 measuring resistors/three-wire circuit

Measuring insert length	Screw-in thermometer without neck tube, 7MC1006	Screw-in thermometer with neck tube, 7MC1007 and 7MC1008	Screw-in thermometer 7MC1010	Flange-type thermometer 7MC1017	Flange-type thermometer 7MC1041	Weight	
	Mounting length	Mounting length	Total length without connection head	Mounting length	Mounting length		
mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	kg (lb)	
• 145 (5.7)	100 (3.9)	–	–	–	–	0.15 (0.33)	7MC1910-1JB
• 205 (8.1)	160 (6.3)	–	–	–	–	0.16 (0.35)	7MC1910-2JB
• 275 (10.8)	230 (9.1)	–	–	–	–	0.17 (0.37)	7MC1910-3JB
• 315 (12.4)	–	160 (6.3)	305 (12.0)	160 (6.3)	225 (8.9)	0.18 (0.40)	7MC1910-4JB
• 375 (14.8)	–	–	365 (14.4)	–	285 (11.2)	0.19 (0.42)	7MC1910-5JB
• 405 (15.9)	360 (14.2)	250 (9.8)	395 (15.6)	250 (9.8)	–	0.20 (0.44)	7MC1910-6JB
• 435 (17.1)	–	–	–	–	345 (13.6)	0.20 (0.44)	7MC1910-8JB
• 555 (21.1)	510 (20.1)	400 (15.8)	–	–	–	0.21 (0.46)	7MC1910-7JB

Further measuring inserts on request.

SITRANS T measuring instruments for temperature

Resistance thermometers

Accessories

Measuring inserts, explosion protected

Overview

An explosion protected measuring insert is suitable for installation in a protective fitting and for connection to a certified intrinsically-safe circuit of category "ia" or "ib".

The measuring insert may only be used if the protective fitting has the degree of protection IP20 according to DIN 40050.

Design

The measuring resistor is fitted in a 60 mm (2.36 inch) long stainless steel sleeve with an outer diameter of 6 mm (0.24 inch). The sleeve and the sheath of the supply cable are welded. The sheath of the supply cable is also made of stainless steel, and its outer diameter is 5 mm (0.2 inch).

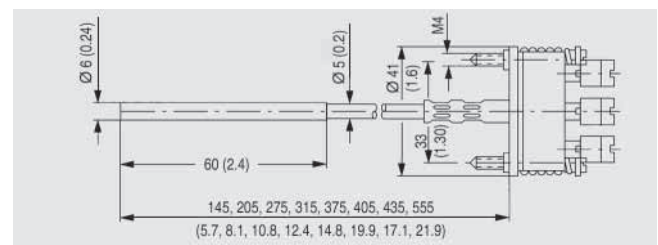
The conductors are made of special copper and are embedded in highly compacted magnesium oxide powder. The connection points between the measuring resistor and the conductors are additionally isolated. The conductors are potted in the terminal base.

The rating plate is located underneath the retaining plate.

Technical specifications

Measuring temperature	-200 ... +450 °C (-328 ... +842 °F) The temperature depends on the maximum measuring current which can flow in the connected measuring circuit if an error occurs.
Resistance of internal conductor	Per measuring circuit, i.e. for both conductors of the two-wire system: 0.17 Ω/m measuring insert
Resistance of measuring insert	≥ 1000 MΩ at room temperature
Outer diameter of sleeve	6 mm (0.24 inch)
Explosion protection	II 2G EEx ia IIC T4/T6

Dimensional drawings



Explosion protected measuring insert for resistance thermometers, dimensions in mm (inches)

Selection and Ordering data

Order No.

Measuring insert for low-pressure, high-pressure and flange-type resistance thermometers

Stainless steel measuring insert
Measuring resistor: Winding embedded in ceramic (max. 450 °C (842 °F))
Outer diameter of sleeve: 6 mm (0.24 inch)

Measuring insert with explosion protection

One Pt100 measuring resistor/three-wire circuit

Measuring insert length	Screw-in thermometer without neck tube, 7MC1006	Screw-in thermometer with neck tube, 7MC1007	Screw-in thermometer 7MC1010	Flange-type thermometer 7MC1017	Flange-type thermometer 7MC1041	Weight
Mounting length	Mounting length	Mounting length	Total length without connection head	Mounting length	Mounting length	
mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	kg (lb)
• 145 (5.7)	100 (3.9)	–	–	–	–	0.15 (0.33)
• 205 (8.1)	160 (6.3)	–	–	–	–	0.16 (0.35)
• 275 (10.8)	230 (9.1)	–	–	–	–	0.17 (0.37)
• 315 (12.4)	–	160 (6.3)	305 (12.0)	160 (6.3)	225 (8.9)	0.18 (0.40)
• 375 (14.8)	–	–	365 (14.4)	–	285 (11.2)	0.19 (0.42)
• 405 (15.9)	360 (14.2)	250 (9.8)	395 (15.6)	250 (9.8)	–	0.20 (0.44)
• 435 (17.1)	–	–	–	–	345 (13.6)	0.20 (0.44)
• 555 (21.1)	510 (20.1)	400 (15.8)	–	–	–	0.21 (0.46)

7MC1913-1AA22
7MC1913-2AA22
7MC1913-3AA22
7MC1913-4AA22
7MC1913-5AA22
7MC1913-6AA22
7MC1913-7AA22
7MC1913-8AA22

Two Pt100 measuring resistors/two-wire circuit

Measuring insert length	Screw-in thermometer without neck tube, 7MC1006	Screw-in thermometer with neck tube, 7MC1007	Screw-in thermometer 7MC1010	Flange-type thermometer 7MC1017	Flange-type thermometer 7MC1041	Weight
Mounting length	Mounting length	Mounting length	Total length without connection head	Mounting length	Mounting length	
mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	kg (lb)
• 145 (5.7)	100 (3.9)	–	–	–	–	0.15 (0.33)
• 205 (8.1)	160 (6.3)	–	–	–	–	0.16 (0.35)
• 275 (10.8)	230 (9.1)	–	–	–	–	0.17 (0.37)
• 315 (12.4)	–	160 (6.3)	305 (12.0)	160 (6.3)	225 (8.9)	0.18 (0.40)
• 375 (14.8)	–	–	365 (14.4)	–	285 (11.2)	0.19 (0.42)
• 405 (15.9)	360 (14.2)	250 (9.8)	395 (15.6)	250 (9.8)	–	0.20 (0.44)
• 435 (17.1)	–	–	–	–	345 (13.6)	0.20 (0.44)
• 555 (21.1)	510 (20.1)	400 (15.8)	–	–	–	0.21 (0.46)

7MC1913-1AB12
7MC1913-2AB12
7MC1913-3AB12
7MC1913-4AB12
7MC1913-5AB12
7MC1913-6AB12
7MC1913-7AB12
7MC1913-8AB12

Further measuring inserts on request.

SITRANS T measuring instruments for temperature

Resistance thermometers

Accessories – Welding-type protective tubes, neck tubes and connection heads

Welding-type protective tube

Welding-type protective tube for high-pressure resistance thermometers to DIN 43 767, without neck tube, without connection head

- Tapered shank with cylindrical welding stubs
- For measuring insert tube with 6 mm (0.24 inch)
- OD female thread M18 x 1.5 (including steel screw plug)

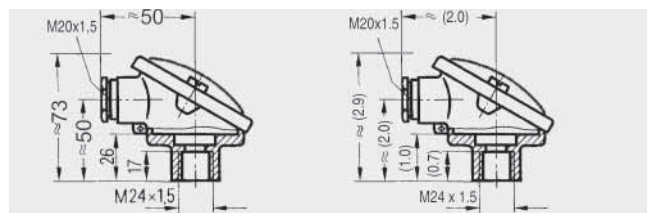
Neck tube

Neck tube for high-pressure screw-in resistance thermometer

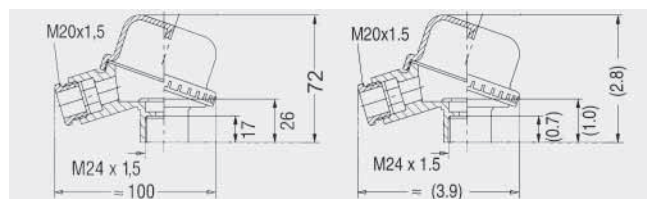
- Made of stainless steel, mat. No. 1.4571
- With threads at both ends
- For measuring insert tube with 6 mm (0.24 inch) OD

Dimensional drawings

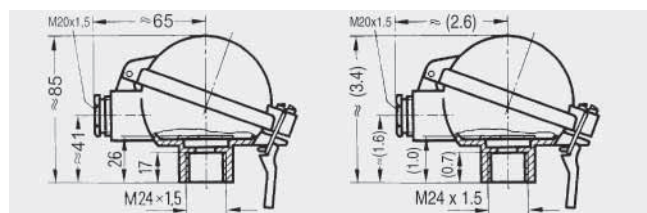
Connection heads for low and high-pressure resistance thermometers, flue gas and flange-type resistance thermometers



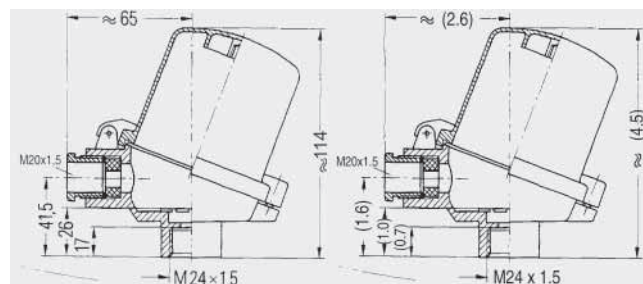
Connection head, form B, degree of protection IP54, made of cast light alloy, with screw cover, dimensions in mm (inches)



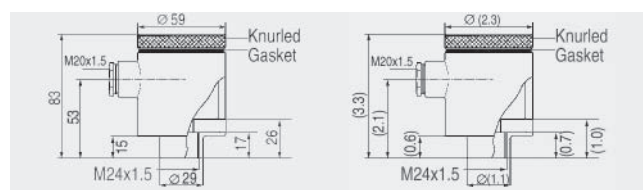
Connection head, form B, degree of protection IP54, made of plastic, with screw cover, dimensions in mm (inches)



Connection head, form B, degree of protection IP65, made of cast light alloy, with standard hinged cover, dimensions in mm (inches)



Connection head, form B, degree of protection IP65, made of cast light alloy, with high hinged cover, dimensions in mm (inches)



Connection head, form B-VA, degree of protection IP65, made of stainless steel, with screw cover, dimensions in mm (inches)

SITRANS T measuring instruments for temperature

Resistance thermometers

Accessories – Welding-type protective tubes, neck tubes and connection heads

3

Selection and Ordering data			Order No.
Welding protective tube for high-pressure resistance thermometers according to DIN 43767, without neck tube, without connection head tapered shank with cylindrical welding stub, for measuring insert tube with 6 mm (0.24 inch) OD; female thread M18 x 1.5 (including steel screw plug)			
Up to 540 °C (1004 °F) Protective tube to DIN 43772, form 4 made of 13 CrMo 44, mat. No. 1.7335			
Mounting length U mm (inch)	Protective tube length L mm (inch)	Weight mm (inch)	
• 65 (2.56)	140 (5.51)	0.3 (0.66)	7MC1905-1GA
• 65 (2.56)	200 (7.87)	0.5 (1.1)	7MC1905-2GA
• 125 (4.92)	200 (7.87)	0.5 (1.1)	7MC1905-3GA
• 125 (4.92)	260 (10.24)	0.6 (1.32)	7MC1905-4GA
Up to 550 °C (1022 °F) Protective tube to DIN 43772, form 4 made of 6 CrNiMoTi 17122, mat. No. 1.4571			
Mounting length U mm (inch)	Protective tube length L mm (inch)	Weight kg (lb)	
• 65 (2.56)	140 (5.51)	0.3 (0.66)	7MC1905-1DA
• 65 (2.56)	200 (7.87)	0.5 (1.1)	7MC1905-2DA
• 125 (4.92)	200 (7.87)	0.5 (1.1)	7MC1905-3DA
• 125 (4.92)	260 (10.24)	0.6 (1.32)	7MC1905-4DA

Selection and Ordering data			Order No.
Neck tube for high-pressure screw-in resistance thermometer made of stainless steel, mat. No. 1.4571, with thread at both ends, for measuring insert tube with 6 mm (0.24 inch) OD			
Neck tube length mm (inch)	Total length of the resistance thermometer, without connection head mm (inch)	Protective tube length mm (inch)	Weight kg (lb)
• 135 (5.31)	395 (15.55)	260 (10.24)	0.14 (0.31)
• 165 (6.50)	305/365 (12.01/14.37)	140/200 (5.51/7.87)	0.15 (0.33)
• 195 (7.68)	395 (15.55)	200 (7.87)	0.18 (0.40)
• 225 (8.86)	365 (14.37)	140 (5.51)	0.20 (0.44)
• 255 (10.04)	395 (15.55)	140 (5.51)	0.22 (0.49)
			7MC1906-1AA
			7MC1906-2AA
			7MC1906-3AA
			7MC1906-4AA
			7MC1906-5AA

Selection and Ordering data		Order No.
Connection heads for low-pressure, high-pressure, flue gas and flange-type resistance thermometers		
Connection head, form B, degree of protection IP54		
• made of cast light alloy, with screw cover and with 1 cable bushing, weight: 0.14 kg (0.31 lb)	7MC1907-1BA	
• made of plastic, with screw cover and with 1 cable bushing, weight: 0.08 kg (0.18 lb)	7MC1907-1BK	
Connection head, form B, degree of protection IP65 Weight: 0.3 kg (0.66 lb)		
• made of cast light alloy, with standard hinged cover and with 1 cable bushing	7MC1907-1BF	
• made of cast light alloy, with high hinged cover and with 1 cable bushing	7MC1907-1BL	
Connection head, form B-VA, degree of protection IP65		
• made of stainless steel, with screw cover and with 1 cable bushing, weight: 0.65 kg (1.43 lb)	7MC1907-1BV	
Accessories for connection head, form B, degree of protection IP65		
• Quick-release clamp (degree of protection of connection head reduced to IP54) Weight: 0.02 kg (0.04 lb)	7MC1907-1BS	

Connection heads with a drilled hole of 15.5 mm diameter (0.61 inch) instead of the female thread M24 x 1.5 on request.