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Thermocouples
Model Series TC7X0, Sheathed Design

Applications

- Suitable for all industrial and laboratory applications

Special Features

- Application ranges from 0 °C to +1200 °C
- Flexible stainless steel sheath, mineral insulated wire
- High mechanical strength, vibration proof
- Intrinsically safe versions (ATEX)

Sheathed Thermocouples, Model Series TC7X0

Description

With sheathed thermocouples, the flexible part of the probe is a mineral insulated cable, often called the sheathed cable. This cable consists of a stainless steel outer sheath, in which the inner conductors are encased for insulation and compressed into a highly compacted ceramic mass. The outer sheath is made of stainless steel or Ni-alloy (-with precious metal thermocouples it may also be platinum or a PtRh-alloy). The inner conductors are welded together at the measuring end of the sheathed cable to form the 'thermocouple'.

In designs where the measuring element is not insulated the sheath is also welded to the thermocouple. Connector cables are connected to the other end of the sheathed cable, and the sheathed cable is hermetically sealed with a sealing compound. The connector wires form the basis for the electrical interface, with cable, a connector or a terminal block then attached to these connector wires.

Due to their flexibility and the small diameters in which they are available, sheathed thermocouples can be used in locations that are not easily accessible.

Intrinsically safe designs are also available for applications in hazardous areas. The models in the TC7X0 series are provided with a type-examination certificate for "intrinsically safe" protection according to directive 94/9/EC (ATEX). Manufacturer's Declarations in accordance with EN 50 020 are also available.

Optionally analogue or digital transmitters from the WIKA range can be fitted into the connection head of the TC750 or TC760.

Sheathed Resistance Thermometers	*Model TR7X0*	*see data sheet TE 60.40*
Cable Resistance Thermometers	*Model TR101*	*see data sheet TE 60.05*
Cable Thermocouples	*Model TC101*	*see data sheet TE 65.05*

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Sensor

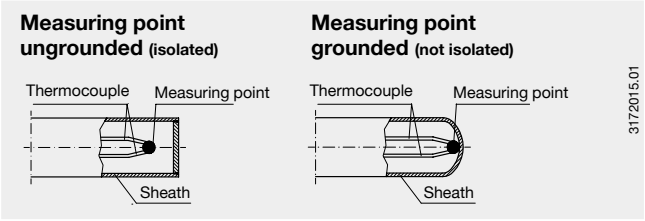
Sensor type

Type	Recommended max. operating temperature
K (NiCr-Ni)	1200 °C
J (Fe-CuNi)	800 °C
E (NiCr-CuNi)	800 °C
T (Cu-CuNi)	400 °C
N (NiCrSi-NiSi)	1200 °C

In the case of type K there is a risk of blue mould forming between 850 °C and 950 °C . We recommend the use of a type N sensor, if the working temperature might be continuously within this range.

The application range of these thermometers is limited by the max. permissible temperature of the thermocouple as well as the max. temperature of the thermowell material.

Sheathed thermocouples ≥ Ø 3 mm are also available as duplex thermocouples.
The measuring point (hot junction) of the probe is supplied as ungrounded unless specified otherwise.



Sensor limiting error

A cold junction temperature of 0 °C is taken as the basis for the definition of the sensor limiting error of thermocouples.

Type K

Class	Temperature range	Limiting error
DIN EN 60 584 part 2		
1	-40 °C ... +375 °C	± 1.5 °C
1	+375 °C ... +1000 °C	± 0.0040 • | t | [1]
2	-40 °C ... +333 °C	± 2.5 °C
2	+333 °C ... +1200 °C	± 0.0075 • | t | [1]
ISA (ANSI) MC96.1-1982		
Standard	0 °C ... +1250 °C	± 2.2 °C or [2] ± 0.75 %
Special	0 °C ... +1250 °C	± 1.1 °C or [2] ± 0.4 %

Type J

Class	Temperature range	Limiting error
DIN EN 60 584 part 2		
1	-40 °C ... +375 °C	± 1.5 °C
1	+375 °C ... +750 °C	± 0.0040 • | t | [1]
2	-40 °C ... +333 °C	± 2.5 °C
2	+333 °C ... +750 °C	± 0.0075 • | t | [1]
ISA (ANSI) MC96.1-1982		
Standard	0 °C ... +750 °C	± 2.2 °C or [2] ± 0.75 %
Special	0 °C ... +750 °C	± 1.1 °C or [2] ± 0.4 %

Type E

Class	Temperature range	Limiting error
DIN EN 60 584 part 2		
1	-40 °C ... +375 °C	± 1.5 °C
1	+375 °C ... +800 °C	± 0.0040 • | t | [1]
2	-40 °C ... +333 °C	± 2.5 °C
2	+333 °C ... +900 °C	± 0.0075 • | t | [1]

Type T

Class	Temperature range	Limiting error
DIN EN 60 584 part 2		
1	-40 °C ... +125 °C	± 0.5 °C
1	+125 °C ... +350 °C	± 0.0040 • | t | [1]
2	-40 °C ... +133 °C	± 1.0 °C
2	+133 °C ... +350 °C	± 0.0075 • | t | [1]

Type N

Class	Temperature range	Limiting error
DIN EN 60 584 part 2		
1	-40 °C ... +375 °C	± 1.5 °C
1	+375 °C ... +1000 °C	± 0.0040 • | t | [1]
2	-40 °C ... +333 °C	± 2.5 °C
2	+333 °C ... +1200 °C	± 0.0075 • | t | [1]

1) | t | is the value of the temperature in °C without consideration of the sign
2) Whichever is larger.

Limiting error with selected temperatures in °C for thermocouples type K and type J

Temperature (ITS 90) °C	Limiting error DIN EN 60 584 Class 1 °C	Class 2 °C
0	± 1.5	± 2.5
100	± 1.5	± 2.5
200	± 1.5	± 2.5
300	± 1.5	± 2.5
400	± 1.6	± 3
500	± 2	± 3.75
600	± 2.4	± 4.5
700	± 2.8	± 5.25
800	± 3.2	± 6
900	± 3.6	± 6.75
1000	± 4	± 7.5
1100	± 4.4	± 8.25
1200	± 4.8	± 9

Precious metal thermocouples Types R, S and B on request

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Designs

Depending on their type of electrical connection, sheathed thermocouples are subdivided into the following designs:

- Model TC720 with conductor wires
- Model TC730 with cable
- Model TC740 with connector
- Model TC750 with connection head
- Model TC760 with connection head and fixed process connection

Upon request custom designs for special requirements are also available.

Sheath

The sheath is flexible. The admissible bending radius is three or five times the value of the sheath diameter. These sheathed probes can be subjected to up to approx. 1200 °C.

Please note:
The flexibility of the sheathed thermocouple has to be taken into account, especially when the flow rates are relatively high. Versions in which the process connection is not located directly at the connection head - where a transmitter might be built-in - are to be considered critical in applications where vibratory stresses occur.

Sheath diameter
0.5 mm,
1.0 mm,
1.5 mm,
3.0 mm,
4.5 mm,
6.0 mm or
8.0 mm (with mounted tube),
other on request

Sheath material
- Ni-alloy 2.4816 (Inconel 600)

up to 1200 °C (air),
standard material for applications which require specific corrosion resistance properties under exposure to high temperatures, resistant to induced stress corrosion cracking and pitting in media containing chloride,
resistant to corrosion caused by aqueous ammonia in all temperatures and concentrations,
highly resistant to halogens, chlorine, hydrogen chloride

- stainless steel

up to 850 °C (air),
good corrosion resistance to aggressive media as well as steam and flue gases in chemical media

- other on request

Nominal length
Short probes with cable are available in a rigid design, e.g.: model TC 101 (nominal length max. 150 mm), see data sheet TE 65.05.

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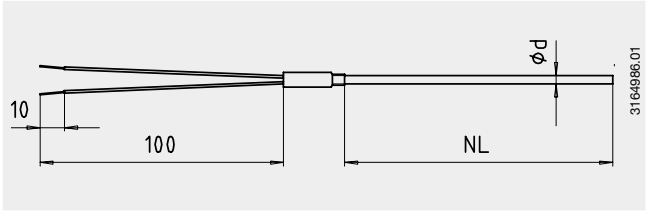
Product summary and dimensions in mm

TC720 with conductor wires

These models with conductor wires are intended for installation into existing housings. The flexible sheath is inserted into the housing to the actual measuring point.

Lead length 100 mm, other length on request,
Thermo wire Ø 0.5 mm,
type of compensating wire according to type of sensor,
PTFE insulated, number of conductor wire couples according to number of sensors,
bare wire ends, other versions on request



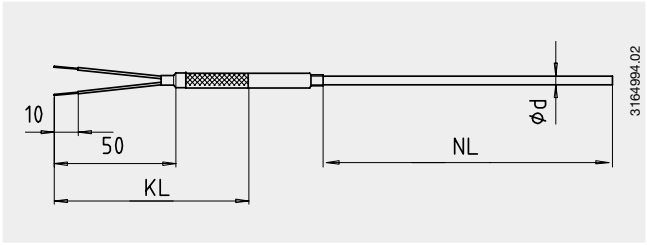
TC730 with cable

Cable and sheath are firmly connected to each other. Cable probes are easily replaceable and can be inserted or screwed into holes in machine parts without thermowells, for example. Usually these probes have no process connection as they are inserted into a hole.
Retention is by means of threads, union nuts etc. which are available from WIKA.

Cable length to customer specification
Compensating cable, lead 0,22 mm², type of compensating cable according to type of sensor, number of cores according to number of sensors, bare wire ends,
insulation (material / max. ambient temperature):

PVC	105 °C
Silicon	200 °C
PTFE	250 °C
glass filament	400 °C

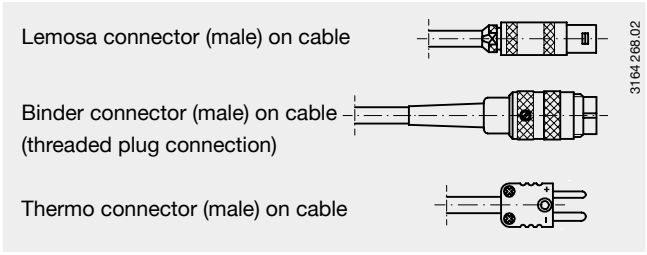
other versions on request



Optional: connector (male) fitted to cable end

- Lemosa size 1 S for cable diameters up to 5.5 mm
- Lemosa size 2 S for cable diameters up to 8 mm
- Binder connector
- Thermo connector

max. temperature at connector 85 °C,
mating connectors are available,
other versions on request

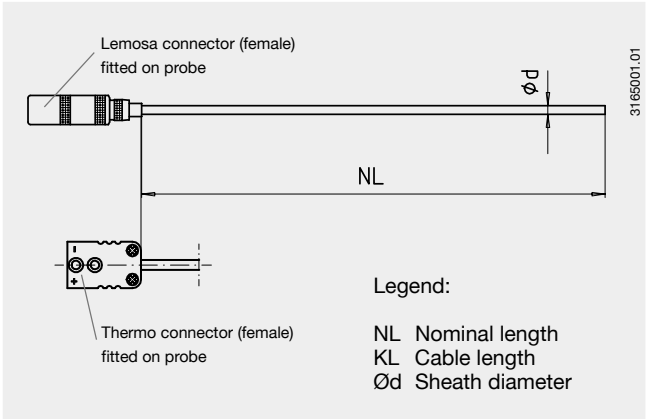


TC740 with connector (female) fitted on probe

Designs with connector are used in cases where the electrical connection to the probe has to be easily made and unmade via a plug.
Connector:

- Lemosa size 1 S for sheath diameters 2, 3 and 6 mm
- Lemosa size 2 S for sheath diameters 3 and 6 mm
- Thermo connector

max. temperature at connector 85 °C (special versions up to max. 250 °C),
mating connectors are available,
other versions on request
Otherwise same as model TC730.



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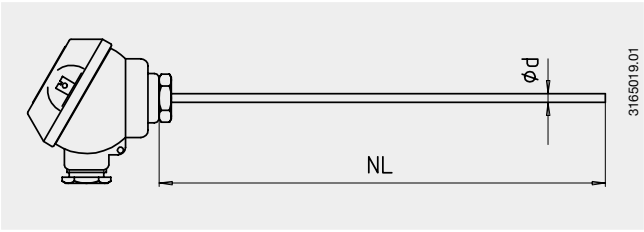
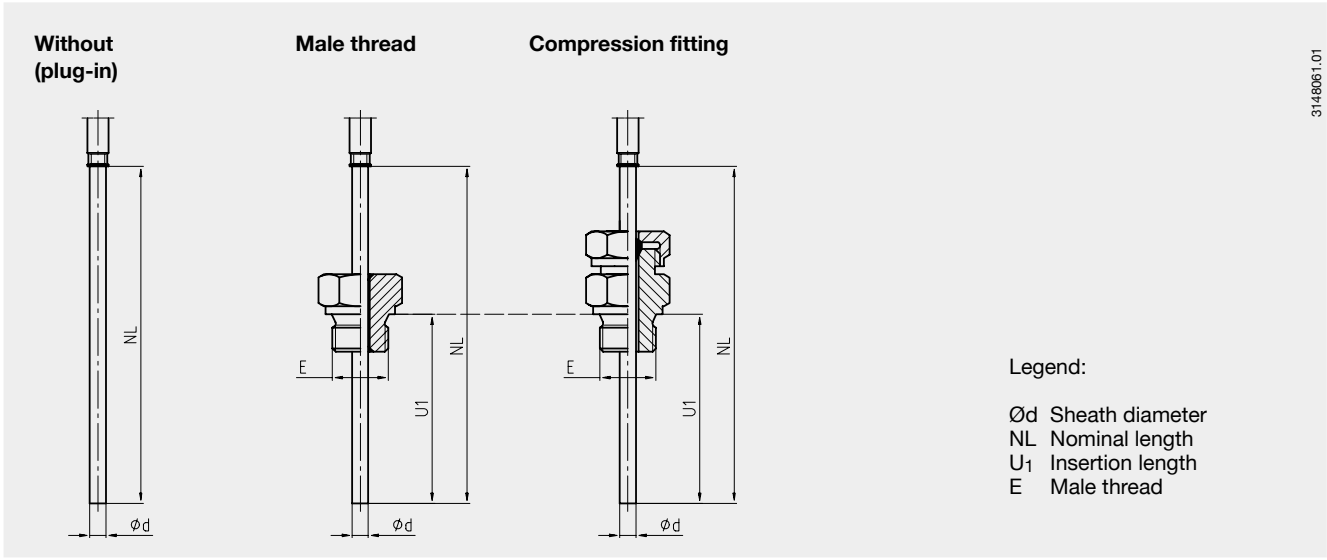
TC750 with connection head

The electrical connection is provided by a connection head.
Connection head: Model JS, JVA or BS
Description of connection heads see page 7, top

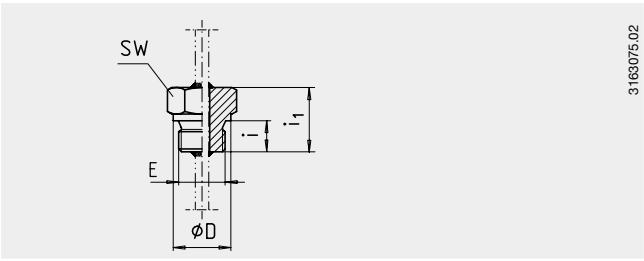


Process connections of Models TC720, TC730, TC740 and TC750



Male thread

Firmly connected to the sheath
Insertion length U_1: to customer specification
Max. insertion length: nominal length minus approx. 20 mm (Model TC750: nominal length minus approx. 25 mm)
Material: stainless steel, other on request

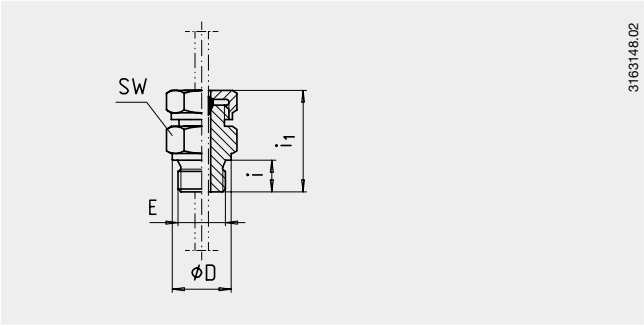


Compression fitting

Allows simple adaptation to the required insertion length at the installation point
Max. insertion length: nominal length minus approx. 25 mm (Model TC750: nominal length minus approx. 30 mm)
Material: stainless steel
Sealing ring material: stainless steel or PTFE

Sealing rings of stainless steel can be adjusted once, after unscrewing, sliding along the sheath is no longer possible.
- Max. temperature at process connection 500 °C

Sealing rings of PTFE can be adjusted several times, after unscrewing, repeated sliding along the sheath is still possible.
- Max. temperature at process connection 150 °C



For sheathed thermocouples with Ø 2 mm only PTFE sealing rings are permissible.

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Dimensions of process connections Model TC720, TC730, TC740 and TC750

Process connection	Male thread E	Sheath in mm Ød	Dimensions in mm i	 i_1	 ØD	 SW (flats)
Male thread	G ½ B	3, 4.5, 6 or 8 [1]	14	29	26	27
	G ¼ B	3, 4.5 or 6	12	24	18	19
	M 8 x 1,0	1.0, 1.5, 3 or 4.5	8	14	12	12
Compression fitting	G ½ B	3, 4.5, 6 or 8	14	34	26	27
	G ¼ B	3, 4.5 or 6	12	32	18	19
	M 8 x 1,0 [2]	1.5 or 3	8	27	12	12

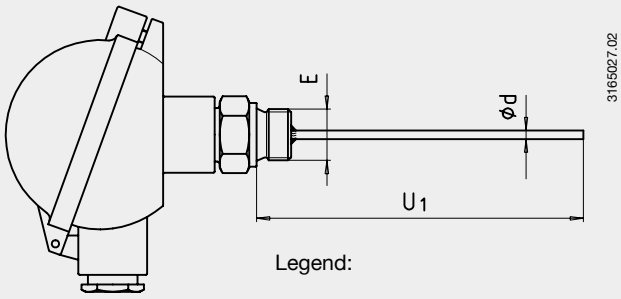
1) With Ød = 8 mm sheath diameter 6 mm with mounted tube is used
2) Sealing ring: PTFE

TC760 with connection head and fixed process connection

This design is characterised by a fixed process connection (male thread) with a welded-in sheathed probe.
Therefore, in this case the insertion length is of importance in lieu of the nominal length for variable insertion dimensions. The male thread is usually positioned directly at the connection head.
Insertion length: to customer specification
Material: Ni alloy 2.4816 (Inconel 600)
stainless steel,
other on request
Permissible ambient temperature at the connection head:
120 °C for designs without transmitter,
85 °C for designs with transmitter

Description of connection heads see page 7, top

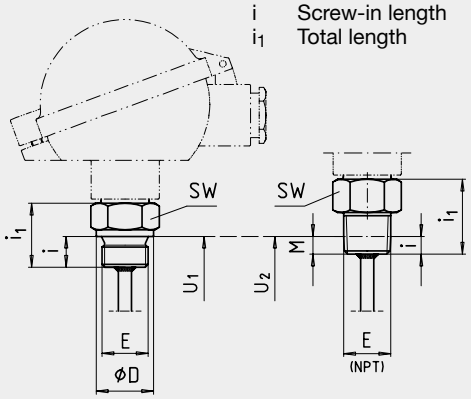
Option
Built-in transmitter, see page 7



Legend:

Ød Sheath diameter
U_1/U_2 Insertion length
E Male thread
ØD Diameter of the sealing collar
M Screw-in length, theoretically (by hand, with ½ NPT approx. 8.1 mm)
SW Flats
i Screw-in length
i_1 Total length

Male thread



Dimensions of process connections Model TC760

Process connection	Male thread E	Sheath in mm Ød	Dimensions in mm i	 i_1	 ØD	 SW (flats)
Male thread	G ¼ B	3, 4.5 or 6	12	24	18	19
	G ½ B	3, 4.5, 6 or 8 [1]	14	29	26	27
	½ NPT	3, 4.5, 6 or 8 [1]	ca. 8.1	34	–	22
	M 20 x 1.5	3, 4.5, 6 or 8 [1]	14	29	25	27

1) With Ød = 8 mm sheath diameter 6 mm with mounted tube is used

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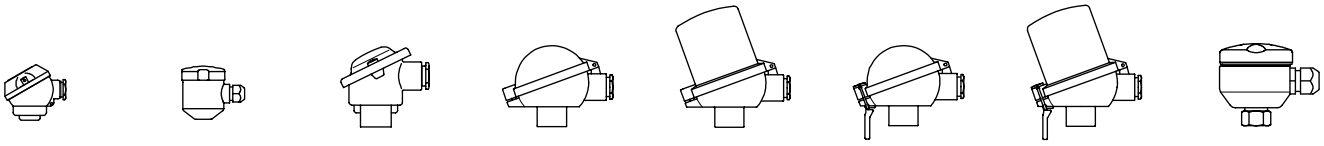
Connection head



JS | JVA | BS | BSZ, BSZ-K | BSZ-H, BSZ-HK | BSS | BSS-H | BVA

Model	Material	Cable entry	Ingress protection	Cap	Surface finish
JS	aluminium	M16 x 1.5	IP65	cap with 2 screws	silver bronze, painted
JVA	stainless steel	M12 x 1.5 1)	IP65	screw cover	blank
BS	aluminium	M20 x 1.5	IP65	cap with 2 screws	silver bronze, painted
BSZ	aluminium	M20 x 1.5	IP65	flap cap with screw	silver bronze, painted
BSZ-K	plastic	M20 x 1.5	IP65	flap cap with screw	blank
BSZ-H	aluminium	M20 x 1.5	IP65	flap cap with screw	silver bronze, painted
BSZ-HK	plastic	M20 x 1.5	IP65	flap cap with screw	blank
BSS	aluminium	M20 x 1.5	IP65	flap cap with clip	silver bronze, painted
BSS-H	aluminium	M20 x 1.5	IP65	flap cap with clip	silver bronze, painted
BVA	stainless steel	M20 x 1.5 1)	IP65	screw cover	blank

1) Cable gland, metal

Connection head with digital indicator (option)

(only Model TC760)

As an optional alternative to the standard connection head the thermometer may be equipped with the digital indicator DIH10. The connection head used in this case is similar to the head model BSZ-H. For operation a 4 ... 20 mA transmitter is necessary, which is mounted to the measuring insert. The scale range of the indicator is configured to the same measuring range as the transmitter.
Intrinsically safe versions, explosion protection type EEx (i), are also available.

Fig. Connection head with digital indicator, Model DIH10

Transmitter (option)

(not possible with connection head Model JS and JVA)

With model TC750 and model TC760 a transmitter can be mounted directly into the connection head form B.
Generally two mounting variants are possible:

- o mounted instead of terminal block
- ● mounted within the cap of the connection head
- – mounting not possible

Mounting of two transmitters on request.

Connection head	Transmitter T12	T19	T32	T42	T5350
BS	–	o	–	–	o
BSZ / BSZ-K	o	o	o	o	o
BSZ-H / BSZ-HK	●	●	●	●	●
BSS	o	o	o	o	o
BSS-H	●	●	●	●	●
BVA	o	o	o	o	o

Model	Description	Explosion protection	Data sheet
T19	Analogue transmitter, configurable	without	TE 19.01
T12	Digital transmitter, PC configurable	optional	TE 12.01
T32	Digital transmitter, HART protocol	optional	TE 32.01
T42	Digital transmitter, PROFIBUS PA	optional	TE 42.01
T5350	Digital transmitter FOUNDATION Fieldbus and PROFIBUS PA	standard	TE 53.01

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Explosion protection (option)

Thermocouples of the Model series TC7X0 are available with a type-examination certificate for "intrinsically safe" ignition protection (TÜV 02 ATEX 1793 X). These thermometers comply with the requirements of directive 94/9/EC (ATEX), EEx-i, for gases and dust.
Manufacturer's Declarations in accordance with EN 50 020 are also available.

The classification / suitability of the instrument (permissible power $P_{max.}$, minimum neck length and permissible ambient temperature) for the respective category can be seen on the type-examination certificate and in the operating instructions.

The responsibility for using suitable thermowells rests with the user.
The permissible ambient temperature ranges of the built-in transmitters can be taken from the corresponding transmitter approval.

Note:
When mounting thermometers with flying leads, the mounting personnel must ensure that the connection is carried out properly and in compliance with the appropriate regulations.
When the flying leads of the thermometer are within the hazardous area, suitable adapters / connectors are to be used.

Flying leads are to be connected outside of the hazardous area or, when operated in explosive atmospheres caused by dust, within a case which is certified according to the 94/9/EC and EN 50 281-1-1 directives and provides an ingress protection of at least IP 65. A minimum air and creepage distance of 2 mm has to be ensured.

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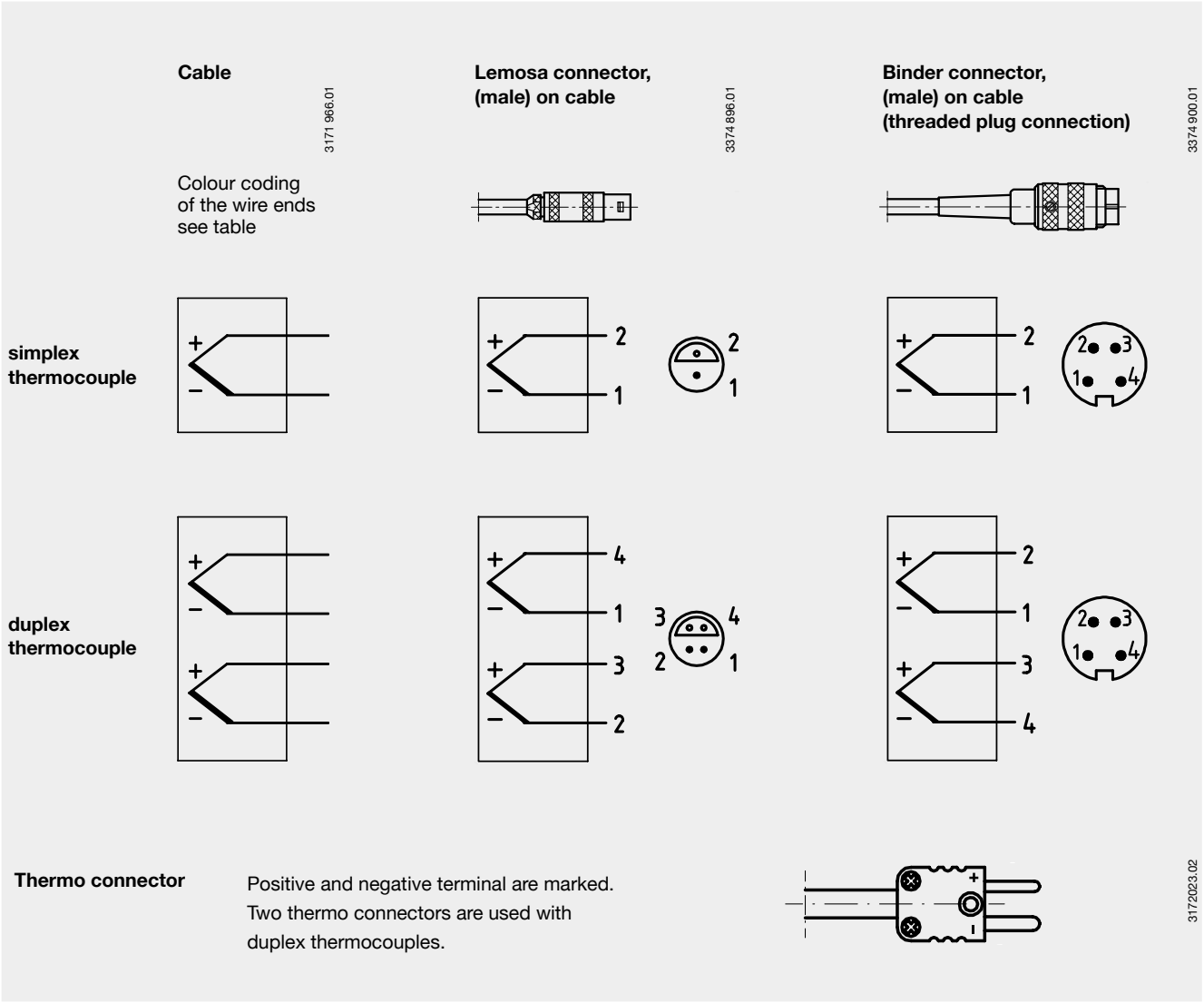
Electrical connection Models TC720, TC730 and TC740

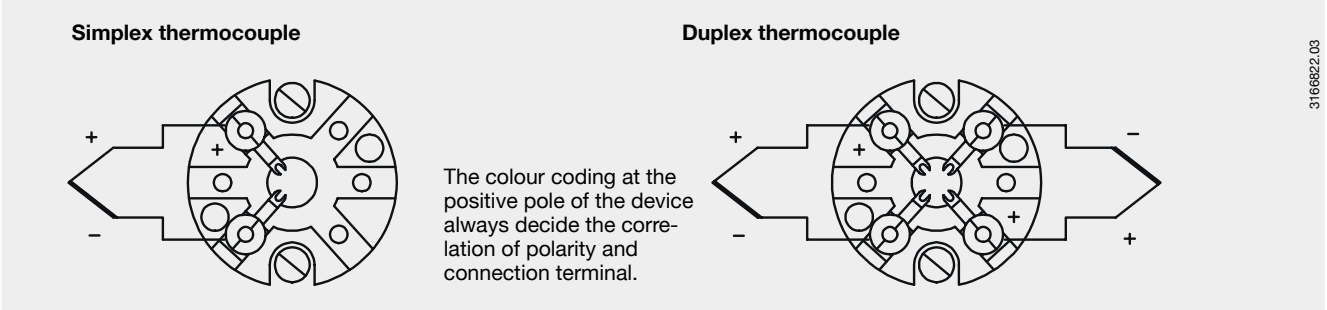


Other connector plugs and other PIN assignments on request

Colour code of cable

Type of sensor	Standard	Positive terminal	Negative terminal
K	DIN EN 60 584	green	white
J	DIN EN 60 584	black	white
E	DIN EN 60 584	violet	white
T	DIN EN 60 584	brown	white
N	DIN EN 60 584	pink	white

Electrical connection Models TC750 and TC760



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Ordering information, Model TC720

Field No.		Code	Features	
			Explosion protection	
		Z	without	
		Y	according to directive 94/9/EC (ATEX) EEx-i G for gases [1]	
1		H	according to directive 94/9/EC (ATEX) EEx-i GD for gases and dust [1]	
			Type and number of sensors	
		A	1 x type K (NiCr-Ni)	
		B	2 x type K (NiCr-Ni)	
		C	1 x type J (Fe-CuNi)	
		D	2 x type J (Fe-CuNi)	
2		?	other	*please state as additional text*
			Sensor limiting error	
		2	class 2 per DIN EN 60 584	
		1	class 1 per DIN EN 60 584	
		8	ISA (ANSI) standard to MC96.1-1982	
		9	ISA (ANSI) special to MC96.1-1982	
3		?	other	*please state as additional text*
			Measuring point	
		1	insulated	
4		2	not insulated	*explosion protection on inquiry*
			Process connection	
		ZZ	without	
		GD	G 1/2 B	
		GB	G 1/4 B	
		MA	M 8 x 1.0	
5		??	other	*please state as additional text*
			Design of process connection	
		Z	without	
		1	compression fitting stainless steel, sealing ring PTFE	
		2	compression fitting stainless steel, sealing ring stainless steel	*not with sheath diameter 0.5, 1.0 and 1.5 mm*
		G	male thread	
6		?	other	*please state as additional text*
			Sheath material	
		A	Ni alloy 2.4816 (Inconel 600)	*not with sensor type J*
		T	stainless steel	
7		?	other	*please state as additional text*
			Sheath diameter	
		1	0.5 mm, simplex sensor	*only without explosion protection*
		2	1.0 mm, simplex sensor	*only without explosion protection*
		3	1.5 mm, simplex sensor	*only without explosion protection*
		4	3.0 mm	
		5	4.5 mm	
		6	6.0 mm	
		7	8.0 mm	
8		?	other	*please state as additional text*
			Nominal length	
			length in mm, e.g. 0850 for 850 mm	
9		????	longer than 9999 mm	*please state as additional text*
			Conductor	
		3	Thermo wire, diameter 0.5 mm	
10		?	other conductor wire	*please state as additional text*
			Lead length	
		100	100 mm	
			length in mm, e.g. 080 for 80 mm	
11		???	longer than 999 mm	*please state as additional text*

		Additional order info			
		YES	NO		
12		T	Z	quality certificates	*see price list*
13		T	Z	additional text	*Please state as clearly understandable text!*

1) Please observe the operating instructions and the type-examination certificate.

Order code:

	1		2	3	4		5		6	7	8		9		10		11		12	13
TC720 -		-				-		-										-		

Additional text: _____

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Ordering information, Model TC730

Field No.		Code	Features	
			Explosion protection	
		Z	without	
		Y	according to directive 94/9/EC (ATEX) EEx-i G for gases [1]	
1		H	according to directive 94/9/EC (ATEX) EEx-i GD for gases and dust [1]	
			Type and number of sensors	
		A	1 x type K (NiCr-Ni)	
		B	2 x type K (NiCr-Ni)	
		C	1 x type J (Fe-CuNi)	
		D	2 x type J (Fe-CuNi)	
2		?	other	*please state as additional text*
			Sensor limiting error	
		2	class 2 per DIN EN 60 584	
		1	class 1 per DIN EN 60 584	
		8	ISA (ANSI) standard to MC96.1-1982	
		9	ISA (ANSI) special to MC96.1-1982	
3		?	other	*please state as additional text*
			Measuring point	
		1	insulated	
4		2	not insulated	*explosion protection on inquiry*
			Process connection	
		ZZ	without	
		GD	G 1/2 B	
		GB	G 1/4 B	
		MA	M 8 x 1.0	
5		??	other	*please state as additional text*
			Design of process connection	
		Z	without	
		1	compression fitting stainless steel, sealing ring PTFE	
		2	compression fitting stainless steel, sealing ring stainless steel	*not with sheath diameter 0.5, 1.0 and 1.5 mm*
		G	male thread	
6		?	other	*please state as additional text*
			Sheath material	
		A	Ni alloy 2.4816 (Inconel 600)	*not with sensor type J*
		T	stainless steel	
7		?	other	*please state as additional text*
			Sheath diameter	
		1	0.5 mm, simplex sensor	*only without explosion protection*
		2	1.0 mm, simplex sensor	*only without explosion protection*
		3	1.5 mm, simplex sensor	*only without explosion protection*
		4	3.0 mm	
		5	4.5 mm	
		6	6.0 mm	
		7	8.0 mm	
8		?	other	*please state as additional text*
			Nominal length	
			length in mm, e.g. 0850 for 850 mm	
9		????	longer than 9999 mm	*please state as additional text*
			Cable	
		P	PVC, max. temperature at the cable connection 100 °C	
		S	Silicon, max. temperature at the cable connection 100 °C	
		T	PTFE, max. temperature at the cable connection 100 °C	
		G	glass filament, max. temperature at the cable connection 100 °C	
10		?	other	*please state as additional text*
			Cable length	
			length in mm, e.g. 0850 for 850 mm	
11		????	longer than 9999 mm	*please state as additional text*
			Connector, fitted on cable	
		Z	without	
		6	Lemosa size 1 S (male), max. temperature at connector 85 °C	
		7	Lemosa size 2 S (male), max. temperature at connector 85 °C	
		8	Binder connector (male, threaded/plug connection), max. temperature at connector 85 °C	
12		?	other	*please state as additional text*

		Additional order info			
		YES	NO		
13		T	Z	quality certificates	*see price list*
14		T	Z	additional text	*Please state as clearly understandable text!*

1) Please observe the operating instructions and the type-examination certificate.

Order code:

	1		2	3	4		5		6	7	8		9		10		11		12		13	14
TC730 -		-				-		-												-		

Additional text: _____

OBSOLETE

Ordering information, Model TC740

Field No.		Code	Features	
			Explosion protection	
		Z	without	
		Y	according to directive 94/9/EC (ATEX) EEx-i G for gases [1]	
1		**H**	according to directive 94/9/EC (ATEX) EEx-i GD for gases and dust [1]	
			Type and number of sensors	
		A	1 x type K (NiCr-Ni)	
		B	2 x type K (NiCr-Ni)	
		C	1 x type J (Fe-CuNi)	
		D	2 x type J (Fe-CuNi)	
2		**?**	other	*please state as additional text*
			Sensor limiting error	
		2	class 2 per DIN EN 60 584	
		1	class 1 per DIN EN 60 584	
		8	ISA (ANSI) standard to MC96.1-1982	
		9	ISA (ANSI) special to MC96.1-1982	
3		**?**	other	*please state as additional text*
			Measuring point	
		1	insulated	
4		**2**	not insulated	*explosion protection on inquiry*
			Process connection	
		ZZ	without	
		GD	G 1/2 B	
		GB	G 1/4 B	
		MA	M 8 x 1.0	
5		**??**	other	*please state as additional text*
			Design of process connection	
		Z	without	
		1	compression fitting stainless steel, sealing ring PTFE	
		2	compression fitting stainless steel, sealing ring stainless steel	*not with sheath diameter 0.5, 1.0 and 1.5 mm*
		G	male thread	
6		**?**	other	*please state as additional text*
			Sheath material	
		A	Ni alloy 2.4816 (Inconel 600)	*not with sensor type J*
		T	stainless steel	
7		**?**	other	*please state as additional text*
			Sheath diameter	
		1	0.5 mm, simplex sensor	*only without explosion protection*
		2	1.0 mm, simplex sensor	*only without explosion protection*
		3	1.5 mm, simplex sensor	*only without explosion protection*
		4	3.0 mm	
		5	4.5 mm	
		6	6.0 mm	
		7	8.0 mm	
8		**?**	other	*please state as additional text*
			Nominal length	
			length in mm, e.g. 0850 for 850 mm	
9		**????**	longer than 9999 mm	*please state as additional text*
			Connector	
		1	Lemosa size 1 S (female), max. temperature at connector 85 °C	
		2	Lemosa size 2 S (female), max. temperature at connector 85 °C	
		8	Thermo connector (female), max. temperature at connector 85 °C	
10		**?**	other	*please state as additional text*

		Additional order info			
		YES	**NO**		
11		**T**	**Z**	quality certificates	*see price list*
12		**T**	**Z**	additional text	*Please state as clearly understandable text!*

1) Please observe the operating instructions and the type-examination certificate.

Order code:

	1	2	3	4		5		6	7	8		9		10		11	12
TC740	-				-		-				-				-		

Additional text: _____

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OBSOLETE

Ordering information, Model TC750

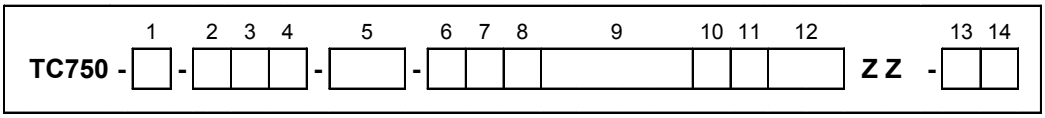
Field No.		Code	Features	
			Explosion protection	
		Z	without	
		Y	according to directive 94/9/EC (ATEX) EEx-i G for gases [1]	
1		H	according to directive 94/9/EC (ATEX) EEx-i GD for gases and dust [1]	
			Type and number of sensors	
		A	1 x type K (NiCr-Ni)	
		B	2 x type K (NiCr-Ni)	
		C	1 x type J (Fe-CuNi)	
		D	2 x type J (Fe-CuNi)	
2		?	other	*please state as additional text*
			Sensor limiting error	
		2	class 2 per DIN EN 60 584	
		1	class 1 per DIN EN 60 584	
		8	ISA (ANSI) standard to MC96.1-1982	
		9	ISA (ANSI) special to MC96.1-1982	
3		?	other	*please state as additional text*
			Measuring point	
		1	insulated	
4		2	not insulated	*explosion protection on inquiry*
			Process connection	
		ZZ	without	
		GD	G 1/2 B	
		GB	G 1/4 B	
		MA	M 8 x 1.0	
5		??	other	*please state as additional text*
			Design of process connection	
		Z	without	
		1	compression fitting stainless steel, sealing ring PTFE	
		2	compression fitting stainless steel, sealing ring stainless steel	*not with sheath diameter 0.5, 1.0 and 1.5 mm*
		G	male thread	
6		?	other	*please state as additional text*
			Sheath material	
		A	Ni alloy 2.4816 (Inconel 600)	*not with sensor type J*
		T	stainless steel	
7		?	other	*please state as additional text*
			Sheath diameter	
		4	3.0 mm	
		5	4.5 mm	
		6	6.0 mm	
		7	8.0 mm	
8		?	other	*please state as additional text*
			Nominal length	
			length in mm, e.g. 0850 for 850 mm	
9		????	longer than 9999 mm	*please state as additional text*
			Connection head	
		9	JS (aluminium)	*only without explosion protection for dusts, transmitter installation not possible*
		1	BS (aluminium)	
		V	JVA (stainless steel)	*transmitter installation not possible*
10		?	other	*please state as additional text*
			Cable entry to connection head	
		5	M16 x 1.5	*connection head JS*
		4	M20 x 1.5	*connection head BS*
		7	M12 x 1.5	*connection head JVA*
11		?	other	*please state as additional text*
			Transmitter	
		ZZ	without	
12		TA	mounted on the measuring insert	

		Additional order info			
		YES	NO		
13		T	Z	quality certificates	*see price list*
14		T	Z	additional text	*Please state as clearly understandable text!*

1) Please observe the operating instructions and the type-examination certificate.

OBSOLETE

Order code:



Additional text: _____

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OBSOLETE

Ordering information, Model TC760

Field No.		Code	Features	
			Explosion protection	
		Z	without	
		Y	according to directive 94/9/EC (ATEX) EEx-i G for gases [1]	
1		H	according to directive 94/9/EC (ATEX) EEx-i GD for gases and dust [1]	
			Type and number of sensors	
		A	1 x type K (NiCr-Ni)	
		B	2 x type K (NiCr-Ni) [2]	
		C	1 x type J (Fe-CuNi)	
		D	2 x type J (Fe-CuNi) [2]	
2		?	other	*please state as additional text*
			Sensor limiting error	
		2	class 2 per DIN EN 60 584	
		1	class 1 per DIN EN 60 584	
		8	ISA (ANSI) standard to MC96.1-1982	
		9	ISA (ANSI) special to MC96.1-1982	
3		?	other	*please state as additional text*
			Measuring point	
		1	insulated	
4		2	not insulated	*explosion protection on inquiry*
			Process connection	
		GD	G 1/2 B	
		GB	G 1/4 B	
		ND	½ NPT	
		MI	M 20 x 1.5	
5		??	other	*please state as additional text*
			Sheath material	
		A	Ni alloy 2.4816 (Inconel 600)	*not with sensor type J*
		T	stainless steel	
6		?	other	*please state as additional text*
			Sheath diameter	
		4	3.0 mm	
		5	4.5 mm	
		6	6.0 mm	
		7	8.0 mm	
7		?	other	*please state as additional text*
			Nominal length	
			length in mm, e.g. 0850 for 850 mm	
8		????	longer than 9999 mm	*please state as additional text*
			Connection head	
		1	BS (aluminium)	*only transmitter T19 as option possible*
		2	BSZ (aluminium)	
		3	BSZ-H (aluminium)	*mounting of an optional transmitter in the cap possible*
		T	BSZ-K (plastic)	
		S	BSZ-HK (plastic)	*mounting of an optional transmitter in the cap possible*
		4	BSS (aluminium)	
		5	BSS-H (aluminium)	*mounting of an optional transmitter in the cap possible*
		H	BSZ-H with digital temperature indicator DIH10 (set to transmitter range)	*only without explosion protection, for use a transmitter (4...20 mA) is required*
		J	BSZ-H with digital temperature indicator DIH10-Ex (set to transmitter range)	*an Ex-certified transmitter (4...20 mA) is required*
		9	JS (aluminium)	*only without explosion protection for dusts, transmitter installation not possible*
		V	JVA (stainless steel)	*transmitter installation not possible*
9		?	other	*please state as additional text*
			Cable entry to connection head	
		4	M20 x 1.5	*connection heads form B*
		5	M16 x 1.5	*connection head JS*
		7	M12 x 1.5	*connection head JVA*
10		?	other	*please state as additional text*
			Transmitter	
		ZZ	without	
		TA	mounted on the measuring insert	
11		TB	mounted in the cup of the connection head	

OBSOLETE

Field No.		Code	Features	
		Additional order info		
		YES	**NO**	
12		**T**	**Z**	quality certificates *see price list*
13		**T**	**Z**	additional text *Please state as clearly understandable text!*

1) Please observe the operating instructions and the type-examination certificate.
2) Duplex thermocouple in combination with 2 transmitters on request.

Order code:

	1	2	3	4		5		6	7	8	9	10	11		12	13
TC760	-	-			-		-	**G**						**Z Z**	-	

Additional text: _____

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