

Resistance thermometers and thermocouples, models TRxx, TCxx EN

Widerstandsthermometer und Thermoelemente, Typen TRxx, TCxx DE

Sondes à résistance et thermocouples, types TRxx, TCxx FR

Termorresistencias y termopares, modelos TRxx, TCxx ES



Examples/Beispiele/Exemples/Ejemplos

EN	Operating instructions models TRxx and TCxx	Page	3 - 30
DE	Betriebsanleitung Typen TRxx und TCxx	Seite	31 - 58
FR	Mode d'emploi types TRxx et TCxx	Page	59 - 84
ES	Manual de instrucciones modelos TRxx y TCxx	Página	85 - 110

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WIKA® ist eine geschützte Marke in verschiedenen Ländern.

Prior to starting any work, read the operating instructions!
Keep for later use!

Vor Beginn aller Arbeiten Betriebsanleitung lesen!
Zum späteren Gebrauch aufbewahren!

Lire le mode d'emploi avant de commencer toute opération !
A conserver pour une utilisation ultérieure !

¡Leer el manual de instrucciones antes de comenzar cualquier trabajo!
¡Guardar el manual para una eventual consulta!

Contents

1. General information	4
2. Design and function	4
3. Safety	5
4. Transport, packaging and storage	9
5. Commissioning, operation	10
6. Additional notes for instruments with EHEDG and 3-A	22
7. Faults	23
8. Maintenance, cleaning and calibration	24
9. Dismounting, return and disposal	26
10. Specifications	28
11. Accessories	29

Models concerned:

- ▶ These operating instructions are valid for a whole range of products. For a detailed listing of these models see chapter 10 "Specifications" (page 28).

EN

1. General information

- The thermometers described in the operating instructions have been manufactured using state-of-the-art technology.
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.
- Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.
- Subject to technical modifications.
- Further information:
 - Internet address: www.wika.de / www.wika.com
 - Relevant data sheet: see chapter 10 "Specifications"
 - Application consultant: Tel.: +49 9372 132-0
Fax: +49 9372 132-406
info@wika.de

2. Design and function

2.1 Description

These resistance thermometers and thermocouples are used for temperature measurement in industrial applications.

This document describes instruments in standard version. For applications in hazardous areas special instrument versions are required.

For further information for operation in hazardous areas, see the additional information for the corresponding ignition protection type (separate document).

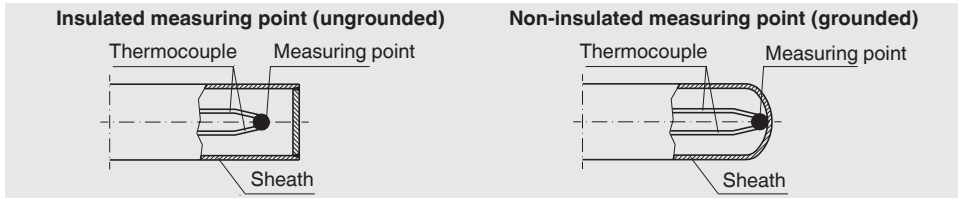
The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

Measuring point ungrounded

The model TRxx or model TCxx thermometers consist of a welded tube, a mineral-insulated sheathed cable or ceramic-insulated thermocouple wires in which the temperature sensor is located. This is embedded in a ceramic powder, a temperature-resistant sealing compound, cement compound or a heat transfer paste.

Thermocouples, non-insulated (grounded)

For special applications, for example surface temperature measurements, the sensors are in direct contact with the protective sleeve, or the measuring points of thermocouples are welded to the bottom.



Electrical connection

In terms of connection, the thermometer has a case and a plug or bare wire ends. The case design will contain the connection terminals or certified transmitters. Optionally, separately certified digital displays can be built into the cases.

2.2 Scope of delivery

Cross-check scope of delivery with delivery note.

3. Safety

3.1 Explanation of symbols



WARNING!

... indicates a potentially dangerous situation that can result in serious injury or death, if not avoided.



CAUTION!

... indicates a potentially dangerous situation that can result in light injuries or damage to equipment or the environment, if not avoided.



WARNING!

... indicates a potentially dangerous situation that can result in burns, caused by hot surfaces or liquids, if not avoided.



Information

... points out useful tips, recommendations and information for efficient and trouble-free operation.

3.2 Intended use

The thermometers described here are suitable for temperature measurement in industrial applications.

Depending on design, these thermometers can be mounted directly into the process or within a thermowell. The designs of the thermowells can be selected as desired, but the operational process data (temperature, pressure, density and flow rate) must be taken into account.

Neither repairs nor structural modifications are permitted, and any would void the guarantee and the respective certification. The manufacturer shall not be responsible for constructional modifications after delivery of the instruments.

The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

The technical specifications contained in these operating instructions must be observed.

The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.

3.3 Responsibility of the operator

The system operator is responsible for selecting the thermometer or thermowell, and for the selection of their materials, so as to guarantee their safe operation within the plant or machine. When preparing a quote, WIKA can only give recommendations which are based on our experience in similar applications.

The safety instructions within these operating instructions, as well as the safety, accident prevention and environmental protection regulations for the application area must be maintained.

The operator is obliged to maintain the product label in a legible condition.

3.4 Personnel qualification



WARNING!

Risk of injury should qualification be insufficient

Improper handling can result in considerable injury and damage to equipment.

- ▶ The activities described in these operating instructions may only be carried out by skilled electrical personnel who have the qualifications described below.

Skilled electrical personnel

Skilled electrical personnel are understood to be personnel who, based on their technical training, know-how and experience as well as their knowledge of country-specific regulations, current standards and directives, are capable of carrying out work on electrical systems and independently recognising and avoiding potential hazards. The skilled electrical personnel have been specifically trained for the work environment they are working in and know the relevant standards and regulations. The skilled electrical personnel must comply with current legal accident prevention regulations.

Operating personnel

The personnel trained by the operator are understood to be personnel who, based on their education, knowledge and experience, are capable of carrying out the work described and independently recognising potential hazards.

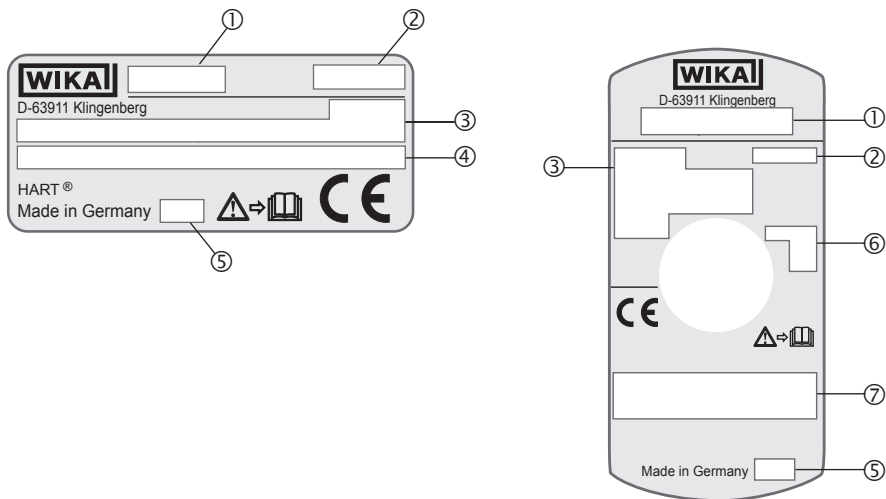
Special operating conditions require further appropriate knowledge, e.g. of aggressive media.

3. Safety

3.5 Labelling, safety marks

Product labels (examples)

EN



- ① Model
- ② Serial number
- ③ Information on version (measuring element, measuring range...)




Sensor in accordance with standard (resistance thermometer)

- F = Thin-film measuring resistor
- FT = Thin-film measuring resistor, sensitive tip
- W = Wire-wound measuring resistor

Sensor in accordance with standard (thermocouple)

- ungrounded
- grounded

- ④ Transmitter model (only for design with transmitter)
- ⑤ Year of manufacture
- ⑥ Sensor symbol

- ungrounded  = ungrounded welded
- grounded  = welded to the sheath (grounded)
- quasi grounded  = The thermometer is, due to its low isolation clearances between sensor and sheath, to be considered as grounded.

- ⑦ Approval-related data (non-Ex version = no specification)



Before mounting and commissioning the instrument, ensure you read the operating instructions!

4. Transport, packaging and storage

4.1 Transport

Check the instrument for any damage that may have been caused by transport. Obvious damage must be reported immediately.



CAUTION!

Damage through improper transport

With improper transport, a high level of damage to property can occur.

- ▶ When unloading packed goods upon delivery as well as during internal transport, proceed carefully and observe the symbols on the packaging.
- ▶ With internal transport, observe the instructions in chapter 4.2 "Packaging and storage".

If the instrument is transported from a cold into a warm environment, the formation of condensation may result in instrument malfunction. Before putting it back into operation, wait for the instrument temperature and the room temperature to equalise.

4.2 Packaging and storage

Do not remove packaging until just before mounting.

Permissible conditions at the place of storage:

Storage temperature:

Instruments **without** built-in transmitter: -40 ... +80 °C

Instruments **with** built-in transmitter: see operating instructions of the transmitter in question

Avoid exposure to the following factors:

- Direct sunlight or proximity to hot objects
- Mechanical vibration, mechanical shock (putting it down hard)
- Soot, vapour, dust and corrosive gases
- Hazardous environments, flammable atmospheres

Store the instrument in its original packaging in a location that fulfils the conditions listed above. If the original packaging is not available, pack and store the instrument as described below:

1. Place the instrument, along with the shock-absorbent material, in the packaging.
2. If stored for a prolonged period of time (more than 30 days), place a bag containing a desiccant inside the packaging.

5. Commissioning, operation



WARNING!

Damage to the measuring instrument by operation outside the upper or lower limits of the operating temperature

Failure to observe the permissible operating temperature, also taking into account convection and radiation, can even cause damage to the thermometer during mounting.

- ▶ The upper and lower limits of the specified operating temperature range must not be exceeded.

5.1 Mechanical mounting

5.1.1 Multipoint thermometers

They are usually equipped with a case in which transmitters or terminal blocks are mounted.

The transmitters/digital displays are fastened mechanically (e.g. rail system in case or holder in connection head).

5.1.2 Cable probe

These are generally not fitted with a case. They can, however, be connected in an additional case in which transmitter or terminal blocks are mounted.

5.1.3 Parallel threads

If the thermometer connecting head, neck tube, thermowell or process connection are connected with parallel threads (e.g. G ½, M20 x 1.5 ...), these threads must be secured using seals which prevent liquids from penetrating into the thermometer.

As standard, WIKA uses copper seals for the connection between the neck tube and the thermowell, and a paper flat gasket for the connection of the connection head and the neck tube or thermowell.

If the thermometer and the thermowell are already connected, the seals will already be mounted (if ordered). The plant operator must check whether the seals are suitable for the operating conditions and must replace them, if necessary, with suitable seals (see chapter 11 "Accessories").

Seals must be replaced after dismantling!

5.1.4 Tapered threads

With NPT or other tapered threads, it should be checked whether it may be necessary to seal them additionally with PTFE tape or hemp. The threads must be lubricated with a suitable lubricant before fitting.

5.1.5 Mounting instructions for electrical thermometers with ceramic protection tube

Ceramic thermowell materials withstand changes in temperature only to a limited extent. A temperature shock can therefore easily result in stress cracks and consequently in damage to the protection tube.

For this reason, preheat thermocouples with ceramic or sapphire protection tubes before installation, and then slowly immerse them into the hot process.

In accordance with DIN 43724, an insertion speed of 1 cm/min is recommended for protection tubes with a diameter of 24/26 mm. For smaller diameters of 10/15 mm, the speed can be increased to 50 cm/min. As a basic principle, higher process temperatures require a lower insertion speed.

In addition to the protection from thermal stress, ceramic protection tubes must also be protected from mechanical loads. The reason for these harmful stresses are bending forces in case of a horizontal mounting position. As a consequence, an additional support must be provided in case of a horizontal mounting position depending on the diameter, greater nominal lengths and the design.

In principle, the deflection problem also occurs for metal protection tubes, particularly for insertion lengths > 500 mm. For process temperatures > 1,200 °C, vertical mounting should be preferred.

Due to the high thermal, chemical, and mechanical stresses to which ceramic and sapphire protection tubes are subjected during operation, a general indication regarding the service life can only be given to a limited extent. This is particularly valid for applications in high-load processes, such as gasification reactors. According to this, the process-related parts of the thermocouples are wear parts which are not covered by the warranty.

Ceramic protection tubes with purge connection

For ceramic protection tubes with purge connection the following basic settings are recommended:

Pressure of purge gas: 0.25 ... 0.35 bar [3.6 ... 5.1 psi] over maximum process pressure

Flow rate of purge gas: approx. 10 ... 12 LPH

Purge gas: nitrogen

Depending on the process an adjustment of given values can be required. The sole responsibility for this rests with the end user.

5.2 Electrical mounting

Using a transmitter/digital display (option):

Observe the contents of the operating instructions for the transmitter/digital display (see scope of delivery).

EN

Cable glands

Requirements for meeting ingress protection:

- Only use cable glands within their indicated clamping range (cable diameter suitable for the cable gland).
- Do not use the lower clamping area with very soft cable types.
- Only use round cables (if necessary, slightly oval in cross-section).
- Do not twist the cable.
- Repeated opening/closing is possible; however only if necessary, as it might have a detrimental effect on the ingress protection
- For cable with a pronounced cold-flow behaviour the gland must be fully tightened.

5.3 Electrical connection



CAUTION!

Danger of short circuit

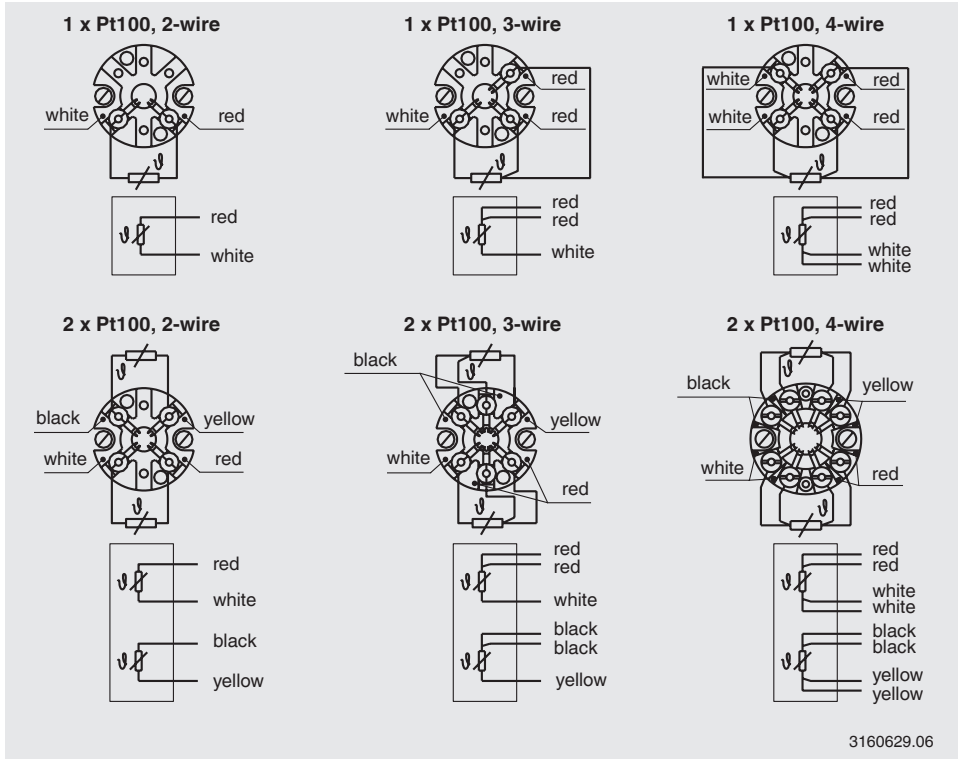
Damage to cables, wires and connection points can lead to malfunction of the instrument.

- ▶ Avoid damaging the cables and wires. Fine-stranded leads with bare ends must be finished with end splices.

5. Commissioning, operation

5.3.1 Resistance thermometers

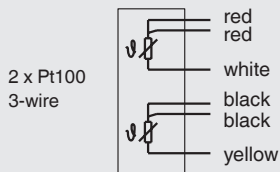
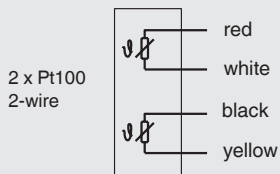
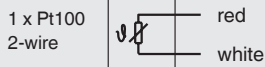
Standard terminal block (colour code per IEC/EN 60751)



Assignment and colour coding for Pt1000 as well as for Pt100
Pt1000 only available as single elements

5. Commissioning, operation

Without connector



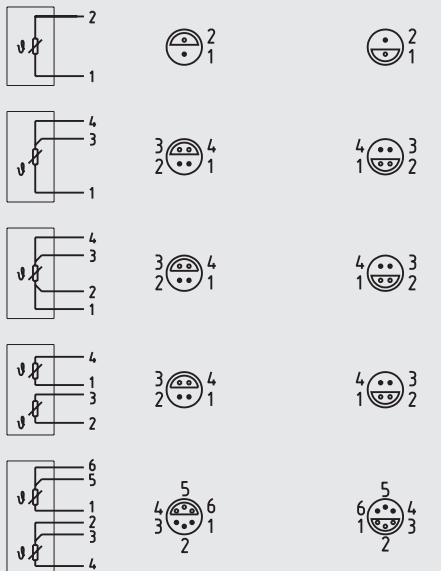
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Lemosa connector



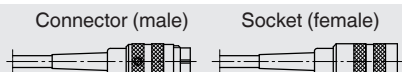
Front view

Front view



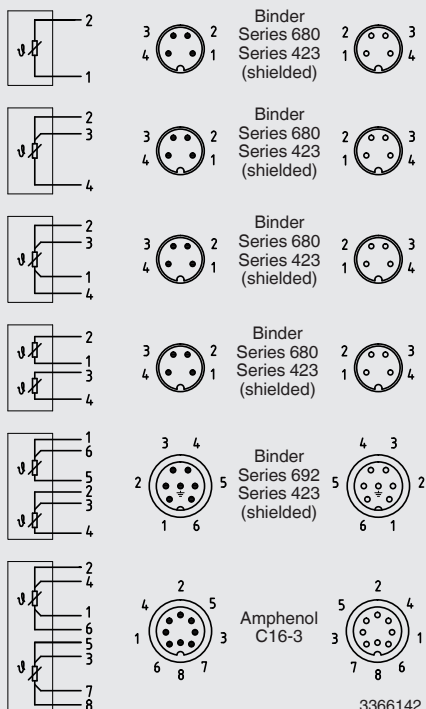
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Screw-in connector (Amphenol, Binder)



View of the
connector contacts

View of the
socket contacts

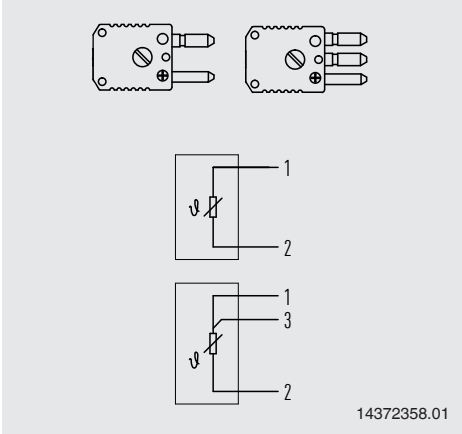


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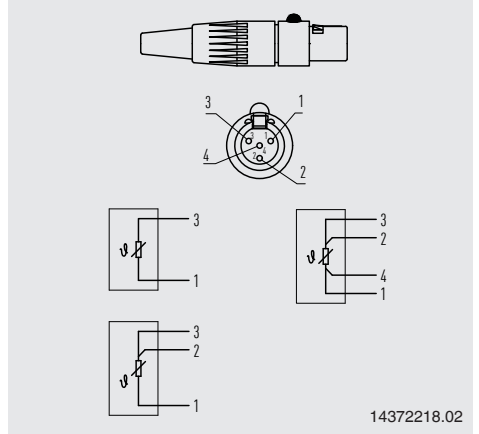
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5. Commissioning, operation

Thermo connector (RTD, male)

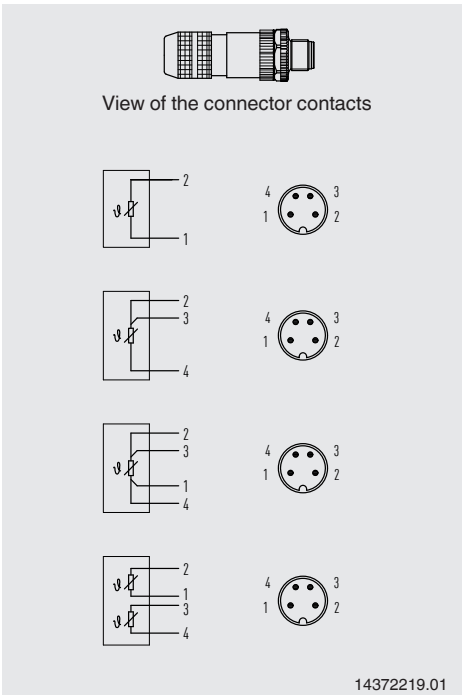


XLR-mini connector (female)

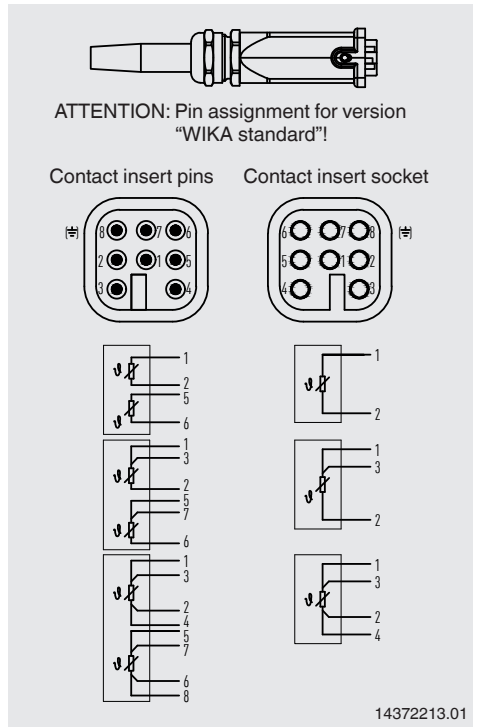


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Binder screw-in-connector (male), M12 x 1 (series 713)



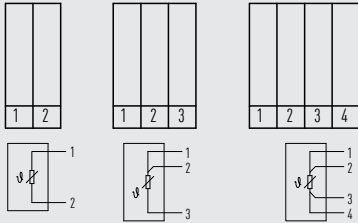
Harting connector



5. Commissioning, operation

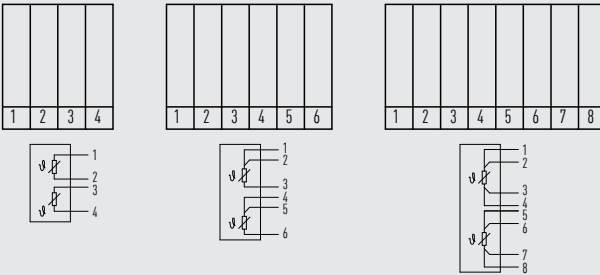
Rail-mounting terminals

1 x Pt100 or Pt1000
2-, 3- or 4-wire connection



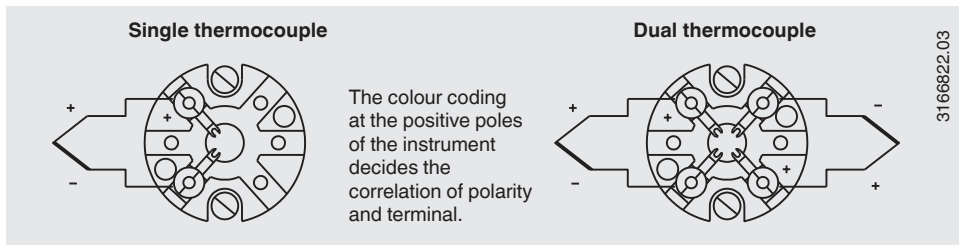
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2 x Pt100
2-, 3- or 4-wire connection



5.3.2 Thermocouples

With terminal block




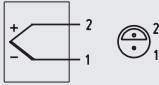
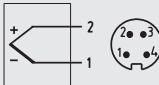
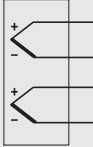
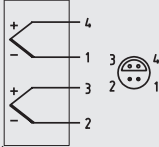
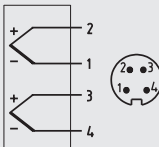
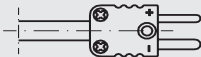
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Colour code of cable strands

Type of sensor	Standard	Positive	Negative
K	IEC 60584	Green	White
J	IEC 60584	Black	White
E	IEC 60584	Violet	White
N	IEC 60584	Pink	White

5. Commissioning, operation

With cable or connector

	Cable For the marking of the cable ends, see table 3171966.01	Lemosa connector, male on the cable 3374896.01	Binder connector, male on the cable (screw-in plug) 3374900.01a
Single thermocouple			
Dual thermocouple			
Thermo connector	Positive and negative terminal are marked. Two thermo connectors are used with dual thermocouples.		

EN

5.4 Tightening torques

5.4.1 Tightening torques between cable gland and connection head

- Junction between cable gland and connection head

Thread	Tightening torques
M20 x 1.5	12 Nm
½ NPT	T.F.F.T 2 - 3 ¹⁾

- Junction between cable and cable gland
Screw the pressure screw tightly into the adapter (use appropriate tools!)

1) Turns from finger tight (T.F.F.T)

5. Commissioning, operation

5.4.2 Tightening torques between connection head and neck tube

Thread	Tightening torques	
	Connection head material	
	Aluminium	Stainless steel
½ NPT	T.F.F.T 2 - 3 ¹⁾	T.F.F.T 2 - 3 ¹⁾
¾ NPT	T.F.F.T 2 - 3 ¹⁾	T.F.F.T 2 - 3 ¹⁾
M24 x 1.5 with pressure screw ²⁾	27 Nm	30 Nm

5.4.3 Tightening torques for connection to thermowell

Thread	Tightening torques
½ NPT	T.F.F.T 2 - 3 ¹⁾
¾ NPT	T.F.F.T 2 - 3 ¹⁾
G ½ B	35 Nm
G ¾ B	40 Nm
M14 x 1.5	25 ... 30 Nm
M18 x 1.5	35 Nm
M20 x 1.5	35 ... 40 Nm
M27 x 2	40 ... 45 Nm

5.4.4 Tightening torques for compression fittings

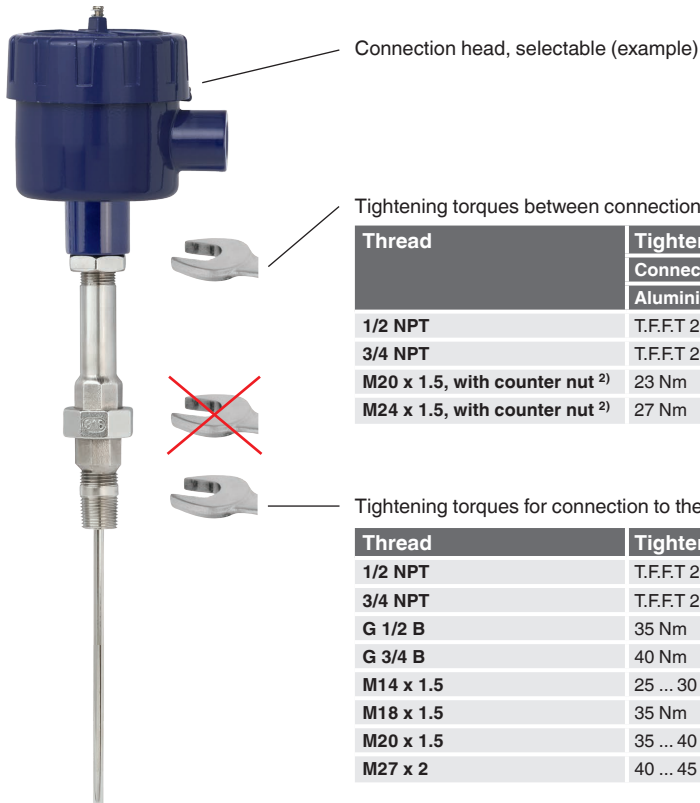
Sealing	Turns	Max. pressure in bar
Stainless steel ferrule	1 ¼ ... 1 ½	100
Stainless steel compression ring	1 ¼ ... 1 ½	100
PTFE ferrule	1 ¼ ... 1 ½	8

1) Turns from finger tight (T.F.F.T)

2) Only for versions with "nipple-union-nipple" neck tube

5. Commissioning, operation

5.4.5 Tightening torques for the thermometer



1) Turns from finger tight (T.F.F.T)

2) Only for versions with fabricated neck tube

- Only ever screw in, or unscrew, the instrument via the spanner flats and to the prescribed torque using an appropriate tool.
- The correct torque depends on the dimensions of the connection thread and the sealing used (form/material).
- When screwing in or unscrewing the instrument, do not use the connection head as contact surface.
- When screwing in the instrument, please observe that the threads are not skewed.

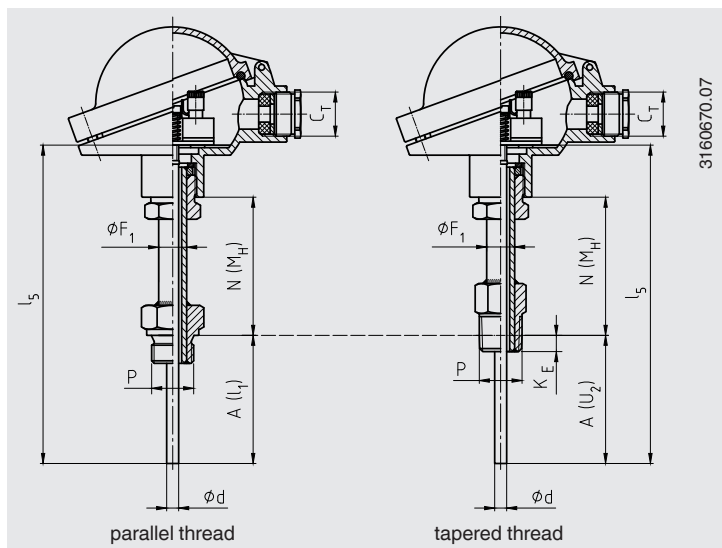
5. Commissioning, operation

5.5 Temperature carry-over from the process

A heat reflux from the process that exceeds the operating temperature of the transmitter (digital display) or case is not permitted and must be prevented by installing suitable heat insulation or a respectively long neck tube.

Increasing the distance of the connection components to hot surfaces

The neck length (N) is defined as the distance between the lower edge of the connection head or case and the heat-emitting surface. The expected temperature at the lower edge of the connection head or case should be a maximum of 80 °C. The conditions for built-in transmitters or displays must be considered, and if needed, the neck length should be increased.



To help select the minimum neck length, the following standard values have been determined.

Maximum medium temperature	Recommendation for dimension N	Recommendation for dimension X
100 °C	-	-
135 °C	20 mm	20 mm
200 °C	50 mm	50 mm
> 200 °C ≤ 450 °C	100 mm	100 mm

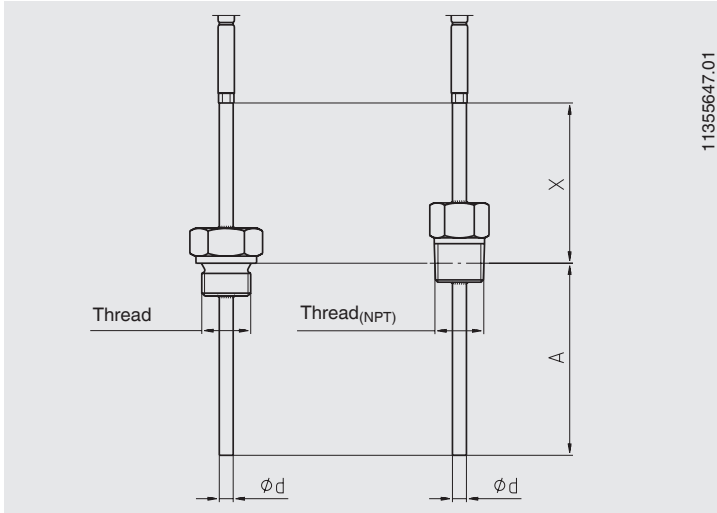
For thermometers fitted with a connecting cable, the temperature at the interface with the connecting cable is restricted. The maximum is 150 °C. To ensure that the permissible temperature is not exceeded, the dimension X must be selected accordingly.

5. Commissioning, operation

Increasing the distance of the connection components to hot surfaces

The length X is defined as the distance between the transition point from the cable to the heat-emitting surface. The expected temperature at the transition point should be a maximum of 120 °C.

- If necessary, the X length should be increased.



6. Additional notes for instruments with EHEDG and 3-A

6.1 Compliance with the conformity in accordance with 3-A

For a 3-A compliant connection for milk thread fittings per DIN 11851, suitable profile sealings have to be used (e.g. SKS Komponenten BV or Kieselmann GmbH).

Note:

To maintain the 3-A certification, one of the 3-A-approved process connections must be used. These are marked with the logo in the data sheet.

6.2 Compliance with EHEDG conformity

For an EHEDG conform connection, sealings in accordance with the current EHEDG policy document must be used.

Manufacturers of sealings

- Sealings for connections per ISO 2852, DIN 32676 and BS 4825 part 3: e.g. Combifit International B.V.
- Sealings for connections per DIN 11851: e.g. Kieselmann GmbH
- VARIVENT® sealings: e.g. GEA Tuchenhausen GmbH

6.3 Mounting instructions

Observe the following instructions, especially for EHEDG certified and 3-A conform instruments.

- To maintain the EHEDG certification, one of the EHEDG-recommended process connections must be used. These are marked with the logo in the data sheet.
- To maintain the conformity to the 3-A standard, a 3-A conform process connection must be used. These are marked with the logo in the data sheet.
- Mount the electrical thermometer including thermowell with minimal dead space and able to be cleaned easily.
- The mounting position of the electrical thermometer including thermowell, welding socket and instrumentation T-piece should be designed to be self-draining.
- The mounting position must not form a draining point or cause a basin to be formed.

6.4 Cleaning in place (CIP) cleaning process

- Only use cleaning agents which are suitable for the seals used.
- Cleaning agents must not be abrasive nor corrosively attack the materials of the wetted parts.
- Avoid thermal shocks or fast changes in the temperature. The temperature difference between the cleaning agent and rinsing with clear water should be as low as possible. Negative example: Cleaning with 80 °C and rinsing at +4 °C with clear water.

7. Faults



CAUTION!

Physical injuries and damage to property and the environment

If faults cannot be eliminated by means of the listed measures, the instrument must be taken out of operation immediately.

- ▶ Ensure that there is no longer any signal present and protect against being put into operation accidentally.
- ▶ Contact the manufacturer.
- ▶ If a return is needed, please follow the instructions given in chapter 9.2 “Return”.

EN



WARNING!

Physical injuries and damage to property and the environment caused by hazardous media

Upon contact with hazardous media (e.g. oxygen, acetylene, flammable or toxic substances), harmful media (e.g. corrosive, toxic, carcinogenic, radioactive), and also with refrigeration plants and compressors, there is a danger of physical injuries and damage to property and the environment. Should a failure occur, aggressive media with extremely high temperature and under high pressure or vacuum may be present at the instrument.

- ▶ For these media, in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.
- ▶ Wear the required protective equipment (depending on the application; the thermometer itself is basically not dangerous).



For contact details, please see chapter 1 “General information” or the back page of the operating instructions.

Faults	Causes	Measures
No signal/cable break	Mechanical load too high or overtemperature	Replace probe or measuring insert with one of a suitable design
Erroneous measured values	Sensor drift caused by overtemperature	Replace probe or measuring insert with one of a suitable design
	Sensor drift caused by chemical attack	Use a suitable thermowell.
Erroneous measured values (too low)	Entry of moisture into cable or measuring insert	Replace probe or measuring insert with one of a suitable design
Erroneous measured values and response times too long	Wrong mounting geometry, for example mounting depth too deep or heat dissipation too high	The temperature-sensitive area of the sensor must be inside the medium, and surface measurements must be ungrounded
	Deposits on the sensor or thermowell	Remove deposits

7. Faults / 8. Maintenance, cleaning and calibration

Faults	Causes	Measures
Erroneous measured values (of thermocouples)	Parasitic voltages (thermal voltages, galvanic voltage) or wrong equalisation line	Use suitable compensating cable
Display of measured value jumps	Cable break in connecting cable or loose contact caused by mechanical overload	Replace probe or measuring insert with a suitable design, for example equipped with a strain relief or a thicker conductor cross-section
Corrosion	Composition of the medium not as expected or modified or wrong thermowell material selected	Analyse medium and then select a more suitable material or replace thermowell regularly
Signal interference	Stray currents caused by electric fields or earth loops	Use shielded connecting cables, and increase the distance to motors and power cables
	Earth loops	Eliminate potential differences by using galvanically isolated barriers or transmitters

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8. Maintenance, cleaning and calibration



For contact details, please see chapter 1 “General information” or the back page of the operating instructions.

8.1 Maintenance

The thermometers described here are maintenance-free.

Repairs must only be carried out by the manufacturer.

8.2 Cleaning



CAUTION!

Physical injuries and damage to property and the environment

Improper cleaning may lead to physical injuries and damage to property and the environment. Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ Carry out the cleaning process as described below.

8. Maintenance, cleaning and calibration

EN

- ▶ When cleaning from outside (“wash down”), observe the permissible temperature and ingress protection.
- ▶ Prior to cleaning, properly disconnect the instrument.
- ▶ Use the required protective equipment (depending on the application; the thermometer itself is basically not dangerous).
- ▶ Clean the instrument with a moist cloth.
This applies in particular to thermometers with a case made of plastic and cable probes with plastic-insulated connecting cable, in order to ensure that any risk of electrostatic charge is avoided.
Electrical connections must not come into contact with moisture!



CAUTION!

Damage to the instrument

Improper cleaning may lead to damage to the instrument!

- ▶ Do not use any aggressive cleaning agents.
 - ▶ Do not use any pointed and hard objects for cleaning.
- ▶ Wash or clean the dismantled instrument, in order to protect persons and the environment from exposure to residual media.

8.3 Calibration, recalibration

It is recommended that the measuring insert is recalibrated at regular intervals (resistance thermometers: approx. 24 months, thermocouples: approx. 12 months). This period can reduce, depending on the particular application. The calibration can be carried out by the manufacturer, as well as on site by qualified technical staff with calibration instruments.

8.3.1 Instruments with removable measuring insert

(models Tx10-B, Tx10-C, Tx10-D, Tx10-F, TR10-J, Tx10-L, Tx10-O, TR11-C, Tx12-B, Tx12-M, TR22-A, TR22-B, TR55, Tx81)

For calibration, the measuring insert is removed from the thermometer.

The minimum length (metal part of the probe) for carrying out a measurement accuracy test 3.1 or DKD/DAkkS is 100 mm.

8.3.2 Instruments with non-removable measuring insert or cable probes

(models Tx10-H, TR21-A, TR21-B, TR21-C, TR30, TR31, TR33, TR34, TR36, Tx40, TR41, Tx50, Tx53, TR75)

The minimum length (metal part of the probe or the length of the probe below the process connection) for carrying out a measurement accuracy test 3.1 or DKD/DAkkS is 100 mm.

8.3.3 Measuring inserts

(models Tx10-A, Tx10-K, TR11-A, Tx12-A)

The minimum length for carrying out a measurement accuracy test 3.1 or DKD/DAkkS is 100 mm.

8. Maintenance ... / 9. Dismounting, return and disposal

8.3.4 Multipoint thermometers

(models TC94, Tx95, TC96-O, TC96-R, TC96-M, TC97)

The individual thermometers are calibrated before final assembly.

8.3.5 Instruments with ceramic protection tube

(models TC80, TC82, TC83, TC84, TC85)

The minimum length (ceramic part of the probe) for carrying out a measurement accuracy test 3.1 or DKD/DAkkS is 350 mm for standard versions. Calibration of instruments with ceramic lengths of 200 mm to 350 mm on request.

8.3.6 Flush and in-line instruments

(models TR20, TR25)

The thermometer is immersed in a liquid bath for calibration.

8.3.7 Not calibratable

(models TR57-M, TR60, Tx90)

Standard versions of this instrument cannot be calibrated.

9. Dismounting, return and disposal

9.1 Dismounting



WARNING!

Physical injuries and damage to property and the environment through residual media

Upon contact with hazardous media (e.g. oxygen, acetylene, flammable or toxic substances), harmful media (e.g. corrosive, toxic, carcinogenic, radioactive), and also with refrigeration plants and compressors, there is a danger of physical injuries and damage to property and the environment.

- ▶ Before storage of the dismantled instrument (following use) wash or clean it, in order to protect persons and the environment from exposure to residual media.
- ▶ Use the required protective equipment (depending on the application; the thermometer itself is basically not dangerous).
- ▶ Observe the information in the material safety data sheet for the corresponding medium.

Only disconnect the thermometer once the system has been depressurised.



WARNING!

Risk of burns

During dismantling there is a risk of dangerously hot media escaping.

- ▶ Let the instrument cool down sufficiently before dismantling it!

9. Dismounting, return and disposal

9.2 Return

Strictly observe the following when shipping the instrument:

All instruments delivered to WIKA must be free from any kind of hazardous substances (acids, bases, solutions, etc.) and must therefore be cleaned before being returned.

EN



WARNING!

Physical injuries and damage to property and the environment through residual media

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ With hazardous substances, include the material safety data sheet for the corresponding medium.
- ▶ Clean the instrument, see chapter 8.2 “Cleaning”.

When returning the instrument, use the original packaging or a suitable transport packaging.

To avoid damage:

1. Place the instrument, along with the shock-absorbent material, in the packaging.
Place shock-absorbent material evenly on all sides of the transport packaging.
2. If possible, place a bag containing a desiccant inside the packaging.
3. Label the shipment as carriage of a highly sensitive measuring instrument.



Information on returns can be found under the heading “Service” on our local website.

9.3 Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.



Do not dispose of with household waste. Ensure a proper disposal in accordance with national regulations.

10. Specifications

Due to the large variance, the specifications are very extensive. Therefore we refer to the corresponding WIKA data sheets and also the order documentation.

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■ Resistance thermometers

Model	Data sheet
TR10-0	TE 61.01
TR10-A	TE 60.01
TR10-B	TE 60.02
TR10-C	TE 60.03
TR10-D	TE 60.04
TR10-F	TE 60.06
TR10-H	TE 60.08
TR10-J	TE 60.10
TR10-K	TE 60.11
TR11-A	TE 60.13
TR11-C	TE 60.14
TR11-H	-
TR20	TE 60.20
TR22-A	TE 60.22
TR22-B	TE 60.23
TR25	TE 60.25
TR40	TE 60.40
TR41	TE 60.41
TR50	TE 60.50
TR51	TE 60.51
TR53	TE 60.53
TR55	TE 60.55
TR60	TE 60.60
TR81	TE 60.81
TR95	TE 70.01

■ Thermocouples

Model	Data sheet
TC10-0	TE 66.01
TC10-A	TE 65.01
TC10-B	TE 65.02
TC10-C	TE 65.03
TC10-D	TE 65.04
TC10-F	TE 65.06
TC10-H	TE 65.08
TC10-K	TE 65.11
TC40	TE 65.40
TC50	TE 65.50
TC53	TE 65.53
TC55	TE 65.55
TC80	TE 65.80
TC81	TE 65.81
TC82	TE 65.82
TC83	TE 65.83
TC95	TE 70.01

11. Accessories

11. Accessories



The seals can be ordered from WIKA, indicating the WIKA order number and/or the designation (see table).

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WIKA order number	Designation	Suitable for threads
11349981	per DIN 7603 form C 14 x 18 x 2 -CuFA	G ¼, M14 x 1.5
11349990	per DIN 7603 form C 18 x 22 x 2 -CuFA	M18 x 1.5, G ¾
11350008	per DIN 7603 form C 21 x 26 x 2 -CuFA	G ½, M20 x 1.5
11350016	per DIN 7603 form C 27 x 32 x 2.5 -CuFA	G ¾, M27 x 2
11367416	per DIN 7603 form C 20 x 24 x 2 -CuFA	M20 x 1.5
1248278	per DIN 7603 D21.2 x D25.9 x 1.5 -Al	G ½, M20 x 1.5
3153134	per DIN 7603 form C D14.2 x D17.9 x 2 -StFA	G ¼, M14 x 1.5
3361485	per DIN 7603 form C D33.3 x D38.9 x 2.5 -StFA	G 1

Legend:

CuFA = Copper, max. 45HB^a; filled with asbestos-free sealing material

Al = Aluminium Al99; F11, 32 to 45 HB^b

StFA = Soft iron, 80 to 95 HB^a; filled with asbestos-free sealing material

