

MANUAL

T1565

Cable Thermocouple Temperature Sensors for Plastic Industry



- Thermocouple 1× “J”, “K”.
- Measuring range -50 to +800 °C.
- Accuracy class 1, 2 acc. EN 60584-1.
- Insulated measuring junction.
- Stem diameter 6 and 8 mm, peak angle 120°.
- Stem material stainless steel 1.4401.
- Adjustable suspended bayonet cap 15 to 190 mm with inner diameter 12.2 to 15.2 mm / 2 slots.
- Optional length, insulation and wiring termination.
- Full stainless steel design.
- Optional connecting pipe union.
- Housing up to IP 67.

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1. General instructions and information

1.1 Symbols used



Symbol of warning; for safe use it is necessary to proceed according to the instructions.



Symbol CE certifies compliance of the product with the respective EU directives.



This product does not belong to public waste and it is subjected to separate collection.

1.2 Safety warnings and cautions



The equipment shall be supplied from a safe voltage source that meets all requirements of the standard EN 61010-1 and must be installed in compliance with national requirements and standards providing safety.

The equipment may only be installed by a qualified personnel who are familiar with national and international laws, directives, standards and with the instructions manual. The instrument may not be used for other purposes than as specified in this instruction manual.

For elimination of a risk of injury from electric shock or fire the maximum operational parameters of the instrument may not be exceeded, particularly range of operating temperature because of exposure to heat from connected or surrounding technological equipment must not be exceeded!

The equipment should be installed in suitable environment without any direct sunlight, occurrence of dust, high temperatures, mechanical vibrations and shocks and protected against rain and excessive moisture.

1.3 Scope of delivery

With the product is delivered:

- Manual for installation, operation and maintenance
- Certificate of calibration (only with calibrated sensors)

1.4 Description of the delivery and packing

The product is packaged in a protective cover and provided with an identification label with a mark of the output control.

The product must not be exposed to direct rain, vibrations and shocks during transport.

1.5 Storage

Store the instrument in dry rooms at temperatures from -40 to +80 °C without condensation of water vapours.

1.6 Installation, operation and maintenance

During installation, commissioning, operation and maintenance follow the instructions in chapter 4.

1.7 Spare parts

Any of the compact parts of the product can be also ordered as a spare part if there are not required special procedures or technological operations for the exchange.

1.8 Repairs

Products are repaired by the manufacturer. The products for repair should be sent together with description of the fault or defect in a packing that guarantees damping of shocks and vibrations and protects against damage during transport.

1.9 Warranty

Products are covered by a warranty for a period of 24 months from the delivery date on the delivery note. The manufacturer guarantees technical and operational parameters of the products within scope of the applicable documentation.

Warranty period is specified with individual items and begins from the day of takeover of the goods by the purchaser or delivery to the carrier. Any claims concerning to defects of the goods together can be filed in writing with the manufacturer within the warranty period and the claimed product shall be presented. The claiming party shall give identification of the product, number of the delivery note and description of the fault or defect.

The manufacturer is not responsible for any defects caused by improper storage, incorrect connection, damages caused by external effects, in particular by effects of factors with excessive values, unqualified installation, improper operation or common wearing.

2. End of service and disposal

2.1 End of service

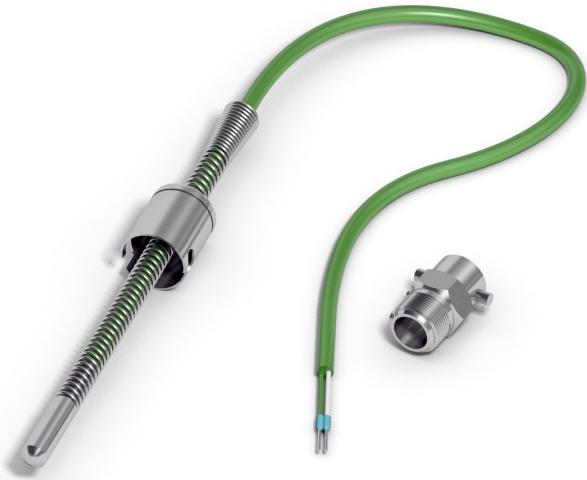
Dismounting and disposal of the device is possible after disconnecting of power supply.

2.2 Disposal



The products do not contain any environmentally hazardous parts. When disposing the packing and destroyed or irreparably damaged product proceed according to the local regulations.

3. Product description



T1565 – Cable Thermocouple Temperature Sensors for Plastic Industry

- Thermocouple 1× “J”, “K”.
- Measuring range -50 to +800 °C.
- Accuracy class 1, 2 acc. EN 60584-1.
- Insulated measuring junction.
- Stem diameter 6 and 8 mm, peak angle 120°.
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- Optional length, insulation and wiring termination.
- Full stainless steel design.
- Optional connecting pipe union.
- Housing up to IP 67.

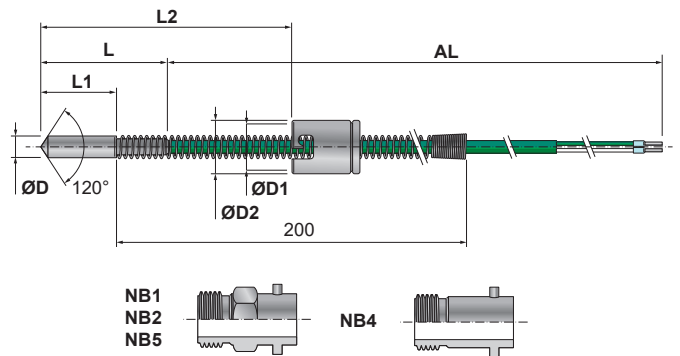
3.1 Application

Cable thermocouple temperature sensors T1565 with cable connecting line (firmly connected) are designed for temperature measurement at devices for plastic industry and similar applications.

3.2 Description

A single thermocouple sensor type “J” or “K” is placed in the stem of measuring insert. The stem continues by stainless steel spring with extended termination. Position of the bayonet cap is adjustable through the entire length of the spring. Sensors are mounted into the bore by bayonet cap and by optional connecting pipe union, which can be also supplied.

3.3 Dimensional drawings



4. Installation, operation and maintenance

4.1 Installation and commissioning

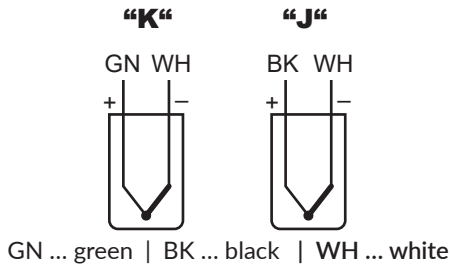
4.1.1 General

- Do not use any force when installing the device!
- The sensor is ready for operation after connection of the connection wires to the terminals of the associated apparatus.

4.1.2 Commissioning

The sensor is ready for operation after connection of the connection wires to the terminals of the associated apparatus.

4.1.3 Electrical connection



4.2 Operation and maintenance

Sensors do not need any maintenance.

It is recommended to check the mounting of the sensors at preselected intervals.

To ensure metrological parameters of the sensors, periodic checks of calibration parameters must be performed. Period of calibrations is set by the user and it is based on operating conditions and internal metrology regulations. Manufacturer's recommended period is 12 months. If there is during the calibration found difference from the expected metrological parameters, it is necessary to replace the sensor.

5. Product specifications

5.1 Technical specifications

Thermocouple:

“J”, “K”, accuracy class 2 according to IEC 584-2

Measuring range:

-50 to +350 °C ... thermocouple “J”
 -40 to +800 °C ... thermocouple “K”
 (depends on wire insulation)

Dielectric strength:

500 Vef

Used materials:

stem ... stainless steel 1.4401
 spring ... stainless steel
 bayonet cup ... stainless steel 1.4305

Temperature resistance and housing:

Code	Insulation	Measuring range	Ambient temperature of cable	Wire cross section / diameter	Housing
- for thermocouple "J"					
I1	Silicone insulated	-50 to +200 °C	-50 to +200 °C	2× 0,22 mm ²	IP 67
I2	Teflon insulated	-50 to +260 °C	-50 to +260 °C	2× 0,22 mm ²	IP 67
I4	Fibreglass insulation + galvanized steel wire braiding	-20 to +350 °C	-20 to +350 °C	2× 0,22 mm ²	IP 60
- for thermocouple "K"					
I5	Fibreglass insulation + tinned copper wire braiding	-20 to +350 °C	-20 to +350 °C	2× 0,25 mm ²	IP 60
I6	Fibreglass insulated	-40 to +600 °C	-40 to +600 °C	2× Ø 1 mm	IP 60
I7	Mineral fibre insulated	-40 to +800 °C	-40 to +1200 °C	2× Ø 0,8 mm	IP 60

5.2 Metrological parameters

Temperature sensors can be supplied:

- as sensors with calibration,
- as sensors without calibration.

Tolerance limits of accuracy classes are listed in IEC 584-2. The initial tolerance is related to the initial calibration of the sensor. To ensure accuracy of measurement, it is necessary to calibrate sensors periodically according to the operating parameters. Sensors can be supplied with calibration at several temperature points, according to customer requirements.

6. Ordering

6.1 Ordering table

Cable thermocouple temperature sensor for plastic industry					T1565	1	2	3	4	5	6	7	8
Thermocouple					T1565	1	2	3	4	5	6	7	8
1. code	Description	Measuring range											
21	1× "J" (Fe-CuNi), insulated	-50 to +350 °C											
22	1× "K" (NiCr-NiAl), insulated	-40 to +800 °C											
...U	Grounded version of junction TC												
99	other												
Accuracy class					T1565	1	2	3	4	5	6	7	8
2. code	Accuracy class according to EN 60584-1												
6	1	only for 1× "K" (code 22) with insulation code I8											
7	2												
Stem					T1565	1	2	3	4	5	6	7	8
3. code	Outer diameter of stem D	Outer diameter of spring	Stem material										
S71	6 mm	6 mm	1.4401										
S81	8 mm	8 mm	1.4401										
Nominal length of stem					T1565	1	2	3	4	5	6	7	8
4. code	Dimension L	Dimension L1											
L38	38 mm	7 mm	only for stem diameter 8 mm										
L40	40 mm	25 mm	only for stem diameter 6 mm										
L45	45 mm	27 mm	only for stem diameter 8 mm										
L___	other – please fill length ___ mm												
Bayonet cap					T1565	1	2	3	4	5	6	7	8
5. code	Inner diameter of cap D1	Outer diameter of cap D2	Dimension L2										
B00	without bayonet cup and spring												
B12	12,2 mm	14 mm	15 to 190 mm										
B15	15,2 mm	16,5 mm	15 to 190 mm										
B99	other												
Cable length					T1565	1	2	3	4	5	6	7	8
6. code	Dimension AL												
KV200	200 mm												
KV1000	1000 mm												
KV2500	2500 mm												
KV5000	5000 mm												
KV___	other – please fill length ___ mm (100 mm steps)												
Cable insulation					T1565	1	2	3	4	5	6	7	8
7. code	Description	Measuring range	Ambient temperature of cable	Wire cross section / diameter									
I1	Silicone insulated	-50 to +200 °C	-50 to +200 °C	2× 0,22 mm ²									
I2	Teflon insulated	-50 to +260 °C	-50 to +260 °C	2× 0,22 mm ²									
I4	Fibreglass insulation + galvanized steel wire braiding	-20 to +350 °C	-20 to +350 °C	2× 0,22 mm ²									

7. code	Description	Measuring range	Ambient temperature of cable	Wire cross section / diameter
I5	Fibreglass insulation + tinned copper wire braiding *1	-20 to +350 °C	-20 to +350 °C	2× 0,25 mm ²
I6	Fibreglass insulated *1	-40 to +600 °C	-40 to +600 °C	2× Ø 1 mm
I7	Mineral fibre insulated *1	-40 to +800 °C	-40 to +1200 °C	2× Ø 0,8 mm
I8	Ceramic fibre insulated + stainless steel wire braiding *1	-40 to +800 °C	-40 to +800 °C	2× 0,50 mm ²
I9	other			

*1 - Only for 1× "K".

Cable termination T1565 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

8. code	Description
01	Insulated pressing tube according to DIN 46228
02	Flat connector for single sensor (plug), standard version, up to 180 °C
04	Flat connector for single sensor (plug), mini version, up to 180 °C
22	Flat connector for single sensor (plug), standard version, ceramic up to 650 °C
24	Flat connector for single sensor (plug), mini version, ceramic up to 650 °C
09	other

Optional versions and accessories T1565 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ...

Code	Calibration in customer defined points, including certificate of calibration
KTE32AA	Thermocouple temperature sensor calibration in three points in range -40 to +660 °C
KTE42AA	Thermocouple temperature sensor calibration in four points in range -40 to +660 °C
KTE52AA	Thermocouple temperature sensor calibration in five points in range -40 to +660 °C
KTE32AB	Thermocouple temperature sensor calibration in three points in range -40 to +800 °C
KTE42AB	Thermocouple temperature sensor calibration in four points in range -40 to +800 °C
KTE52AB	Thermocouple temperature sensor calibration in five points in range -40 to +800 °C
KTE9	other

Code	Extension piece for bayonet cap
NB1	Outer diameter 12 mm, length 23 mm, connecting thread M10x1, material stainless steel SS316
NB2	Outer diameter 12 mm, length 60 mm, connecting thread M12x1, material stainless steel SS316
NB4	Outer diameter 15 mm, length 60 mm, connecting thread M14x1.5 material stainless steel SS304
NB5	Outer diameter 12 mm, length 25 mm, connecting thread G1/4", material stainless steel SS304

Code	Connectors, fuses of connectors and cables
Z2	Counterpart of connector (plug), standard version, for single sensor, up to 220 °C *1
Z4	Counterpart of connector (plug), mini version, for single sensor, up to 220 °C
Z32	Counterpart of connector (plug), standard version, for single sensor, ceramic up to 650 °C
Z34	Counterpart of connector (plug), mini version, for single sensor, ceramic up to 650 °C
PZ2	Counterpart of connector (rectangular panel plug), standard version, for single sensor, up to 220 °C
PZ4	Counterpart of connector (rectangular panel plug), mini version, for single sensor, up to 220 °C
PS	Lock of connection connectors standard, for single sensor
PM	Lock of connection connectors mini, for single sensor
PK1	Lock anti pull-up cable, for standard connector, for single sensor
PK2	Lock anti pull-up cable, for standard connector, for double sensor
PK3	Lock anti pull-up cable, for mini connector, for single sensor

*1 - Female connector is possible to connect to standard or mini male connecto.

Example of order:
T1565 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ...
 ↓
T1565 22 7 S71 L40 B12 KV2500 I2 02
KTE32AA (-20, 100, 200 °C) NB1 Z2



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