Electrical
Temperature
Measurement

TR10 Industrial RTD Assembly

WIKA

Part of your business

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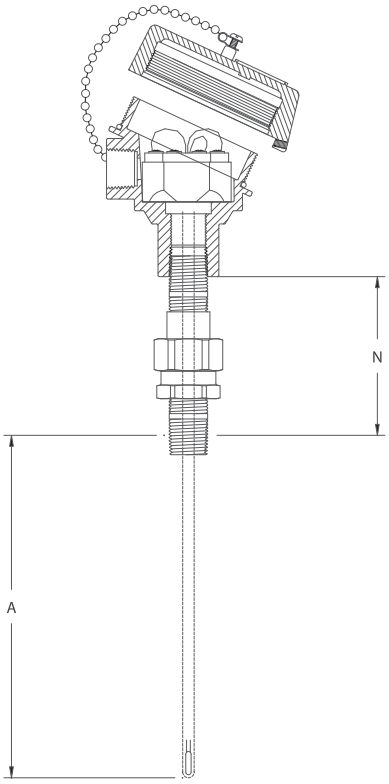


TR10 series resistance temperature detectors (RTDs) are industrial assemblies supplied with or without a temperature transmitter. An extensive range of elements, connection heads, insertion lengths, neck lengths, and process connections can be individually selected for the appropriate application. Replacement sensors can also be configured for this model.

RTDs in this series can be inserted directly into a process or combined with a variety of thermowell designs.

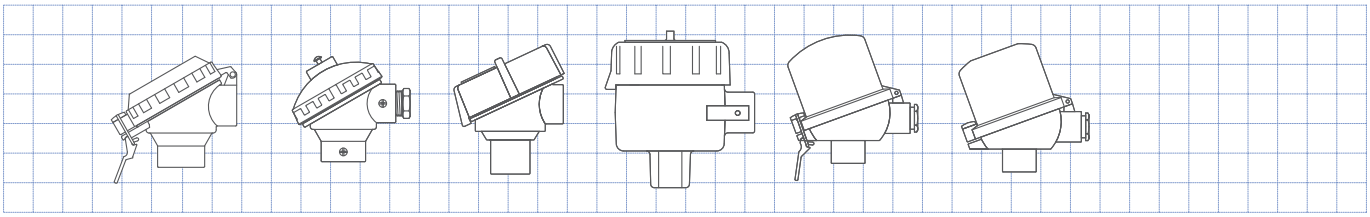
Applications:

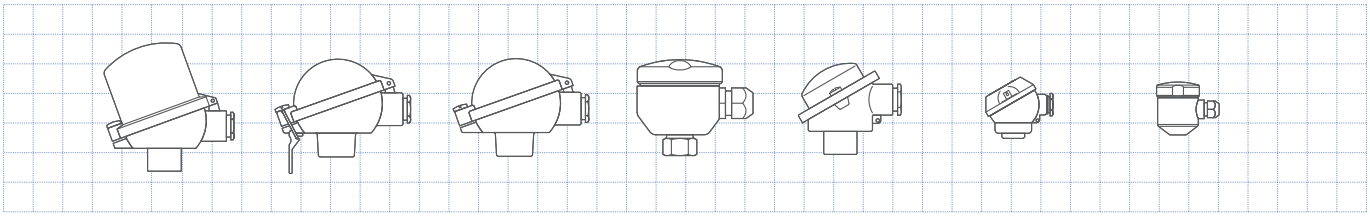
TR10 series assemblies are suitable for most industrial and commercial applications including:

- Air-conditioning and refrigeration systems
- Chemical and petrochemical industries
- Electronics and semiconductor industries
- Energy and power plant technology
- Machinery, plant and tank measurement
- Oil and gas industries
- Offshore exploration and drilling
- Pipeline control and custody transfer
- Power and utilities
- Pulp and paper
- Water and wastewater treatment

Connection Heads

Imperial Grid 1” x 1”





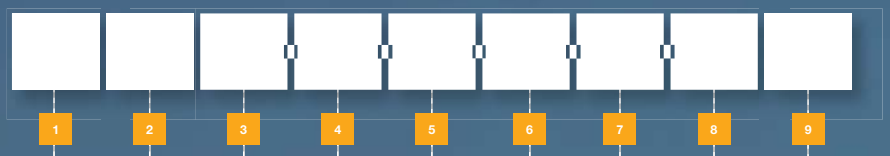
TR10 - Industrial RTD Assembly	
Sensor Element:	Pt100, Pt1000, Pt10, Cu10, or Ni120
Measuring range:	-200 °C to +1000 °C (depending upon element)
Wiring configuration:	2, 3, and 4 wire (single or dual)
Classification tolerance:	■ Class B to DIN EN 60751 ■ Class A to DIN EN 60751 ■ 1/3 of DIN Class B ■ 1/10 of DIN Class B ■ Less than class B
Electrical approvals:	CSA, FM, ATEX/IEC, NAMUR
Options:	■ Lengths and diameters standard or customer specific ■ Transmitter mounted directly within connection head or on measuring insert DIN plate ■ Calibration - single point, multiple points, and to Callendar-Van Dusen coefficients ■ Material traceability of the conductors, metal sheath and mineral insulation ■ Selectable accuracy tolerance ■ Exchangeable measuring insert ■ Special designs and materials ■ Explosion protection: CSA, FM, ATEX (EEx-d) ■ Intrinsically safe version: ATEX (EEx-i) ■ Non-sparking version: ATEX (EEx-n) ■ RTD transmitter matching

Features:

- The sensor can be mounted into a thermowell or directly into a process with the use of a fixed, spring loaded or compression process fitting.
- The assembly can be supplied with or without a transmitter. Transmitters convert the resistance signal from the RTD to a linear analogue or digital output (commonly 4-20 mA). This signal reduces potential inaccuracies by negating the need for compensating output lead wires.
- The assembly has electrical approvals for explosion proof hazardous locations, intrinsic safety, ingress protection and general purpose areas.
- Electrical authorities that have registered these approvals include CSA, FM, ATEX/IEC and NAMUR. The approvals can be with or without an attached thermowell. A specially designed and patented integral flame path fitting makes it possible when supplied without a thermowell.
- The RTD sensors available for this assembly consist of a variety of sheath materials including stainless steels, corrosion resistant and high temperature oxidation resistant alloys. For temperatures greater than 600°C it is advisable to utilize an Inconel 600 sheath in place of stainless steel.
- RTD diameters range from 0.125 inch to 0.250 inch and 2 mm to 8 mm. Standard diameters are 0.125 inch & 0.250 inch and 3 mm & 6 mm.
- The RTD sensor can be spring-loaded ensuring a positive contact to the base of a thermowell bore.
- RTD temperature ranges are dependent on the RTD element, sheath material, element accuracy and the tip construction:
  - ☐ General purpose, the temperature range is -200°C to 1000°C
  - ☐ Fast response copper tip, the temperature range is -200°C to 250°C
  - ☐ Tip sensitive thin film, the temperature range is -50°C to 1000°C
  - ☐ Fast response/tip sensitive copper tip including the vibration proof construction, the temperature range is -50°C to 250°C
- A variety of neck extensions are possible. They provide a fixture from the enclosure (connection head) to the process or thermowell. The standard neck extensions are the nipple-union-nipple or the male threaded neck tube. These extensions allow for directional rotation of the head for field wiring as well as a positive quick disconnection of the assembly from the process or thermowell.

TR10

Create your product part number by selecting the appropriate assembly items from each of the categories below. Enter the item code into the applicable box to generate the part number.



Part Number	TR10-X-X-XXXXXX-X-XXXXX-XXX-XXX-XX-X-XXXXX-XX

1 Assembly description

Code	
0	Industrial assembly configured
1	Industrial sensor configured
A	Measuring insert [TR002]
B	RTD assembly with neck tube [TR200]
C	DIN RTD assembly with threaded protection tube [TR201]
D	RTD assembly with protection tube [TR211 / TR212]
F	DIN RTD assembly with flanged protection tube [TR401]
H	RTD assembly without thermowell [TR750 / TR760]
J	RTD assembly with perforated protection tube [TR820]
K	Measuring insert EEx-d [TRD02] (Replacement insert, for use in TRD20 only)
L	RTD assembly EEx-d [TRD20]

2 Unit of measure

I	Imperial
M	Metric

3 Insert design

S	Self gripping spring
N	Fixed to the fitting
D	Spring loaded plate (removable insert)
M	Fixed miniature terminal plate (not removable)
T	Spring loaded miniature terminal plate (removable)

4 Electrical approval

C	CSA Ex-proof
F	FM Ex-proof
A	EEx-i (ATEX) gas, acc. to directive 94/9/EC
B	EEx-i (ATEX) gas/dust, acc. to directive 94/9/EC
J	EEx-d (ATEX) acc. to directive 94/9/EC
H	EEx-n (ATEX) acc. to directive 94/9/EC
D	EEx-i, confirmation NAMUR NE24
Z	Without

5 Flame path fitting

1	Yes
Z	Without

6 Connection head

1	4000 F (Aluminum)
2	4000 S (Stainless steel)
3	7000 W (Aluminum)
7	KN4-A (Aluminum)
8	KN4-P (Polypropylene)
9	KNPL-0 (Aluminum)
A	BS (Aluminum)
B	BSZ (Aluminum)
D	BSZ-H (Aluminum)
J	BSZ-K (anti static Polyamide)
K	BSZ-HK (anti static Polyamide)
N	BSZ-H with digital temperature indicator DIH10 (set to transmitter range)
E	BSS (Aluminum)
F	BSS-H (Aluminum)
I	BVA (Stainless steel)
R	JS (Aluminum)
S	JVA (Stainless steel)
Z	Without

7 Cable entry

S	1/2 NPT
F	3/4 NPT
T	M20 x 1.5
P	M16 x 1.5
L	M12 x 1.5
Z	Without

8 Head instrument connection

S	1/2 NPT
F	3/4 NPT
B	G 1/2 B (BSP 1/2 inch)
T	M20 x 1.5
A	M24 x 1.5
J	M10 x 1.0
Z	Without

9 Terminal block / Transmitter

1	Crastin terminal block
2	Ceramic terminal block
3	T12 (Programmable Digital Transmitter)
8	T19 (Analogue Transmitter)
4	T24 (Programmable Analogue Transmitter)
6	T32 (HART® Transmitter)
9	T53 (Fieldbus Foundation / PROFIBUS PA Transmitter)
B	T91.10 (Analogue Transmitter, DIN form B)
C	T91.20 (Analogue Transmitter, form J)
X	Without / prepared for transmitter
Y	Without / flying leads

10 Neck extension

F	Nipple-Union-Nipple
E	Nipple
D	Fixed double threaded hex bushing
R	Spring loaded Bushing-Union-Nipple
G	Fixed single threaded hex bushing
K	Spring loaded bushing without oil seal
H	Spring loaded bushing with oil seal
5	Bushing with oil seal
U	Nipple-Union (Protection tube only)
L	Adjustable lock nut
C	Fixed single threaded hex bushing with additional fitting
X	Neck tube unthreaded, diam. 12 x 1.5 mm
V	Neck tube unthreaded, diam. 12 x 2.5 mm
S	Neck tube male threaded, diam. 12 x 1.5 mm (DIN 43772)
T	Neck tube male threaded, diam. 12 x 2.5 mm (DIN 43772)
Q	Neck tube male threaded, diam. 14 x 2.5 mm (DIN 43772)
Z	Without

11 Neck material

G	Galvanized steel
S	Stainless steel 316 (1.4401)
F	Stainless steel 316 Ti (1.4571)
Z	Without

Note: Some configurations are unavailable. Your WIKA sales person will notify you if you have made an incorrect selection

12 Fitting style

A	Fixed fitting, threaded hex bushing
B	Compression fitting with stainless steel ferrule
C	Compression fitting with Teflon® ferrule
D	Compression fitting, spring loaded, with stainless steel ferrule
Z	Without

13 Fitting material

A	Stainless steel 316 (1.4401)
B	Stainless steel 316 Ti (1.4571)
Z	Without

14 Thread size

K	1/2 NPT
J	3/4 NPT
N	1/4 NPT
M	M20 x 1.5
F	G 1/2 B
C	G 3/4 B
R	G 1/4 B
D	G 1/8 B
V	G 3/8 B
B	G 1 B
A	M8 x 1.0
T	M10 x 1.0
S	M12 x 1.5
P	M14 x 1.5
O	M18 x 1.5
Z	Without

15 N-Dimension (N) Imperial — Continued

Imperial

005	0.5 inch
010	1.0 inch
015	1.5 inch
020	2.0 inch
025	2.5 inch
030	3.0 inch
035	3.5 inch
040	4.0 inch
045	4.5 inch
050	5.0 inch
055	5.5 inch
060	6.0 inch
065	6.5 inch
080	8.0 inch

15 N-Dimension (N) Metric

Metric

012	12 mm
025	25 mm
030	30 mm
037	37 mm
050	50 mm
062	62 mm
065	65 mm
075	75 mm
087	87 mm
100	100 mm
112	112 mm
125	125 mm
130	130 mm
138	138 mm
140	140 mm
150	150 mm
163	163 mm
200	200 mm
210	210 mm
***	N-Dimension in mm (e.g. 84 mm = 084)
ZZZ	Without

16 Element

D	Pt100, class B
C	Pt100, class A
F	Pt100, 1/10 DIN of class B at 0°C
E	Pt10, class A
A	Cu10, class B
B	Ni120, class B
K	Pt1000, class B
J	Pt1000, class A
L	Pt100, accuracy less than class B
I	Pt100, 1/3 DIN of class B at 0 °C

17 Wiring configuration

A	Single 2-wire
B	Single 3-wire
C	Single 4-wire
D	Single 4B-wire
E	Dual 2-wire
F	Dual 3-wire
G	Dual 4-wire
H	Dual 4B-wire

18 Temperature range

K	-50...+250 °C
S	-50…+450 °C
M	-200...+250 °C
T	-200...+450 °C
H	-200...+600 °C
L	0...+850 °C
5	0...+1000 °C

19 Tip construction

C	General purpose
F	Fast response (copper tip)
G	Tip sensitive (thin-film)
T	Fast response tip sensitive (copper tip)
V	Vibration proof tip (max. 10 g force)

20 Sensor diameter

1	1/4 inch / 0.250 inch (6.35 mm)
4	3/16 inch / 0.188 inch (4.75 mm)
2	1/8 inch / 0.125 inch (3.17 mm)
J	1/4 inch / 0.250 inch (6.35 mm) reduced to 1/8 inch / 0.125 inch (3.17 mm)
3	0.215 inch (5.46 mm)
A	2.0 mm
B	3.0 mm
G	4.0 mm
D	6.0 mm
H	6.0 mm reduced to 3.0 mm
F	6.0 mm with 8.0 mm tip
E	8.0 mm

21 Sheath material

P	Stainless steel 316 / 316 L (1.4401 / 1.4435)
J	Inconel® 600 (2.4816)
Q	Stainless steel 316 Ti (1.4571)

22 A-Dimension (A)

*****	Please specify (e.g. 84 mm = 00084) (e.g. 9.5 inch = 00950)

23 Certificates

1	Quality certificates
Z	Without

24 Additional order details

T	Additional text
Z	Without