

Important Notice

CAUTION

Electrical shock could cause death or serious injury. If the sensor is installed in a high voltage environment and a fault or installation error occurs, high voltage may be present on the connection terminals or the probe itself.

Safe and secure operation of the temperature sensor can only be guaranteed if the operating instructions of the used transmitters and all included safety notes are read, understood and followed. For Endress+Hauser temperature transmitters see enclosed CD-ROM.

Correct use

The manufacturer cannot be held responsible for damage caused by misuse of the unit. The installation conditions and connection values indicated in the operating instructions must be followed!

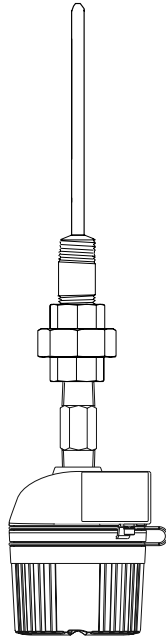
CAUTION

The RTD assembly (T15) is designed to be used in conjunction with a thermowell. It is not meant to be used directly in pressurized applications; Maximum working pressure = P_{atm}. (Atmospheric pressure)

Installation Guidelines and Safety instructions

1. Install the unit according to the relevant NEC Code and local regulations.
2. Avoid any spark due to impact, friction and installation. Anti-sparking wrenches should be utilized.
3. Approved apparatus must be installed in accordance with manufacturer's instructions, see corresponding Control Drawing:

Approval		Drawing code
XP DIP Class I, II, III Div. 1+2	CSA	ZD052R/09/en
XP NI DIP Class I, II, III Div. 1+2	CSA	ZD054R/09/en
XP DIP Class I, II, III Div. 1+2	FM	ZD056R/09/en
XP NI DIP Class I, II, III Div. 1+2	FM	ZD063R/09/en



Measuring System
Explosion proof RTD assembly with spring loaded insert and enclosure for process industry.
The Pt100 RTD is specifically designed for use in two different process temperature ranges:
(low range RTD -58 °F to 392 °F;
high range RTD -328 °F to 1112 °F).

Compact Instructions Explosion proof RTD assembly T15

The accessories for pipe connections and the appropriate gaskets and sealing rings are not supplied with the sensors. These are the customer's responsibility. For further information regarding connections, please refer to the corresponding Standards.

Installation and operation

The unit is constructed using the most up to date production equipment and complies with the safety requirements of the local guidelines. However, if it is installed incorrectly or misused, certain application dangers can occur. Installation, wiring and maintenance of the unit must only be completed by trained, skilled personnel who are authorized to do so by the plant operator. The plant operator must make sure that the measurement system has been correctly wired to the connection schematics. Procedures indicated in these instructions must be followed.

Returns

Please follow the Return Authorization Policy which is attached with this manual.

Safety pictograms and symbols



Notes draw attention to activities or procedures that can have a direct influence on operation or trigger an unforeseen device reaction if they are not carried out properly.

CAUTION

Cautions draw attention to activities or procedures that can lead to persons being seriously injured, to safety risks or to the destruction of the device if they are not carried out properly.

Though the information provided herein is believed to be accurate, be advised that the information contained herein is NOT a guarantee of satisfactory results. Specifically, this information is neither a warranty nor guarantee, expressed or implied, regarding performance; merchantability, fitness, or other matter with respect to the products; and recommendation for the use of the product/process information in conflict with any patent. Please note that Endress+Hauser reserves the right to change and/or improve the product design and specifications without notice.

All important Temperature Operating Instructions, particularly with regard to head and field transmitters are available on CD-ROM, find enclosed or order by order number: **SOND-T-AG**.

Supplementary documentation

The units are factory tested with 850 V_{DC} for one second between live parts (leads/terminals) and exposed non-current-carrying metal parts (e.g. insert sheath)

Class	max. Tolerances (°C)
A	± (0.15 + 0.002 · t ²), temperature range: -100 °C to 450 °C
B	± (0.3 + 0.005 · t ²), temperature range: -200 °C to 600 °C

* |t| = absolute value °C. For measurement errors in °F, calculate using equation above in °C, then multiply the outcome by 1.8.

Maximum measured error (Pt100 / IEC 60751)

Response time for sensor assembly without thermowell and transmitter!

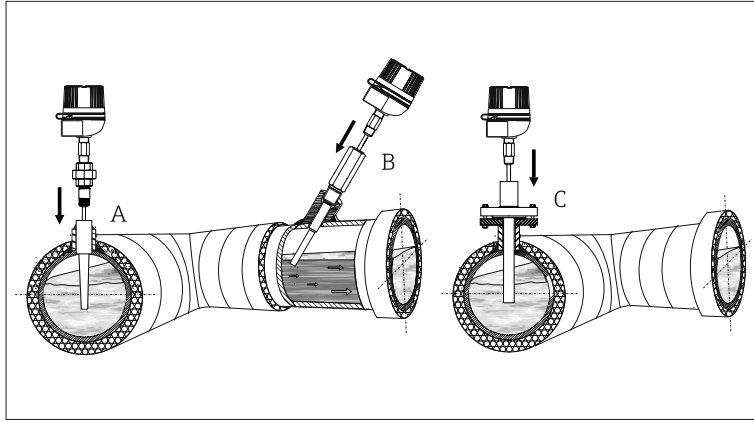
Construction	RTD insert Ø1/4"	High temp. range	Low temp. range
	3 s	3 s	9 s

Response time 63% response time per ASTM E644

Performance Characteristics

Installation

Installation locations



Examples of spring loaded insert installation.

- A: Explosion proof RTD assembly T15 installed within a socket weld thermowell
- B: Explosion proof RTD assembly T15 installed within a tilted installed threaded thermowell
- C: Explosion proof RTD assembly T15 installed within a flanged thermowell

For installation proceed as follows:

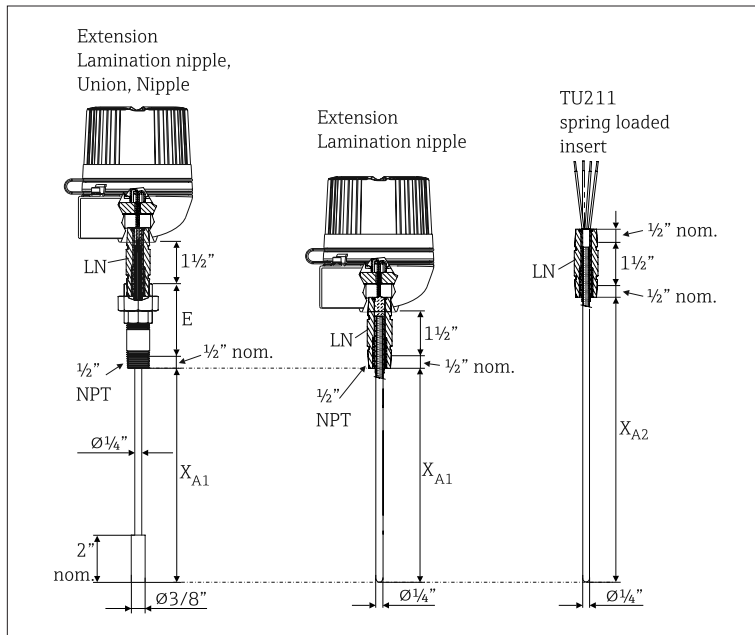
1. Seal the extension nipples with TFE tape before screwing in the device.
2. Screw the explosion proof RTD assembly T15 only into an already prepared thermowell.

CAUTION

Do not install the explosion proof RTD assembly T15 directly to the process pipe or process container wall. Otherwise it could cause death or serious injury!

Dimensions

With spring loaded insert and flamepath nipple. All dimensions in inches.



E = Extension length (nom. dimension, see table)

LN = Lamination nipple (flamepath nipple)

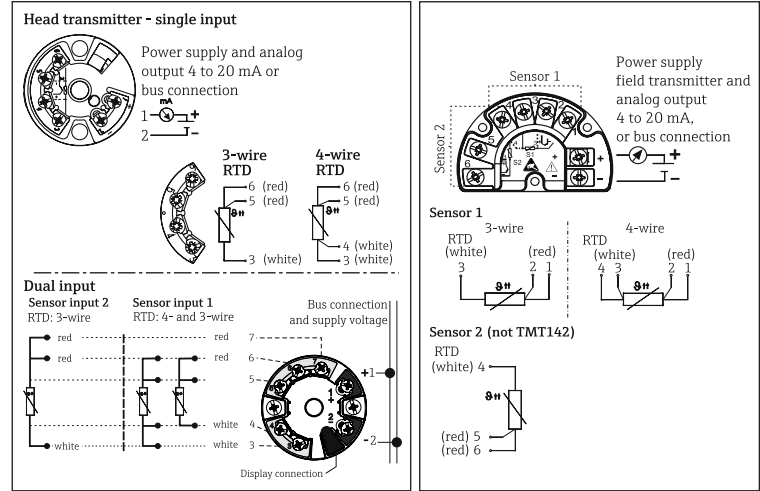
XA1 = Insert immersion length (see table)

XA2 = Spring loaded insert immersion length TU211 as spare part with Lamination nipple

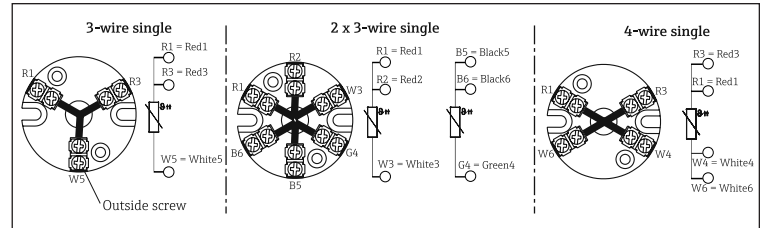
i For spare part spring loaded insert, TU211, please contact Endress+Hauser!

Electrical connection-wiring diagrams

Head or field transmitter mounted (3" or 5 1/2" flying leads - crimped sleeves)



Terminal block mounted (insert with 3" flying leads)



i The blocks and transmitters are shown as they will sit inside the heads in reference to the conduit opening. ALWAYS terminate leads to the outside screw!

X_{A1}	E (nom. dimension)
4", 6", 9", 12" specified length in 1/2" increments	Lamination Nipple Union Nipple (LUN) 3" or 6"
X_{A2}	
Calculate as follows: $X_{A2} = X_{A1} + E$	

Wire specifications: 24AWG, 19 strand silver plated copper with 0.010" TFE extruded outer

Minimum immersion

Construction	RTD insert $\phi 1/4"$
High temperature range -328 °F to 1112 °F (-200 °C to 600 °C)	1 1/4"
Low temperature range -58 °F to 392 °F (-50 °C to 200 °C)	3/4"

Technical data

Weight: From 1 to 5.5 lbs
 Material: 316SS (insert)
 Shock and vibration resistance: 4g/2 to 150 Hz as per IEC 60 068-2-6

Ambient temperature limits*

Housing without head-mounted transmitter	
Aluminium pressure die-cast housing	-58 to 212 °F (-50 to 100 °C)
Stainless steel housing	-58 to 212 °F (-50 to 100 °C)
Housing with head-mounted transmitter	
All types of housing	-40 to 185 °F (-40 to 85 °C)
Field transmitter	
with display	-40 to 158 °F (-40 to 70 °C)
without display	-40 to 185 °F (-40 to 85 °C)

*For hazardous areas refer to the transmitter control drawing