

Techtrol Resistance Temperature Detector Sensor – 'RTD'



RTD (Resistance Temperature Detector) is a passive device based on linear change in resistance of metal vs temperature relationship and it is repeatable over the time. RTDs are mostly used in process industry for high accuracy and repeatability.

SALIENT FEATURES

- Available in elements Pt-100, Pt- 200, Pt-500 & Pt-1000
- Available with accuracy A, B, DIN1/3 or DIN 1/10
- Wide choice of protection sheath material and diameter
- Head Exd Gr. IIA IIB / IIC, ATEX Exd IIC protection for hazardous area application
- Customized design to suit mounting and application
- Option of temperature transmitter
- Option of thermowell for sensor protection



RTD with Head



RTD with Thermowell

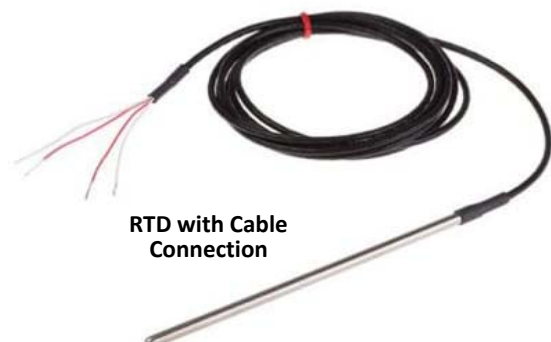
CONSTRUCTION

It comprises standard PT-100 element of 2 wire, 3 wire or 4 wire as per requirement, placed inside the protection sheath and its leads are insulated and terminated inside the head or in the form of cable termination as per requirement.

In case of MI insulation, RTD element is connected to the inner conductors of MI cable and element is encapsulated in metal sheath to form a sealed assembly.



RTD mineral Insulated



RTD with Cable Connection

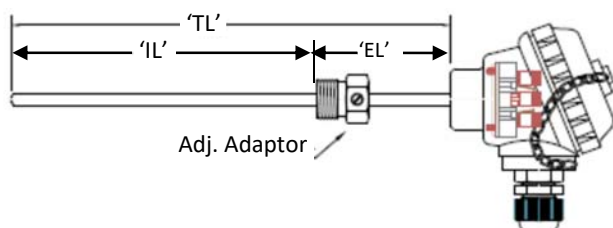
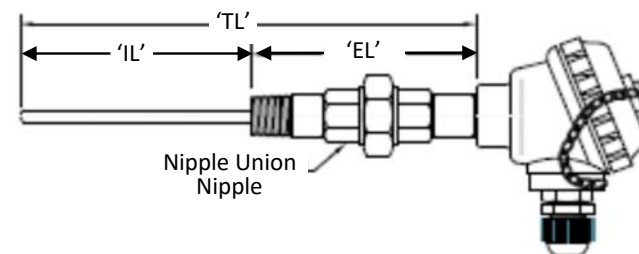
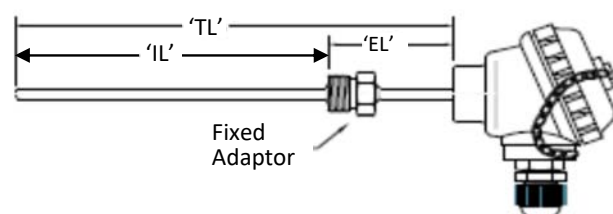
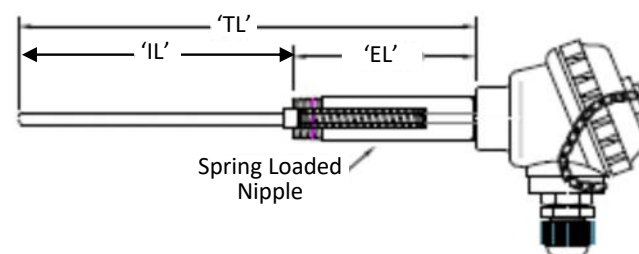
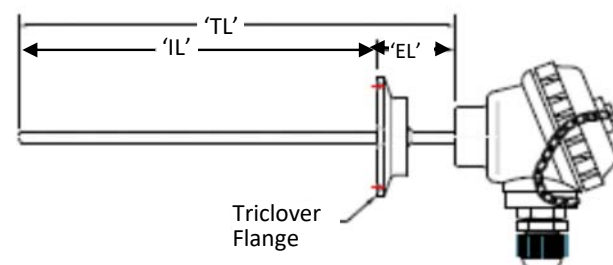
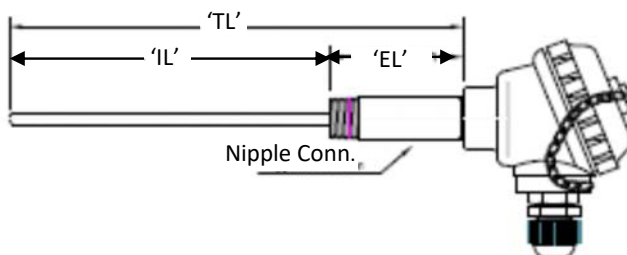
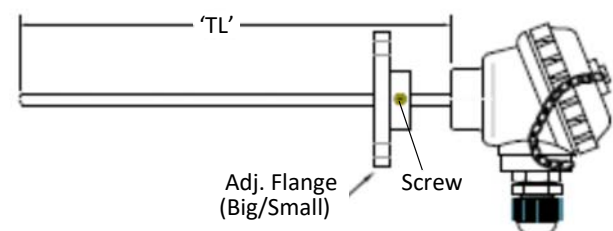
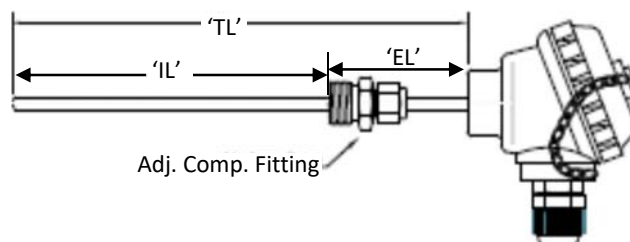
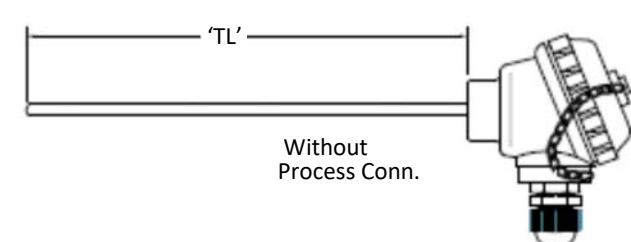


SPECIFICATIONS

Element	Pt-100 (-200 to 850°C), Pt - 200 (-200 to 600°C), Pt-500 (-50 to 250°C), Pt-1000 (-50 to +500 °C)),
No. of Element	Simplex, Duplex, Triplex or Multipoint
No. of Wires	2, 3, 4 wires
Insulation	Ceramic, Mineral
Protection Sheath MOC	SS304/ 304L/ 316/ 316L/ 321, Hastalloy C/ B, Brass, Titanium
Protection Sheath Diameter	3, 4, 4.5, 5, 6, 8, 9, 10, 12, 12.7, 16, 19, 20 mm as standard. Others available on request Mineral insulated SS316 are available in 3, 5, 6, 8 mm dia
Total Sheath Length (TL)	10 mm to 3 mtrs. (rigid); 100 mm to 50 mtrs (flexible with mineral insulation in SS316)
Termination Head	WP IP65 x single cable entry, IP67 x dual cable entry, Al. KNE WP IP67 or 68 x single cable entry, Al. Exd Gr. IIA, IIB, x single or double cable entry Al. Exd GR. IIC x single or double cable entry Al. ATEX Exd Gr. IIC x single or double cable entry SS304 or SS316 WP IP65 x single cable entry
Cable	7/36 SWG PVC/PVC (80 °C max), Teflon/ Teflon, Teflon/Shield/ Teflon, Teflon/Teflon/SS braided (200°C max), Teflon/fiber/ SS braided (250°C max). 14/36 SWG Teflon/Teflon, Teflon/Teflon/SS braided
Connector	Plug & Jack
Cable Wire	Silver plated copper (standard)
Cable Gland	PG11, 13.5 Nylon or brass, ½" BSP SC/DC Brass, ½" NPT SC/DC Brass, ¾" ET SC/DC brass
Terminals (Head)	Ceramic block with nickel plated brass terminals (Spring loaded terminals available optionally)
(Cable)	Tinned wire or with Pin lug / 'O' lugs / 'U' lugs
Process Connection	Al. flange big adjustable (Oval shape flange, size 70 PCD, Ø 7 x 2 holes), Al. flange small adjustable (Oval shape flange, size 62 PCD, Ø 4.5 x 2 holes) SS304 x Adj. or fixed adaptor ¼", 3/8", ½", ¾" 1" BSP/ NPT (M) SS304 x Adj. compression fitting ¼", 3/8", ½", ¾" 1" BSP/ NPT (M) SS304 x Nipple, Spring Loaded Nipple, Nipple Union Nipple Conn SS316 x Triclover Ferrule Brass Ni Pltd x Bayonet Holder
Accuracy	Class A, B, DIN 1/3, DIN 1/10
Options	
Temperature Transmitter	Isolated or non-isolated x head or DIN rail mounted transmitter with 4-20 mA O/P (4-20 mA + HART o/p on request); Supply- 24 VDC
Thermowell	Available with screwed, flanged and welded connection (order separately)

SCHEMATIC DIAGRAM

1. RTD with Head



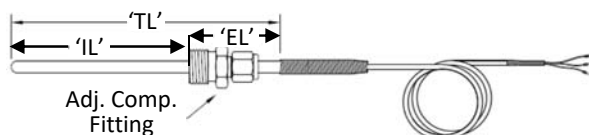
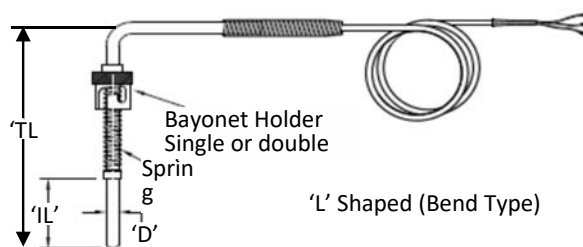
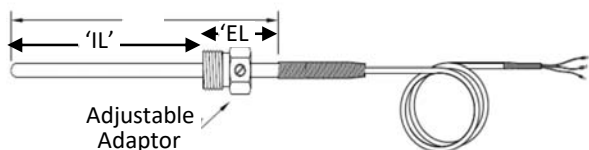
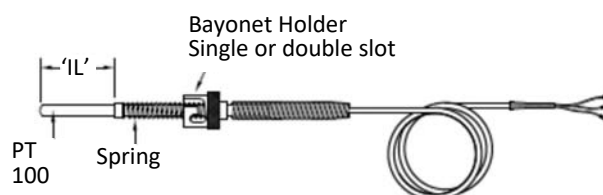
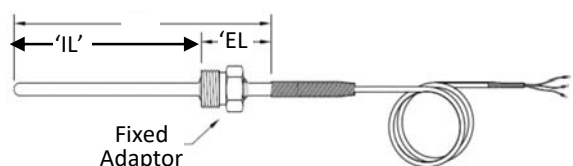
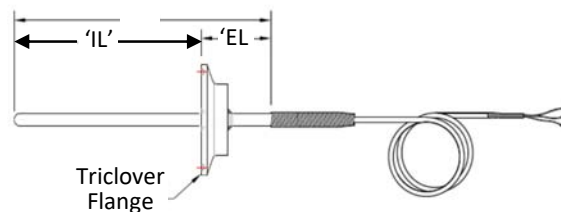
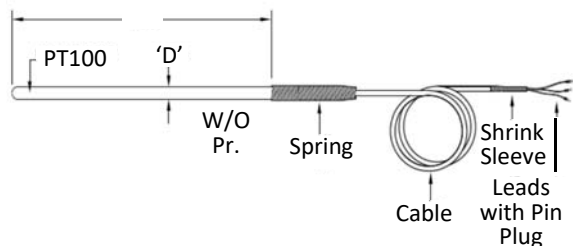
Note :

TL = Total Length

IL = Insertion Length

EL = Extension Length

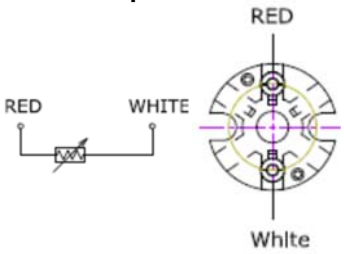
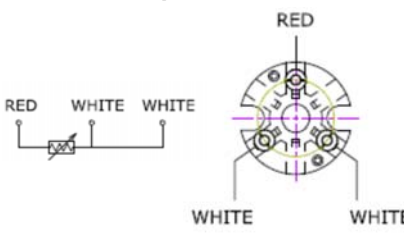
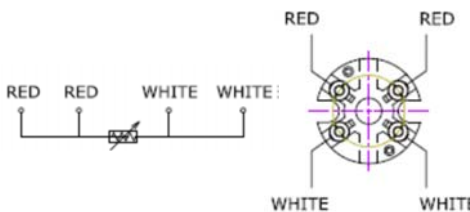
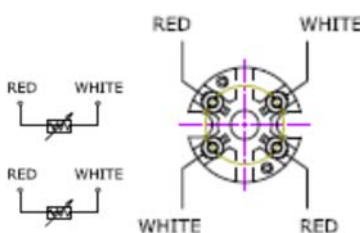
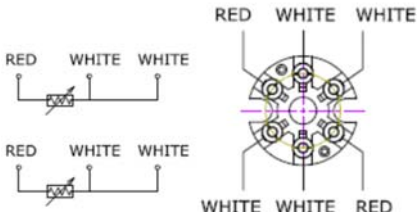
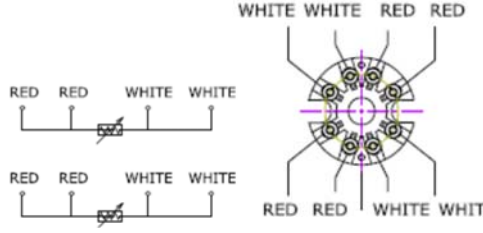
2. RTD with Cable Connection



Note :
TL = Total Length
IL = Insertion Length
EL = Extension Length

Note: Customized RTDs with Skin type, Handle type or Winding Slot type are available

TERMINATION (for RTD with enclosure)

2 Wire x Simplex 	3 Wire x Simplex 	4 Wire x Simplex 
2 Wire x Duplex 	3 Wire x Duplex 	4 Wire x Duplex 

TEMPERATURE TRANSMITTER



DIN Rail Mounted



Head Mounted

MODEL IDENTIFICATION

[illegible]

Non-isolated 4-20 mA, head mounted	1
Non-isolated 4-20 mA, DIN rail mounted	2
Isolated 4-20 mA, head mounted	3
Isolated 4-20 mA, DIN rail mounted	4
Isolated 4-20 mA + HART, head mounted	5
Isolated 4-20 mA + HART, DIN rail mounted	6
Others	0

ORDERING INFORMATION

Model number x total length and insertion length (cable length in case of cable termination) and operating temperature.

Note: 1. RTDs available with Thermowell. Refer Thermowell catalog to order it separately.

2. Temperature Controller available. To be ordered separately

RTDs with Head/ Enclosure

- These RTD assemblies are terminated with a connection head with terminal block. The head provides mechanical and environmental (weatherproof or flameproof) protection for the electrical connection
- Available in various types of sheath material including mineral insulated sheath



RTDs with Cable Connection

Simple and inexpensive with cable extensions.

- Available with fixed / adjustable adaptor, adjustable compression fitting, bayonet holder for easy installation
- Generally used for applications in which the metallic probe tip is mounted directly into bored holes



Mineral Insulated RTDs

- Fast responding, flexible and durable
- Available in SS316 Sheath Dia. 3, 4, 5, 6 & 8 mm with all types of process connections
- Sheath can be bent / routed to suit installation without affecting performance
- Available with head or cable connection or with connector



CUSTOMIZED OPTIONS

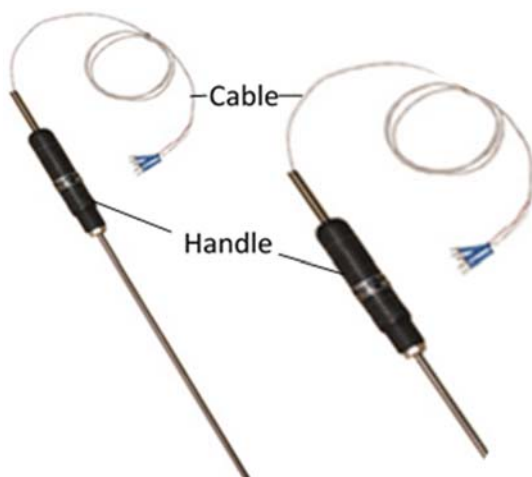
1. Skin Type RTDs

- Used to measure surface temperature on tanks or weldable pad for quick response and accurate temperature measurement at location
- They are non-intrusive type sensors consisting of sensor embedded in flat pad or washer, which can be welded or screwed on the surface
- Also available with hose clamp to mount on pipe
- Available in various sheath MOCs with cable connection or head



2. Handle Type RTDs

These are general purpose immersion style RTDs with handle (Nylon/ Bakelite/ SS/ Aluminum). Its connections are taken out in the form of cable connections or with miniature connector.



3. Winding Slot RTDs



Used to measure winding temperature of large Motors, Generators etc. The RTD sensors are sandwiched between the windings of Motors/ Generators.

All dimensions in mm except specified

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