



RTDs

RTDs

HEAT TRACE RTDs



FEATURES

- **Heat Transfer Pad Conforms to Pipe Radius for Fast Temperature Response**
- **Rugged Stainless Steel Sheath Provides Excellent Mechanical Protection**
- **Replaceable Element Design Simplifies RTD Maintenance**



APPLIED SENSOR TECHNOLOGIES
A DIVISION OF UNITED ELECTRIC CONTROLS

RTDs - B - 01

OVERVIEW

Applied Sensor Technologies manufactures a broad range of temperature sensor assemblies, including:

- Thermocouples
- RTDs (both wire wound and thin film)
- Thermistors
- Integrated Circuit (IC)

All of our products are known for their consistent high reliability and durability. We are continually examining and improving our engineering, production and service operations to meet constantly evolving customer requirements. Our ISO 9001 certification is objective proof of our company-wide commitment to quality.

Heat Tracing Expertise

United Electric Controls has been a recognized leader in the area of heat tracing control for several decades. Our electro-mechanical thermostats, both NEMA 4X and explosion-proof, can be found in virtually every process industry today.

Over the years, we have also built our expertise in electronic heat trace control. Our Heat Tracing RTDs are the results of more than 10 years' experience in providing sensors for these challenging applications.

Our unique, "replaceable" design has been field-proven to be accurate and reliable, and is available in a variety of configurations.

FEATURES

Simplify installation and address maintenance issues with Applied Sensor Technologies' Heat Trace RTDs. Designed for use in any pipe or surface temperature measuring application, these sensors are especially appropriate for use with electronic heat trace control products.

Some of our advantages are:

- Heat transfer pad conforms to pipe radius for fastest temperature response
- Rugged stainless steel sheath for excellent mechanical protection
- Replaceable RTD elements
- Many types of terminal heads
- Designs can be adapted for other types of sensors



TECHNOLOGY

RTDs (Resistance Temperature Detectors)

An RTD capitalizes on the fact that the electrical resistance of a material changes as its temperature changes. For RTDs, the resistance of the platinum sensor will rise nearly linearly with temperature; the signal is more accurate than a thermocouple.

RTDs are typically used to measure temperatures from -196°C to 500°C (-320°F to 932°F), although we currently have special designs which are capable of 700°C continuous.

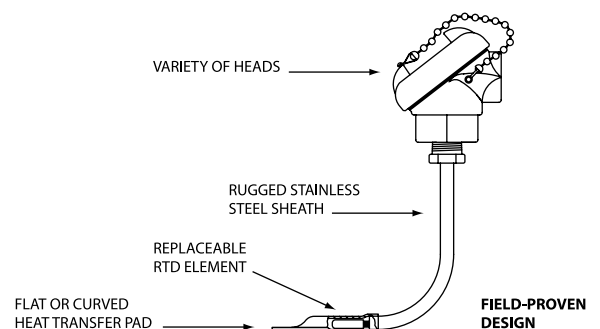
Why use "Replaceable" Designs?

Replaceable element design simplifies and reduces the time and cost of sensor maintenance. Applied Sensor Technologies' Heat Trace RTDs make the job of replacing a faulty element easy. With traditional Heat Trace RTDs, several time-consuming and expensive steps need to be executed to replace a faulty element. The process routinely involves 3 trades – insulation handlers, welders and instrument technicians. This can result in significant cost and downtime.

Not only that, but our experience has shown that one of the major causes for heat tracing failure and pipe freezing is the improper re-installation of insulation and cladding after a repair. If a seal is not tight around the repair, reliability is compromised and so are the results.

With our "replaceable" design, however, these maintenance problems are eliminated - the insulation and cladding are never disturbed. Also, the repair is simpler, faster and more cost-effective.

To replace a faulty element, you simply remove the head cover, disconnect the leads and remove the element. You then insert the new element and reconnect the leads. Your process is up and running in minutes.





SPECIFICATIONS

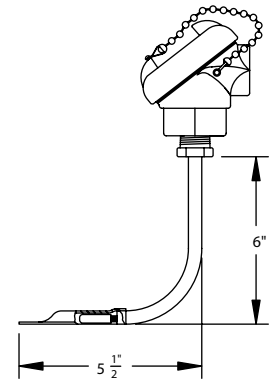
NEMA 4 CAST ALUMINUM HEAD WITH REPLACEABLE ELEMENT

T1804

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0° C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Cast aluminum head; conforms to NEMA 4 requirements
 Sheath: 0.375" O.D. stainless steel
 Operating Range: 0° to 482° C (32° to 900° F)

Uses replacement element T1805

Product Number	Nominal Pipe Size	O.D.
T1804-F	Flat	0
T1804-5	0.50"	0.84"
T1804-7	0.75"	1.05"
T1804-10	1.00"	1.32"
T1804-15	1.50"	1.90"
T1804-20	2.00"	2.38"
T1804-30	3.00"	3.50"
T1804-40	4.00"	4.50"
T1804-60	6.00"	6.63"
T1804-80	8.00"	8.63"



For dual element, use part #T1804D-__.

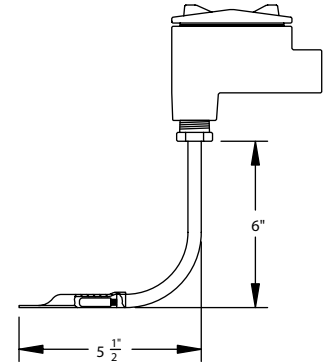
EXPLOSION PROOF CAST ALUMINUM HEAD WITH REPLACEABLE ELEMENT

T1804X

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Cast aluminum head; approved for Class I, Division I, Groups C, D; Class II, Groups E,F,G
 Sheath: 0.375" O.D. stainless steel
 Operating Range: 0° to 482°C (32° to 900°F)

Uses replacement element T1805

Product Number	Nominal Pipe Size	O.D.
T1804X-F	Flat	0
T1804X-5	0.50"	0.84"
T1804X-7	0.75"	1.05"
T1804X-10	1.00"	1.32"
T1804X-15	1.50"	1.90"
T1804X-20	2.00"	2.38"
T1804X-30	3.00"	3.50"
T1804X-40	4.00"	4.50"
T1804X-60	6.00"	6.63"
T1804X-80	8.00"	8.63"



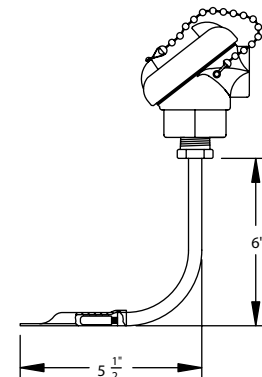
NEMA 4X CAST IRON, EPOXY COATED HEAD WITH REPLACEABLE ELEMENT

T1855

Element type: **Dual element**, 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Cast iron head with epoxy coating; conforms to NEMA 4X requirements
 Sheath: 0.375" O.D. stainless steel
 Operating Range: 0° to 482°C (32° to 900°F)

Uses replacement element T1805D

Product Number	Nominal Pipe Size	O.D.
T1855-F	Flat	0
T1855-5	0.50"	0.84"
T1855-7	0.75"	1.05"
T1855-10	1.00"	1.32"
T1855-15	1.50"	1.90"
T1855-20	2.00"	2.38"
T1855-30	3.00"	3.50"
T1855-40	4.00"	4.50"
T1855-60	6.00"	6.63"
T1855-80	8.00"	8.63"



NEMA 4X POLYCARBONATE BOX WITH REPLACEABLE ELEMENT

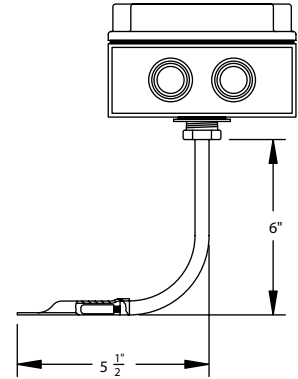
T1844

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Polycarbonate head; conforms to NEMA 4X requirements, 6 knock-outs

Sheath: 0.375 O.D. stainless steel
 Operating Range: 0° to 482°C (32° to 900°F)

Uses replacement element T1805

Product Number	Nominal Pipe Size	O.D.
T1844-F	Flat	0
T1844-5	0.50"	0.84"
T1844-7	0.75"	1.05"
T1844-10	1.00"	1.32"
T1844-15	1.50"	1.90"
T1844-20	2.00"	2.38"
T1844-30	3.00"	3.50"
T1844-40	4.00"	4.50"
T1844-60	6.00"	6.63"
T1844-80	8.00"	8.63"

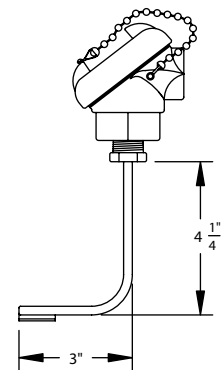


NEMA 4 CAST ALUMINUM HEAD/FIXED ELEMENT

T1441

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Cast aluminum head; conforms to NEMA 4 requirements
 Sheath: 0.250" O.D. stainless steel
 Operating Range: -18°C to 371°C (0° to 700°F)

Product Number
 T1441

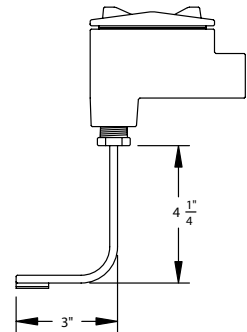


CAST ALUMINUM EXPLOSION-PROOF HEAD/FIXED ELEMENT

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Enclosure: Cast aluminum head; approved for Class I, Division I, Groups C, D; Class II, Groups E,F,G
 Sheath: 0.250" O.D. stainless steel
 Operating Range: -18°C to 371°C (0°F to 700°F)

Product Number
 T1441X

T1441X

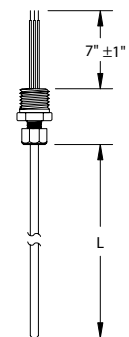


100 OHM RTD ASSEMBLY WITH FLEXIBLE MI CABLE CONSTRUCTION

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Sheath: 0.250" O.D. stainless steel
 Operating Range: -18° to 780°C (0° to 1400°F) maximum

Product Number	Length (in inches) L	Instrument Connection
T1792	120	1/2" NPT
T1792-8	8	1/2" NPT
T1792-10	10	1/2" NPT
T1792-12	12	1/2" NPT

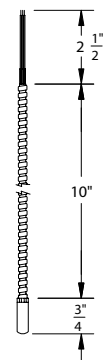
T1792



SINGLE AND DUAL "BULLET" RTD REPLACEMENT ELEMENT
 (For T1804, T1804X, T1855, T1844)

Element type: 3 wire construction, DIN 0.00385
 Resistance: 100 ohms @ 0°C
 Tolerance: Class B, +/- 0.12%
 Sheath: 0.250" O.D. stainless steel
 Lead: 22 AWG, fiberglass insulation, st/st armor
 Operating Range: 0° to 482°C (32° to 900°F)

Product Number
 T1805 Single element
 T1805D Dual element



RECOMMENDED PRACTICES AND WARNINGS

United Electric Controls Company recommends careful consideration of the following factors when specifying and installing UE pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, maximum temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to maximum temperature is acceptable on a limited basis (i.e., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. Orient unit so that moisture does not enter the enclosure via the electrical connection. When appropriate, this entry point should be sealed to prevent moisture entry.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point or faulty display. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temperature exceeding published limits.

LIMITED WARRANTY

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (Ex-works, Factory, Watertown, Massachusetts, INCOTERMS); provided, however, that this warranty applies only to equipment found to be so defective within a period of 18 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives. EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF SELLER'S LIABILITY

SELLER'S LIABILITY TO BUYER FOR ANY LOSS OR CLAIM, INCLUDING LIABILITY INCURRED IN CONNECTION WITH (I) BREACH OF ANY WARRANTY WHATSOEVER, EXPRESSED OR IMPLIED, (II) A BREACH OF CONTRACT, (III) A NEGLIGENT ACT OR ACTS (OR NEGLIGENT FAILURE TO ACT) COMMITTED BY SELLER, OR (IV) AN ACT FOR WHICH STRICT LIABILITY WILL BE INPUTTED TO SELLER, IS LIMITED TO THE "LIMITED WARRANTY" OF REPAIR AND/OR REPLACEMENT AS SO STATED IN OUR WARRANTY OF PRODUCT. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OF A LIKE GENERAL NATURE, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS OR PRODUCTION, OR LOSS OR EXPENSES OF ANY NATURE INCURRED BY THE BUYER OR ANY THIRD PARTY.

UE specifications subject to change without notice.

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