

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



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.

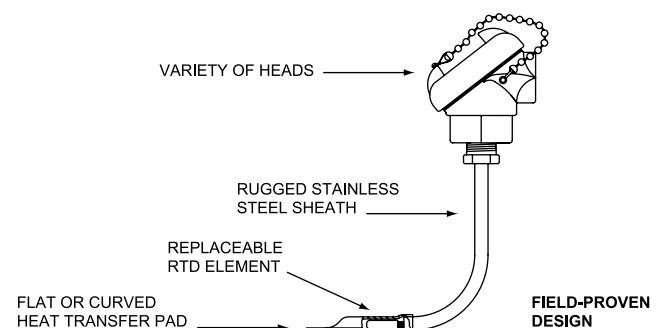
Why use "Replaceable" Designs?

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 to make a change – 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

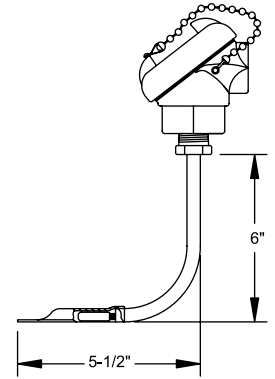
T1804

- 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-__



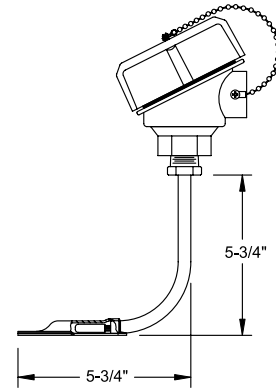
EXPLOSION PROOF CAST ALUMINUM HEAD WITH REPLACEABLE ELEMENT

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 T2588

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"



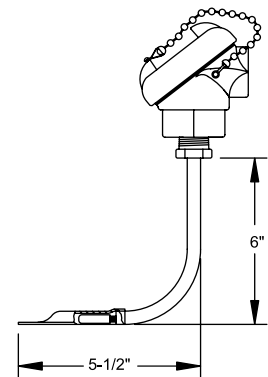
NEMA 4X CAST IRON, EPOXY COATED HEAD WITH REPLACEABLE ELEMENT

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"



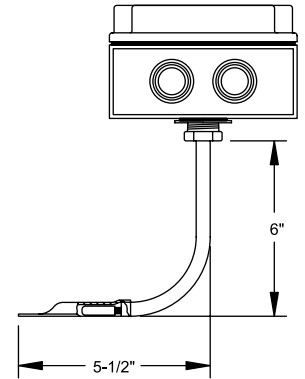
NEMA 4X POLYCARBONATE BOX WITH REPLACEABLE ELEMENT

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"

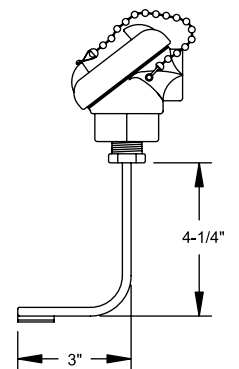


NEMA 4 CAST ALUMINUM HEAD/FIXED ELEMENT

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

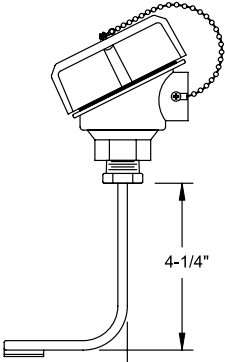


CAST ALUMINUM EXPLOSION-PROOF HEAD/FIXED ELEMENT

T1441X

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

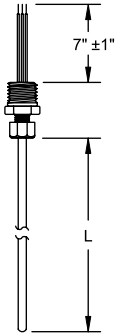


100 OHM RTD ASSEMBLY WITH FLEXIBLE MI CABLE CONSTRUCTION

T1792

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

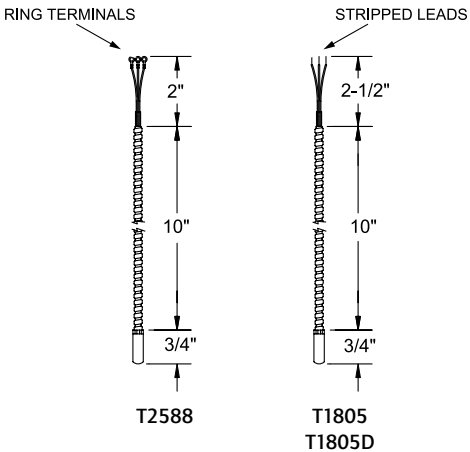


SINGLE AND DUAL "BULLET" RTD REPLACEMENT ELEMENT

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 for T1804, T1844
T2588	Single element for T1804X
T1805D	Dual element for T1855



RECOMMENDED PRACTICES AND WARNINGS

Applied Sensor Technologies recommends careful consideration of the following factors when specifying and installing AST temperature sensors. 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 drawings must never be exceeded, even by surges in the system. Operation of the unit up to maximum temperature is acceptable on a limited basis (e.g., start-up, testing) but continuous operation must be restricted to the designated 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, electrical noise and ambient temperature fluctuations will not damage unit or affect operation. When applicable, 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.
- Unit must not be altered or modified after shipment. Consult UE if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift or instability. 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 appropriate wire size recommended.
- Do not mount unit in ambient temp. 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. 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.

Specifications subject to change without notice.

U.S. SALES OFFICES

United Electric Controls
32 Highland Rd.
South Hampton, NH 03827
Phone: 603-394-0078
FAX: 603-394-0175

United Electric Controls
28 N. Wise Ave.
Freeport, IL 61032
Phone: 815-235-3501
FAX: 815-235-3847

United Electric Controls
1022 Vineyard Drive
Conyers, GA 30013
Phone: 770-483-8400
FAX: 770-929-8716

United Electric Controls
5829 Grazing Court
Mason, OH 45040
Phone: 513-398-3175
FAX: 513-398-3076

United Electric Controls
102 Salazar Court
Clayton, CA 94517
Phone: 925-524-0210
FAX: 925-524-0210

United Electric Controls
27 Summit Terrace
Sparta, NJ 07871
Phone: 973-271-2550
FAX: 973-729-6099

United Electric Controls
12630 Summerwood Glen
Houston, TX 77041
Phone: 832-243-0119
FAX: 832-243-0140

CANADA

EASTERN
68 Mosley Crescent
Brampton, Ontario
Canada L6Y 5C8
Phone: 905-455-5131
FAX: 905-455-5131

INTERNATIONAL OFFICES

BELGIUM
United Electric Controls-Europe
G. Van Gervenstraat 19A
B-9120 Beveren-Waas, Belgium
Phone: 32-37554-383
FAX: 32-37552-747

CHINA
United Electric Controls
Room 1114, No. 511
Shenshi Building
Weihai Road
Shanghai 200041, P.R. China
Phone: +8621-6255 8059
FAX: +8621-6255 8349

GERMANY
United Electric Controls
An Der Zentlinde 21
D-64711 Erbach, Germany
Phone: 496-062-7400
FAX: 496-062-7501

MALAYSIA
United Electric Controls, Far East
No. 1-2-2, 2nd Floor
Jalan 4/101C
Cheras Business Centre
Batu 5, Jalan Cheras
56100 Kuala Lumpur, Malaysia
Phone: 603-9133-4122
FAX: 603-9133-4155

RUSSIA
United Electric Controls, Moscow
Alyabyeva str., 4-1-4
Moscow, 121309, Russia
Phone: +7 (095) 792-88-06
FAX: +7 (095) 142-34-60

WESTERN
148 Silver Ridge Close N.W.
Calgary, Alberta
Canada T3B 3T4
Phone: 403-247-3724
FAX: 403-247-3724



APPLIED SENSOR
TECHNOLOGIES

A DIVISION OF UNITED ELECTRIC CONTROLS

180 Dexter Avenue, P.O. Box 9143
Watertown, MA 02471-9143 USA
Telephone: 617 923-6966 Fax: 617 926-8411
<http://www.appliedsensortech.com>

FGS35001204