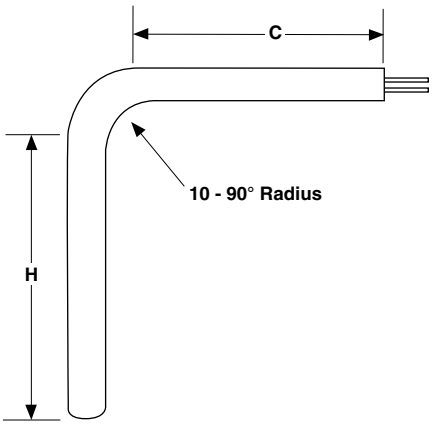
Resistance Temperature Sensors

Product	Description	Temperature		Accuracy	Page
		°F	°C		
RTDs	Accurate, repeatable and interchangeable over a wide operating range.	-328 to 1200	-200 to 650	DIN Class A ± 0.06% at 32°F (0°C) DIN Class B ±0.12% at 32°F (0°C)	76
Thermistors	Highly sensitive to small changes in temperature, fairly accurate over a limited temperature range.	-75 to 500	-60 to 260	±1% at 77°F (25°C) to ±15% at 32°F (0°C)	88
ENVIROSEAL™ HD	Suited for heavy-duty applications including those in harsh environments.	-40 to 392	-40 to 200	Available with either RTD or thermistors. See information above.	95

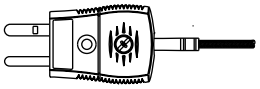
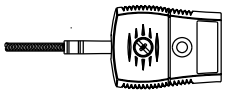
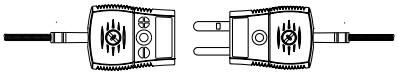
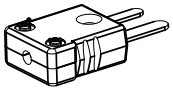
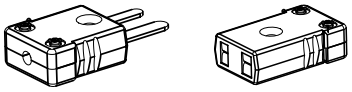
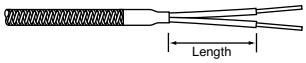
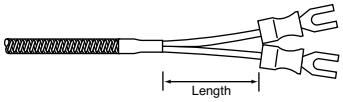
RTDs

Bends

Diameter in.	Standard Bend Radius in.	Minimum "H" Dimension in.	Minimum "C" Dimension in.
0.125	3/8	2	2
0.188	3/8	2	2
0.250	1/2	2	2



Lead Terminations

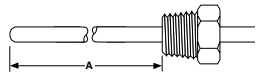
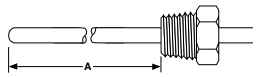
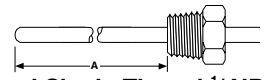
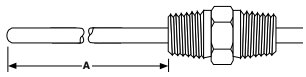
Termination	Code	Length
 Standard Male Plug	A	—
 Standard Female Jack	B	—
 Standard Male Plug with Mating Connector	C	—
 Miniature Male Plug	J	—
 Miniature Female Jack	K	—
 Miniature Male Plug with Mating Connector	L	—
 Split Leads	T	1 1/2*
 #8 Spade Lugs	U	1 1/2*

* When style contains jacketed wire.

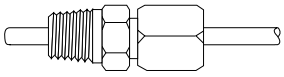
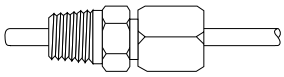
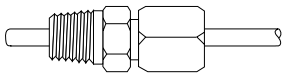
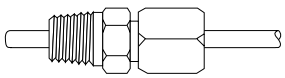
RTDs

Fitting Options

Fixed Fittings

Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
 **Fixed Single Thread ⅛ NPT** Customer Specified	303 SS	0.063 to 0.250	1/8	7/16	11/16	A
 **Fixed Single Thread ¼ NPT** Customer Specified	303 SS	0.125 to 0.250	1/4	9/16	7/8	B
 **Fixed Single Thread ½ NPT** Customer Specified	303 SS	0.125 to 0.250	1/2	7/8	1	D
 **Fixed Double Thread ½ NPT** Customer Specified	303 SS	0.125 to 0.250	1/2	7/8	1 3/4	F

Compression Fittings

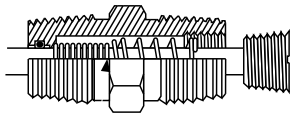
Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
 **Non-Adjustable Compression Brass**	Brass	0.125	1/8	1/2	1	J
		0.188	1/8	1/2	1 1/8	J
		0.250	1/8	1/2	1 3/16	J
 **Non-Adjustable Compression SS**	303 SS	0.063	1/8	1/2	1 1/4	L
		0.125	1/8	1/2	1 1/4	L
		0.188	1/8	1/2	1 5/16	L
		0.250	1/8	1/2	1 5/16	L
 **Adjustable Compression TFE Gland**	303 SS	0.063	1/8	1/2	1 1/4	G
		0.125	1/8	1/2	1 1/4	G
		0.188	1/8	1/2	1 1/4	G
		0.250	1/4	7/8	2 7/16	X
 **Adjustable Compression Lava Gland**	303 SS	0.063	1/8	1/2	1 1/4	Q
		0.125	1/8	1/2	1 1/4	Q
		0.188	1/8	1/2	1 1/4	Q
		0.250	1/4	7/8	2 7/16	V

Compression Fittings: Compression fittings are shipped finger-tight on the sheath allowing field installation. Once non-adjustable fittings are deformed, they cannot be relocated. Adjustable fittings come with Tetrafluorethylene (TFE) sealant or lava sealant glands.

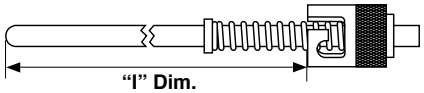
RTDs

Fitting Options (Continued)

Adjustable Spring Loaded

Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
	316 SS	0.250	1/2	7/8	2	H

Bayonet Lockcap and Spring

Fitting Type	Material	Sheath Size in.	Length in.	Code
	Plated Steel	0.125	1 5/8	W
	Plated Steel	0.188	1 5/8	W

RTDs

Watlow manufactures a variety of RTD sensors that are specially designed to ensure precise and repeatable temperature measurement. Watlow sensors are built to meet the most demanding industrial applications while providing a lower total cost of ownership for our customers.

Performance Capabilities

- Precise and stable within the wide temperature range of -328 to 1200°F (-200 to 650°C)

Features and Benefits

Strain-free construction

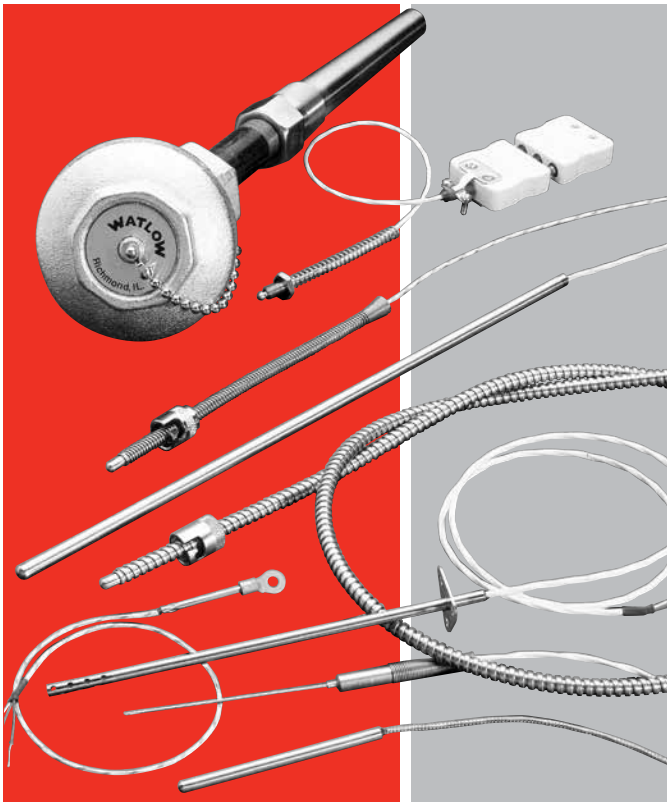
- Provides dependable, accurate readings
- Allows elements from different lots to be substituted with no recalibration needed

High signal-to-noise output

- Increases accuracy of data transmission
- Permits greater distances between sensor and measuring equipment

Temperature coefficient (alpha) carefully controlled while insulation resistance values exceed DIN-IEC-751 standards

- Ensures sensor sensitivity
- Minimizes self heating
- Allows precise measurement
- Repeatable

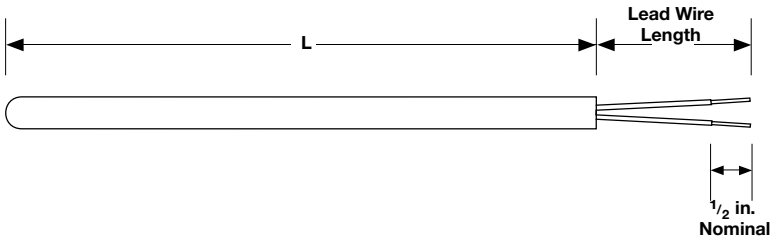


Typical Applications

- Stoves, grills, fryers and other food equipment
- Textile production
- Plastics processing
- Petrochemical processing
- Air, gas and liquid temperature measurement
- Exhaust gas temperature measurement
- Semiconductor processing
- Bearing and gear boxes

RTDs

Standard Industrial Insulated Leads
Style RB



Ordering Information

Part Number

① ②	③ Sheath O.D. (in.)	④ Lead Wire Const.	⑤ Fittings	⑥ Lead Wire Term.	⑦ Sheath Const.	⑧ ⑨ Sheath Length "L" (in.)	⑩ Sheath Length "L" (fract. in.)	⑪ Element	⑫ Initial Element Accuracy	⑬ ⑭ Lead Wire Length (ft)	⑮
RB					A						0

③ Sheath O.D. (in.)	
G =	0.125
H =	0.188
J =	0.250

Note: 0.125 dia. supplied with 28 gauge wire. 0.188 and 0.250 dia. supplied with 24 gauge wire.

④ Lead Wire Construction*			
	Standard	**Overbraid**	**Flex Armor**
Fiberglass stranded	A	J*	R*
PFA stranded	B	L*	T*

Certain option combinations must be furnished with a transition between the sheath and lead wire. Contact the factory if a transition is unacceptable.
*May require a transition.

⑤ Fittings
If required, enter the order code from pages 76 to 77. If none enter "0".

⑥ Lead Wire Termination	
A* =	Standard male plug 400°F (200°C)
B* =	Standard female jack
C* =	Standard plug with mating connector
J* =	Male miniature plug
K* =	Female miniature jack
L* =	Male/female mini set
T =	Standard leads
U =	Leads with spade lugs

* Requires two-or three-wire, single element only.

⑦ Sheath Construction	
A =	316/316L SS

⑧ ⑨ Sheath Length "L" (in.)
Available lengths: 02 to 36

⑩ Sheath Length "L" (fractional in.)	
0 =	No fraction, whole inches
4 =	1/2 in.

⑪ Element			
	2-Wire	**3-Wire**	**4-Wire**
100Ω single	A	B	C
100Ω dual*	D	E	—
1000Ω single	J	K	L

* Available in 0.250 inch diameter only.

⑫ Initial Element Accuracy @ 0°C	
A =	DIN Class A (±0.06%)
B =	DIN Class B (±0.12%)

⑬ ⑭ Lead Wire Length (ft)
Whole feet: 01 to 99
Note: Single wires for 4 feet and under. Duplex wires for over 4 feet.

Note: Applies to low temperature RTD's only.

Features and Benefits

High accuracy
- Dependable readings

Customized diameters
- From 0.125 to 0.250 inch

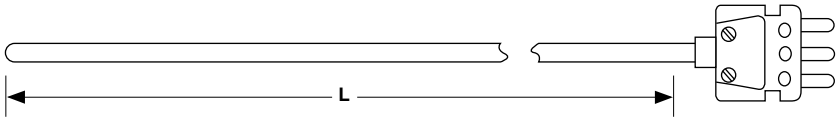
Epoxy sealed
- Resists moisture and pull out
- Standard 500°F (260°C) potting

Durable rigid sheath
- 316 stainless steel -58 to 500°F (-50 to 260°C)

Internal heat transfer paste
- Quick time response

RTDs

Plug or Jack Termination
Style RC



Ordering Information

Part Number

① ②	③ Sheath O.D. (in.)	④ Cold End Term.	⑤ Fittings	⑥	⑦ Sheath Const.	⑧ ⑨ Sheath Length "L" (in.)	⑩ Sheath Length "L" (fract. in.)	⑪ Element	⑫ Initial Element Accuracy	⑬ ⑭	⑮
RC				0	A					00	0

③ Sheath O.D. (in.)	
G =	0.125
H =	0.188
J =	0.250
Note: 0.125 dia. supplied with 28 gauge wire. 0.188 and 0.250 dia. supplied with 24 gauge wire.	

④ Cold End Termination	
A =	Standard plug
C =	Standard plug with mating connector
Note: Standard plugs and jacks 400°F (200°C).	

⑤ Fittings
If required, enter the order code from pages 76 to 77. If none enter "0".

⑦ Sheath Construction	
A =	316/316L SS

⑧ ⑨ Sheath Length "L" (in.)
Whole inches: 02 to 36

⑩ Sheath Length "L" (fractional in.)	
0 =	No fraction, whole inches
4 =	1/2 in.

⑪ Element	2-Wire	3-Wire
100Ω single	A	B
1000Ω single	J	K

⑫ Initial Element Accuracy @ 0°C	
A =	DIN Class A (±0.06%)
B =	DIN Class B (±0.12%)

Features and Benefits

Durable rigid sheath
- 316 SS -58 to 500°F (-50 to 260°C)

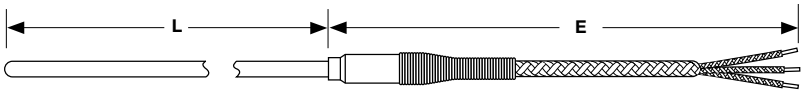
Durable connectors with copper pins
- 400°F (200°C) temperature rating
- Provides simple connection to extension leads

Brazed adapter
- Provides superior connector attachment

High accuracy
- Ensures dependable readings

RTDs

Metal Transitions
Style RF



Ordering Information

Part Number

① ②	③ Sheath O.D. (in.)	④ Lead Wire Const.	⑤ Fittings	⑥ Lead Wire Term.	⑦ Sheath Const.	⑧ ⑨ Sheath Length "L" (in.)	⑩ Sheath Length "L" (fract. in.)	⑪ Element	⑫ Initial Element Accuracy	⑬ ⑭ Lead Wire Length (ft)	⑮
RF											0

③ Sheath O.D. (in.)	
G =	0.125
H =	0.188
J =	0.250

Note: All sheath diameters, MI cable only (high temp) are 24 gauge duplex lead wire.

④ Lead Wire Construction	Standard	Overbraid	Flex Armor
Fiberglass stranded	A	J	R
PFA stranded	B	L	T

⑤ Fittings
If required, enter the order code from pages 76 to 77. If none enter "0".

⑥ Lead Wire Termination	
A* =	Standard male plug
B* =	Standard female jack
C* =	Standard plug with mating connector
J* =	Male miniature plug
K* =	Female miniature jack
L* =	Male/female mini set
T =	Standard leads
U =	Leads with spade lugs

* Requires two-or three-wire, single element only.

⑦ Sheath Construction	
K =	316/316L SS mineral insulated

⑧ ⑨ Sheath Length "L" (in.)
Whole inches: 03 to 99, metric lengths and lengths over 99 inches contact factory. Maximum length 165 inches.

⑩ Sheath Length "L" (fractional in.)	
0 =	No fraction, whole inches
4 =	1/2 in.

⑪ Element	2-Wire	3-Wire
100Ω single	A	B

⑫ Initial Element Accuracy @ 0°C	
A =	DIN Class A (±0.06%)
B =	DIN Class B (±0.12%)

⑬ ⑭ Lead Wire Length (ft)
Whole feet: 01 to 99

Features and Benefits

Stainless steel transitions filled with 500°F (260°C) epoxy
- Protects sensor from moisture
- Encapsulates connection between wire and cable

Coiled spring strain relief
- Protects lead wire against sharp bends in the transition area

Flexible mineral insulated construction
- Provides a bendable and highly durable sensor

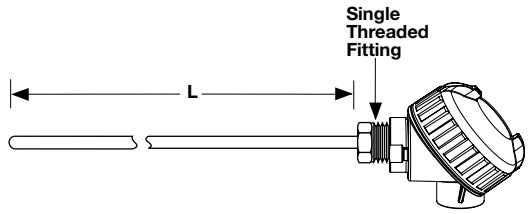
Temperature rating
- -328 to 1200°F (-200 to 650°C)

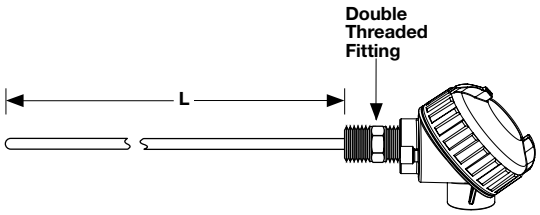
High accuracy
- Ensures dependable readings

Diameters available
- 0.125 to 0.250 inch O.D.

RTDs

Connection Head/Optional Transmitter Style RR





Ordering Information

Part Number

① ②	③	④	⑤	⑥	⑦	⑧ ⑨	⑩	⑪	⑫	⑬ ⑭	⑮
	Sheath O.D. (in.)	Con. Head	Head Mtg. Fittings		Sheath Const.	Sheath Length "L" (in.)	Sheath Length "L" (fract. in.)	Element	Initial Element Accuracy		Tag Style
RR				0						00	

③	Sheath O.D. (in.)
G =	0.125
H =	0.188
J =	0.250

Note: 0.125 dia. supplied with 28 gauge wire. 0.188 and 0.250 dia. supplied with 24 gauge wire.

④	Connection Head
C =	Polypropylene
D =	Cast iron
E =	Cast aluminum
H =	Explosion proof
U* =	E head with 5750 transmitter
V* =	C head with 5750 transmitter
W* =	H head with 5750 transmitter

* For units with transmitter, the order must specify a range and degree F or C, as well as a temperature span.

⑤	Head Mounting Fittings
O =	Single threaded, 303 SS
F =	Double threaded, 303 SS 1/2 in. NPT
H* =	Spring loaded, double threaded, 316 SS 1/2 in. NPT

* Available in 0.250 inch diameter only.

⑦	-58 to 500°F (-50 to 260°C) 316 SS	-328 to 1200°F (-200 to 650°C) 316 SS
Standard industrial 0.125 - 0.250 in. O.D.)	A	—
Mineral insulated (0.125 - 0.250 in. O.D.)	—	K

⑧ ⑨	Sheath Length "L" (in.)
A =	Sheath construction requires 2 in. min to 36 in. max. length
K =	Sheath construction requires 3 in. min to 99 in. max. length

⑩	Sheath Length "L" (fractional in.)
0 =	No fraction, whole inches
1 =	1/8
2 =	1/4
3 =	3/8
4 =	1/2
5 =	5/8
6 =	3/4
7 =	7/8

⑪	2-Wire	3-Wire	4-Wire
100Ω single	A	B	C
100Ω dual *, **	D	E	—
1000Ω single **	J	K	L

* Available in 0.250 inch diameter only.
** Available with standard industrial construction only.

⑫	Initial Element Accuracy @ 0°C
A =	DIN Class A (±0.06%)
B =	DIN Class B (±0.12%)

⑮	Tag Style
0 =	Polymeric
1 =	300 SERIES SST

Features and Benefits

Connection heads

- Provides superior dust and moisture resistance

Weatherproof plastic heads

- Resists weak acids, organic solvents, alkalies, sunlight and dust

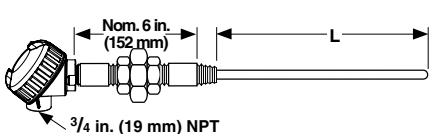
Complete assembly available

- Head-mounted 4-20mA transmitter, three- or four-wire input and non-isolated

RTDs

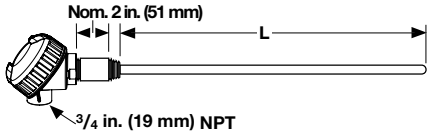
For Use With Thermowells Style RT

Type 1



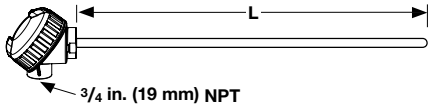
6 inch N-U-N Typical (2 each ½ X 3 inch steel pipe nipples and 1 each malleable union)

Type 3



½ x 3 inch long steel pipe nipple typical

Type 4



Ordering Information

Part Number

① ②	③	④	⑤	⑥	⑦	⑧ ⑨	⑩	⑪	⑫	⑬	⑭	⑮
	Sheath O.D. (in.)	Conn. Head	Cold End Config.		Sheath Const.	Sheath Length "L" (in.)	Sheath Length "L" (fract. in.)	Element	Initial Element Accuracy		Spring-Loading	Tag Style
RT				0						0		

③ Sheath O.D. (in.)	
J =	0.250
Note: Supplied with 24 gauge wire.	

④ Connection Head	
C =	Polypropylene
D =	Cast iron
E =	Cast aluminum
H =	Explosion proof
U* =	E head with 5750 transmitter
V* =	C head with 5750 transmitter
W* =	H head with 5750 transmitter
* For units with transmitter, the order must specify a range and degree F or C, as well as a temperature span.	

⑤ Cold End Configuration	
1 =	Type 1
3 =	Type 3
4 =	Type 4

⑦ Sheath Construction		
	-58 to 500°F (-50 to 260°C) 316 SS	**-328 to 1200°F (-200 to 650°C) 316 SS**
Standard industrial (0.125 - 0.250 in. O.D.) (Max. length 36 in.)	A	—
Mineral insulated (0.125 - 0.250 in. O.D.) (Max. length 165 in.)	—	K

⑧ ⑨ Sheath Length "L" (in.) - See Drawings Above
*When ordering a complete assembly with thermowell, specify "AR" as required and reference pages 103 to 107 for "U" dimension; otherwise, specify the "L" dimension in whole inches. ***Note**, maximum sheath length is 36 inches for sheath construction A.

⑩ Sheath Length "L" (fractional in.)	
0 =	No fraction, whole inches
1 =	1/8
2 =	1/4
3 =	3/8
4 =	1/2
5 =	5/8
6 =	3/4
7 =	7/8

⑪ Element	2-Wire	3-Wire	4-Wire
100Ω single	A	B	C
100Ω dual*	D	E	—
1000Ω single*	J	K	L
* Available with standard industrial construction only.			

⑫ Initial Element Accuracy @ 0°C	
A =	DIN Class A (±0.06%)
B =	DIN Class B (±0.12%)

⑭ Spring -Loading	
Y =	Yes
N =	No

⑮ Tag Style	
0 =	Polymeric
1 =	300 SERIES SST

Features and Benefits

High quality thermowells and pipe wells
- Protects sensor

Mineral insulated construction
- Available in 0.125 to 0.250 inch O.D.

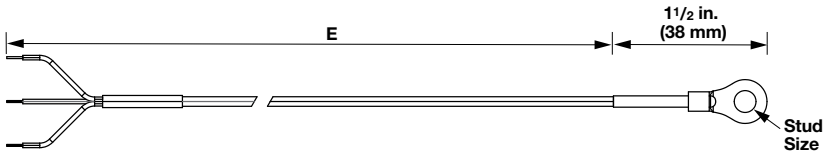
Available with spring-loading
- Ensures positive contact

Complete assembly available
- Head-mounted 4-20mA transmitter, three- or four-wire input and non-isolated

Variety of connection head options
- Meets your application requirements

RTDs

For Use With Thermowells
Style RW



Ordering Information

Part Number

① ②	③	④	⑤	⑥	⑦	⑧ ⑨ ⑩	⑪	⑫	⑬ ⑭	⑮
	Sheath O.D. (in.)	Leadwire Const.		Leadwire Term.	Stud Size - Hole Dia. (inch)		Element	Temp. Coefficient	Leadwire Length "E" (foot)	Special Reqmts.
RW	G		0			0 0 0				0

③ Sheath O.D. (in.)	
G =	0.125

④ Leadwire Construction	
A =	900°F (500°C) Fiberglass stranded
B =	400°F (200°C) Teflon stranded

⑥ Leadwire Termination	
A =	Standard male plug
B =	Standard female plug
C =	Standard plug with mating connector
T =	Standard leads
U =	Leads with spade lugs

⑦ Stud Size - Hole Diameter (inch)	
A =	No. 6 - 0.144
B =	No. 8 - 0.169
C =	No. 10 - 0.196
D =	1/4 - 0.266
E =	3/8 - 0.390

⑪ Element		
	2-Wire	3-Wire
100Ω single	A	B

⑫ Temperature Coefficient	
	DIN 0.00385
Class A	A
Class B	B

⑬ ⑭ Leadwire Length "E" (foot)
Whole feet: 01-99

⑮ Special Requirements
If none, enter "0". If required, contact factory.

Features and Benefits

Sensor temperature rating
- -50° to 200°C

High accuracy
- Ensures dependable readings

Washer terminals
- Brazed to a 316 SS tube, 0.125 in. diameter, 1 1/2 in. long.

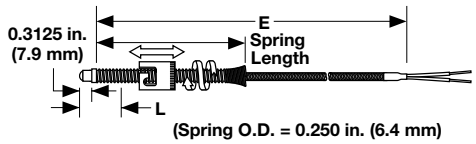
Sensors placed beneath existing screws or bolts
- Permits surface temperature measurement

RTDs

Specialty Construction Styles

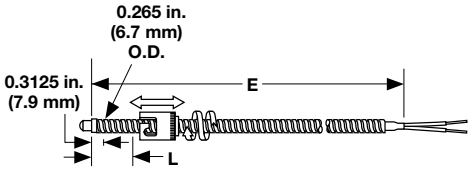
Adjustable Spring Style

Part Number 10 = 6 in.
Part Number 11 = 12 in.



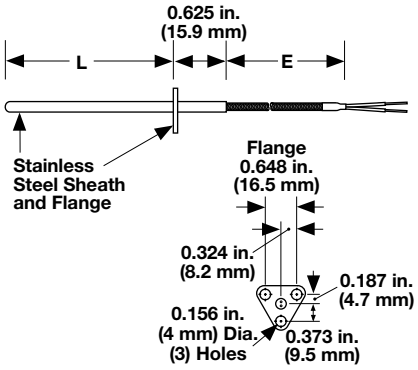
Adjustable Armor Style

Part Number 12



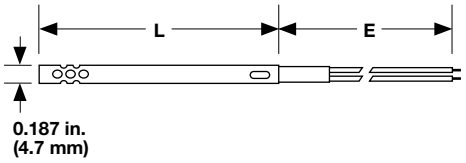
Cartridge with Flange

Part Number 25



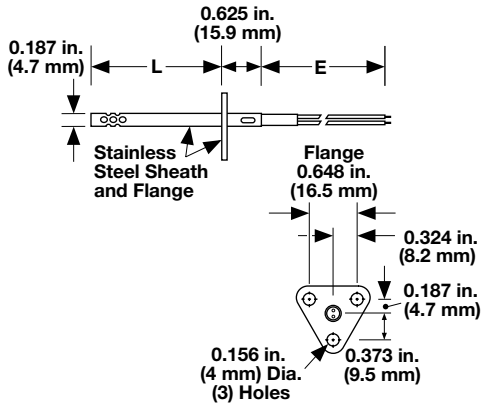
Open Air

Part Number 50



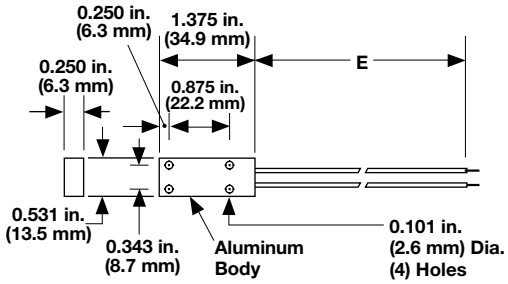
Open Air with Flange

Part Number 55



Surface Mount

Part Number 80



RTDs

Specialty RTDs

Ordering Information

Part Number

①	② ③	④	⑤	⑥ ⑦	⑧	⑨ ⑩ ⑪	⑫
	Const. Styles	Diameter (in.)	Element Type	Lead Type	Sheath Length "L" (in.)	Lead Wire Length "E" (ft)	Term.
S							

② ③	Construction Styles
10 =	6 inch adjustable spring style
11 =	12 inch adjustable spring style
12 =	Adjustable armor style
25 =	Cartridge with flange
50 =	Open air
55 =	Open air with flange
80 =	Surface mount
Note: See previous page for construction style drawings.	

④	Diameter (in.)
D =	0.188
A =	Not applicable: surface mount

⑤	Element Type
C =	RTD 2-wire, 100Ω DIN 0.00385
D =	RTD 3-wire, 100Ω DIN 0.00385

⑥ ⑦	Lead Type
L4 =	Fiberglass and SS armor
M4=	Fiberglass
N4 =	Fiberglass and SS overbraid
T2 =	PFA

⑧					
A =	Not applicable	K =	5.0 in.	T =	9.0 in.
C* =	1.5 in.	L =	5.5 in.	U =	9.5 in.
D =	2.0 in.	M =	6.0 in.	W =	10 in.
E =	2.5 in.	N =	6.5 in.	Y =	11 in.
F =	3.0 in.	P =	7.0 in.	Z =	12 in.
G =	3.5 in.	Q =	7.5 in.		
H =	4.0 in.	R =	8.0 in.		
J =	4.5 in.	S =	8.5 in.		
* 1.5 required for VAT construction: No. 10, 11, 12)					

⑨ ⑩ ⑪			
012 =	1 ft	084 =	7 ft
024 =	2 ft	096 =	8 ft
036 =	3 ft	108 =	9 ft
048 =	4 ft	120 =	10 ft
060 =	5 ft	180 =	15 ft
072 =	6 ft		

⑫	Terminations
A =	1.5 inch stripped split leads, no terminals
B =	No. 8 spade terminals
H =	0.25 in. female quick connect terminals

Specifications

- Two- or three-wire
- Resistance: 100Ω at 0°C
- Alpha curve: 0.00385Ω/Ω/°C
- Tolerance at 0°C: ±0.12%
- Range: -58 to 500°F (-50 to 260°C)

Thermistors

Watlow thermistors are designed to ensure fast, accurate and repeatable temperature measurement. Thermistors are highly sensitive to small changes in temperature and maintain accurate temperatures over a limited range. These sensors are made with either epoxy-coated or glass-coated constructions and can be used in the most demanding environmental conditions.

Performance Capabilities

- Epoxy thermistors are suitable for use from -75 to 302°F (-60 to 150°C). Glass-coated thermistors are available for use from -75 to 500°F (-60 to 260°C). Please contact the factory for availability. Thermistors have an accuracy of ±1% at 77°F (25°C).

Features and Benefits

Designed to maintain accuracy over the life of the sensor
- Improved process control

High resistance
- Large signal change compared to RTDs minimizing the impact of lead wire resistance errors

Interchangeable
- Maintains good system repeatability

Small mass and internal heat transfer paste
- Quick time response

Point sensitive
- Able to sense temperature in a very specific location

Typical Applications

Heating, ventilation and air conditioning (HVAC)
- Air conditioning
- Refrigeration and freezer temperature control

Food preparation
- Deep fryers
- Food storage systems

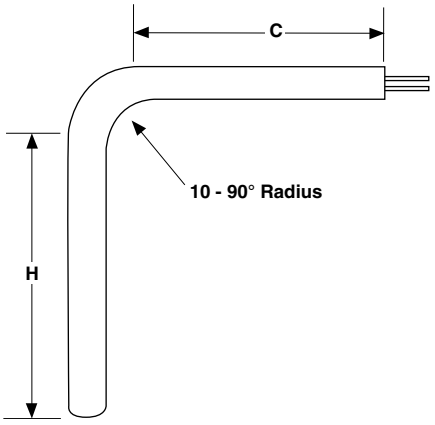
Medical
- Blood analysis and dialysis equipment
- Infant incubators

Industrial electronics
- Fluid temperature measurement
- Liquid level indicators

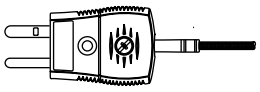
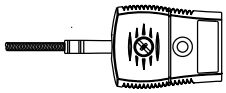
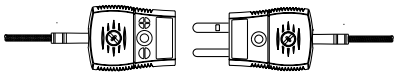
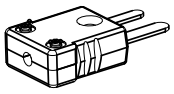
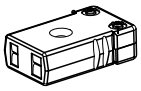
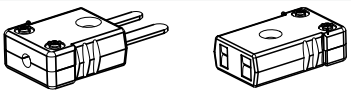
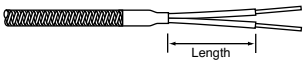
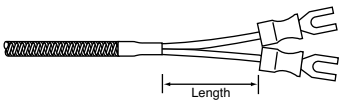
Thermistors

Bends

Diameter in.	Standard Bend Radius in.	Minimum "H" Dimension in.	Minimum "C" Dimension in.
0.125	3/8	2	2
0.188	3/8	2	2
0.250	1/2	2	2



Lead Terminations

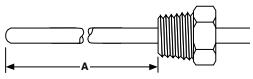
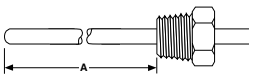
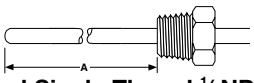
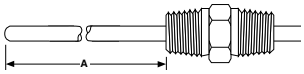
Termination	Code	Length
 Standard Male Plug	A	—
 Standard Female Jack	B	—
 Standard Male Plug with Mating Connector	C	—
 Miniature Male Plug	J	—
 Miniature Female Jack	K	—
 Miniature Male Plug with Mating Connector	K	—
 Split Leads	T	1 1/2*
 #8 Spade Lugs	U	1 1/2*

* When style contains jacketed wire.

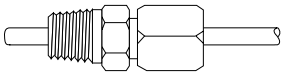
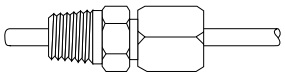
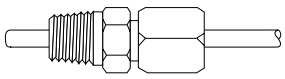
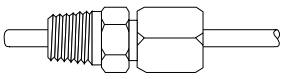
Thermistors

Fitting Options

Fixed Fittings

Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
 **Fixed Single Thread ⅛ NPT** Customer Specified	303 SS	0.063 to 0.250	1/8	7/16	11/16	A
 **Fixed Single Thread ¼ NPT** Customer Specified	303 SS	0.125 to 0.250	1/4	9/16	7/8	B
 **Fixed Single Thread ½ NPT** Customer Specified	303 SS	0.125 to 0.250	1/2	7/8	1	D
 **Fixed Double Thread ½ NPT** Customer Specified	303 SS	0.125 to 0.250	1/2	7/8	1 3/4	F

Compression Fittings

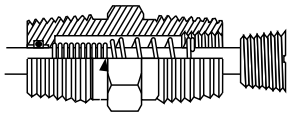
Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
 **Non-Adjustable Compression Brass**	Brass	0.125	1/8	1/2	1	J
		0.188	1/8	1/2	1 1/8	J
		0.250	1/8	1/2	1 3/16	J
 **Non-Adjustable Compression SS**	303 SS	0.063	1/8	1/2	1 1/4	L
		0.125	1/8	1/2	1 1/4	L
		0.188	1/8	1/2	1 5/16	L
		0.250	1/8	1/2	1 5/16	L
 **Adjustable Compression TFE Gland**	303 SS	0.063	1/8	1/2	1 1/4	G
		0.125	1/8	1/2	1 1/4	G
		0.188	1/8	1/2	1 1/4	G
		0.250	1/4	7/8	2 7/16	X
 **Adjustable Compression Lava Gland**	303 SS	0.063	1/8	1/2	1 1/4	Q
		0.125	1/8	1/2	1 1/4	Q
		0.188	1/8	1/2	1 1/4	Q
		0.250	1/4	7/8	2 7/16	V

Compression Fittings: Compression fittings are shipped finger-tight on the sheath allowing field installation. Once non-adjustable fittings are deformed, they cannot be relocated. Adjustable fittings come with TFE or lava sealant glands.

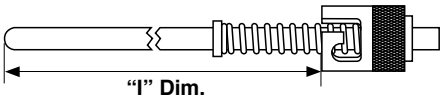
Thermistors

Fitting Options (Continued)

Adjustable Spring Loaded

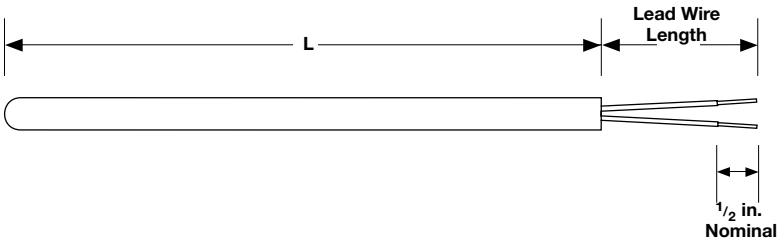
Fitting Type	Material	Sheath Size in.	NPT Thread Size in.	Hex Size in.	Length in.	Code
	316 SS	0.250	1/2	7/8	2	H

Bayonet Lockcap and Spring

Fitting Type	Material	Sheath Size in.	Length in.	Code
	Plated Steel	0.125	1 5/8	W
	Plated Steel	0.188	1 5/8	W

Thermistors

Standard Industrial Thermistor with Insulated Leads
Style TB



Ordering Information

Part Number

①	②	③ Sheath O.D. (in.)	④ Lead Wire Const.	⑤ Fittings	⑥ Lead Wire Term.	⑦ Temp. Rating & Accuracy	⑧ ⑨ Sheath Length "L" (in.)	⑩ Sheath Length "L" (fract. in.)	⑪ Element/ Resistance	⑫ Sheath	⑬ ⑭ Lead Wire Length "E" (ft)	⑮
T	B		B							0		0

③ Sheath O.D. (in.)	
H =	0.188
J =	0.250

④ Lead Wire Construction	
B =	Standard - PFA

⑤ Fittings
If required, enter order code from pages 90 to 91. If none enter "0".

⑥ Lead Wire Termination	
T =	Standard leads
U =	Leads with spade lugs

⑦ Temperature Rating and Accuracy	
A* =	-75 to 302°F (-60 to 150°C) ±1% accuracy @ 25°C
B** =	-75 to 500°F (-60 to 260°C) ±15% accuracy @ 25°C
* Only available with 1,000, 2,200, 3,000 or 10,000Ω **Only available with 100,000Ω	

⑧ ⑨ Sheath Length "L" (in.)
Whole inches: 02 to 36

⑩ Sheath Length "L" (fractional in.)	
0 =	0
4 =	1/2 in.

⑪ Element/Resistance at 77°F (25°C)	
E =	1,000Ω
G =	3,000Ω
T =	100,000Ω
F* =	2,200Ω
* Compatible with EZ-ZONE controllers	

⑫ Sheath Construction	
0 =	316 SS

⑬ ⑭ Lead Wire Length "E" (ft)
Whole feet: 01 to 99

Features and Benefits

Rigid 316 stainless steel sheath

- Ideal for industrial applications

Cold end epoxy seal

- Rated to 260°C (500°F)

Internal heat transfer paste

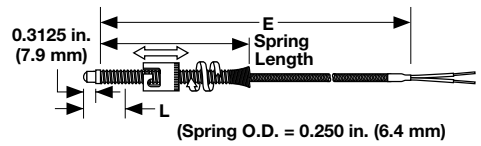
- Quick time response

Thermistors

Specialty Construction Styles

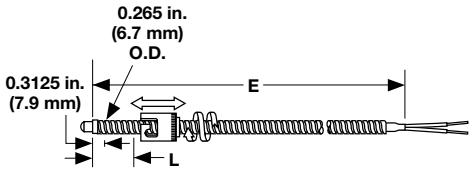
Adjustable Spring Style

Part Number 10 = 6 in.
Part Number 11 = 12 in.



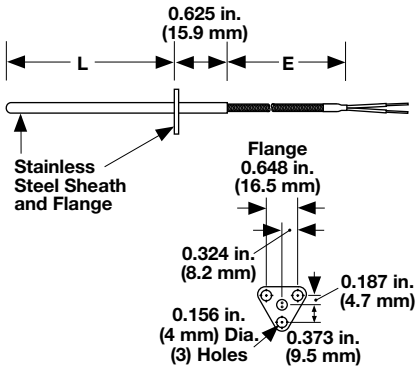
Adjustable Armor Style

Part Number 12



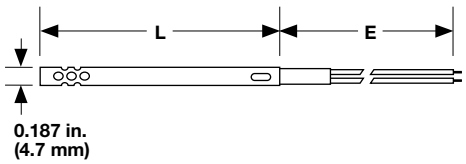
Cartridge with Flange

Part Number 25



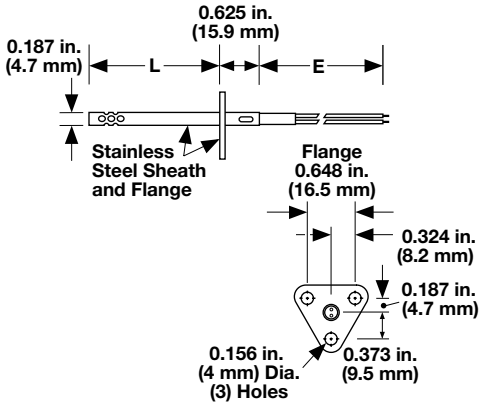
Open Air

Part Number 50



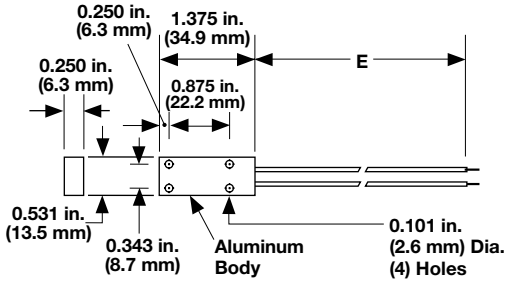
Open Air with Flange

Part Number 55



Surface Mount

Part Number 80



Thermistors

Specialty Thermistors

Ordering Information

Part Number

①	② ③	④	⑤	⑥ ⑦	⑧	⑨ ⑩ ⑪	⑫
	Const. Styles	Diameter (in.)	Element Type	Lead Type	Sheath Length "L" (in.)	Lead Wire Length "E" (ft)	Term.
S							

② ③	Construction Styles
10 =	6 inch adjustable spring style
11 =	12 inch adjustable spring style
12 =	Adjustable armor style
25 =	Cartridge with flange
50 =	Open air
55 =	Open air with flange
80 =	Surface mount
Note: See previous page for construction style drawings.	

④	Diameter (in.)
D =	0.188
A =	Not applicable: surface mount

⑤	Element Type
M =	Thermistor No. 11, 1,000Ω
N =	Thermistor No. 12, 3,000Ω
P =	Thermistor No. 16, 100,000Ω
Note: Contact the factory for other thermistors which are available on request. See Style TB thermistor.	

⑥ ⑦	Lead Type
L4 =	Fiberglass and SS armor
M4=	Fiberglass
N4 =	Fiberglass and SS overbraid
T2 =	PFA

⑧					
A =	Not applicable	K =	5.0 in.	T =	9.0 in.
C* =	1.5 in.	L =	5.5 in.	U =	9.5 in.
D =	2.0 in.	M =	6.0 in.	W =	10 in.
E =	2.5 in.	N =	6.5 in.	Y =	11 in.
F =	3.0 in.	P =	7.0 in.	Z =	12 in.
G =	3.5 in.	Q =	7.5 in.		
H =	4.0 in.	R =	8.0 in.		
J =	4.5 in.	S =	8.5 in.		
* 1.5 required for VAT construction: No. 10, 11, 12					

⑨ ⑩ ⑪			
012 =	1 ft	084 =	7 ft
024 =	2 ft	096 =	8 ft
036 =	3 ft	108 =	9 ft
048 =	4 ft	120 =	10 ft
060 =	5 ft	180 =	15 ft
072 =	6 ft		

⑫	Terminations
A =	1.5 inch stripped split leads, no terminals
B =	No. 8 spade terminals
H =	0.25 in. female quick connect terminals

Specifications

- Metal oxide, sintered and encapsulated
- Negative temperature coefficient
- Non-linear temperature/resistance curve
- Resistance at 77°F (25°C) and ranges:

Epoxy Bead Tolerance			
Configuration	**Resistance**	**Accuracy @ 25°C**	**Max. Temp.**
#11	1K	±1%	150°C
#12	3K	±1%	150°C

Glass Bead Tolerance			
Configuration	**Resistance**	**Accuracy @ 25°C**	**Max. Temp.**
#16	100K	±20%	300°C

EXTENDED CAPABILITY

ENVIROSEAL™ HD Sensors

Watlow's ENVIROSEAL™-HD temperature sensor keeps out moisture, oil and contaminants in all heavy-duty applications including those outside applications exposed to harsh weather, oils and other extreme moisture environments. The ENVIROSEAL-HD sensor is designed to provide accurate, dependable measurements in high-vibration environments.

Features and Benefits

Submersible and 1200psi pressure wash rated seal (not including connector area)

- Protects the sensor from washdown or other extreme moisture environments

Oil resistant materials

- Sensors maintain a long life even when exposed to oil, gasoline or diesel fuel

Vibration resistant design, 25 lb pull out force rating

- Tough, rugged design to hold up to the roughest applications

-40 to 392°F (-40 to 200°C) sensor temperature rating

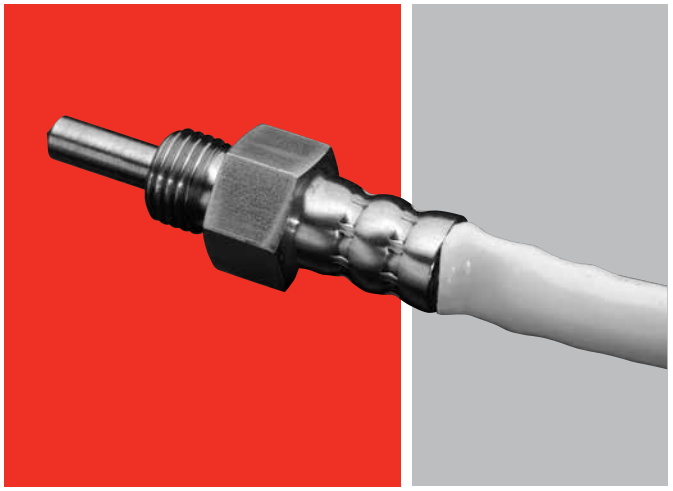
- Offers superior application flexibility

Time response of two seconds

- Fast response measures 63.2 percent (first order) of the temperature change in two seconds or less

250psi threaded fitting pressure rating

- Suitable for most rugged applications

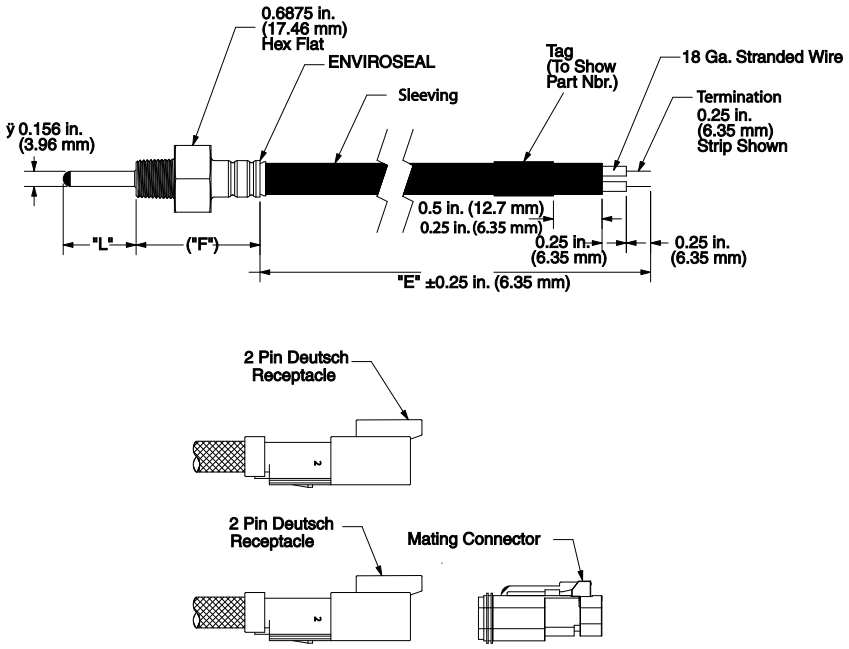


Typical Applications

- Engine coolant or oil
- Refrigeration or condensation units
- Industrial equipment
- Heat exchangers
- Gear boxes
- Hydraulic fluid
- Marine

EXTENDED CAPABILITY

ENVIROSEAL HD Sensors



Sensor Types:

- RTD or thermistor
- Sheath length: 0.75 to 3 inches
- Fitting: 1/4 inch NPT or 1/8 inch NPT male thread either brass or 316 stainless steel
- Lead length: up to 24 inches
- Lead wire: 18 gauge stranded with Tefzel® insulation
- Lead wire terminations: stripped leads or Deutsch 2 pin connector or similar automotive style connector