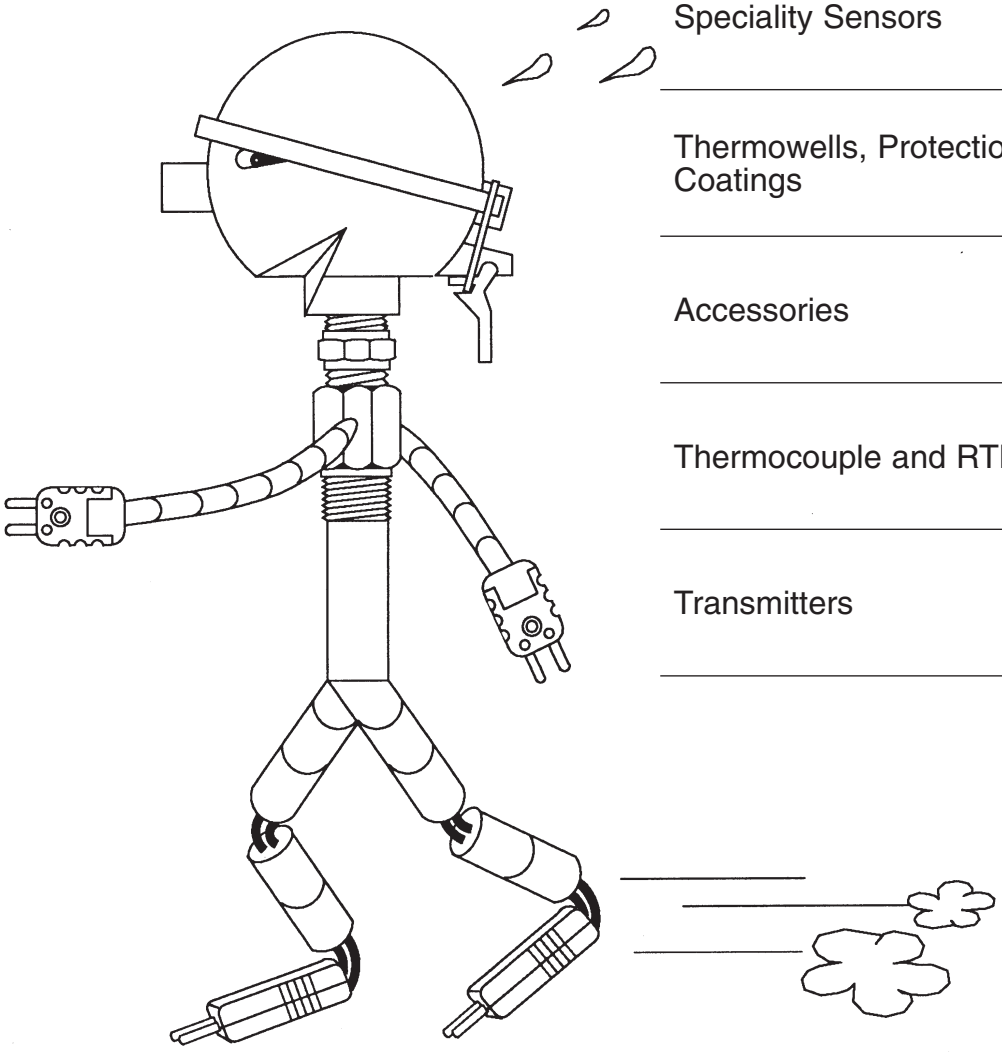
RESISTANCE TEMPERATURE DEVICES

Swifty Sensor



RESISTANCE TEMPERATURE DEVICES (RTD'S)

#1	SERIES
3	RTD

#2 ELEMENT TYPE [4, 9, 10, 11, 15, 18, 22] Platinum 0.00385 alpha (Ω/Ω/°C)

	Resistor Accuracy at 0°C	Thermometer Class [Table 3, page 3-18]	Resistor Class [Table 1 & 2, page 3-18]
B	± 0.25° C (Competitor's Std)	B	≥ F 0.15
E	± 0.1° C (JMS Standard)	A	≥ F 0.1
P	± 0.06° C *	AA	≥ 1/2 W 0.1
S	± 0.01° C (Best Accuracy *)	1/4 AA	≥ 1/10 W 0.1
X	Other, specify [3-22]		

* For best results, use a 4 wire RTD for high accuracy (types P & S).

#3 ELEMENT CONSTRUCTION [4] [3-11]

S	Single	Standard construction
D	Dual	Standard construction
J	Single	Swaged construction
K	Dual	Swaged construction
X	Other, specify	

Note: Use swaged for high temperature, bendability, high vibration and/or longer than 6 ft.

#4 TUBE DIAMETER - *MUST CHOOSE 1 FROM EACH COLUMN* [5-30, 1-13]

A	3/8" (.375")	N	Normal, closed tip (Standard)
B	1/4" (.250")	*K	Pointed tip, ungrounded
C	3/16" (.188")	*M	Weld pad, ungrounded
D	1/8" (.125")	*O	Weld pad, removable ungrounded
X	Other, specify	*R	Gas/Air, exposed
Z	N/A	*W	Enlarged tip, ungrounded
		*Y	Reduced tip, ungrounded
		Q	Cuttable (**See full catalog)

*Note:
When selecting these options, a description must be provided.

#5 TUBE MATERIAL [11, 12]

K	316 Stainless Steel
L	316 LSS
M	I-600 (Use if symbol #7 >500°F)
C	Teflon Coated, SS
X	Other, specify

[ ]BRACKETS INDICATE PAGE NUMBERS ON WEB OR FULL CATALOG FOR ADDITIONAL TECHNICAL INFORMATION WWW.JMS-SE.COM

#6 LENGTH (L) (See sketches on Pg. 3-1, 2, & 3 for L")

__" Immersion length in inches

#7 MAX. TEMPERATURE AT WHICH TIP WILL BE EXPOSED

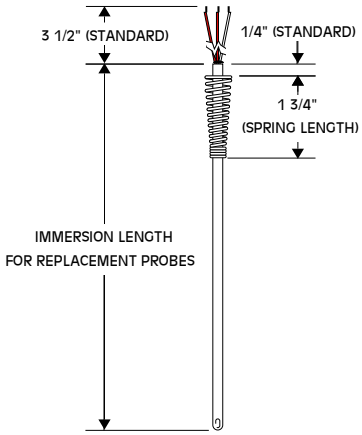
A	0°C (32°F)	=5 Kapton*
B	<200°C (392°F)	=3 Teflon*
C	<285°C (550°F)	=5 Kapton*
D	<350°C (662°F)	=1 Fiberglass*
E	<661°C (1222°F)	=4 HT Fiberglass*

*If no transition (Z) is in symbol 13, we recommend these corresponding selections for primary wire insulation in symbol 10.

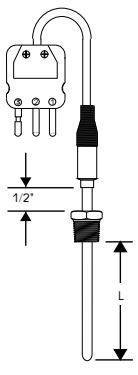
#8 STANDARD INDUSTRIAL ATTACHING DEVICE

W	Fixed NPT ss fitting - double threaded
S	Spring-loaded NPT SS fitting - double threaded
C	Spring-loaded NPT SS fitting w/ oil ring - double threaded
D	Spring-loaded ss fitting - single threaded
B	Bayonet spring loaded assembly for thermowells & heads
*E	Adjustable spring over .250", .188", .125" sheath
F	Reverse mounted steel plug fixed for attaching head
G	Fixed stainless steel to sheath
*H	Compression fitting ss w/ ss ferrule
*I	Compression fitting ss w/ teflon ferrule
*J	Compression fitting ss w/ lava ferrule
*K	Compression fitting ss w/ nylon ferrule
*L	Compression fitting brass w/ brass ferrule
N4	4" Nipple-Union-Nipple (NUN4G1)
N6	6" Nipple-Union-Nipple (NUN6G1)
S4	4" Spring-Loaded-Union-Nipple (NU4G1)
S6	6" Spring-Loaded-Union-Nipple (NU6G1)
X	Other, specify or if more than 1 is needed
Z	N/A (No fitting needed)

(See page 1-3)FOR MORE NIPPLE OPTIONS.



Immersion for Symbol #8-E



Immersion for Symbol #8-G & D

* Length is calculated without consideration of these attaching device. See dwg on pg. 3-2)

3	E	S	B	K	12"	B	W

RESISTANCE TEMPERATURE DEVICES (RTD'S)

#9	PROCESS NPT [1-3]
L	1/8"
M	1/4"
P	1/2" (Standard w/ symbols W, S, & C above)
O	3/4"
X	Other, specify
Z	N/A

#10	LEAD WIRE TYPE & LENGTH IN INCHES [SEE SECTION 7]		
1__"	Fiberglass braid	6__	Bare wire (Standard for swaged leads under 12")
2__"	PVC	X__"	Other, specify
3__"	Teflon (Standard)	Z	N/A
4__"	Hi-temp glass braid		
5__"	Kapton		

NOTE:
All wire will be 24 awg in tubes > 1/8" OD. Smaller tubes will have a max. of 28 awg. If no transition or armor is specified, wire may be fragile. JMS standard wire tube for RTD's is Stranded Plated Copper.

#11	ARMOR OR HEAT SHRINK / JACKET [7-7]		
A	3/16" ID SS flex armor (Standard)	G	Heat shrink / sleeving
B	3/16" ID SS flex armor PVC coated white	H	Jacket to match primary insulation
C	3/16" ID SS flex armor PVC coated black	J	Alum mylar shielded and jacketed to match primary insulation
D	1/8" ID SS flex armor	Z	N/A
F	SS overbraid	X	Other, specify

#12	WIRE CONFIGURATION [17, 18]
T	2 Wire
Y	3 Wire
W	4 Wire

Note: Use a double symbol for 2 separate lead wires if dual elements. i.e. TT.

#13	TYPE OF TRANSITION [14]
H	Heat shrink
S	Size on size
T	3/8" OD
R	1/4" OD
X	Other,specify
Z	No transition

Note: For extra high humidity / moisture environments, ≤ 500˚ F put a "2" after your selection.

For high temperature at the transition area use an X + type of transition and maximum temperature. >500˚ F

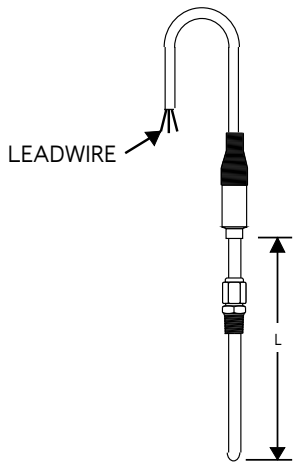
#14	COLD END TERMINATION [SEE SECTION 6] Pick as many as applicable
A	Bare ends
**B	Miniature plug
**C	Standard plug
**D	Miniature jack
**E	Standard jack
F	High temperature plug (< 800˚ F)
G	High temperature jack (< 800˚ F)
I	Explosion proof Nema 7 head (6I / 6PT)
K	Spade lugs (6SL)
L	Aluminum head w/ hinged cover (6L / 6B4)
M	Aluminum head w/ screw cover & chain (6M / 6B4)
N	Cast iron head w/ screw cover (6N / 6B4)
O	Open terminal block (6M)
Q	Black nylon Nema 4 head (6Q / 6B4)
R	High dome head (6R)
V*	Hermetic connector (6DC) - Male
W*	Microphone style connector (6DA) - Male

8H	Isolated Transmitter
8N	Non Isolated Transmitter
8S	AI-1500
8I	TempIR with Hart Protocol
8E	Intrinsically Safe TempIR
8D	TempIR/Hart/Intrinsically Safe
X	Other, specify

*Use double symbol here for matching female connector. i.e. b/bb (male with matching female)

**We do not advise using these connectors for RTD's

Note: For any other cold end termination, use appropriate part numbers from section 6 in place of symbol #14.



Immersion is overall length of tube for non-fixed attaching devices

#15	OPTIONS USE ONLY IF APPLICABLE [INTRODUCTION]				
1	TAGGING	Stainless steel tag	5	CALIBRATION	Calibrate at specified point(s). corrections data will be provided for each point.
2		Plastic tag	6		Calibrate specified temperature range. corrections data will be provided for all temperatures within the range.
3		Paper tag			Note: You must specify increments & range. (Ex. 0 to 300°F, 0.1° increments)
4		Electroetch on probe Note: You must always specify information required on tag	7		CE Marking [PAGE XV]
			8		Bar Code
			Z		N/A

P	3-36"	A	Y	T	A	

AVERAGING RTD'S

Continuous averaging resistance temperature detectors are most frequently used in air washing and air handling systems where turbulent and stratified air flow may effect the temperature measurement in a tip sensitive probe. The average temperature of the air in the duct can be measured with this type of sensor.

Any application which requires an averaging of temperature across an area would be suited for this sensor type. The operating temperature range for a continuous averaging RTD is from -100 to 400°F. The lower temperature and temperatures up to 500°F are handled with a multipoint design (4, 8, or 16 points). Please contact JMS Southeast with any questions or application problems you may have.

#1	SERIES
3A	Averaging RTD

#2	Element Type 0.00385, IEC 751; 1983, 100Ω @ 0°C			
E	(-50˚ TO 275˚ F)	P16	Platinum 16 point, <900°F	Note: Call the JMS Engineering Department for information about averaging thermocouples, swamp boxes and special proprietary multipoint designs.
P4	Platinum 4 point, <900°F	X	Other, specify	
P8	Platinum 8 point, <900°F			

#3	TUBE DIAMETER		
B	1/4" (.250")	C	3/16" (.188")

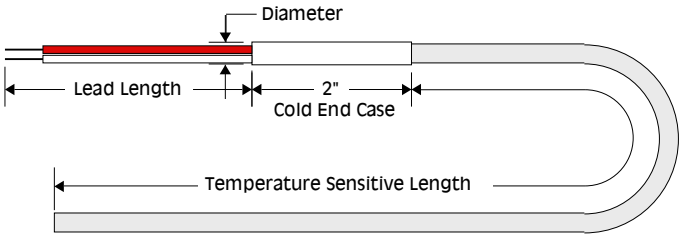
#4	SENSING LENGTH
__"	In inches

#5	TUBE MATERIAL		
K	316 Stainless Steel	F	Copper

#6	TOTAL PROBE LENGTH
__"	

#7	STANDARD INDUSTRIAL FITTINGS
W	Fixed NPT ss fitting - double threaded. Sheath diameters less than 3/16", fittings are brazed to sheath.
B	Bayonet spring loaded assembly for thermowells & heads
F	Reverse mounted steel plug fixed to sheath for attaching head
G	Fixed stainless steel to sheath
H	Compression fitting ss w/ ss ferrule } For all compression fittings except "6",immersion is over all length of the tube.
I	Compression fitting ss w/ teflon ferrule
J	Compression fitting ss w/ lava ferrule
K	Compression fitting ss w/ nylon ferrule
X	Other, specify
Z	N/A (No fitting needed)
	Note: To specify extensions such as nipples, unions, couplings, use X and see pg 3-3 for complete part #.

#8	PROCESS NPT		
L	1/8"	X	Other, specify
M	1/4"	Z	N/A
P	1/2"		



#9	LEAD WIRE TYPE & LENGTH IN INCHES
1__"	Glass braid
3__"	Teflon
6__"	Glass braid / flex armor overall
7__"	Teflon / flexible armor overall
8__"	Glass braid / SS overbraid (3 wire only)
9__"	3 conductor teflon with overall jacket of teflon tape
10__"	3 conductor teflon / SS overbraid with overall jacket of teflon tape
X	Other, specify
Z	No leadwire

#10	WIRE CONFIGURATION		
T	2 Wire	W	4 Wire
Y	3 Wire	V	4 Wire (Compensating loop)

#11	MAX TEMP. OF TRANSITION	
P	< 500° F	Note: Q potting may not comply with ASTM megohm check.
Q	> 500° F	

3A	E	B	12"	K	18"	I	M	3-36"	Y	P

AVERAGING RTD'S

#12	COLD END TERMINATION [SEE SECTION 6] Pick as many as applicable
A	Bare ends
**B	Miniature plug
**C	Standard plug
D	Miniature jack
E	Standard jack
F	High temperature plug (< 800˚ F)
G	High temperature jack (< 800˚ F)
I	Explosion proof Nema 7 head (6I / 6PT)
K	Spade lugs (6SL)
L	Aluminum head w/ hinged cover (6L / 6B4)
M	Aluminum head w/ screw cover & chain (6M / 6B4)
N	Cast iron head w/ screw cover (6N / 6B4)
O	Open terminal block (6M)
Q	Black nylon Nema 4 head (6Q / 6B4)
R	High dome head (6R)
V*	Hermetic connector (6DC) - Male
W*	Microphone style connector (6DA) - Male
X	Other, specify

* Use double symbol here for matching female connector. i.e. B/BB (male with matching female).

**We do not advise using these connectors for RTD's

Note: For any other cold end termination, use appropriate part numbers from section 6 in place of symbol #12.

#13	TAGGING AND CALIBRATION OPTIONS (USE ONLY IF APPLICABLE)		
1	Stainless steel tag	5	Calibrate at specified point(s). Corrections data will be provided for each point.
2	Plastic tag	6	Calibrate specified temperature range. Corrections data will be provided for all temperatures within the range. Note: You must specify increments & range. Ex. 0 to 300°F, 0.1° increments
3	Paper tag		
4	Electroetch on probe Note: You must always specify information required on tag	7	CE Marking [PAGE XV]

TAGGING / CALIBRATION

C	1

LOW COST AVERAGING RTD'S

Sense temperature of air streams in ducts and plenums. Sensors include a junction box with gasket to prevent leakage and vibration noise. These thermometers have a continuous element to sense true average temperature along their entire length. They provide accurate composite reading in locations where air may be stratified into hot and cold layers.

Rigid averaging sensors have a brass case. Bendable models have aluminum sheaths (copper on special order) formable to a radius of 4". Bendable sensors can criss-cross ducts to average temperatures in two dimensions.

Specifications:
Temperature range: -45.5 to 135˚ C (-50 to 275˚ F)
Gasket: 100˚ C (212˚ F)
Leadwire: 22awg, teflon insulated, 8" long
Sheath diameter: .188" OD.

#1	SERIES
3L	Platinum, 100 @ 0 C, a=.00385

#2	SENSOR TYPE
56	Rigid Sensor
57	Bendable Sensor

#3	WIRE CONFIGURATION
T	2 Wire
Y	3 Wire

#4	INSERTION LENGTH
_____"	Length in inches (Standard Lengths for Rigid type (inches): 12", 18", 24", 48", 60", 72" Standard Lengths for Bendable type (feet): 6 Ft, 12 Ft, 24 Ft)

#5	OPTIONS
A	Weatherproof connection box (2.12" W X 4.0" H X1.75" D)
B	Sensor only, no box
C	Stainless steel tag
X	Other

3L	56	T	60"	A