

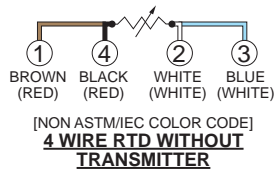
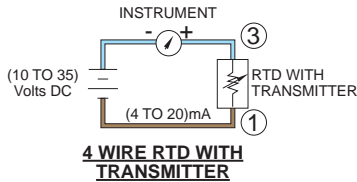
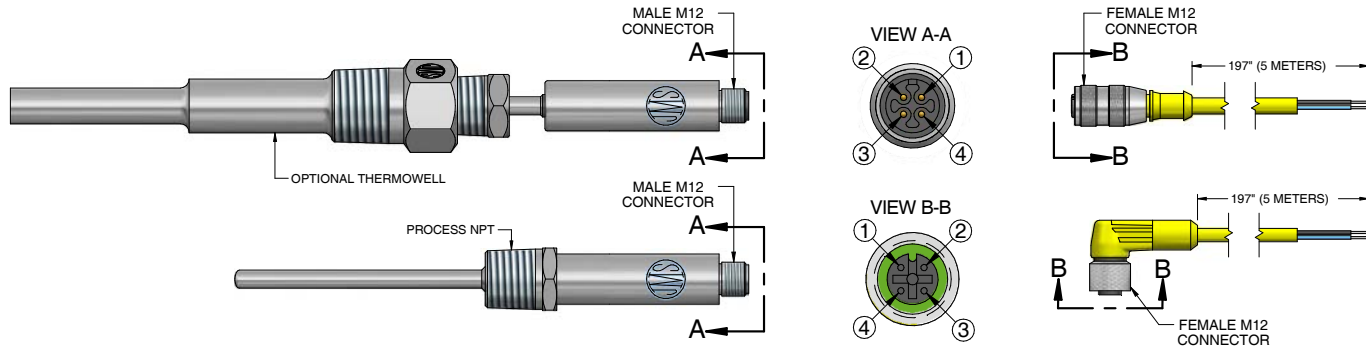
# RTD WITH INTEGRAL PC PROGRAMMABLE TRANSMITTER

## RTD with 4-20 mA INTEGRAL OUTPUT (RTD *in*, 4-20 mA *out*)

INDUSTRIAL STYLE INTEGRAL TRANSMITTER (Transmitter option see page 3-2, #14, 8M)

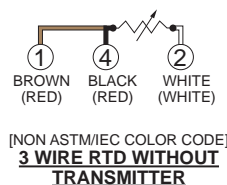
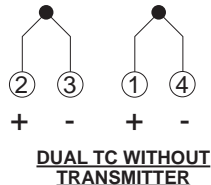
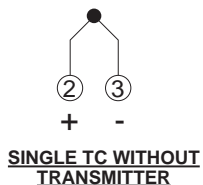
### FEATURES:

- PC programmable
- Carry a 4-20 mA to your PLC directly from the RTD with no special equipment.
- Available in fixed immersion and spring loaded for thermowells!!
- Quick-n-Clean M12 connection for easy replacement.
- NEMA 6P (IP67) rated with M12 connector.
- Ideal for most applications from -60 to 320°F.
- Ambient temperature limits -40 to 185°F.



JMS PART #	DESCRIPTION
6SKWT*	M12 CORDSET, 4 POLE, FEMALE, STRAIGHT, IP67, 197" (5 METER) LENGTH
6RKWT*	M12 CORDSET, 4 POLE, FEMALE, RIGHT ANGLE, IP67, 197" (5 METER) LENGTH

\*Add an X to the end of the part # to specify a custom cord length.



# RESISTANCE TEMPERATURE DEVICES (RTDS)

#1	DESCRIPTION				
3	RTD				
#2	ELEMENT TYPE [3-4, 9, 10, 11, 15, 18, 22, 24]		100 Ω Platinum 0.00385 alpha (Ω/Ω°C) unless otherwise stated		
B	Resistor Accuracy at 0°C		Thermometer Class [pg. 3-18]	Resistor Class [pg. 3-18]	
E	± 0.30°C (Competitor's Std)		B	≥ F 0.3	
P*	± 0.15°C (Standard)		A	≥ F 0.15	
S*	± 0.06°C		AA	≥ 1/2 F 0.1	
N	± 0.03°C (Best Accuracy)		1/4 A	≥ 1/10 W 0.3	
M	± 0.74°C (120 Ω Nickel α=0.00672)		Non-Standard	Non-Standard	
X	± 0.30°C (1000 Ω)		B	≥ F 0.3	
X	Other, specify [3-22]		--	--	
#3	ELEMENT CONSTRUCTION [4]				
S	Single	Standard construction	SV	Single	High vibration construction
D	Dual	Standard construction	DV	Dual	High vibration construction
J	Single	Swaged construction			
K	Dual	Swaged construction			
X	Other, specify		<b>Note:</b> Use swaged for high temperature, bendability, and/or longer than 90".		
#4	TUBE DIAMETER <b>MUST CHOOSE 1</b>		TIP CONSTRUCTION [1-13] <b>MUST CHOOSE 1</b>		
P	1/2" (.500")	D	1/8" (.125")	N	Normal, closed tip (Standard)
A	3/8" (.375")	X	Other, specify	K	Pointed tip, 45°
Y	5/16" (.313")	Z	N/A	M	Weld pad
B	1/4" (.250")			O	Weld pad, removable
R	6mm (.236")			R2	Gas/Air, exposed
C	3/16" (.188")			W*	Enlarged tip
				Y2	Reduced tip
				X	Other specify
<b>* Provide length and enlarged diameter description when selecting this option.</b>					

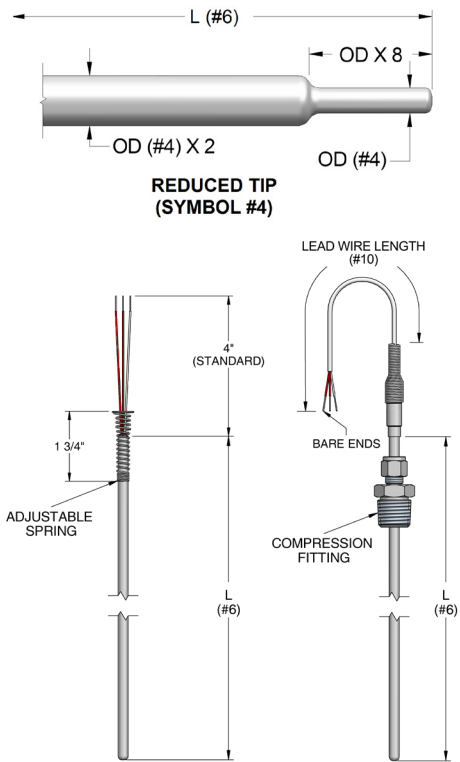
[ ] Brackets indicate page numbers where additional helpful information can be found in our technical catalog. Now available online at [www.JMS-SE.com/TechnicalCatalog](http://www.JMS-SE.com/TechnicalCatalog)

#5	TUBE MATERIAL [3-11, 3-13]				
K	316 stainless steel		C	Teflon coated, stainless steel	
L	316L stainless steel		S	Titanium	
M	I-600 (Use if symbol #7 >500°F)		Q	Hastelloy C-276	
X	Other, specify				

#6	LENGTH (L) (See illustrations on pages 3-1 and 3-2 for "L" dimension)				
"	Immersion length in inches (lengths greater than 90" may be coiled for shipment)				

#7	MAX TEMPERATURE AT WHICH TIP WILL BE EXPOSED				
A	<0°C (32°F) Cryogenic = 5 Kapton				
B	<200°C (392°F) = 3 Teflon*				
C	<288°C (550°F) = 5 Kapton*				
D	<350°C (662°F) = 1 Fiberglass*				
E	<660°C (1220°F) = 4 High temperature fiberglass*				
<b>*If no transition (Z) is in symbol 13, we recommend these corresponding selections for primary wire insulation on hollow tube sensors.</b>					

**NEW** Skip to page 1-3 to complete selection #8 if your sensor requires a nipple and/or union extension.



**Note:** L is the overall length of the sensor to the transition, wire, plug, head, or fixed attaching device. L excludes non-fixed attaching devices.

#8	STANDARD INDUSTRIAL ATTACHING DEVICE [1-3, 6-13]				
X	Other, specify				
Z	N/A		No attaching device		
G	Single thread (process)		Welded design		
F	Single thread (reversed)				
W	Double threaded				
H*	SS w/ SS ferrule		Compression design		
I*	SS w/ Teflon ferrule				
J*	SS w/ Lava ferrule				
K*	SS w/ Nylon ferrule				
L*	Brass w/ Brass ferrule				
D	Single threaded (process)		Spring-loaded design		
C	Double threaded w/ oil seal				
A	Double w/ threaded retainer				
E	Adjustable spring				
S	Double threaded (most common)				
B	Double threaded bayonet				
BS	Double threaded bayonet w/ oil seal				
BD	Single threaded bayonet				
BDS	Single threaded bayonet w/ oil seal				

OR → S { U N 6" H 1 }  
SEE PAGE 1-3

# RESISTANCE TEMPERATURE DEVICES (RTDS)

<b>#9</b>	<b>PROCESS CONNECTION SIZE &amp; TYPE [3]</b>		
L	1/8" NPT	O	3/4" NPT
M	1/4" NPT	X	Other, specify
A	3/8" NPT	Z	N/A
P	1/2" NPT (Standard)		

Note: Threaded bushing may be used for sizes larger than 1/2"

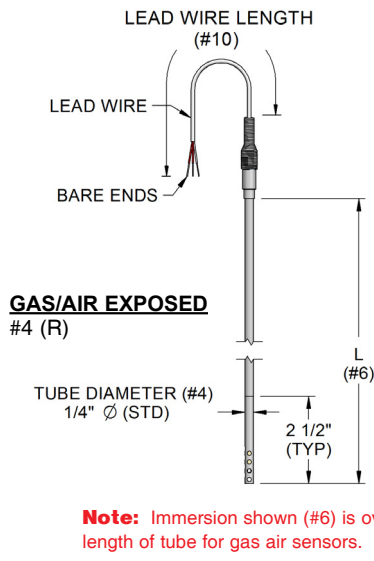
<b>#10</b>	<b>LEAD WIRE TYPE &amp; LENGTH IN INCHES</b> [see section 7]		
1"	Fiberglass braid	X"	Other, specify
3"	Teflon (Standard)	Z"	N/A
4"	High temperature fiberglass braid		
5"	Kapton (Standard for Cryogenic)		

Note: All wire in tubes > 1/8" OD will be 24 AWG. Smaller tubes will have a max. of 28 AWG. If no transition or armor is specified, wire may be fragile. JMS standard lead wire for RTDs is stranded plated copper.

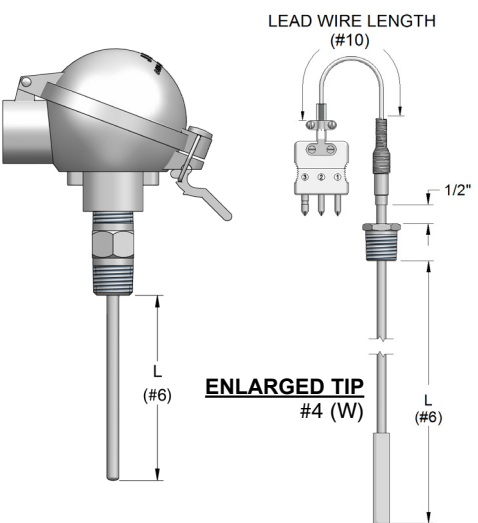
<b>#11</b>	<b>ARMOR OR HEAT SHRINK/JACKET [7-7]</b>		
A	SS flex armor (Standard)	G	Heat shrink/sleeving
B	SS flex armor Teflon coated white	H	Jacket to match primary insulation
C	SS flex armor Teflon coated black	J	Aluminum Mylar shielded and jacketed to match primary insulation
D	1/8" ID SS flex armor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

<b>#12</b>	<b>WIRE CONFIGURATION [17, 18]</b>		
T	2 Wire	Note: Use a double symbol for 2 separate multiconductor lead wires, if dual elements. For example, TT.	
Y	3 Wire		
W	4 Wire		

<b>#13</b>	<b>TYPE OF TRANSITION [14]</b>		
H	Heat shrink	Note: For high humidity/moisture environments (≤ 500°F), put a 2 after your selection. For example, R2.	
S	Size on size		
T	3/8" OD	Note: For high temperatures at the transition area (500°F to 1200°F), put a 3 after your selection. For example, T3.	
R	1/4" OD		
Q	Cuttable (Std construction only) [3-12]		
X	Other, specify		
Z	No transition		



<b>#14</b>	<b>COLD END TERMINATION</b> [Additional options see Pg 1-7] Choose all that apply		
<b>Connectors</b>		<b>Heads [6-1]</b> Visit <a href="http://www.JMS-SE.com/headspecs">www.JMS-SE.com/headspecs</a>	
B	Miniature plug	Exp. Proof	I Aluminum, NEMA 4X, FM, CSA, IP68 (6IA)
C	Standard plug		J 316 SS, NEMA 4X, FM, CSA, IP68 (6ISS)
F	High temp plug (< 800°F)	Gen. Purpose	P Aluminum, NEMA 4X, FM, CSA, ATEX, IECEX, IP68 (6IAIEC)
WM	Microphone style plug		U 316 SS, NEMA 4X, FM, ATEX, IECEX, IP68 (6ISSATEX)
D	Miniature jack	L Aluminum w/ hinged cover (6L)	
E	Standard jack	M Aluminum w/ screw cover & chain (6M)	
G	High temp jack (< 800°F)	N Cast Iron w/ screw cover (6N)	
WF	Microphone style jack	Q Black plastic (6Q)	
V	Water resistant plug	R Aluminum high dome w/ hinged cover (6R)	
Y	M12 Water resistant plug	SS 316 SS w/ screw cover & chain (6SS)	



<b>#15</b>	<b>OPTIONS</b> (Use only if applicable)		
1	Stainless steel tag	6C*	Premium calibration report.
2	Plastic tag	7 8 M T	Callendar-Van Dusen coefficients will be provided for all CE marking [page XV]
3	Paper tag		Guide 17025 calibration
4	Laser etch on probe		MTR (Sheath, tubing, tip)
5	Calibrate at specified point(s)		Calibration tag
5	Corrections data provided for each point.		
6*	Premium calibration report. Corrections data will be provided for all		

\*Must specify increments & range (Example: 0 to 300°F, 10° increments)

P	Z	Z	Y	Z	L	1
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COMPLETE PART NUMBER EXAMPLES

-with nipple-union-spring-loaded fitting extension assembly:  
**3ESBNK12"BS[UN6H]PZZYZL1**

-without extension assembly:  
**3ESBNK12"BSPZZYZL1**

# CUSTOM NIPPLE/UNION EXTENSION CONFIGURATOR

An extension assembly provides extra length extending the sensor head past insulation and away from heat. Standard unions are 1/2" FNPT on both ends. The union joins two nipples in an extension assembly and has a standard pressure rating of 150 PSIG.

When a nipple-union-nipple assembly is selected and spring-loading of the thermocouple element is required, there are two different methods of spring-loading the sensor. JMS's standard, recommended method is to use the machined 1/2" x 1/2" NPT spring-loaded stainless steel fitting as one of the nipples. With this design, the probe is secured within the fitting and mounted to the head in a rigid manner instead of spring-loading against a terminal block, as is the case with a standard nipple-union-nipple. Due to stress exerted by spring, selection #8, option N "nipple" should never be used with an in-head transmitter. Any of the other options within option #8 are compatible with in-head transmitters.

**Notes:**

- The standard JMS spring designed specifically for a 1/4" OD sensor is made of high nickel proprietary spring wire which allows users to successfully maintain 1/2" of spring-loading even up to 1000°F.
- Spring-loaded extension assemblies should not be used with ceramic protection tubes.

		#8	COLD SIDE STANDARD INDUSTRIAL ATTACHING DEVICE [1-3, 6-13]		
		X	Other, specify		<p>STANDARD ATTACHING DEVICE (ALREADY SELECTED IN #8)</p>
<b>Welded design</b> G Single Thread (Process) W Double Threaded		H2 I2 J2 K2 L2	SS w/ SS ferrule SS w/ Teflon ferrule SS w/ Lava ferrule SS w/ Nylon ferrule Brass w/ Brass ferrule		
<b>Compression design</b> H2 I2 J2 K2 L2		D Single threaded C Double threaded w/ oil seal A Double w/ threaded retainer N Nipple (spring-loaded against terminal block) S Double threaded B Double threaded Bayonet BS Double threaded Bayonet w/ oil seal BD Single threaded Bayonet BDS Single threaded Bayonet w/ oil seal		MOST COMMON  ** L is the overall length of the sensor to the fixed attaching device. Page 1-1, selection #7 for T/Cs or 3-1, selection #6 for RTDs.	
<b>Spring-loaded design</b> D C A N S B BS BD BDS				UNION (#8,1) L**	
		#8.1	UNION		<p>UNION (#8,1)</p>
		U O X	Union Coupling Other, specify  <b>Note:</b> Thread adapters may be used when symbol #9 is not 1/2" NPT.		
		#8.2	PROCESS FITTING (MALE)		<p>PROCESS FITTING (#8.2)</p>
		N X Z	Nipple Other, specify N/A (female thread) <b>Note:</b> Thread adapters may be used when symbol #9 is not 1/2" NPT.		
		#8.3	N LENGTH		<p>N (#8.3)</p>
		" Z	Specify (Inches)* N/A (female thread)  * ONLY for configurations with nipples (option N for selection #8 or #8.2) ALL other configurations have fixed lengths and this selection is not applicable.		
		#8.4	UNION and/or NIPPLE MATERIAL		
		H K C G	304 stainless steel <input type="checkbox"/> X 316 stainless steel Black steel Galvanized steel		
		#8.5	UNION PRESSURE RATING		
		1 2 3 X	#150 - A351 spec (Standard) #3000 - A182 spec #6000 - A182 spec Other, specify		

**Note:** High nickel proprietary spring material is rated to 1000°F. (For 1/4" Ø sensors)

S { U N 6" H 1 }

Continue on to the "PROCESS NPT" selection to finish creating your sensor part number. Selection #9 on page 1-2 (thermocouples) and 3-2 (RTDs).