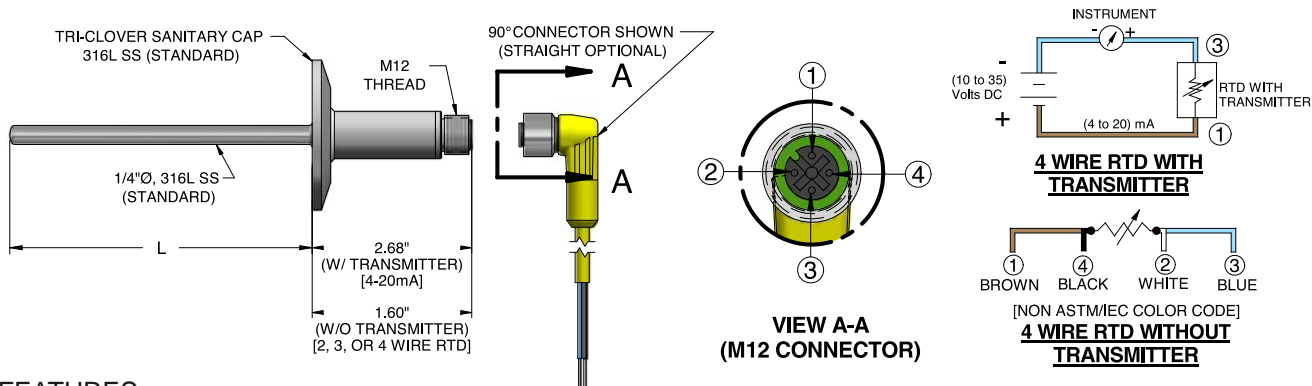


WASH DOWN 3-A RTD WITH 4-20 mA INTEGRAL OUTPUT (RTD *in*, 4-20 mA *OUT*!!)

TOOL FREE RTD TEMPERATURE MEASUREMENT



FEATURES:

- PC Programmable,
- NEMA 6P (IP68) rated with M12 connector.
- Ideal for most applications from -60 to 320 F.
- Ambient Temperature limits -40 to 185 F.
- Quick-n-Clean M12 connection for easy replacement.
- Available in 3-A Certified and Standard Industrial Designs

3-A APPROVED SANITARY SENSORS

CIP (Clean-In-Place) line of 3-A certified sanitary thermocouples and RTDs from JMS are specially designed to meet the needs of the food, dairy, beverage, pharmaceutical, chemical and cosmetic industries. They are ideally suited for a number of applications where corrosion and contamination are factors. They are fabricated from stainless steel or other 3-A approved material using a method assuring imperfection-free surfaces. All sanitary grade thermocouples are provided to special limits of error. All sanitary RTDs are available in 4 wire construction.

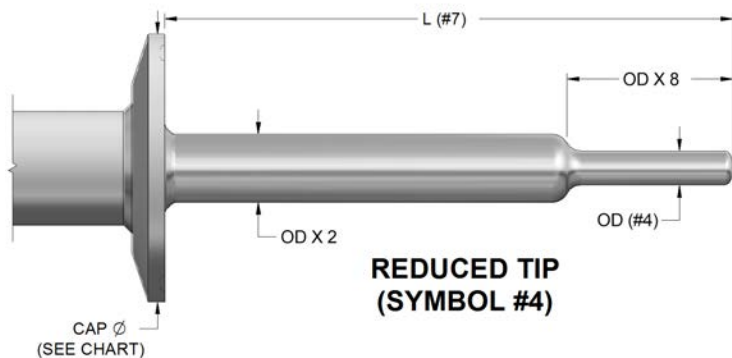
Direct Immersion sanitary sensors incorporate sanitary caps manufactured per the ASME BPE standard. Removeable sensors for sanitary applications typically incorporate spring loaded fittings and are assembled with sanitary thermowells. Wetted materials are polished to a #4 finish to assure that there are no pits, folds or crevices. The exterior nipple, also stainless steel, can be joined to a connection head, designed to withstand caustic washdown. A typical RTD or Thermocouple (see pages 1-1 and 3-1) may be used with a sanitary thermowell (see pages 4-3 through 4-6).



www.3-A.org

#1	DESCRIPTION	
4S	Sanitary sensors	
	#2	RTD/THERMOCOUPLE TYPE (RTD-Platinum 0.00385 alpha ($\Omega/\Omega/^\circ\text{C}$). Resistor accuracies at 0°C below & [3-1,17,18])
	B E P S X	RTD Options 4 wire $\pm 0.30^\circ\text{C}$ 4 wire $\pm 0.15^\circ\text{C}$ 4 wire $\pm 0.06^\circ\text{C}$ 4 wire $\pm 0.03^\circ\text{C}$ (JMS Standard) Other, specify
	T K J X	Thermocouple Options Copper/Constantan Chromel/Alumel Iron/Constantan Other, specify
	#3	ELEMENT CONSTRUCTION
	1 2 X	Single Dual Other, specify
	#4	OUTSIDE DIAMETER (OD)
	A B C D	3/8" 1/4" 3/16" 1/8"
	E X Z	1/16" Other, specify NA
		Note: For a reduced tip, add R before selection. The shank OD will equal twice the tip OD. See illustration below. (Example RB steps down from 1/2" to 1/4" at the tip)
	#5	TUBING MATERIAL
	K L H I X	316 stainless steel 316 low carbon stainless steel (Standard) 304 stainless steel 304 low carbon stainless steel Other, specify
	S	Titanium
	#6	MEASURING JUNCTION
	G U	Grounded Ungrounded (Standard)
		Note: RTDs are always ungrounded.
	#7	IMMERSION LENGTH (L)
	—"	Length in inches

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

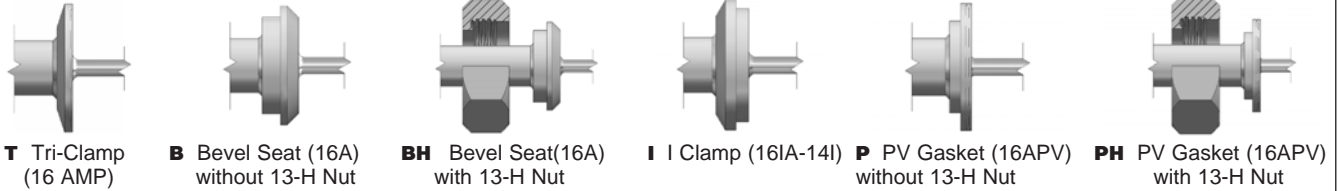


4S	S	1	C	K	U	12
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TRI-CLAMP (16 AMP) CAP SIZE CHART	
CAP SIZE (#9)	CAP Ø
1/2 or 3/4	.984"
1 or 1 1/2	1.984"
2	2.516"
2 1/2	3.047"
3	3.579"
4	4.682"
6	6.570"
8	8.563"
10	10.563"
12	12.563"

3-A APPROVED SANITARY SENSORS

#8	SANITARY CAP OPTIONS [SEE BELOW] Note: Standard sanitary thermowells can be found on page 4-4 and 4-5.		
T B*** BH*** I**	Tri-Clamp (16 AMP) Bevel seat (16 A) without 13-H nut Bevel seat with 13-H nut I Clamp (16AI-14I)	P PH A*** X*	PV Gasket (16APV) without 13-H nut PV Gasket with 13-H nut 3A4 Adapter Other, specify
			* When specifying X, ensure that it meets 3-A standard. ** Not 3-A authorized. *** Must be cleaned manually.



#9	CAP SIZE See Tri-Clamp Size Chart on page 4-1		
05	1/2 or 3/4	60	6
15	1 or 1 1/2	80	8
20	2	100	10
25	2 1/2	120	12
30	3	Z	N/A
40	4	X	Other, specify

Note: 05 Cap sizes (1/2 x 3/4) will use 1/4" NPT nipple. Not available for Bevel seat or I-Clamp



#10	POLISH (Wetted surfaces only)		
H	High polish #4 finish (≤ 32 microinches(µin)) (Standard)	F	Fine polish (≤ 20 microinches(µin))
E	Electropolish after #4 finish (≤ 32 microinches(µin))	V	Ultra polish 8G finish (≤ 8 microinches(µin))
P	Passivate after #4 finish (≤ 32 microinches(µin))	X	Other, specify

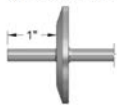
#11	LEAD WIRE TYPE AND LENGTH IN INCHES	MAX. TEMP. °C	MAX. TEMP. °C
Z	No lead wire (Teflon will insulate the wires in the head)	200°C	5" Kapton 288°C
1"	Fiberglass braid	350°C	9" Kapton & white teflon flex 200°C
3"	Teflon	200°C	X" Other, specify
7"	Teflon wire with white Teflon coated flex armor	200°C	

#12	TRANSITION TYPE		
H	Heat shrink	X	Other, specify
S	Size on size	Z	No transition
R	1/4" OD		
T	3/8" OD (Standard w/out head)		
N	Nipple (Standard w/ head)		
B	7/16" OD (Standard for high humidity)		

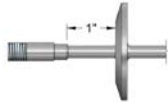
Note: For extra high humidity/moisture/washdown environments ≤ 500°F, please add a 2 suffix to your selection. Example: T2

Note: For high temperature at the transition area (>500°F) please add a 3 suffix to your selection. Example: T3

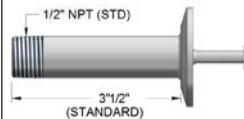
Z No Transition



B, T or R Transition, or M12 Direct Connect Transition



N Threaded Nipple



#13	COLD END TERMINATION Choose as many as applicable [Additional options see Pg 1-7]		
WP	White plastic head (3-A Standard)	AW	Bare ends, Teflon with nipple
A	Bare ends	SC	Capped socket connection [4-6]
P	Epoxy coated explosion proof rated cast Iron head w/ gasket	8H	Isolated transmitter
IA	Epoxy coated explosion proof rated aluminum head w/ chain	8M	Integral transmitter (see page 4-6 for details)
ISS	Explosion proof stainless steel head	8N	Non-isolated transmitter
SS	General purpose stainless steel head w/ screw cover	8PS	Indicating transmitter w/ SS housing
		8PA	Indicating transmitter w/ aluminum housing
		Y*	M12 watertight male connector
		X	Other, specify

* See page 4-6 for wiring diagram.

Note: For detailed specifications and ratings see JMS-SE.com/headspecs

#14	OPTIONS—USE ONLY IF APPLICABLE [INTRODUCTION]		
M	MTR (wetted parts)	6**	Premium calibration report
T	Calibration tag		Corrections data will be provided for all temperatures within the range.
1*	Stainless steel tag		
2*	Plastic tag	6C	Premium calibration report.
3*	Paper tag		Callendar-Van Dusen coefficients will be provided.(RTD only)
4*	Laser etch on probe	7	CE marking [page XV]
5	Calibrate at specified point(s). Corrections data will be provided for each point.	8	Guide 17025 calibration
		9*	Bar code on paper tag

* Must specify information required on tag/probe

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

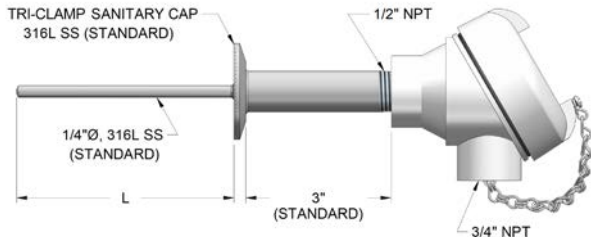
T	15	H	3-36"	T	WP
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Note: When specifying X, be sure to observe requirements and restrictions as imposed by the 3-A Sanitary standards for sensors and sensor fittings and connections, Number 74-03.

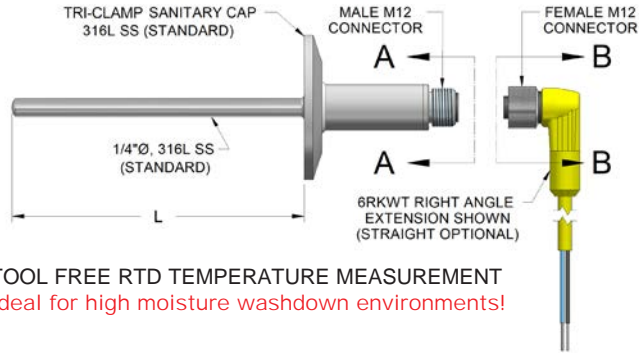
3-A APPROVED COMPLETE SENSORS

SANITARY CAP TYPICAL DESIGNS

TRI-CLAMP (16 AMP) (CAP OPTION "T")



3-A RTD with 4-20 mA INTEGRAL OUTPUT (RTD *in*, 4-20 mA *OUT*!!)



TOOL FREE RTD TEMPERATURE MEASUREMENT
Ideal for high moisture washdown environments!

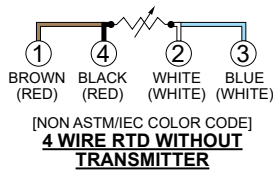
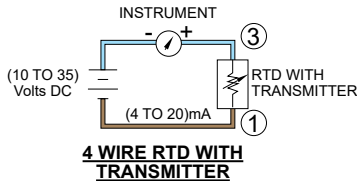
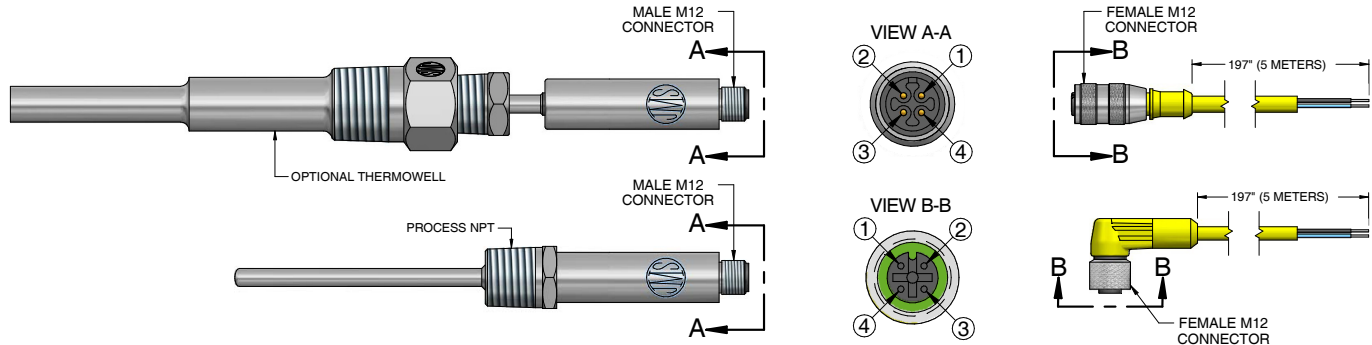
RTD WITH INTEGRAL PC PROGRAMMABLE TRANSMITTER

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)

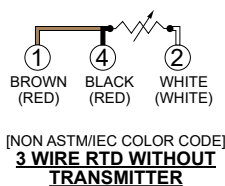
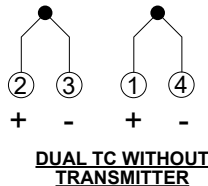
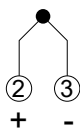
FEATURES:

- 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	± 0.30°C (Competitor's Std)		B	≥ F 0.3	
E	± 0.15°C (Standard)		A	≥ F 0.15	
P*	± 0.06°C		AA	≥ 1/2 F 0.1	
S*	± 0.03°C (Best Accuracy)		1/4 A	≥ 1/10 W 0.3	
N	± 0.74°C (120 Ω Nickel α=0.00672)		Non-Standard	Non-Standard	
M	± 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		Note: Use swaged for high temperature, bendability, and/or longer than 90".		
#4	TUBE DIAMETER MUST CHOOSE 1		TIP CONSTRUCTION [1-13] MUST CHOOSE 1		
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
* Provide length and enlarged diameter description when selecting this option.					

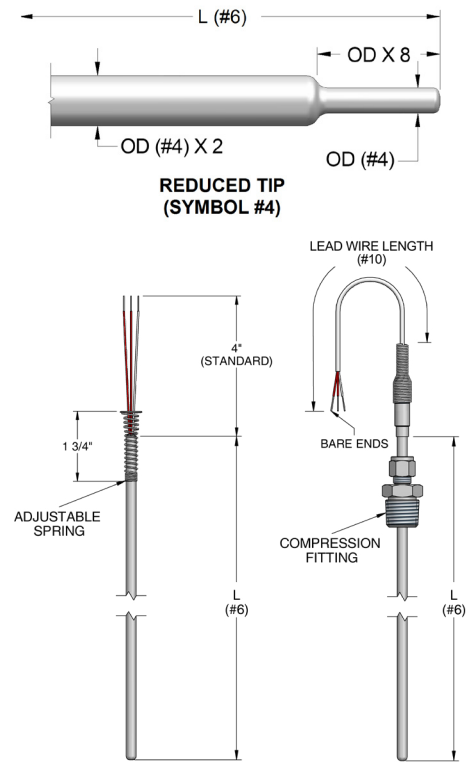
[] Brackets indicate page numbers where additional helpful information can be found in our technical catalog. Now available online at www.JMS-SE.com/TechnicalCatalog

#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*				
*If no transition (Z) is in symbol 13, we recommend these corresponding selections for primary wire insulation on hollow tube sensors.					

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)

#9	PROCESS CONNECTION SIZE & TYPE [3]		
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"

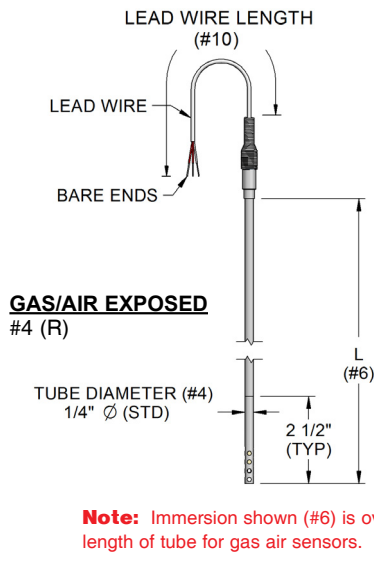
#10	LEAD WIRE TYPE & LENGTH IN INCHES [see section 7]		
1"	Fiberglass braid	X"	Other, specify
3"	Teflon (Standard)	Z"	N/A
4"	High temperature fiberglass braid		
5"	Kapton (Standard for Cryogenic)		

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.

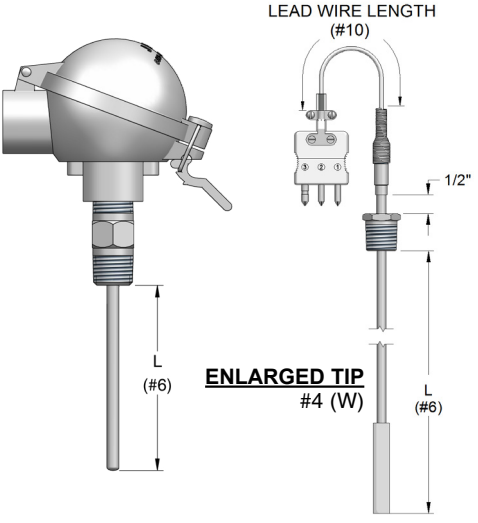
#11	ARMOR OR HEAT SHRINK/JACKET [7-7]		
A	SS flex armor (Standard)	G	Heat shrink/sleeving
B	SS flex armor Teflon coated white	H	Jacket to match primary insulation
C	SS flex armor Teflon coated black	J	Aluminum Mylar shielded and jacketed to match primary insulation
D	1/8" ID SS flex armor	Z	N/A
F	SS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

#12	WIRE CONFIGURATION [17, 18]		
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		

#13	TYPE OF TRANSITION [14]		
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		



#14	COLD END TERMINATION [Additional options see Pg 1-7] Choose all that apply		
Connectors		Heads [6-1] Visit www.JMS-SE.com/headspecs	
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)	

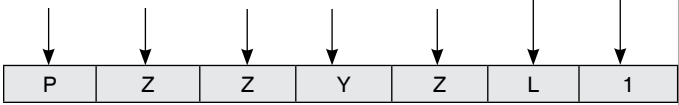


Transmitters		Transmitter & Housing [See Pg. 8-2]	
8H	Isolated transmitter	8PS	Indicating with SS housing
8N	Non-isolated transmitter	8PA	Indicating with aluminum housing
8I	Hart Protocol	Other	
8E	Intrinsically safe	A	Bare ends
8D	HART / Intrinsically safe	X	Other, specify
8M	Integral transmitter (see page 3-5)		

Note: Add span range after transmitter selection. Example: 8H(0-200C).

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

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



COMPLETE PART NUMBER EXAMPLES

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

-without extension assembly:
3ESBNK12"BSPZZYZL1