PLASTICS SENSORS

BAYONET TEMPERATURE SENSORS

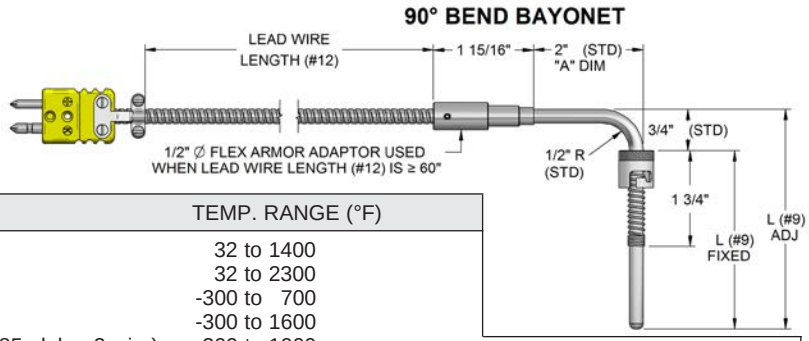
Bayonet style thermocouples are the most common in plastics processing. JMS has adapted this useful and safe design to other industrial sensors to utilize the best features of both.

Our standard design and most commonly used is the Adjustable Bayonet attachment device developed by JMS in 1982. This design incorporates a plated brass cap with a stainless steel spring. The spring fits around the appropriately sized sensor and remains in position until such a time as the user adjusts it. This enables the same sensor to be used for many different applications in the same facility. It also makes for lower inventory levels which your accountant will love.

The other attachment devices we make for your sensors are standard in the industry. For those "Old Dogs" who refuse to try something innovative, we still offer the fixed bayonet design. The length of this sensor cannot be changed and will only go in the hole it was specifically built to fit.

#1	DESCRIPTION
2	Plastics sensors

#2	DESIGN [2-8]
M	MgO insulated (swaged sheath)
H	Hollow tube



#3	TYPE	TEMP. RANGE (°F)
J	Iron/Constantan	32 to 1400
K	Chromel/Alumel	32 to 2300
T	Copper/Constantan	-300 to 700
E	Chromel/Constantan	-300 to 1600
2	100Ω Platinum RTD (0.00385 alpha, 2 wire)	-200 to 1000
3	100Ω Platinum RTD (0.00385 alpha, 3 wire)	-200 to 1000
4	100Ω Platinum RTD (0.00385 alpha, 4 wire)	-200 to 1000
X	Other, specify	

Note: Hollow tube sensors should never be used to measure temperatures above 900°F.

#4	OUTSIDE DIAMETER
C	3/16" (.188")
D	1/8" (.125") **Note:** 1/8" required for nozzle melt style
B	1/4" (.250")
R	6mm (.236")

X	Other, specify
Z	N/A (non-immersion nozzle)

Note: 316 SS standard sheath and tube material.

#5	LIMITS OF ERROR	ELEMENT CONSTRUCTION
1	Standard	Single
2	Standard	Dual
3	Special	Single
4	Special	Dual
X	Other, specify	

Special limits RTDs are JMS Class A tolerance (page 3-1)

#6	CONSTRUCTION
S	Straight
4	45° bend
9	90° bend
X	Specify angle of bend and "A" dimension (see illustrations above)

Note: 1/2" radius bends are standard. Other radii may be specified but they may deform the diameter of the tube at the bend. Larger radii may be required for larger diameters or coated sensors.

#7	MAX TEMPERATURE AT WHICH TIP WILL BE EXPOSED
A	<0°C (32°F) = Kapton*
B	<200°C (392°F) = Teflon*
C	<288°C (550°F) = Kapton*
D	<482°C (900°F) = Fiberglass*
E	<705°C (1300°F)
F	>705°C (1300°F)

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

#8	MEASURING JUNCTION [9]
G	Grounded
U	Ungrounded common (RTDs are always ungrounded)
I	Isolated
E	Exposed
X	Other, specify

#9	LENGTH (L)
__"	Length in inches

Note: See appropriate drawing on page 2-1 & 2-2 before you specify the immersion length. Use 0" for non-immersion nozzle design.

Note: When LENGTH (Option #9) exceeds 90", the probe may be coiled for shipment.

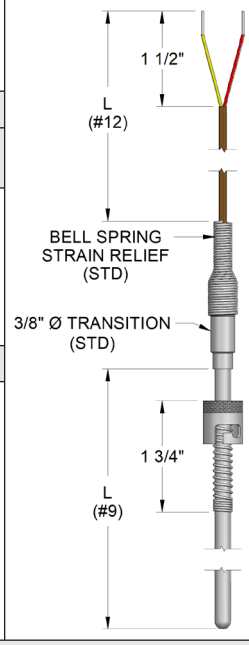
[ ] Brackets indicate page numbers where additional helpful information can be found in technical catalog. Now available online at www.JMS-SE.com/TechnicalCatalog

2	M	K	C	1	9	D	G	3"

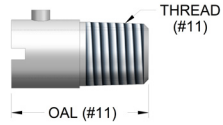
#10	ATTACHING DEVICES (see illustrations below) (See page 1-1, #8 for additional options.)
J*	Adjustable bayonet (Standard)
F	Fixed bayonet
P*	Brass compression fitting (1/8" NPT)
N	Non-Immersion nozzle fixed (1/4-28 x 3/8" long thread)
R	Non-immersion nozzle rotating (1/4-28 x 3/8" long thread)
M*	Nozzle melt rotating (3/8-24 x 15/16" long thread)
X	Other, specify
Z	N/A

*Non-fixed fittings do not affect the immersion length(#9).

ADJUSTABLE BAYONET
(Top of cap is usually positioned 3/4" from transition at factory)



#11	ADAPTER TYPE *1/8" NPT & 3/8-24 UNF adapters are used with .125" Ø and .188" Ø sensors.		
1/8" NPT	3/8-24 UNF	NICKEL PLATED STEEL SLOT HEAD MOUNTING ADAPTER (FOR BAYONET ONLY)	
Z	Z	No adapter required	
A	E	7/8" overall length	
B	F	1 1/2" overall length	
C	G	2 1/2" overall length	
D	J	3 1/2" overall length	
X	X	Other, specify	
		K	1/4" NPT X 1 1/4" overall length for 1/4" & 6mm bayonet sensors



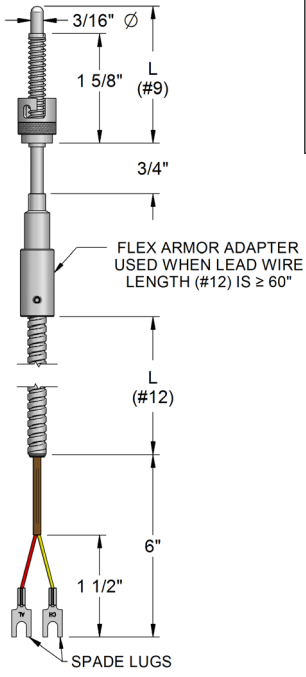
Note: More adapter options on page 2-5.

#12	LEAD WIRE TYPE & LENGTH IN INCHES
Z	No lead wires
1 __"	Fiberglass braid
3 __"	FEP Teflon
5 __"	Kapton
6 __"	Fiberglass braid/flex armor overall
7 __"	Teflon/flex armor overall
8 __"	Fiberglass braid/stainless steel overbraid
S9__"	Teflon ultra-premium, Type T only, 22 AWG, stranded
X __"	Other, specify

Note: 20 AWG solid wire is standard for thermocouples and 24 AWG stranded wire is standard for RTDs.

Note: 24 AWG wire or smaller may be used if necessary.

FIXED BAYONET



#13	TYPE OF TRANSITION [1-16]
H	Heat shrink
S	Size on size
T	3/8" OD or larger (Standard)
R	1/4" OD
X	Other,specify
Z	No transition
Q	Cuttable design (No crimp at end of tube)

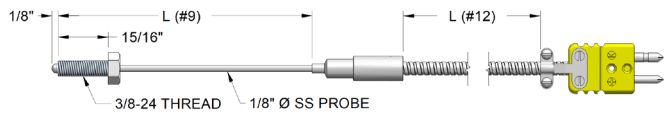
Note: For high humidity/moisture environments (≤500˚ F), put a 2 after your selection.

Note: For high temperature at the transition area (>500˚ F), put a 3 after your selection. (May not comply with ASTM Insulation Resistance (IR) test)

Note: When Z (no transition) is specified for a hollow tube sensor, the extension lead is crimped to the tube.

#14	COLD END TERMINATION [Add'l options see Pg 1-7] CHOOSE AS MANY AS APPLICABLE		
Connectors		Heads	
B	Miniature plug (6A1B2)	I	Explosion proof aluminum, NEMA 4X, FM, CSA, IP68 (6IA)
C	Standard plug (6A1C2)	L	Aluminum w/ hinged cover (6L)
F	High temperature plug (< 800˚ F)	M	Aluminum w/ screw cover & chain(6M)
WM	Microphone style plug (6DA)	N	Cast iron w/ screw cover (6N)
V	Hermetic connector plug (6DC)	Q	Black plastic (6Q)
D	Miniature jack	R	Aluminum high dome, hinged cover (6R)
E	Standard jack	WP	White plastic head, NEMA 4 (WP)
G	High temperature jack (< 800˚ F)	Other	
WF	Microphone style jack (6DA)	A	Bare ends
		K	Spade lugs (6SL)
		O	Open terminal block (6B4)
		X	Other, specify

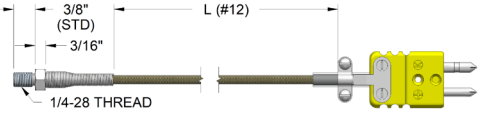
#15	TAGGING AND CALIBRATION OPTIONS (USE ONLY IF APPLICABLE)
———	See page 1-2, #14 for ordering selections.



NOZZLE MELT

Example part number: 2MKD1SDG12"MZ6(60")TC

J	A	6 (72")	T	C	1



NON-IMMERSION NOZZLE

Example part number: 2HKZ1SDU0"NZ1(60")ZC

ADDITIONAL TERMINATIONS

COLD END TERMINATION [SEE SECTION 6] Choose as many as applicable (JMS part number prefixes are shown in parenthesis)

Connectors

	Plugs		Jacks
B	Miniature plug (6A1B)	D	Miniature jack (6A1D)
BH	Miniature high temperature plug (6A2B) <800°F	DH	Miniature high temperature jack (6A2D) <800°F
C	Standard plug (6A1C)	E	Standard jack (6A1E)
F	Standard high temperature plug (6A2C) <800˚F	G	Standard high temperature jack (6A2E) <800˚F
WM	Microphone style plug (6DA)	WF	Microphone style jack (6DA)
WA	Solid pin plug, heavy duty (6A3C)	WB	Solid pin jack, heavy duty (6A3E)
WC	Jab in plug (6A4C)	WD	Jab in jack (6A4E)
WE	Ultra high temperature plug, glazed (6A5C) <1200°F	WG	Ultra high temperature jack, glazed (6A5E) <1200°F
WH	Ultra high temperature plug, unglazed (6A7C) <1200°F	WI	Ultra high temperature jack, unglazed (6A7E) <1200°F
WJ	Low noise plug (6A6C) <425°F	WK	Low noise jack (6A6E) <425°F
WL	DIN-IEC microphone plug (6DB)	WN	DIN-IEC microphone style jack (6DB)
V	Molded/water resistant plug (6DC)	VF	Molded/water resistant jack (6DC)
Y	M12 Male connector (6DY)	YF	M12 Female connector (6DY)
WQ	Miniature locking plug (6A8B2)	WR	Miniature locking jack (6AIDL2)
WS	Standard plug, locking (6A8C2)	WT	Standard jack, locking (6A8E2)

Heads

[6–1] Visit *www.JMS-SE.com/headspecs*

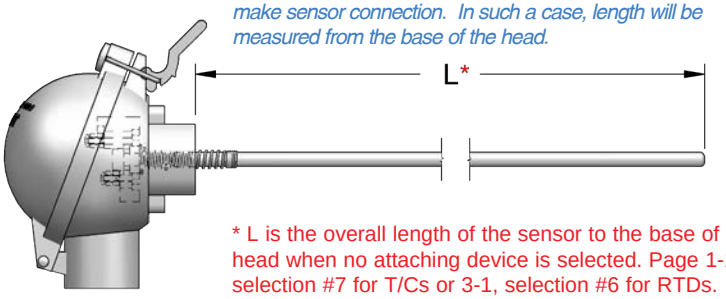
Explosion Proof

I	Aluminum, NEMA 4X, FM, CSA, IP68 (6IA)
J	316 stainless steel, NEMA 4X, FM, CSA, IP68 (6ISS)
P	Aluminum, NEMA 4X, FM, CSA, ATEX, IECEx, IP68 (6IAIEC)
U	316 stainless steel, NEMA 4X, ATEX, IP68 (6ISSATEX)
SI	Cast Iron, NEMA 3, 4, UL, CSA (6I)
GA	Aluminum, screw cover w/ indicating window, NEMA 4X, ATEX, IECEx, FM, CSA, IP68 (688A1)
GS	316SS, screw cover w/ indicating window, NEMA 4X, ATEX, IECEx, FM, CSA, IP68 (688S1)

General Purpose

L	Aluminum w/ hinged cover (6L)
M	Aluminum w/ screw cover & chain (6M)
R	Aluminum w/ hinged high dome cover (6R)
N	Cast Iron w/ screw cover (6N)
Q	Black plastic (6Q)
SS	316 stainless steel w/ screw cover & chain (6SS)
WP	White plastic, screw cover, Sanitary (6WP)
SB	Nickel plated, cylinder style, 1/4" NPT (6S250)
SD	Nickel plated, cylinder style, 1/8" NPT (6S125)
SC	Stainless steel, socket cap style
ST	Molded plastic, mini head, 1/4" NPT, < 350F (6T)
SU	Molded plastic, mini head, 1/4" NPT, < 800F (6U)

Some applications may have pre-existing threaded pipes or protection tubes where no attaching device is needed to make sensor connection. In such a case, length will be measured from the base of the head.



* L is the overall length of the sensor to the base of the head when no attaching device is selected. Page 1-1, selection #7 for T/Cs or 3-1, selection #6 for RTDs.

Transmitters [8-1 to 8-3]

Notes:
- Add span range after transmitter selection. Example: 8H(0-200C).
- Transmitter output = 4 - 20 mA. (See section 8 for other options).

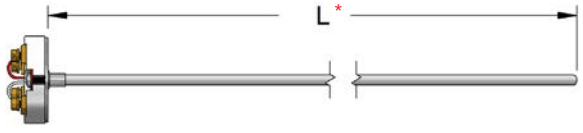
8H	Isolated transmitter
8N	Non-isolated transmitter
8I	Hart Protocol
8E	Intrinsically safe
8D	Hart/Intrinsically safe

8PA	Explosion proof, IP66/IP68, NEMA 4X, ATEX/IECEx, FM/CSA, Aluminum, threaded cap with glass viewing window, touch programmable [8-2]
8PS	Explosion proof, IP66/IP68, NEMA 4X, ATEX/IECEx, FM/CSA, 316 SS, threaded cap with glass viewing window, touch programmable [8-2]

8M Integral transmitter (see page 3-5) RTDs ONLY

Other

A	Bare ends
K	Spade lugs (6SL)
RL	Ring lugs (6RL)
O	Open ceramic terminal block, brass screw terminal (6B)
OA	Open Bakelite terminal block, nickel plated screw terminal (6BB)
OB	Open ceramic terminal block for sensors with bayonet style connection, brass screw terminal (6B or 6C)
OG	Ceramic terminal block, brass screw terminal (6G)
OP	Pluggable polymide terminal block, nickel plated screw terminal (6PT)
OS	Open ceramic terminal block, nickel plated solder terminal (6C)
CG	Cord connector/grip, aluminum 1/2" NPT (6CC)
TB	Conduit bushing, ¾" NPT male X ½" NPT female, plated steel (6IRB)
X	Other, specify



* L is the overall length of the sensor to the base of the terminal block mounting plate when open terminal block cold end termination is selected without a fixed attaching device. Page 1-1, selection #7 for T/Cs or 3-1, selection #6 for RTDs.