BI-METAL THERMOMETERS

pyromation inc.
beyond measure

Bi-Metal Thermometers

Temperature Measurement Instruments for Point-of-Location Readings

Speed, Service, Solutions...
Beyond Measure®

Introduction

Pyromation carries a line of general-purpose/industrial and CIP Sanitary Bi-Metal Thermometers. These Bi-Metal Thermometers measure the temperature of a material within a process piping system, tank, vessel or other application that requires a local indication or reading. The easy-to-read dials are offered with Fahrenheit only, Celsius only or combined Fahrenheit/Celsius options in three, four and five inch diameters.

The diverse line includes back-connected, side-connected and adjustable-angle connected assemblies with a variety of connection options. Bi-Metal Thermometers are available as stand-alone units or with thermowells. This line is competitively priced and standard orders ship within a few days.

Contact Pyromation with any questions.

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Selecting the Right Bi-Metal Thermometer

Application

What is the application?
Continuous process flow, static tank, laboratory testing, etc.

What are the environmental conditions?
Ambient temperature, humidity, corrosive atmosphere (salt spray, etc.)

What are the process conditions?
Pressure, temperature, media viscosity, rate of flow, and possible vibration.

Is the wetted material of the thermometer compatible with measured medium?

What dial window material is required?

Type

Dial diameter size?

Location of fitting connection that will allow maximum readability when thermometer is installed in system?
Back, adjustable-angle, bottom, top, right side or left side connection location.

Fitting thread size and type?

Stem

Pipe size or depth of tank?

Immersion length required?

Stem length?

Stem diameter?

Temperature Range*

Operating temperature of process?
High and low

Overall temperature range required?
High and low

Over-range possibilities?
Minimum and maximum

Accuracy required?

Scale - °F, °C or dual?

*(Bi-Metal Thermometers should not be used continuously over 800°F (450°C))

Options & Accessories

Does this application require a thermowell?
If so, Pyromation produces a variety of custom-designed and standard thermowells

Does the dial require silicone filling?

Is there a need for minimum and/or maximum indicating pointers?

Any special project tagging required?

Pyromation manufactures an extensive line of thermowells, which can be used with Bi-Metal Thermometers.

Application Information

General Operating Conditions

Bi-Metal Thermometers should not be exposed continuously to process temperatures over 800° F (425° C) to avoid damaging the bi-metal element.

For 2 ½" stem industrial thermometers:

- The connection nut should be immersed or in contact with the process media for the most accurate reading.
- When used with limited space thermowells some reading error may be noticed depending on process and ambient temperatures.

It is recommended the temperature of the thermometer head not exceed:

- 200°F (93°C) for glass lenses
- 150°F (65°C) for plastic lenses
- 150°F (65°C) for silicone filled thermometers

Bi-Metal Thermometers and Thermowells

Use of a thermowell is recommended for high-pressure, corrosive fluid or high velocity applications.

Use of a thermowell allows removal of thermometer for calibration check or interchange of instruments without shutting down the process.

Install thermometers in locations that minimize injury or damage in the event of an accidental breach of stem/thermowell combination.

Silicone-Filled Thermometers

Thermometers may be silicone filled for additional dampening of extreme vibration, or to assure consistent performance in low process temperature/high environmental humidity applications.

Silicone filled Bi-Metal Thermometers are limited for use with process temperatures ranging from a minimum of -50°F (-45°C) to a maximum of 500°F (260°C).

Use of silicone fill should be avoided where strong oxidizing agents such as oxygen, chlorine, nitric acid, and hydrogen peroxide are present.

Lens Materials

Glass (standard).

Acrylic plastic - Fair chemical resistance but low temperature limit.

Polycarbonate plastic - Higher temperature limit than acrylic but poor chemical resistance.

Shatterproof laminated safety glass - High corrosion resistance. Plastic laminate between two pieces of glass will hold fragments in place if broken, but laminate will start to deteriorate above 200°F.

Tempered glass – Able to withstand a broader range of temperature changes than standard glass. More impact resistant than regular glass.

Product Features

All Pyromation Bi-Metal Thermometers are made in the USA.

BM01 – General-Purpose, Industrial Bi-Metal Thermometers

Heavy-duty designs commonly used in power, oil & gas, chemical, industrial, pulp, and paper and OEM applications.

Construction

Standard construction: 304 stainless steel external parts with welded construction. 316 stainless steel stem and process connection available upon request.

Bi-metal Coil: Helix coil is silicone coated on ranges below 500°F for vibration dampening and to maximize heat transfer and response time.

Groove around stem indicates minimum immersion point. Stem must be immersed up to this point to ensure most accurate reading.

Dial casing is hermetically sealed per ASME B40.3 – dustproof and leak-proof.

Bellows: Heavy-duty flexible stainless steel. Hermetically sealed at case and connection. Protects mechanism that transfers temperature change from bi-metal coil to pointer.

Dial: True Anti-Parallax dial, easy-to-read from any angle, minimizes reading errors. Anodized aluminum with large black numbers and graduations. Available in three-, four- or five-inch diameter dials.

External Reset: Easy to calibrate by inserting 1/16" Allen wrench into reset opening.

Options

Stem Diameters: 0.250" and 0.375" standard. 0.250" available up to 42" max stem length. 6MM, 8MM stem diameters available upon request.

Stem lengths available from 2(½)" to 120".

Standard connection options: ½" NPT, ½" BSPT, ½" NPT Union, or no process connection. Other connection options available upon request.

Lens options: Glass, tempered glass, safety glass, acrylic, or polycarbonate.

Dials available in over 125 ranges, custom ranges available upon request.

Minimum and maximum indicators available on selected styles.

Silicon-filled thermometer option for additional dampening for vibration or to assure consistent performance in low ambient temperature.

Thermowells are recommended for applications where pressure, corrosive fluids, or high velocity occur.

Traceable calibrations upon request.

Specifications

Accuracy: ±1% full span per ASME B40.3 Grade A. For adjustable angle thermometers the adjustment of the angle between case and stem may affect accuracy up to 0.5% of span (ASME B40.3).

Over Temperature Limits:

Up to 250°F	100%	Maximum temperature rating before thermometer accuracy may be impacted is x1 the upper temperature range value. Ex. 250°F + (250*1) = 500°F
250°F to 550°F	50%	Maximum temperature rating before thermometer accuracy may be impacted is x½ the upper temperature range value. Ex. 400°F + (400*½) = 600°F
550°F to 1000°F	n/a	Maximum temperature rating before thermometer accuracy may be impacted is 800°F for continuous use, over 800°F for intermittent use.

BM02 – General-Purpose, CIP Sanitary Bi-Metal Thermometers

Heavy-duty thermometers meet 3A Standard Number 74-. These thermometers are commonly used in diary, food processing, beverage, brewing, distilling, pharmaceutical and OEM applications.

Construction

Material: 316SS wetted parts, 304SS non-contact parts.

Bi-metal Coil: Helix coil is silicone coated on ranges below 500°F for vibration dampening and to maximize heat transfer and response time.

Groove around stem indicates minimum immersion point. Stem must be immersed up to this point to ensure most accurate reading.

Dial casing is hermetically sealed per ASME B40.3 – dustproof and leak-proof.

Bellows: Heavy-duty flexible stainless steel. Hermetically sealed at case and connection. Protects mechanism that transfers temperature change from bi-metal coil to pointer.

Dial: True Anti-Parallax dial, easy-to-read from any angle, minimizes reading errors. Anodized aluminum with large black numbers and graduations. Available in three-, four- or five-inch diameter dials.

External Reset: Easy to calibrate by inserting 1/16" Allen wrench into reset opening.

Options

Stem Diameters: 0.250" and 0.375" standard. 0.250" available up to 42” max stem length.

Stem lengths available from 2(½)" to 120".

Standard Tri-Clamp® process connection sizes include ¾", 1(½)", 2",2(½)", 3" and 4" sizes.

Lens options: Glass, tempered glass, safety glass, acrylic, or polycarbonate.

Silicon-filled thermometer option for additional dampening for vibration or to assure consistent performance in low ambient temperature. These are limited for use with process temperatures.

Traceable calibrations upon request.

Specifications

Accuracy: ±1% full span per ASME B40.3 Grade A. For adjustable angle thermometers the adjustment of the angle between case and stem may affect accuracy up to 0.5% of span (ASME B40.3).

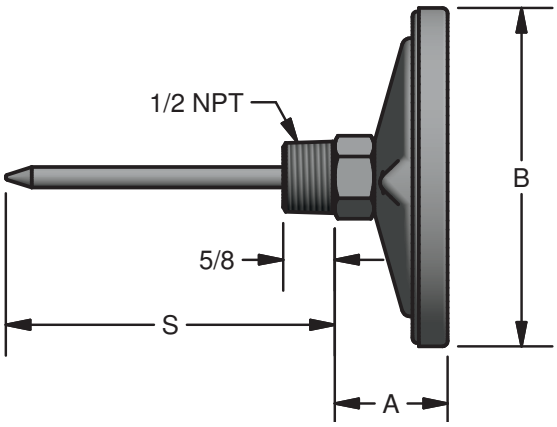
Surface Finish: All wetted parts, max. 32 micro-inches (.80 microns) on wetted parts, per 3A Standard 74-.

Over Temperature Limits:

Up to 250°F	100%	Maximum temperature rating before thermometer accuracy may be impacted is x1 the upper temperature range value. Ex. 250°F + (250*1) = 500°F
250°F to 550°F	50%	Maximum temperature rating before thermometer accuracy may be impacted is x½ the upper temperature range value. Ex. 400°F + (400*½) = 600°F
550°F to 1000°F	n/a	Maximum temperature rating before thermometer accuracy may be impacted is 800°F for continuous use, over 800°F for intermittent use.

INDUSTRIAL Bi-Metal Thermometers

General-Purpose, Back-Connected Bi-Metal Thermometers can be directly immersed into a process, or can be installed in a variety of thermowells. These thermometers are available in various dial sizes, temperature ranges, sheath diameters, sheath lengths and mounting options. A conical tip is standard for ¼" diameter stems in 2.5", 4", 6" and 9" lengths. All other sheath diameters and sheath lengths will be supplied with a rounded tip. Standard external component material consists of 304 stainless steel while 316 stainless steel wetted parts are available as an optional selection. The accuracy is ±1% full span per ASME B40.3 Grade A. These Bi-Metal Thermometer (BMI) series units come with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.



Order Codes

Example Order Number:

1-0	1-1		2-0		3-0		4-0	4-1		5-0
BMI3B	49	-	004(1/2)	-	9HN	-	PC	,I,M2	-	0800

1-0 Back-Connected Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM
BMI3B	3 Inch	1.375 Inch	3.187 Inch
BMI4B	4 Inch	1.375 Inch	4.115 Inch
BMI5B	5 Inch	1.718 Inch	5.040 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
49	0.25	304 SS (42 Inch max length)
69	0.375	304 SS

2-0 Sheath Length "S" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

3-0 Process Connection (304 SS)

CODE	DIAMETER (INCHES)
9HP	No process connection
9HN	1/2 Inch NPT process connection
9PU	1/2 Inch NPT Union
9RH	R 1/2 Inch BSPT

4-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 °C [300 °F])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass
[1] Not available in 4 inch dial	

4-1 Additional Options

CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
M1[1]	Minimum indicator or maximum indicator
M2[1]	Both minimum and maximum indicator
SF[2]	Silicon-filled

[1] Only available in a 3 inch or 5 inch dial size with glass or acrylic lens
[2] Only available with Safety Glass or Polycarbonate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) °C

5-0 Temperature Range

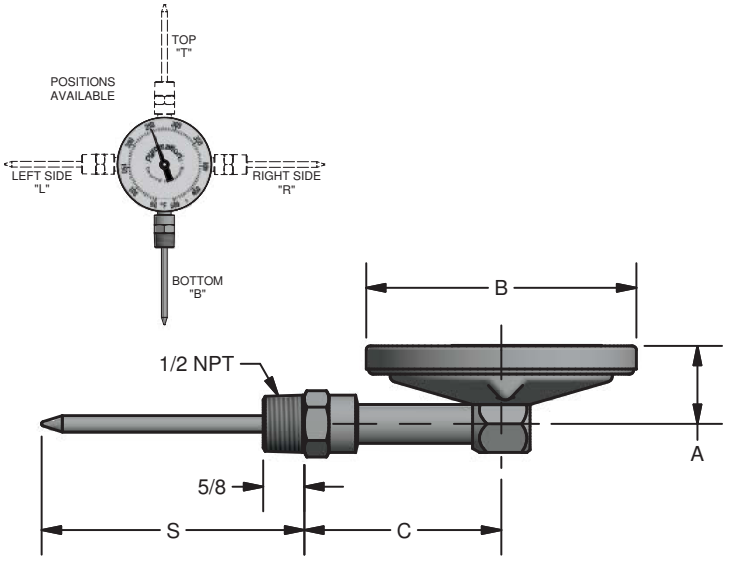
CODE	RANGE	CODE	RANGE
0020	-75 to 175 °C	0500	-100 to 100 °F
0100	-50 to 100 °C	0740	0 to 200 °F
0240	-20 to 120 °C	0750	0 to 220 °F
0330	0 to 100 °C	0760	0 to 250 °F
0350	0 to 150 °C	0770	0 to 300 °F
0370	0 to 200 °C	0800	0 to 500 °F
0380	0 to 250 °C	0840	20 to 240 °F
0390	0 to 300 °C	0920	50 to 250 °F
0410	0 to 450 °C	1030	200 to 1000 °F

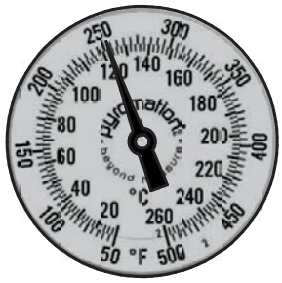
Dual Temperature Range		
1100	-40 to 160 °F	-40 to 70 °C
1170	0 to 220 °F	-10 to 100 °C
1180	0 to 250 °F	-20 to 120 °C
1270	50 to 500 °F	0 to 250 °C
1310	200 to 1000 °F	100 to 550 °C

See page 16 for complete range list

INDUSTRIAL Bi-Metal Thermometers

General-Purpose, Side-Connected Bi-Metal Thermometers can be directly immersed into a process, or can be used with various thermowell types. These thermometers are available in various dial sizes, temperature ranges, sheath diameters, and sheath lengths. They are available with several process mounting options, window options and dial features. A conical tip is standard for ¼" diameter stems in 2.5", 4", 6" and 9" lengths. All other sheath diameters and sheath lengths will be supplied with a rounded tip. Standard external component material consists of 304 stainless steel while 316 stainless steel wetted parts are available as an optional selection. The stem position can be provided at 90° angles to accommodate various mounting conditions. The accuracy is ±1% full span per ASME B40.3 Grade A. These Bi-Metal Thermometer (BMI) series units come with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.





Order Codes

Example Order Number: 1-0 **BMI3S** 1-1 **49** - 2-0 **B** - 3-0 **007(1/2)** - 4-0 **9PU** - 5-0 **G** 5-1 **,SF** - 6-0 **0410**

1-0 Side-Connected Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM	"C" DIM
BMI3S	3 Inch	1.187 Inch	3.187 Inch	2.3 Inch
BMI4S	4 Inch	1.187 Inch	4.115 Inch	3.0 Inch
BMI5S	5 Inch	1.625 Inch	5.040 Inch	3.0 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
49	0.25	304 SS (42 Inch max length)
69	0.375	304 SS

2-0 Dial Location

CODE	DESCRIPTION
B	Bottom (Standard)
R	90 degree Right
L	90 degree Left
T	Top

3-0 Sheath Length "S" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

4-0 Process Connection (304 SS)

CODE	DIAMETER (INCHES)
9HP	No process connection
9HN	1/2 Inch NPT process connection
9PU	1/2 Inch NPT Union
9RH	R 1/2 Inch BSPT

5-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 °C [300 °F])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass
[1] Not available in 4 inch dial	

5-1 Additional Options

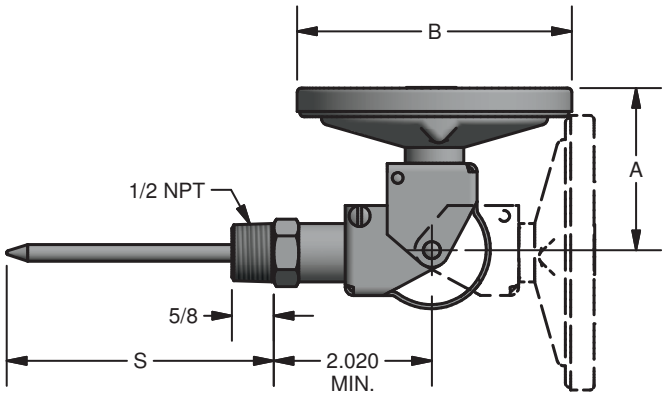
CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
SF[1]	Silicon-filled
[1] Only available with Safety Glass or Polycarbonate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) °C	

6-0 Temperature Range

CODE	RANGE	CODE	RANGE
0020	-75 to 175 °C	0500	-100 to 100 °F
0100	-50 to 100 °C	0740	0 to 200 °F
0240	-20 to 120 °C	0750	0 to 220 °F
0330	0 to 100 °C	0760	0 to 250 °F
0350	0 to 150 °C	0770	0 to 300 °F
0370	0 to 200 °C	0800	0 to 500 °F
0380	0 to 250 °C	0840	20 to 240 °F
0390	0 to 300 °C	0920	50 to 250 °F
0410	0 to 450 °C	1030	200 to 1000 °F
Dual Temperature Range			
1100	-40 to 160 °F	-40 to 70 °C	
1170	0 to 220 °F	-10 to 100 °C	
1180	0 to 250 °F	-20 to 120 °C	
1270	50 to 500 °F	0 to 250 °C	
1310	200 to 1000 °F	100 to 550 °C	
See page 16 for complete range list			

INDUSTRIAL Bi-Metal Thermometers

General-Purpose, Adjustable-Angle Bi-Metal Thermometers can be directly immersed into a process, or can be used with various thermowell types. These thermometers are available in various dial sizes, temperature ranges, sheath diameters, and sheath lengths. They are available with several process mounting options, window options and dial features. A conical tip is standard for ¼" diameter stems in 2.5", 4", 6" and 9" lengths. All other sheath diameters and sheath lengths will be supplied with a rounded tip. Standard external component material consists of 304 stainless steel while 316 stainless steel wetted parts are available as an optional selection. The adjustable harness consists of stainless steel brackets with screws that loosen to allow 360° rotation of the head and 180° adjustment of stem position. The accuracy is ±1% full span per ASME B40.3 Grade A. These Bi-Metal Thermometer (BMI) series units come with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.



Order Codes

Example Order Number: **BMI3A** (1-0) **49** (1-1) **-** **006** (2-0) **-** **9HN** (3-0) **-** **PC** (4-0) **,P** (4-1) **-** **0350** (5-0)

1-0 Adjustable-Angle Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM
BMI3A	3 Inch	2.43 Inch	3.187 Inch
BMI4A	4 Inch	2.43 Inch	4.115 Inch
BMI5A	5 Inch	2.66 Inch	5.040 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
49	0.25	304 SS (42 Inch max length)
69	0.375	304 SS

2-0 Sheath Length "S" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

3-0 Process Connection (304 SS)

CODE	DIAMETER (INCHES)
9HP	No process connection
9HN	1/2 Inch NPT process connection
9PU	1/2 Inch NPT Union
9RH	R 1/2 Inch BSPT

4-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 ºC [300 ºF])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass
[1] Not available in 4 inch dial	

4-1 Additional Options

CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
SF[1]	Silicon-filled
[1] Only available with Safety Glass or Polycarbonate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) ºC	

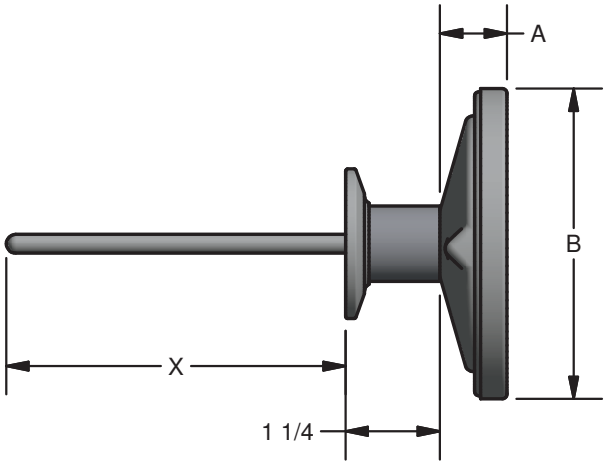
5-0 Temperature Range

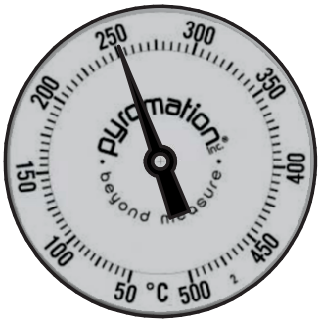
CODE	RANGE	CODE	RANGE
0020	-75 to 175 °C	0500	-100 to 100 °F
0100	-50 to 100 °C	0740	0 to 200 °F
0240	-20 to 120 °C	0750	0 to 220 °F
0330	0 to 100 °C	0760	0 to 250 °F
0350	0 to 150 °C	0770	0 to 300 °F
0370	0 to 200 °C	0800	0 to 500 °F
0380	0 to 250 °C	0840	20 to 240 °F
0390	0 to 300 °C	0920	50 to 250 °F
0410	0 to 450 °C	1030	200 to 1000 °F
Dual Temperature Range			
1100	-40 to 160 °F	-40 to 70 °C	
1170	0 to 220 °F	-10 to 100 °C	
1180	0 to 250 °F	-20 to 120 °C	
1270	50 to 500 °F	0 to 250 °C	
1310	200 to 1000 °F	100 to 550 °C	

See page 16 for complete range list

SANITARY Bi-Metal Thermometers

CIP Sanitary, Back-Connected Bi-Metal Thermometers are used in food, dairy, beverage, pharmaceutical, and chemical processing applications where corrosion and product contamination are critical factors. The sanitary Tri-Clamp® connections listed below are the most common types used in such processes and meet 3A Standard Number 74- . All wetted parts are 316 stainless steel, and the non-contact parts are supplied standard as 304 stainless steel. They are produced with a minimum surface finish of 32 µin R_a. Surface finishes of 15 µin R_a are available upon request. The accuracy is ±1% full span per ASME B40.3 Grade A. These Sanitary Bi-Metal Thermometer (BMS) series units come with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.





Order Codes

Example Order Number: BMS3B (1-0) 68 (1-1) - 002(1/2) (2-0) - 2-5 (3-0) - TG (4-0) ,I (4-1) - 1180 (5-0)

1-0 Back-Connected Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM
BMS3B	3 Inch	0.89 Inch	3.187 Inch
BMS4B	4 Inch	0.89 Inch	4.115 Inch
BMS5B	5 Inch	1.328 Inch	5.040 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
48	0.25	316 SS (42 Inch max length)
68	0.375	316 SS

2-0 Sheath Length "X" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

3-0 Cap Size and Style

CODE	DIAMETER (INCHES)
075-5[1]	1/2 and 3/4 Inch Tri-Clamp®
1-5	1 and 1(1/2) Inch Tri-Clamp®
2-5	2 Inch Tri-Clamp®
3-5	2 1/2 Inch Tri-Clamp®
4-5	3 Inch Tri-Clamp®
5-5	4 Inch Tri-Clamp®

[1] Only available with 1/4 Inch sheath
Other cap styles available - consult factory

4-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 °C [300 °F])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass

[1] Not available in 4 inch dial

4-1 Additional Options

CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
SF[1]	Silicon-filled

[1] Only available with Safety Glass or Polycarbinate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) °C

5-0 Temperature Range

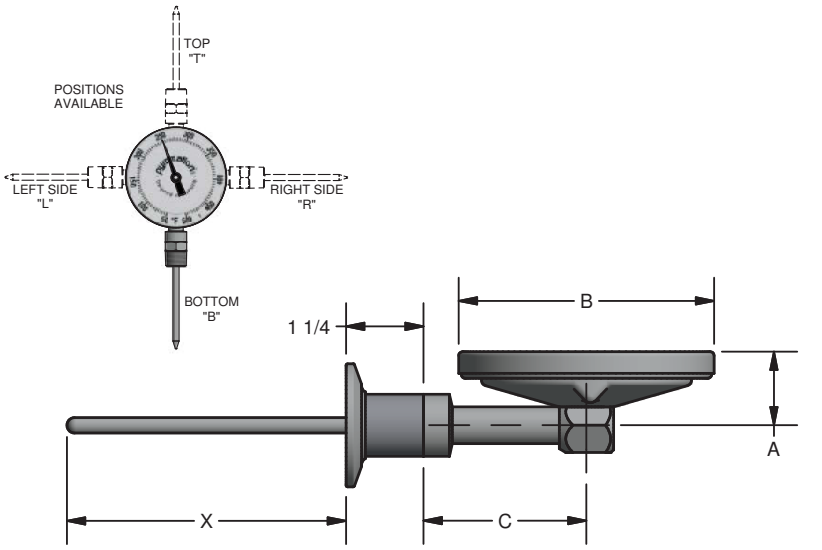
CODE	RANGE	CODE	RANGE
0100	-50 to 100 °C	0610	-40 to 160 °F
0140	-40 to 70 °C	0700	0 to 140 °F
0240	-20 to 120 °C	0740	0 to 200 °F
0270	-10 to 110 °C	0750	0 to 220 °F
0300	0 to 50 °C	0760	0 to 250 °F
0320	0 to 80 °C	0770	0 to 300 °F
0330	0 to 100 °C	0840	20 to 240 °F
0350	0 to 150 °C	0920	50 to 250 °F
0370	0 to 200 °C	0930	50 to 300 °F
Dual Temperature Range			
1130	0 to 140 °F	-18 to 60 °C	
1170	0 to 220 °F	-10 to 100 °C	
1180	0 to 250 °F	-20 to 120 °C	
1200	20 to 240 °F	-10 to 110 °C	
1250	50 to 300 °F	10 to 150 °C	

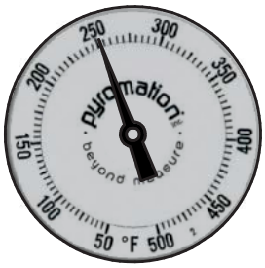
See page 16 for complete range list

Tri-Clamp® is a registered trademark of Alfa Laval, Inc.

SANITARY Bi-Metal Thermometers

CIP Sanitary, Side-Connected Bi-Metal Thermometers are used in food, dairy, beverage, pharmaceutical, and chemical processing applications where corrosion and product contamination are critical factors. The sanitary Tri-Clamp® connections listed below are the most common types used in such processes and meet 3A Standard Number 74- . All wetted parts are 316 stainless steel, and the non-contact parts are supplied standard as 304 stainless steel. They are produced with a minimum surface finish of 32 µin R_a. Surface finishes of 15 µin R_a are available upon request. The stem position can be provided at 90° angles to accommodate various mounting conditions. The accuracy is ±1% full span per ASME B40.3 Grade A. The Sanitary Bi-Metal Thermometer (BMS) series units come standard with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.





Order Codes

Example Order Number:

1-0	1-1		2-0		3-0		4-0		5-0	5-1		6-0
BMS4S	48	-	B	-	004	-	075-5	-	SG	,P	-	0770

1-0 Side-Connected Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM	"C" DIM
BMS3S	3 Inch	1.187 Inch	3.187 Inch	1.875 Inch
BMS4S	4 Inch	1.187 Inch	4.115 Inch	2.625 Inch
BMS5S	5 Inch	1.625 Inch	5.040 Inch	2.625 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
48	0.25	316 SS (42 Inch max length)
68	0.375	316 SS

2-0 Dial Location

CODE	DESCRIPTION
B	Bottom (Standard)
R	90 degree Right
L	90 degree Left
T	Top

3-0 Sheath Length "X" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

4-0 Cap Size and Style

CODE	DIAMETER (INCHES)
075-5[1]	1/2 and 3/4 Inch Tri-Clamp®
1-5	1 and 1(1/2) Inch Tri-Clamp®
2-5	2 Inch Tri-Clamp®
3-5	2 1/2 Inch Tri-Clamp®
4-5	3 Inch Tri-Clamp®
5-5	4 Inch Tri-Clamp®

[1] Only available with 1/4 Inch sheath
Other cap styles available - consult factory

Tri-Clamp® is a registered trademark of Alfa Laval, Inc.

5-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 °C [300 °F])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass

[1] Not available in 4 inch dial

5-1 Additional Options

CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
SF[1]	Silicone-filled

[1] Only available with Safety Glass or Polycarbonate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) °C

6-0 Temperature Range

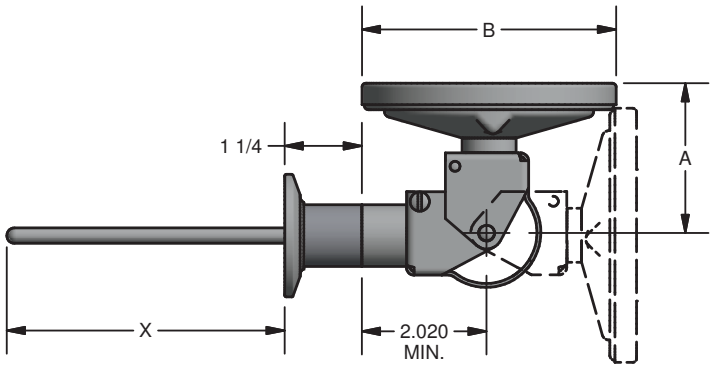
CODE	RANGE	CODE	RANGE
0100	-50 to 100 °C	0610	-40 to 160 °F
0140	-40 to 70 °C	0700	0 to 140 °F
0240	-20 to 120 °C	0740	0 to 200 °F
0270	-10 to 110 °C	0750	0 to 220 °F
0300	0 to 50 °C	0760	0 to 250 °F
0320	0 to 80 °C	0770	0 to 300 °F
0330	0 to 100 °C	0840	20 to 240 °F
0350	0 to 150 °C	0920	50 to 250 °F
0370	0 to 200 °C	0930	50 to 300 °F

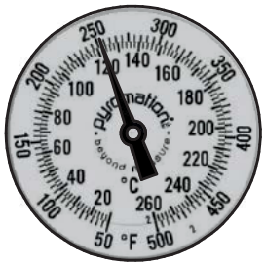
Dual Temperature Range		
1130	0 to 140 °F	-18 to 60 °C
1170	0 to 220 °F	-10 to 100 °C
1180	0 to 250 °F	-20 to 120 °C
1200	20 to 240 °F	-10 to 110 °C
1250	50 to 300 °F	10 to 150 °C

See page 16 for complete range list

SANITARY Bi-Metal Thermometers

CIP Sanitary, Adjustable-Angle Bi-Metal Thermometers are used in food, dairy, beverage, pharmaceutical, and chemical processing applications where corrosion and product contamination are critical factors. The sanitary Tri-Clamp® connections listed below are the most common types used in such processes and meet 3A Standard Number 74- . All wetted parts are 316 stainless steel, and the non-contact parts are supplied standard as 304 stainless steel. They are produced with a minimum surface finish of 32 µin R_a. Surface finishes of 15 µin R_a are available upon request. The adjustable harness consists of stainless steel brackets with screws that loosen to allow 360° rotation of the head and 180° adjustment of stem position. The accuracy is ±1% full span per ASME B40.3 Grade A. These Sanitary Bi-Metal Thermometer (BMS) series units come with a calibration feature, and each is easily calibrated by inserting an allen wrench into the reset opening.





Order Codes

Example Order Number: BMS5A | 68 - 006 - 3-5 - TG | ,I - 1250

(1-0 | 1-1 | 2-0 | 3-0 | 4-0 | 4-1 | 5-0)

1-0 Adjustable-Angle Type and Size

CODE	DIAL SIZE	"A" DIM	"B" DIM
BMS3A	3 Inch	2.43 Inch	3.187 Inch
BMS4A	4 Inch	2.43 Inch	4.115 Inch
BMS5A	5 Inch	2.66 Inch	5.040 Inch

1-1 Sheath

CODE	DIAMETER (INCHES)	MATERIAL
48	0.25	316 SS (42 Inch max length)
68	0.375	316 SS

2-0 Sheath Length "X" DIM

Specify 3 digit length in inches
2(1/2) Inch minimum length required
120 Inch maximum length

3-0 Cap Size and Style

CODE	DIAMETER (INCHES)
075-5[1]	1/2 and 3/4 Inch Tri-Clamp®
1-5	1 and 1(1/2) Inch Tri-Clamp®
2-5	2 Inch Tri-Clamp®
3-5	2 1/2 Inch Tri-Clamp®
4-5	3 Inch Tri-Clamp®
5-5	4 Inch Tri-Clamp®

[1] Only available with 1/4 Inch sheath
Other cap styles available - consult factory

4-0 Window Options

CODE	DESCRIPTION
G	Glass (Standard)
PC	Polycarbonate (up to 135 ºC [300 ºF])
AC	Acrylic
SG	Safety Glass
TG[1]	Tempered Glass

[1] Not available in 4 inch dial

4-1 Additional Options

CODE	DESCRIPTION
P	Plain Dial (No company name)
I	Stainless Steel Tag
SF[1]	Silicon-filled

[1] Only available with Safety Glass or Polycarbonate lens. Silicon filled thermometers are limited for use in process temperatures ranging from (-45 to 260) ºC

5-0 Temperature Range

CODE	RANGE	CODE	RANGE
0100	-50 to 100 °C	0610	-40 to 160 °F
0140	-40 to 70 °C	0700	0 to 140 °F
0240	-20 to 120 °C	0740	0 to 200 °F
0270	-10 to 110 °C	0750	0 to 220 °F
0300	0 to 50 °C	0760	0 to 250 °F
0320	0 to 80 °C	0770	0 to 300 °F
0330	0 to 100 °C	0840	20 to 240 °F
0350	0 to 150 °C	0920	50 to 250 °F
0370	0 to 200 °C	0930	50 to 300 °F

Dual Temperature Range		
1130	0 to 140 °F	-18 to 60 °C
1170	0 to 220 °F	-10 to 100 °C
1180	0 to 250 °F	-20 to 120 °C
1200	20 to 240 °F	-10 to 110 °C
1250	50 to 300 °F	10 to 150 °C

See page 16 for complete range list

Range Table

Temperature Range - Degrees F

CODE	RANGE	°/DIV
0500	-100 to 100 °F	2°
0560	-50 to 120 °F	2°
0610	-40 to 160 °F	2°
0700	0 to 140 °F	2°
0730	0 to 180 °F	2°
0740	0 to 200 °F	2°
0750	0 to 220 °F	2°
0760	0 to 250 °F	2°
0770	0 to 300 °F	5°
0800	0 to 500 °F	10°
0840	20 to 240 °F	2°
0850	25 to 125 °F	1°
0920	50 to 250 °F	2°
0930	50 to 300 °F	2°
0940	50 to 400 °F	5°
0950	50 to 500 °F	5°
0960	50 to 550 °F	5°
1000	100 to 800 °F	10°
1010	150 to 750 °F	10°
1030	200 to 1000 °F	10°
Internal Ranges		
0480	-150 to 150 °F	2°
0490	-125 to 350 °F	5°
0510	-100 to 150 °F	2°
0520	-100 to 350 °F	5°
0530	-100 to 600 °F	5°
0540	-80 to 120 °F	2°
0550	-60 to 210 °F	2°
0570	-50 to 300 °F	5°
0580	-50 to 400 °F	5°
0590	-40 to 60 °F	1°
0600	-40 to 120 °F	2°
0620	-25 to 75 °F	1°
0630	-20 to 120 °F	1°
0640	-20 to 200 °F	2°
0650	-20 to 340 °F	5°
0660	-20 to 675 °F	10°
0670	-10 to 220 °F	2°
0680	0 to 60 °F	1°
0690	0 to 100 °F	1°
0710	0 to 150 °F	1°
0720	0 to 160 °F	1°
0780	0 to 350 °F	5°
0790	0 to 400 °F	5°
0810	0 to 550 °F	5°
0820	0 to 600 °F	10°
0830	0 to 800 °F	10°
0860	30 to 120 °F	1°
0870	30 to 130 °F	1°
0880	30 to 300 °F	2°
0890	32 to 212 °F	2°
0900	40 to 240 °F	2°
0910	50 to 150 °F	1°
0970	100 to 200 °F	1°
0980	100 to 600 °F	5°
0990	100 to 700 °F	10°
1020	200 to 700 °F	10°

Temperature Range - Degrees C

CODE	RANGE	°/DIV
0020	-75 to 175 °C	5°
0040	-70 to 70 °C	1°
0080	-50 to 25 °C	1°
0090	-50 to 50 °C	1°
0100	-50 to 100 °C	1°
0140	-40 to 70 °C	1°
0240	-20 to 120 °C	1°
0270	-10 to 110 °C	1°
0300	0 to 50 °C	1/2°
0310	0 to 60 °C	1°
0320	0 to 80 °C	1/2°
0330	0 to 100 °C	1°
0350	0 to 150 °C	1°
0370	0 to 200 °C	2°
0380	0 to 250 °C	2°
0390	0 to 300 °C	5°
0400	0 to 400 °C	5°
0410	0 to 450 °C	5°
0460	100 to 400 °C	5°
0470	100 to 550 °C	5°
Internal Ranges		
0010	-100 to 50 °C	2°
0030	-70 to 50 °C	1°
0050	-70 to 100 °C	2°
0060	-70 to 160 °C	2°
0070	-60 to 160 °C	2°
0110	-50 to 200 °C	5°
0120	-50 to 250 °C	5°
0130	-50 to 300 °C	5°
0150	-40 to 200 °C	2°
0160	-30 to 40 °C	1/2°
0170	-30 to 50 °C	1°
0180	-30 to 60 °C	1°
0190	-30 to 70 °C	1°
0200	-30 to 170 °C	2°
0210	-25 to 25 °C	1°
0220	-20 to 50 °C	1°
0230	-20 to 70 °C	1°
0250	-20 to 200 °C	2°
0260	-10 to 50 °C	1/2°
0280	-10 to 135 °C	2°
0290	-10 to 260 °C	2°
0340	0 to 120 °C	1°
0360	0 to 160 °C	2°
0420	0 to 500 °C	5°
0430	50 to 400 °C	5°
0440	50 to 450 °C	5°
0450	50 to 500 °C	5°

Dual Temperature Range - Degrees F & C

CODE	DUAL RANGE		°/DIV
1040	-100 to 100 °F	-75 to 40 °C	2,2°
1100	-40 to 160 °F	-40 to 70 °C	2,1°
1130	0 to 140 °F	-18 to 60 °C	2,1°
1150	0 to 180 °F	-18 to 82 °C	2,1°
1170	0 to 220 °F	-10 to 100 °C	2,1°
1180	0 to 250 °F	-20 to 120 °C	2,1°
1200	20 to 240 °F	-10 to 110 °C	2,1°
1210	25 to 125 °F	0 to 50 °C	1,(1/2)°
1250	50 to 300 °F	10 to 150 °C	2,2°
1260	50 to 400 °F	0 to 200 °C	5,2°
1270	50 to 500 °F	0 to 250 °C	5,2°
1300	150 to 750 °F	50 to 400 °C	10,5°
1310	200 to 1000 °F	100 to 550 °C	10,5°
Internal Ranges			
1050	-100 to 350 °F	-75 to 175 °C	5,5°
1060	-100 to 600 °F	-75 to 300 °C	5,5°
1070	-60 to 210 °F	-50 to 100 °C	2.1°
1080	-50 to 120 °F	-45 to 50 °C	2,1°
1090	-40 to 120 °F	-40 to 50 °C	2,1°
1110	-20 to 120 °F	-30 to 50 °C	1,1°
1120	0 to 100 °F	-18 to 38 °C	1,(1/2)°
1140	0 to 150 °F	-17 to 65 °C	1,1°
1160	0 to 200 °F	-10 to 90 °C	2,5°
1190	0 to 800 °F	-15 to 425 °C	10,5°
1220	30 to 130 °F	0 to 55 °C	1,(1/2)°
1230	30 to 300 °F	0 to 150 °C	1,1°
1240	32 to 212 °F	0 to 100 °C	2,1°
1280	50 to 550 °F	15 to 285 °C	5,5°
1290	100 to 600 °F	40 to 310 °C	5,5°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Operating since 1962, Pyromation is the premier temperature sensor manufacturer in North America. From RTDs and thermocouples to thermowells, connection heads, accessories and complete assemblies, Pyromation can make the right temperature sensor for your process and deliver it faster than anyone in the industry. A broad product line, industry experience, friendly customer service and quick delivery make Pyromation the best choice for your temperature measurement applications. For more information, please call us or visit www.pyromation.com.

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5211 Industrial Road // Fort Wayne, IN 46825, USA
260.484.2580 // www.pyromation.com

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