



TREND instruments, inc.
A Division of WIKA Instrument Corporation

General Specifications - Bimetal Dial Thermometers



CASE: Sturdy, corrosion resistant series 304 stainless steel case and bezel. Designed and constructed to provide a hermetic seal which prevents crystal fogging and damage caused by moisture to the working components.

DIAL: Anti parallax heavy gauge aluminum with white matte finish to reduce glare. Dished form with Celsius on lower inner plane and Fahrenheit on raised outer plane offers accurate indication of both scales.

EXTERNAL RESET: A slotted-hex adjustment head offers screwdriver or wrench use to field calibrate the thermometer. This feature allows maximum accuracy at a selected area of temperature range. O-ring gasket prevents leakage and maintains weather tight seal. Note - use well agitated bath and accurate test thermometer when making any adjustment.

CRYSTAL: Optically clear, strong glass, gasketed to maintain weather tight integrity. Acrylic and Lexan crystals are available as an option but not recommended for case temperature exceeding 200°F maximum (150°F maximum for plastic/acrylic lens).

POINTER: Balanced, lightweight aluminum with matte black finish.

STEM: 304 SS welded at tip and case connector to prevent leakage. 1/4" diameter is standard, 3/8" is available. Stem lengths to 72" are available as well as 316SS stem and connector assemblies.

IMMERSION: For accurate temperature readings, immerse the stem a minimum of 2 inches in agitated liquid or 4 inches in moving air or gas.

OVER RANGE: Temporary over or under range of 50% of scale up to 500°F or 260°C will not affect the instrument's accuracy.

BIMETAL ELEMENT: An extremely responsive temperature sensing helix which has been carefully sized and tested, heat treated and aged to relieve inherent stresses and insure continued accuracy.

ACCURACY: Guaranteed to be accurate to within 1% of full scale (Grade A per ASME B40.3). Calibration is to standards traceable to the National Institute of Standards and Technology.

HERMETIC SEAL: Hermetically sealed per ASME B40.3. Guaranteed not to fog up.

DAMPENING: Bimetal element is coated with viscous silicone to minimize pointer oscillation and to improve temperature transmission for ranges from -20° to 400°F.

FILLED THERMOMETER POLICY: It is not recommended that filled instruments be used for continual use at operating temperatures above of 400°F(204°C) or below -100° F(-70° C}. Under no circumstances will an instrument warranty apply nor will the manufacturer assume any liability for use above these temperatures.



2" Bimetal Dial Thermometers – Model 20

Model 20 Thermometers are high-quality, economical thermometers designed for limited space and OEM applications

- **Stainless Steel Case**
- **Hermetically Sealed**
- **Tamper-Proof**



CASE: 304 Stainless Steel

DIAL: Anti Parallax or flat dial, heavy gauge aluminum with white matte finish.

CRYSTAL: Fully gasketed glass standard. Lexan and acrylic available.

HERMETIC SEAL: Per ASME B40.3

STEM: 304 Stainless Steel, TIG welded at tip and case connection. 1/4" diameter standard.

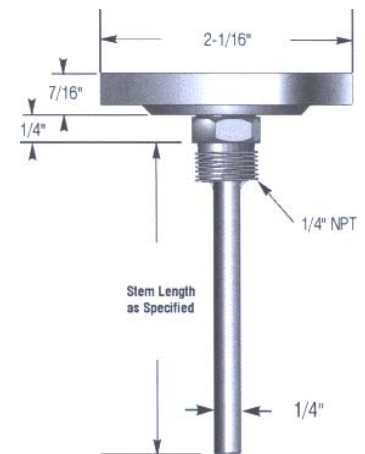
DAMPENING: Helix coated with viscous silicone to minimize pointer oscillation and improve sensitivity (ranges below 500°F).

OVER RANGE: Temporary over or under range *tolerance of 50%* of scale up to 500°F (260°C)

ACCURACY: Guaranteed to 1 % of full scale (Grade A per ASME B40.3 Standard)

CONNECTION: 1/4" NPT, 304 Stainless Steel standard, other connections available.

STEM LENGTHS: (In Inches) 2-1/2" to 24" available



**Stem lengths are available from 2-1/2" to 24".
Ranges from - 100 °F (-70 C) to 1000 °F (550 V) are
available. Please see page 15 for complete stem
length, range and option selection. Silicone fill not
available on this model.**

Back Connected Bimetal Thermometers Model 30 & 50



- **Stainless Steel Case**
- **Hermetically Sealed**
- **External Adjustment Screw Standard**

TREND Bimetal Thermometers are ideal for most rugged industrial temperature measurement applications. The hermetically-sealed case offers protection from weather and dust, and is guaranteed against fogging up. The bimetal helix is coated with a viscous silicone to minimize pointer oscillation and improve temperature transmission.

SPECIFICATIONS

CASE: 304 Stainless Steel

DIAL: Anti Parallax, heavy gauge aluminum with white matte finish.

EXTERNAL RESET Slotted hex adjustment

CRYSTAL: Fully gasketed glass standard. Lexan, acrylic and shatterproof available.

HERMETIC SEAL: Hermetically sealed per ASME B40.3 Standard. **GUARANTEED NOT TO FOG UP**

STEM: 304 Stainless Steel, TIG welded at tip and case connection. 1/4" diameter standard; 3/8" diameter available.

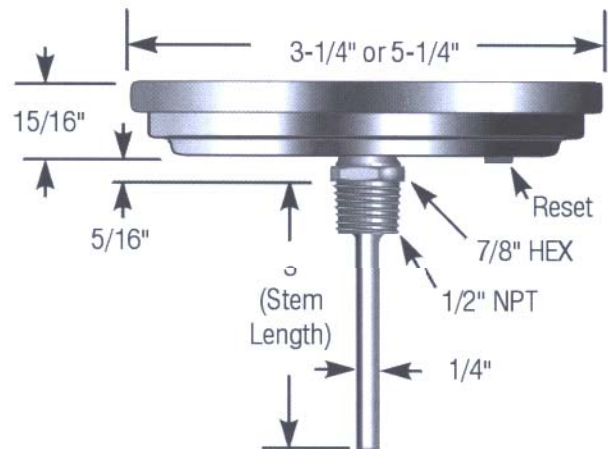
DAMPENING: Helix coated with viscous silicone to minimize pointer oscillation and improve sensitivity (ranges below 500°F).

OVER RANGE: Temporary over or under range tolerance of 50% of scale up to 500°F (250°C) **ACCURACY:** Guaranteed to 1% of full scale (Grade A per ASME B40.3 Standard)

CONNECTION: 1/2" NPT, 304 Stainless Steel standard, other connections and 316 Stainless Steel available.

STEM LENGTHS: (In Inches) 2-1/2, 4, 6, 9, 12, 15, 18, 24, up to 72" upon application.

OPTIONS: Silicone Fill, Custom Dials, Min-Max Pointer, Union Locknut, Union Connection and more available.



Back Connected (Models 30 & 50)

Bottom Connected Bimetal Thermometers Model 31 & 51

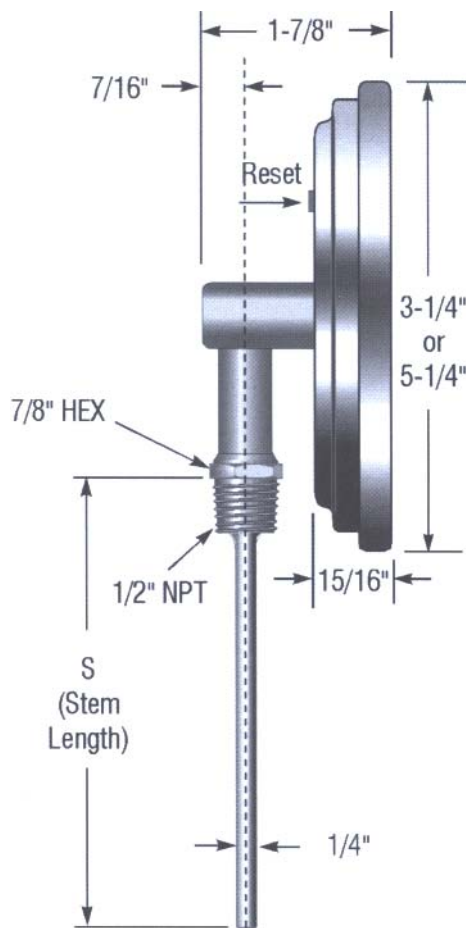


- **Stainless Steel Case**
- **Hermetically Sealed**
- **External Adjustment Screw Standard**



TREND Model 31 and 51 Bimetal Thermometers offer the same features as the Model 30 and 50, with a fixed lower mount (bottom) connection. The hermetically-sealed case offers protection from weather and dust, and is guaranteed against fogging up. The bimetal helix is coated with a viscous silicone to minimize pointer oscillation and improve temperature transmission.

SPECIFICATIONS



- CASE:** 304 Stainless Steel
- DIAL:** Anti Parallax, heavy gauge aluminum with white matte finish.
- EXTERNAL RESET** Slotted hex adjustment
- CRYSTAL:** Fully gasketed glass standard. Lexan, acrylic and shatterproof available.
- HERMETIC SEAL:** Hermetically sealed per ASME B40.3 Standard. GUARANTEED NOT TO FOG UP
- STEM:** 304 Stainless Steel, TIG welded at tip and case connection. 1/4" diameter standard; 3/8" diameter available.
- DAMPENING:** Helix coated with viscous silicone to minimize pointer oscillation and improve sensitivity (ranges below 500°F).
- OVER RANGE:** Temporary over or under range tolerance of 50% of scale up to 500°F (260°C)
- ACCURACY:** Guaranteed to 1 % of full scale (Grade A per ASME B40.3 Standard)
- CONNECTION:** 1/2" NPT, 304 Stainless Steel standard, other connections and 316 Stainless Steel available.
- STEM LENGTHS:** (In Inches) 2-112, 4, 6, 9, 12, 15, 18, 24, up to 72" upon application.
- OPTIONS:** Silicone Fill, Custom Dials, Min-Max Pointer, Union Locknut, Union Connection and more available.

Bottom Connected (Models 31 & 51)

Tamper-Proof Bimetal Thermometers Models 33, 34, 53 & 54



TREND's Industrial Grade Bimetal Dial Thermometers offer performance equal to our Process-Grade thermometers, but without the reset feature and the 7Year Warranty. They are an ideal choice where a weather-resistant, tamperproof thermometer is needed. They are warranted for 1 year.



- Stainless Steel Case
- Hermetically Sealed
- Tamper-Proof

SPECIFICATIONS

CASE: 304 Stainless Steel

DIAL: Anti Parallax, heavy gauge aluminum with white matte finish.

CRYSTAL: Fully gasketed glass standard. Lexan, acrylic and shatterproof available.

HERMETIC SEAL: Per ASME B40.3

STEM: 304 Stainless Steel, TIG welded at tip and case connection. 1/4" diameter standard.

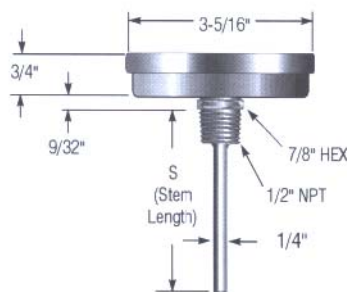
ACCURACY Guaranteed to 1 % of full scale (Grade A per ASME B40.3 Standard)

CONNECTION: 1/2" NPT, 304 Stainless Steel standard.

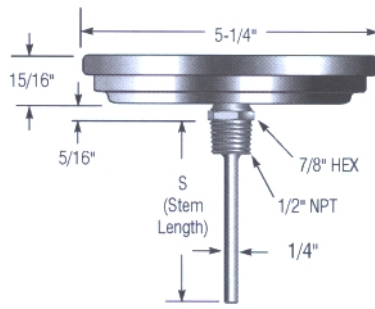
OPTIONS: Special ranges, custom dials, stems, connections and windows.

OVER RANGE: Temporary over or under range tolerance of 50% of scale up to 500°F (260°C).

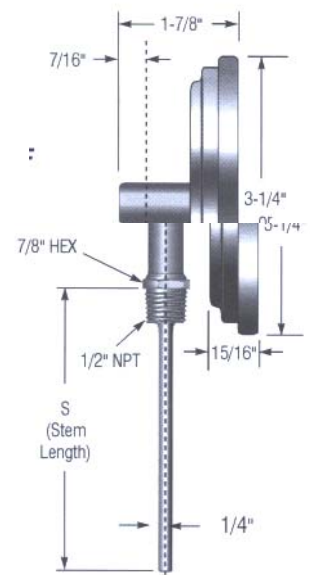
Stem lengths are available from 2-1/2" to 24". Ranges from -100°F (-70 °C) to 1000 °F (550°C) are available.



Back Connected Model 33



Back Connected Model 53



Bottom Connected (Models 34 & 54)

Adjustable Angle Bimetal Thermometers Model 32 & 52

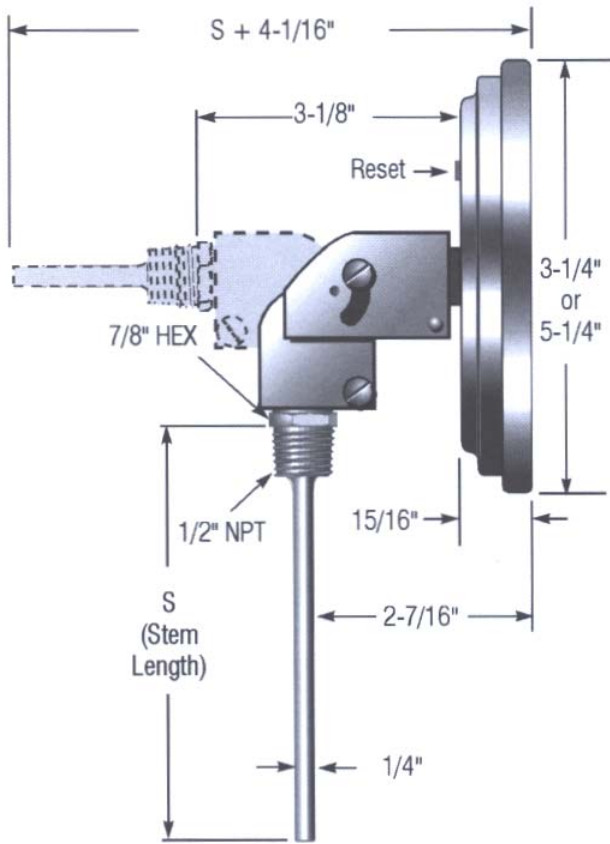


- *Dial Adjusts to Any Angle*
- *Stainless Steel Case*
- *Hermetically Sealed*
- *External Adjustment Screw Standard*



TREND Model 32 and 52 Bimetal Thermometers offer the same features as the Model 30 and 50, with the added convenience of an all-angle swivel connection. The hermetically-sealed case offers protection from weather and dust, and is guaranteed against fogging up. The bimetal helix is coated with a viscous silicone to minimize pointer oscillation and improve temperature transmission. TREND Model 32 and 52 Thermometers are guaranteed for 7 years.

SPECIFICATIONS



Adjustable Angle (Models 32 & 52)

CASE: 304 Stainless Steel

DIAL: Anti Parallax, heavy gauge aluminum with a white matte finish.

EXTERNAL RESET: Slotted hex adjustment

CRYSTAL: Fully gasketed glass standard. Lexan, acrylic and shatterproof available.

HERMETIC SEAL: Hermetically sealed per ASME B40.3 Standard. GUARANTEED NOT TO FOG UP

STEM: 304 Stainless Steel, TIG welded at tip and case connection. 1/4" diameter standard; 3/8" diameter available.

DAMPENING: Helix coated with viscous silicone to minimize pointer oscillation and improve sensitivity (ranges below 500°F).

OVER RANGE: Temporary over or under range tolerance of 50% of scale up to 500°F (260°C)

ACCURACY: Guaranteed to 1 % of full scale (Grade A per ASME 840.3 Standard)

CONNECTION: 1/2" NPT, 304 Stainless Steel standard, other connections and 316 Stainless Steel available.

STEM LENGTHS: (In Inches) 2-1/2, 4, 6, 9, 12, 15, 18, 24, up to 72" upon application.

OPTIONS: Silicone Fill, Custom Dials, Min-Max Pointer, Union Locknut, Union Connection and more available.

JUST -RITE* ADJUSTABLE ANGLE CASE: Simple adjustment of the heavy duty stainless steel harness allows case rotation of 360° and stem variation of more than 180°. Flexible stainless steel bellows sealed at case and stem connector protects the temperature transmission mechanism and guarantees the hermetic seal.

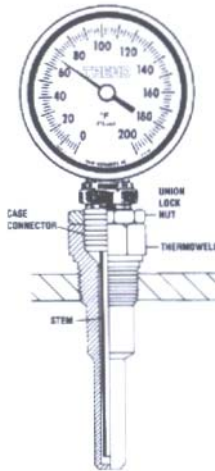
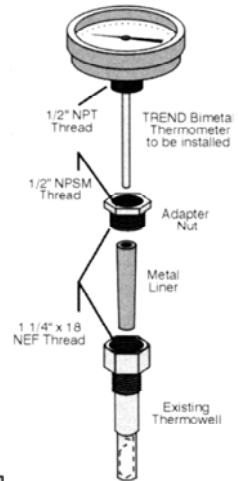
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Bimetal Thermometer Options

T-85 Thermowell Conversion Kit

This conversion kit offers an easy, inexpensive way to install a TREND Bimetal thermometer in a glass industrial thermometer's thermowell. For more information, please consult factory. To order, specify Part Number TA800-0T85.

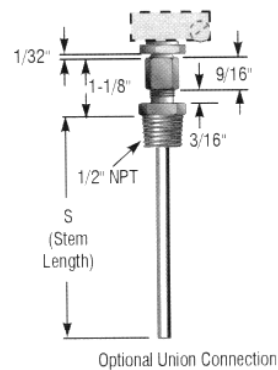


Union Lock Nut

The TREND Union Lock Nut provides a simple and inexpensive means to mount WIKA Bimetal thermometers with 112 NPT so that the dial is oriented for proper viewing. For more information, please consult factory. To order, specify part number TA600-01 11.

Adjustable Union Connection

The TREND Adjustable Union Connection allows for the installation of a Model 32 or 52 Adjustable Angle Thermometer without rotating the case. Ideal for use in a confined space. See "How To Order" on next page for this option.



Maximum or Minimum Indicating Pointer

This option allows operator to view what the highest or lowest temperature has been in the process. High vibration environments are not recommended. Please see "How To Order" on next page for this option.



Left, Right or Top Connection

All TREND 3" and 5" Bottom Connected thermometers are available with the connection oriented to the left, right or top. Please see "How to Order" on next page for this option.



Silicone

All TREND 3" and 5" Process-Grade bimetal thermometers are available with Silicone Fill, for applications where severe vibration is a factor. The silicone dampens and lubricates the internal mechanism, reducing oscillation and premature wear. (Maximum temperature: 501500°F) Please see "How to Order" on next page

Duct Flange Part # TA800-0020



Not Shown

- Heavy duty 3/8" stems and 3/8" stems with 2-1/2" x 1/4" OD sensitive portion available.
- Thermometers may be ordered with sharp tips for piercing media to be measured.
- 316 Stainless Steel wetted parts are available.
- Paper, Aluminum and Stainless Steel tags are available options.
- Please see these options on Table 8 of "How To Order" on next page.

Other options are available. Please consult factory.

Tags and Certificates

Part #	DESCRIPTION
141100	Stainless Steel Tag
776	Certificate of Calibration
413	Factory Certificate of Accuracy

How to Order Bimetal Thermometers

Specify Complete Model Number from the following tables:

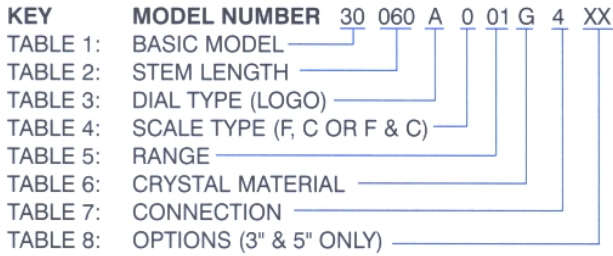


Table 1 - Model

KEY	DESCRIPTION
20	2" Back Connected (No Reset)
30	3" Back Connected (With Reset)
31	3" Bottom Connected (With Reset)
32	3" Adjustable Angle (With Reset)
33	3" Back Connected (No Reset)
34	3" Bottom Connected (No Reset)
50	5" Back Connected (With Reset)
51	5" Bottom Connected (With Reset)
52	5" Adjustable Angle (With Reset)
53	5" Back Connected (No Reset)
54	5" Bottom Connected (No Reset)

Table 2 - Stem Length

KEY	DESCRIPTION
xx.x	Length in inches with one decimal place

Table 3 - Dial Type

KEY	DESCRIPTION
A	TREND Standard
X	Special

Proceed to Table 4, top of next column.

Table 5 - Range

Key	°F Range	Dual Scale				Single Scale		
		Figure Int. Div.	Figure Int. Div.	°C Range	Int. Div.	'F Range	'C Range	
01	-100/150	20	2	-70/70	10	1	-100/150	-70/70
02	-40/120	20	2	-40/50	10	1	-40/120	-50/50
14	-20/120	20	2	-30/50	10	1	-20/120	NA
19	-40/160	20	2	-40/70	10	1	-40/160	NA
*23	0/100	10	1	-20/40	5	1/2	NA	NA
*03	25/125	10	1	-5/50	5	1/2	NA	NA
*15	30/130	10	1	0/55	5	1/2	30/130	NA
04	0/140	10	1	-20/60	5	1/2	0/140	NA
05	0/200	20	2	-15/90	10	1	0/200	0/100
06	0/250	20	2	-20/120	10	1	0/250	-20/120
07	20/240	20	2	-5/115	10	1	20/240	NA
08	50/300	20	2	10/150	10	1	50/300	0/150
09	50/400	50	5	10/200	20	2	50/400	0/200
10	50/500	50	5	10/260	20	2	50/500	NA
16	50/550	50	5	10/290	20	2	50/550	0/250
17	0/600	100	10	-20/315	50	5	0/600	NA
11	150/750	100	10	65/400	50	5	150/750	0/300
18	100/800	100	10	40/425	50	5	100/800	0/450
12	200/1000	100	10	100/450	50	5	200/1000	100/550

Table 4 - Scale Type

KEY	DESCRIPTION
0	Dual Scale Fahrenheit and Celsius
1	Single Scale Celsius Only
2	Single Scale Fahrenheit Only

Table 5 - Range (See Bottom of Page)

Table 6 - Crystal Material

KEY	DESCRIPTION
A	Acrylic Plastic (Standard w/Silicone Fill)
G	Plain Glass (Standard)
L	Lexan®
S	Shatterproof Safety Glass (3" & 5" Dials Only)

Table 7 - Connection

0	Plain (Unthreaded)
1	1/8" NPT
2	1/4" NPT (Standard on Model 20)
3	3/8" NPT
4	1/2" NPT (Standard on 3" & 5" Models)
5	1/2" BSP (Models 30 & 50 Only)
7	1/2" NPT Adjustable Union (Models 32 & 52)

Table 8 - Options (3" & 5" Models)

Blank	None
SF*	Silicone Filled - (Models 30, 31, 32, 50, 51, 52 Only)
MM	Min/Max Pointer (Models 30 and 50 Only)
LS	Left Side Connection (Models 31, 34, 51, 54 Only)
RS	Right Side Connection (Models 31, 34, 51, 54 Only)
TS	Top Connection (Models 31, 34, 51, 54 Only)
HD	3/8" Heavy Duty Stem with 2-1/2" x 1/4" O.D. Sensitive Tip
HA	3/8" Heavy Duty Stem Entire Length
ST	Sharp Tip
SS	316 Stainless Steel Wetted Parts
DF	Dry w/plug

*Requires Acrylic lens



***Not available with 2-1/2" stem on Models 31, 32, 34, 57, 52, 54**