

# Industrial Thermometers

## DESIGN & OPERATION

### INDUSTRIAL THERMOMETERS



Light-Powered Digital



Liquid-in-Glass

### Description

A thermometer is an instrument designed to measure and indicate the temperature of a specific application or condition. An Industrial Thermometer, commonly known as a "Liquid-In-Glass" or Light-Powered Digital Thermometer, is installed at the point of measurement and is usually read from that location.

### Principles of Operation

#### Liquid-in-Glass

This thermometer is comprised of a liquid-filled sealed glass tube and bulb, which is affixed to the front of a metal temperature scale, and extends into a metal bulb chamber (stem). Flaked graphite is used within the bulb chamber to transfer the measured temperature to the glass bulb. Temperature changes cause the thermo-active fill to expand or contract within the tube. This activity is instantly visible in the tube against the calibrated markings of the temperature scale. For purposes of readability, the tube is formed with a lens front to create a magnified indicating column.

#### Light-Powered Digital

This thermometer is comprised of a thermistor wire that extends into the stem. Flaked graphite is used to transfer the measured temperature to the thermistor. Temperature change causes a change in the output of the thermistor; this output is translated through a pre-programmed algorithm in the microprocessor resulting in a digital display of the temperature.

All Trerice Industrial Thermometers should be carefully selected to meet the demands of the particular application. The information contained in this catalog is offered only as a guide to assist in making the proper selection. Improper applications may cause failure of the instrument, resulting in possible personal injury or property damage. For applications where the process media may be corrosive or contained under pressure, the use of a thermowell is required to prevent damage to the thermometer and facilitate its removal from the process.

# SX9 Solar Therm

## Light-Powered Digital Thermometer

INDUSTRIAL THERMOMETERS



SX91403 shown

- ▶ Light Powered  
No Batteries Required
- ▶ 7" Case Size
- ▶ Large LCD °F/°C  
Switchable Display
- ▶ Min/Max Feature
- ▶ 1% or 1°F Accuracy
- ▶ Cast Aluminum Case
- ▶ Adjustable-Angle Stem

The Trerice **SX9 "Solar Therm"** is ideally suited for replacement of existing mercury-in-glass thermometers in environmentally conscious applications. It features a rugged cast aluminum case, easy to read LCD display and an adjustable-angle stem that is fully interchangeable with industrial liquid-in-glass thermometers. Also available is a bimetal type stem for applications where a digital thermometer is preferred over existing analog bimetals. The "Solar Therm" requires no external power and needs only 10 lux of illumination to operate. The unique Min/Max feature provides instant recall of minimum and maximum temperatures over a given period and is easily reset.

- Optional features available: Please consult the Options & Accessories Section for details.

#### Thermowell

- For applications where the process media may be corrosive or contained under pressure, the use of a thermowell is required to prevent damage to the thermometer and facilitate its removal from the process. (Refer to page 152)

### Specifications

<b>Model</b>	<b>Scale Size</b>
SX9	7" Adjustable Angle
<b>Case</b>	Cast Aluminum, Blue epoxy finish
<b>Stem</b>	Industrial, Bimetal or Air-Duct
<b>Connection</b>	Industrial: 1 1/4-18 UNEF-2A coupling nut  Bimetal: 304 Stainless steel 1/4" diameter  Air-Duct: Reversible mounting flange with 3 bolt holes
<b>Sensor</b>	Glass passivated thermistor
<b>Range</b>	-40 to 300° F (-40° to 150° C)
<b>Display</b>	9/16" LCD digits switchable between F/C. Push button min/max readings with reset
<b>Accuracy</b>	1% or 1° F, whichever is greater
<b>Resolution</b>	1/10°
<b>Update Interval</b>	10 seconds
<b>Lux Rating</b>	10 Lux (one foot candle)
<b>Ambient Operating Temperature</b>	0 to 140° F (-20° to 60° C)
<b>Ambient Temperature Error</b>	None
<b>Humidity</b>	Maximum: 95 RH, non condensing
<b>Approximate Shipping Weight</b>	1.5 lbs [0.68 kg]

### HOW TO ORDER

Sample Order Number: **SX9 1 403 05**

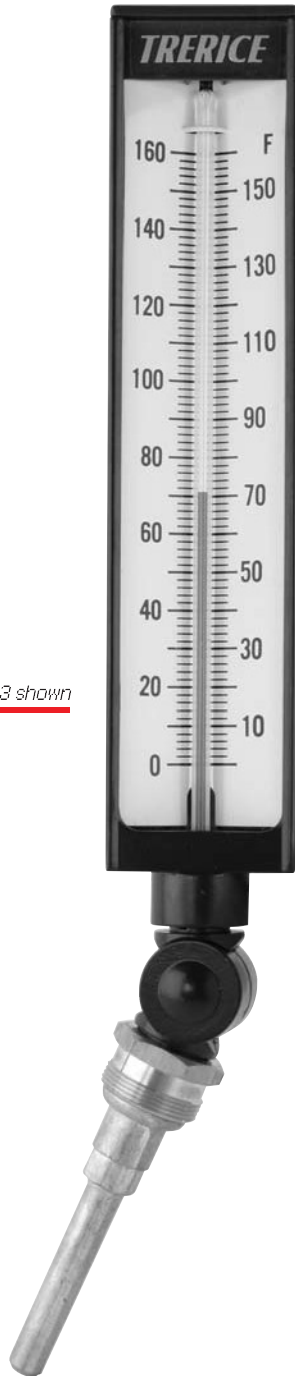
Model	Stem (Style & Material)	Stem (Length)	Specific Range
SX9 7" Adjustable	1 Industrial (Aluminum)	403 3 1/2" (standard)	05 -40° to 300° F/C
		406 6" (standard)	
	5 Bimetal (304 SS)	604 4" Bimetal	
		606 6" Bimetal	
	9 Air-Duct (Aluminum)*	006 6" Air-Duct	
		012 12" Air-Duct	

\* Not for use with Thermowell

# Adjustable Angle

7" • 9" • 12" Scale Sizes

INDUSTRIAL THERMOMETERS



BX91403 shown

- ▶ 7", 9", 12" Scale
- ▶ ± 1 Scale Division Accuracy
- ▶ Cast Aluminum Case
- ▶ Adjustable Angle Stem

Recognized globally as the Trerice "BX" Industrial Thermometer, this is an instrument of extreme accuracy and rugged dependability. Available in scale sizes of 7" (AX9), 9" (BX9), & 12" (CX9), with a durable cast aluminum case, this universally adjustable, liquid-in-glass thermometer is the most widely specified instrument of its kind.

- Optional features available: Please consult the Options & Accessories Section for details.

#### Thermowell

- For applications where the process media may be corrosive or contained under pressure, the use of a thermowell is required to prevent damage to the thermometer and facilitate its removal from the process. (Refer to page 152)

## Specifications

Models	Scale Sizes	
AX9	7"	Adjustable Angle
BX9	9"	
CX9	12"	
<b>Fill Type</b>	Spirit: Blue colored, organic	
<b>Case</b>	Cast Aluminum, blue epoxy finish	
<b>Stem</b>	Aluminum, brass, 304 stainless steel or air-duct style available	
<b>Connection</b>	Standard: 1 1/4-18 UNEF-2A coupling nut Air-Duct: Reversible mounting flange with 3 bolt holes	
<b>Window</b>	Acrylic on ranges to 300° F Glass on ranges over 300° F	
<b>Tube</b>	Lens front, magnifying type	
<b>Scale</b>	Aluminum, white background with black graduations and markings	
<b>Top Plate</b>	ABS	
<b>Accuracy</b>	±1 scale division	
<b>Approximate Shipping Weight</b>	AX9: 1.5 lbs [0.68 kg] BX9: 1.6 lbs [0.73 kg] CX9: 2.0 lbs [0.91 kg]	

## HOW TO ORDER

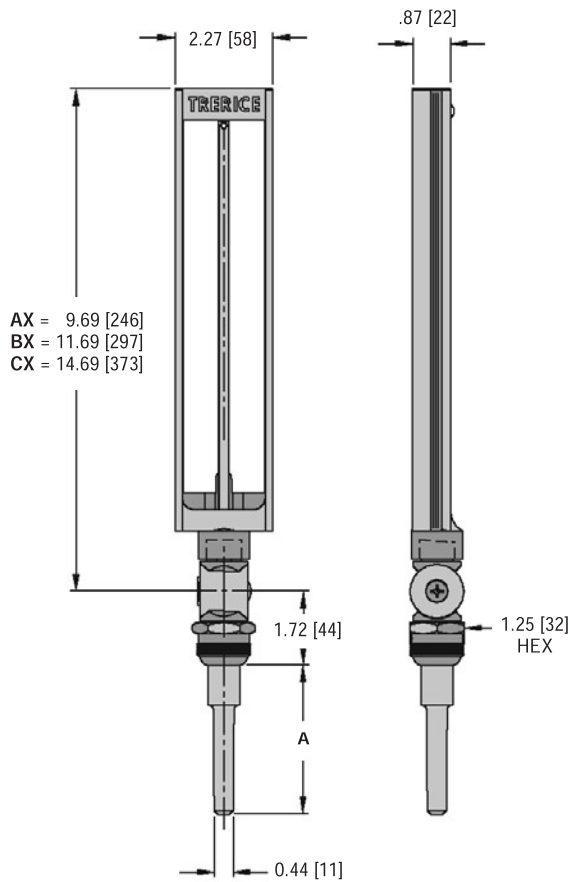
Sample Order Number: **BX9 1 403 07**

Model	Stem (Material)	Stem (Length)	Specific Range
AX9 7" Adjustable	1 Aluminum (standard)	403 3 1/2"	See Standard Ranges
BX9 9" Adjustable	2 Brass	406 6"	
CX9 12" Adjustable	3 304 SS	408 8"	
		512 12"	
		006 6" Air-Duct	
		012 12" Air-Duct	

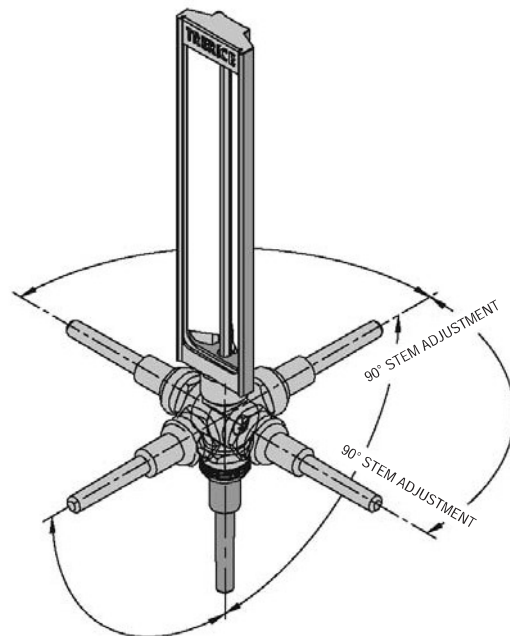
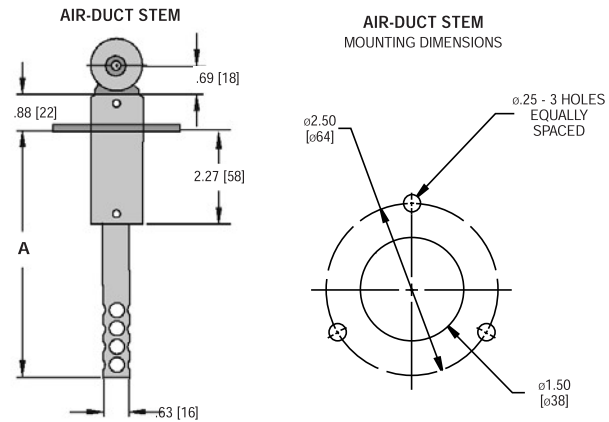
\* Not for use with Thermowells

# Adjustable Angle

All dimensions are nominal.  
Dimensions in [ ] are in millimeters.



(A) Stem Length	Dimension
3 1/2"	3.50 [88.9]
6"	6.00 [152.4]
8"	8.00 [203.2]
12"	12.00 [304.8]



INDUSTRIAL THERMOMETERS

## Standard Ranges

Fahrenheit Scale		Celsius Scale		Dual Scale		Fahrenheit		Celsius	
Range Code	Range	Range Code	Range	Range Code	Range	Figure Intervals	Minor Divisions	Figure Intervals	Minor Divisions
01	-40° to 110°F	17	-40° to 40°C	41	-40° to 110°F & -40° to 40°C	10°	2°	5°	1°
02	0° to 100°F	24	-18° to 38°C	42	0° to 100°F & -18° to 38°C	5°	1°	5°	0.5°
03	30° to 130°F	25	0° to 55°C	43	30° to 130°F & 0° to 55°C	5°	1°	5°	1°
04	0° to 160°F	26	-18° to 70°C	44	0° to 160°F & -18° to 70°C	10°	2°	5°	1°
06	30° to 180°F	27	0° to 83°C	46	30° to 180°F & 0° to 83°C	10°	2°	5°	1°
07	30° to 240°F	19	0° to 115°C	47	30° to 240°F & 0° to 115°C	10°	2°	5°	1°
08	30° to 300°F	20	0° to 150°C	48	30° to 300°F & 0° to 150°C	10°	2°	10°	2°
09	50° to 400°F	28	10° to 205°C	49	50° to 400°F & 10° to 205°C	25°	5°	10°	2°
15	50° to 500°F	31	10° to 260°C	55	50° to 500°F & 10° to 260°C	25°	5°	10°	2°

Dual scale figure intervals may differ

# Hydro-Therm

INDUSTRIAL THERMOMETERS



HT30 shown



HT31 shown

- ▶ 5 1/2" Scale Size
- ▶ ± 2% Accuracy
- ▶ Valox Case
- ▶ 1/2 NPT Brass Thermowell included

The **NEW Trerice Hydro-Therm** is the ideal instrument for both hot and chilled water hydronic applications. The blue, organic "spirit" fill is easily read without the environmental concerns of mercury. The sturdy Valox case is available in rigid straight or rigid 90° angle configurations. The 2" stem makes this the perfect instrument for smaller pipeline and other such applications. The 1/2 NPT brass thermowell is included.

## Specifications

Models	Scale Size
HT30	5 1/2" Rigid Straight
HT31	5 1/2" Rigid 90° Angle
<b>Fill Type</b>	Spirit: Blue colored, organic
<b>Case</b>	Valox
<b>Stem</b>	Brass
<b>Connection</b>	1/2 NPT brass thermowell (included)
<b>Window</b>	Acrylic
<b>Tube</b>	Lens front, magnifying type
<b>Scale</b>	Aluminum, white background with black graduations and markings
<b>Top Plate</b>	ABS
<b>Accuracy</b>	±2%

**Approximate Shipping Weight**  
0.5 lbs [0.23 kg]

## HOW TO ORDER

Sample Order Number: **HT30 47**

Model		Specific Range
HT30	Straight	41 -40° to 110° F/C
HT31	90° Angle	47 30° to 240° F/C