



Note: RoHS applies only with SS bulb, SS capillary and SS thermowell

Description & Features:

- Versatile, heavy duty gas or vapour thermometer for remote reading
- Many varieties are available from stock; special requests are built to order
- Brass or stainless steel capillary and bulbs
- Plain, sliding union or thermowell connection
- Capillary lengths over 5' available
- 1/2" bulb diameter
- Panel or direct mount
- Gas: $\pm 1\%$ accuracy; Vapour: $\pm 2\%$ accuracy
- ASME B40.200 compliant
- 5 year warranty

Applications:

- For remote temperature sensing of tanks, reservoirs and process lines
- Appropriate for industrial and commercial installations

Specifications	
Dial	2.5" (63mm), 3.5" (90mm), 4" (100mm), 4.5" (115mm), 6" (150mm), 8.5" (215mm)
Case/Ring	2.5" (63mm): 316 SS 3.5" (90mm), 4" (100mm): Steel, painted black Others: Aluminum, painted black
Lens	2.5" (63mm) to 6" (150mm): Glass Others: Polycarbonate
Connection	Plain, Brass or 316 SS sliding union, Brass or 316 SS thermowell
Sensing Fill	Gas or vapour
Movement	Gas: 304 SS Vapour: Brass
Pointer	Aluminum, painted black
Accuracy	Gas: $\pm 1\%$ of full scale value Vapour: $\pm 2\%$ of full scale value
Bulb	6" (150mm), 1/2" diameter standard Custom sizes available
Warning (brass connection only)	⚠ WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov .

Selection Notes

Gas-filled Systems

- For industrial applications requiring accurate and uniform response over the entire range. Scale is linear
- The capillary should be located in an area that has an ambient temperature of approximately 74°F (23°C). If the temperature around the capillary is significantly higher than 74°F (23°C), the thermometer will show a reading that is higher than actual process temperature. If the capillary ambient temperature is significantly lower than 74°F (23°C), the reading will be lower than the actual process temperature

Vapour-filled Systems

- Have non-linear scales and provide economical but reliable service for most industrial applications
- To ensure accurate readings, the operating temperature should fall in the 2/3 of the scale
- Thermometer may show a temperature offset to actual temperature value when the bulb and thermometer are installed at different elevations. To avoid this, install the bulb and thermometer at the same elevation wherever possible. Offset errors only occur when the thermometer's ambient temperature is higher than the bulb temperature

Capillary Protection

- Is recommended to protect the capillary from physical damage
- Copper braided armour is used in conjunction with brass bulb
- Stainless steel armour shall be used in conjunction with 316 SS bulb

Note: Winters recommends using a stainless steel bulb and capillary for all process temperatures above 500°F (260°C)

Gas-filled Systems - Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)				3.5" (90mm)	
Bulb and Capillary Material	SS					
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back	5' Back	10' Back
30°F to 240°F&C	-	-	-	-	TRR12353050G18	-
40°F to 220°F&C	TRR11253050G19	TRR12253050G19	TRR11253100G19	TRR12253100G19	-	TRR12353100G19
80°F to 300°F&C	TRR11253050G20	TRR12253050G20	TRR11253100G20	TRR12253100G20	TRR12353050G20	-
100°F to 400°F&C	TRR11253050G21	TRR12253050G21	TRR11253100G21	TRR12253100G21	TRR12353050G21	TRR12353100G21
100°F to 500°F&C	TRR11253050G22	-	-	-	-	-

Dial Size	4" (100mm)			
Bulb and Capillary Material	SS			
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back
30°F to 240°F&C	-	TRR12403050G18	-	TRR12403100G18
40°F to 220°F&C	-	-	-	TRR12403100G19
80°F to 300°F&C	TRR11403050G20	TRR12403050G20	TRR11403100G20	TRR12403100G20
100°F to 400°F&C	TRR11403050G21	TRR12403050G21	-	-
100°F to 500°F&C	TRR11403050G22	-	TRR11403100G22	-

Dial Size	4.5" (115mm)			
Bulb and Capillary Material	SS			
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back
30°F to 240°F&C	-	TRR12453050G18	-	TRR12453100G18
40°F to 220°F&C	TRR11453050G19	TRR12453050G19	TRR11453100G19	TRR12453100G19
80°F to 300°F&C	TRR11453050G20	TRR12453050G20	TRR11453100G20	TRR12453100G20
100°F to 400°F&C	TRR11453050G21	TRR12453050G21	TRR11453100G21	TRR12453100G21
100°F to 500°F&C	TRR11453050G22	-	TRR11453100G22	-

Gas-filled Systems - Order Codes (products in bold are normally in stock)

Dial Size	6" (150mm)			
Bulb and Capillary Material	SS			
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back
30°F to 240°F&C	-	TRR12603050G18	-	-
40°F to 220°F&C	TRR11603050G19	TRR12603050G19	TRR11603100G19	TRR12603100G19
80°F to 300°F&C	TRR11603050G20	TRR12603050G20	-	TRR12603100G20
100°F to 400°F&C	TRR11603050G21	TRR12603050G21	-	TRR12603100G21
100°F to 500°F&C	TRR11603050G22	-	TRR11603100G22	-

Vapour-filled Systems - Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)				3.5" (90mm)
Bulb and Capillary Material	Brass and Copper				
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back	5' Back
0°F to 180°F&C	TRR31251050V11	-	TRR31251100V11	-	TRR32351050V11
20°F to 220°F&C	-	TRR32251050V12	-	-	-
50°F to 250°F&C	TRR31251050V13	-	TRR31251100V13	TRR32251100V13	-
100°F to 350°F&C	TRR31251050V15	TRR32251050V15	TRR31251100V15	TRR32251100V15	-

Dial Size	4" (100mm)		
Bulb and Capillary Material	Brass and Copper		
Capillary Length and Connection	5' Back	10' Bottom	10' Back
0°F to 180°F&C	-	-	TRR32401100V11
20°F to 220°F&C	-	-	TRR32401100V12
50°F to 250°F&C	-	-	TRR32401100V13
100°F to 350°F&C	TRR32401050V15	TRR31401100V15	TRR32401100V15

Dial Size	4.5" (115mm)			
Bulb and Capillary Material	Brass and Copper			
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back
0°F to 180°F&C	TRR31451050V11	TRR32451050V11	TRR31451100V11	TRR32451100V11
20°F to 220°F&C	-	TRR32451050V12	TRR31451100V12	TRR32451100V12
50°F to 250°F&C	-	TRR32451050V13	-	-
100°F to 350°F&C	TRR31451050V15	TRR32451050V15	TRR31451100V15	TRR32451100V15

Dial Size	6" (150mm)			
Bulb and Capillary Material	Brass and Copper			
Capillary Length and Connection	5' Bottom	5' Back	10' Bottom	10' Back
0°F to 180°F&C	TRR31601050V11	TRR32601050V11	TRR31601100V11	TRR32601100V11
20°F to 220°F&C	TRR31601050V12	-	TRR31601100V12	-
50°F to 250°F&C	-	TRR32601050V13	-	TRR32601100V13
100°F to 350°F&C	TRR31601050V15	TRR32601050V15	-	TRR32601100V15

Built-to-Order Codes

Specify the code for each section and the range:

e.g. TRR3 - 2 - 35 - 1 - 05 - 1 - 50/250°F

(Section I - II - III - IV - V - VI - range)

TRR's are made to order in 4-6 weeks. For stocked TRR's see the previous page

Section	Code	Description Type	Section	Code	Description Bulb and Capillary			
					Bulb Dimensions	Bulb Material	Capillary Material	Capillary Protection
I	TRR1	Gas Remote Reading	IV	1	6" (150mm) OAL, 1/2" OD	Brass	Copper	Copper Dbl Braided
	TRR2	Gas Direct Reading		2	6" (150mm) OAL, 1/2" OD	316 SS	316 SS	None
	TRR3	Vapour Remote Reading		3	6" (150mm) OAL, 1/2" OD	316 SS	316 SS	SS Armour
	TRR4	Vapour Direct Reading	Capillary Length (ft)					
II	Case Type, Connection		V	05	05			
	1	Bottom connection, back flange		10	10			
	2	Back connection, front flange		30	30			
	3	Back connection, back flange		XX	XX			
	4	Vari-angle connection, (Direct reading only)	Connection					
III	Dial Size		VI	0	None			
	25	2.5" (63mm)		1	1/2" NPT brass sliding union			
	35	3.5" (90mm)		2	1/2" NPT SS sliding union			
	Back connection only			3	3/4" NPT brass sliding union			
	40	4" (100mm)		4	3/4" NPT SS sliding union			
	45	4.5" (115mm)		5	1/2" NPT brass thermowell			
	60	6" (150mm)		6	1/2" NPT SS thermowell			
85	8.5" (215mm)	7	3/4" NPT brass thermowell					
			8	3/4" NPT SS thermowell				
			Z	Custom connection				

Ranges	°F only	°F & °C	°C only
Gas Ranges	-40°F to 110°F**	-40°F to 110°F & -40°C to 40°C**	-40°C to 40°C**
	-20°F to 120°F**	-20°F to 120°F & -28°C to 48°C**	-28°C to 48°C**
	30°F to 150°F**	30°F to 150°F & 0°C to 65°C**	0°C to 65°C**
	0°F to 180°F**	0°F to 180°F & -20°C to 80°C**	-20°C to 80°C**
	30°F to 240°F	30°F to 240°F & 0°C to 115°C	0°C to 115°C
	40°F to 220°F	40°F to 220°F & 5°C to 105°C	5°C to 105°C
	80°F to 300°F	80°F to 300°F & 30°C to 150°C	30°C to 150°C
	100°F to 400°F*	100°F to 400°F & 40°C to 200°C*	40°C to 200°C*
	100°F to 500°F*	100°F to 500°F & 40°C to 260°C*	40°C to 260°C*
	0°F to 600°F*	0°F to 600°F & -20°C to 320°C*	-20°C to 320°C*
200°F to 1,000°F*	200°F to 1,000°F & 90°C to 540°C*	90°C to 540°C*	
Vapour Ranges	-40°F to 110°F	-40°F to 110°F & -40°C to 40°C	-40°C to 40°C
	0°F to 100°F	0°F to 100°F & -20°C to 38°C	-20°C to 38°C
	0°F to 180°F	0°F to 180°F & -20°C to 80°C	-20°C to 80°C
	20°F to 220°F	20°F to 220°F & 0°C to 100°C	0°C to 100°C
	50°F to 250°F	50°F to 250°F & 10°C to 120°C	10°C to 120°C
	100°F to 350°F	100°F to 350°F & 40°C to 175°C	40°C to 175°C
200°F to 450°F	200°F to 450°F & 100°C to 230°C	100°C to 230°C	

*Ranges require stainless steel capillary and bulb

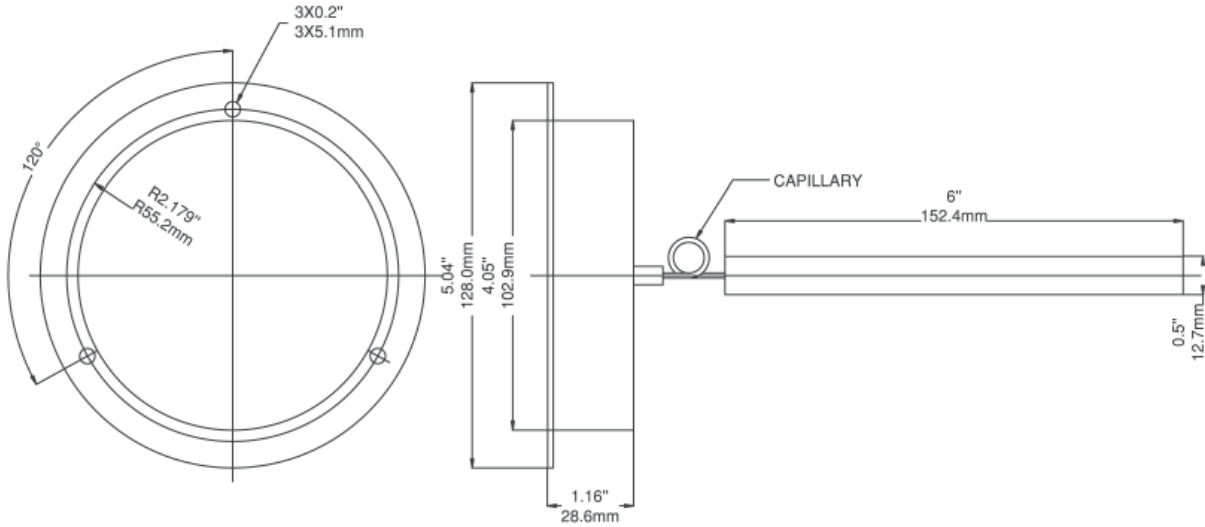
**Ranges not available with gas direct reading thermometers

Please contact us for:

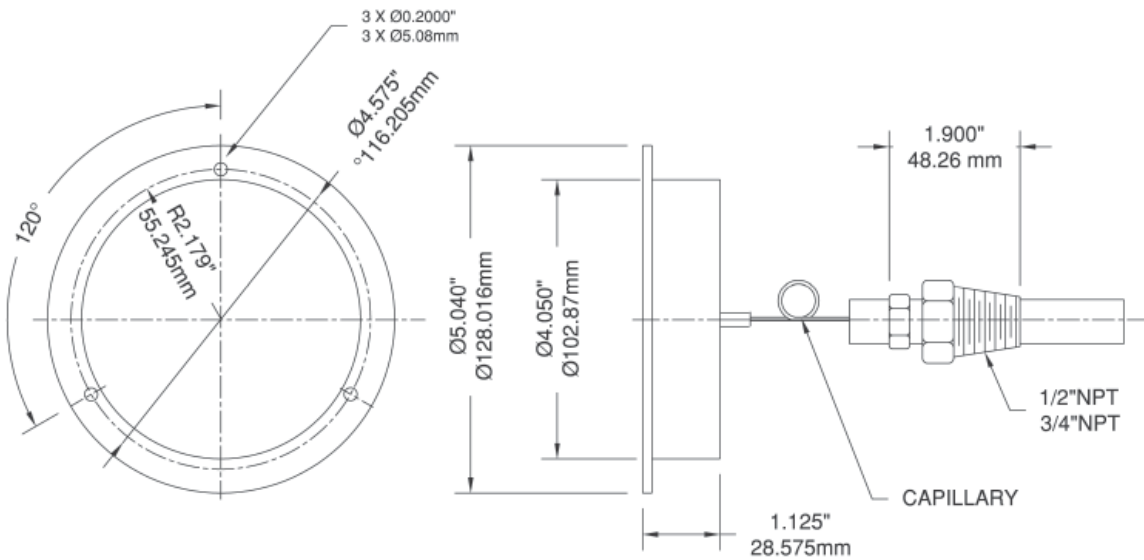
Duct flanges, sliding union, various bulb dimensions, averaging bulb (gas only), other ranges, stainless steel 4" (100mm) and 6" (150mm) cases and capillary available on gas remote/direct reading models

Note: The use of a thermowell is recommended to protect the thermometer in corrosive or pressure applications, as well as to maintain a closed system during its removal from the process.

4" Back Connection, Front Flange, Plain Bulb

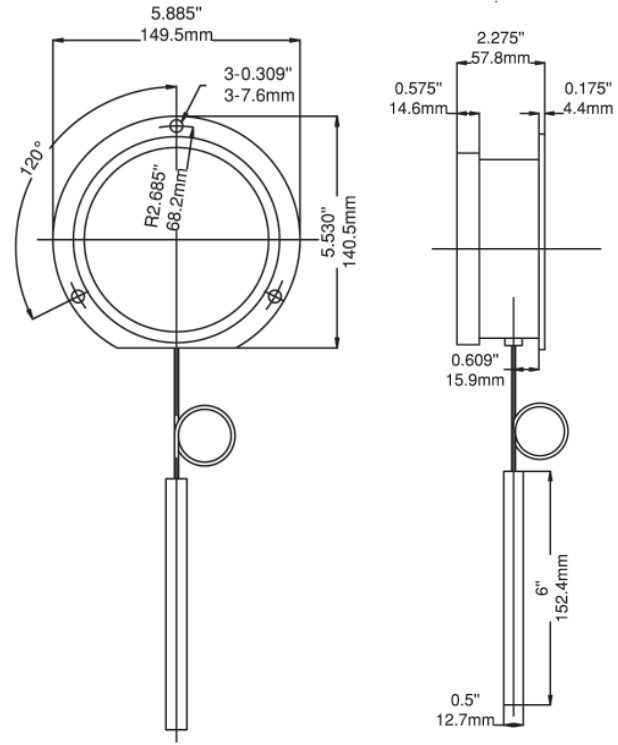
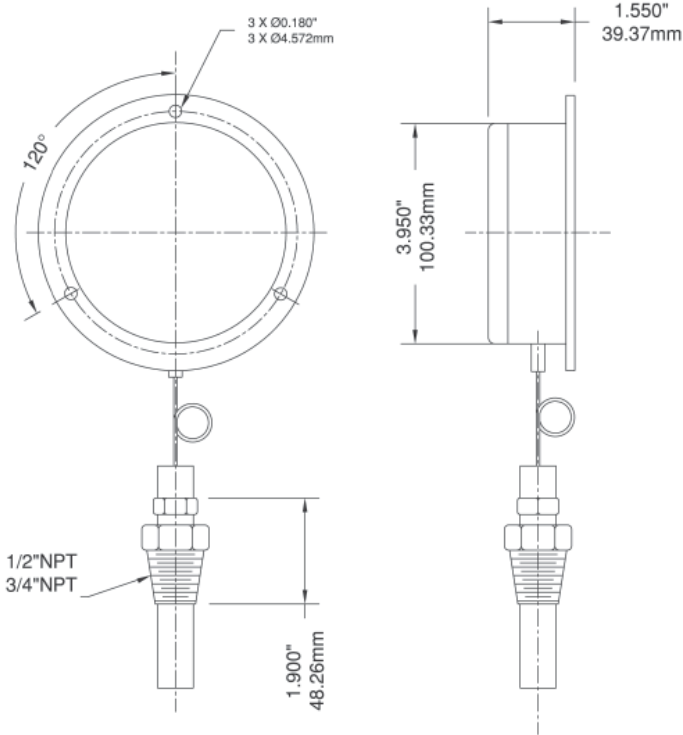


4" Back Connection, Front Flange, Sliding Union



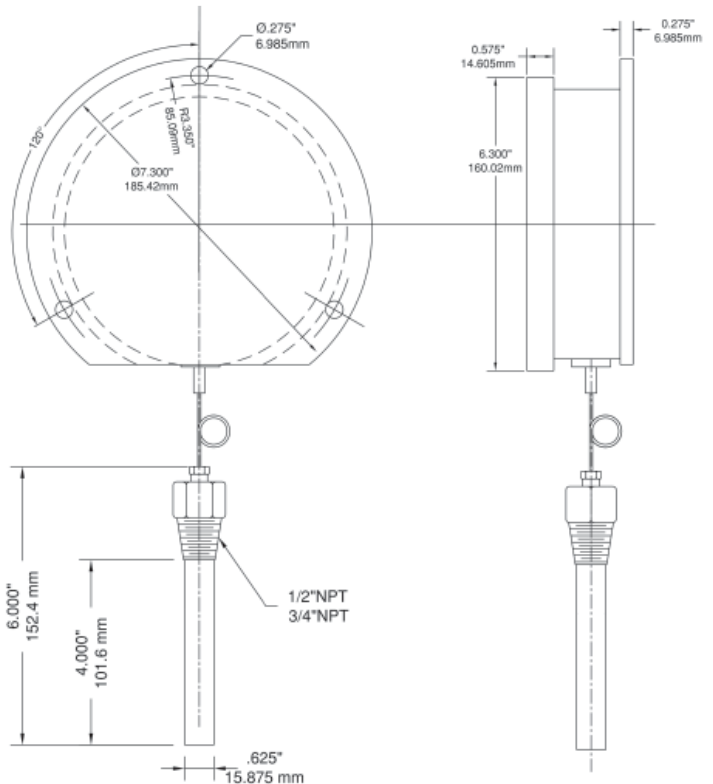
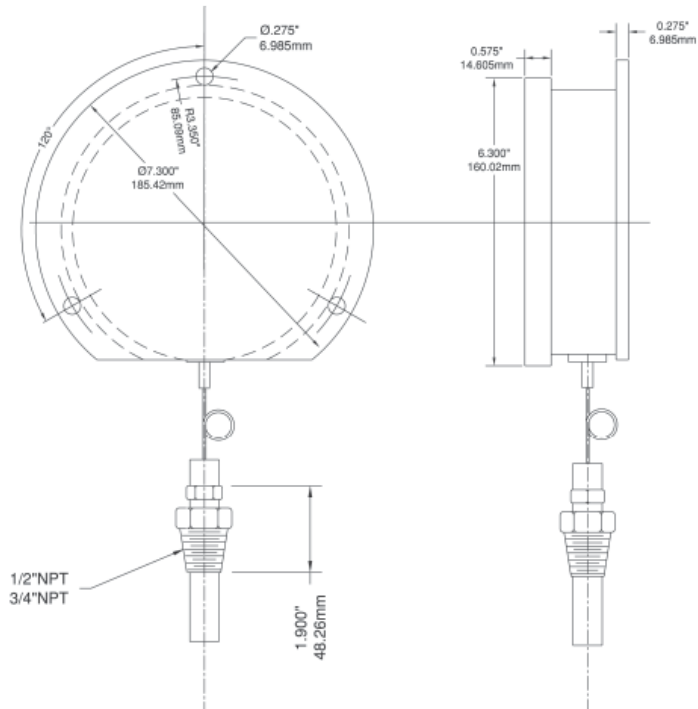
4" Bottom Connection, Back Flange, Sliding Union

4.5" Bottom Connection, Back Flange, Plain Bulb



6" Bottom Connection, Back Flange, Sliding Union

6" Bottom Connection, Back Flange, Sliding Union



Thermometers