



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

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<b>Dial</b>	2.5" (63mm), 3.5" (90mm), 4" (100mm), 4.5" (115mm), 6" (150mm), 8.5" (215mm)
<b>Case/Ring</b>	2.5" (63mm): 316 SS 3.5" (90mm), 4" (100mm): Steel, painted black Others: Aluminum, painted black
<b>Lens</b>	2.5" (63mm) to 6" (150mm): Glass Others: Polycarbonate
<b>Connection</b>	Plain, Brass or 316 SS sliding union, Brass or 316 SS thermowell
<b>Sensing Fill</b>	Gas or vapour
<b>Movement</b>	Gas: 304 SS Vapour: Brass
<b>Pointer</b>	Aluminum, painted black
<b>Accuracy</b>	Gas: $\pm 1\%$ of full scale value Vapour: $\pm 2\%$ of full scale value
<b>Bulb</b>	6" (150mm), 1/2" diameter standard Custom sizes available

## 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	-	-	-	TRR12253100G18	TRR12353050G18	TRR12353100G18
40°F to 220°F&C	TRR11253050G19	TRR12253050G19	TRR11253100G19	TRR12253100G19	TRR12353050G19	TRR12353100G19
80°F to 300°F&C	TRR11253050G20	TRR12253050G20	TRR11253100G20	TRR12253100G20	TRR12353050G20	TRR12353100G20
100°F to 400°F&C	TRR11253050G21	TRR12253050G21	TRR11253100G21	TRR12253100G21	TRR12353050G21	TRR12353100G21
100°F to 500°F&C	TRR11253050G22	-	TRR11253100G22	-	-	-

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	TRR11403050G19	TRR12403050G19	TRR11403100G19	TRR12403100G19
80°F to 300°F&C	TRR11403050G20	TRR12403050G20	TRR11403100G20	TRR12403100G20
100°F to 400°F&C	TRR11403050G21	TRR12403050G21	TRR11403100G21	TRR12403100G21
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	-	<b>TRR12603050G18</b>	-	<b>TRR12603100G18</b>
40°F to 220°F&C	<b>TRR11603050G19</b>	<b>TRR12603050G19</b>	<b>TRR11603100G19</b>	<b>TRR12603100G19</b>
80°F to 300°F&C	<b>TRR11603050G20</b>	<b>TRR12603050G20</b>	<b>TRR11603100G20</b>	<b>TRR12603100G20</b>
100°F to 400°F&C	<b>TRR11603050G21</b>	<b>TRR12603050G21</b>	<b>TRR11603100G21</b>	<b>TRR12603100G21</b>
100°F to 500°F&C	<b>TRR11603050G22</b>	-	<b>TRR11603100G22</b>	-

### 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	10' Back
-40°F to 110°F&C	<b>TRR31251050V9</b>	-	-	-	-	-
0°F to 180°F&C	<b>TRR31251050V11</b>	<b>TRR32251050V11</b>	<b>TRR31251100V11</b>	-	<b>TRR32351050V11</b>	<b>TRR32351100V11</b>
20°F to 220°F&C	-	<b>TRR32251050V12</b>	<b>TRR31251100V12</b>	-	<b>TRR32351050V12</b>	-
50°F to 250°F&C	<b>TRR31251050V13</b>	-	<b>TRR31251100V13</b>	<b>TRR32251100V13</b>	-	<b>TRR32351100V13</b>
100°F to 350°F&C	<b>TRR31251050V15</b>	<b>TRR32251050V15</b>	<b>TRR31251100V15</b>	<b>TRR32251100V15</b>	-	<b>TRR32351100V15</b>

Dial Size	4" (100mm)			
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	<b>TRR31401050V11</b>	-	<b>TRR31401100V11</b>	<b>TRR32401100V11</b>
20°F to 220°F&C	<b>TRR31401050V12</b>	<b>TRR32401050V12</b>	<b>TRR31401100V12</b>	<b>TRR32401100V12</b>
50°F to 250°F&C	<b>TRR31401050V13</b>	-	-	<b>TRR32401100V13</b>
100°F to 350°F&C	<b>TRR31401050V15</b>	<b>TRR32401050V15</b>	<b>TRR31401100V15</b>	<b>TRR32401100V15</b>

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	<b>TRR31451050V11</b>	<b>TRR32451050V11</b>	<b>TRR31451100V11</b>	<b>TRR32451100V11</b>
20°F to 220°F&C	<b>TRR31451050V12</b>	<b>TRR32451050V12</b>	<b>TRR31451100V12</b>	<b>TRR32451100V12</b>
50°F to 250°F&C	<b>TRR31451050V13</b>	<b>TRR32451050V13</b>	<b>TRR31451100V13</b>	<b>TRR32451100V13</b>
100°F to 350°F&C	<b>TRR31451050V15</b>	<b>TRR32451050V15</b>	<b>TRR31451100V15</b>	<b>TRR32451100V15</b>

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	<b>TRR31601050V11</b>	<b>TRR32601050V11</b>	<b>TRR31601100V11</b>	<b>TRR32601100V11</b>
20°F to 220°F&C	<b>TRR31601050V12</b>	-	<b>TRR31601100V12</b>	<b>TRR32601100V12</b>
50°F to 250°F&C	<b>TRR31601050V13</b>	<b>TRR32601050V13</b>	-	<b>TRR32601100V13</b>
100°F to 350°F&C	<b>TRR31601050V15</b>	<b>TRR32601050V15</b>	-	<b>TRR32601100V15</b>

## 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						
II	<b>Case Type, Connection</b>		V	05	05	<b>Capillary Length (ft)</b>		
	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)		<b>Connection</b>				
III	<b>Dial Size</b>		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

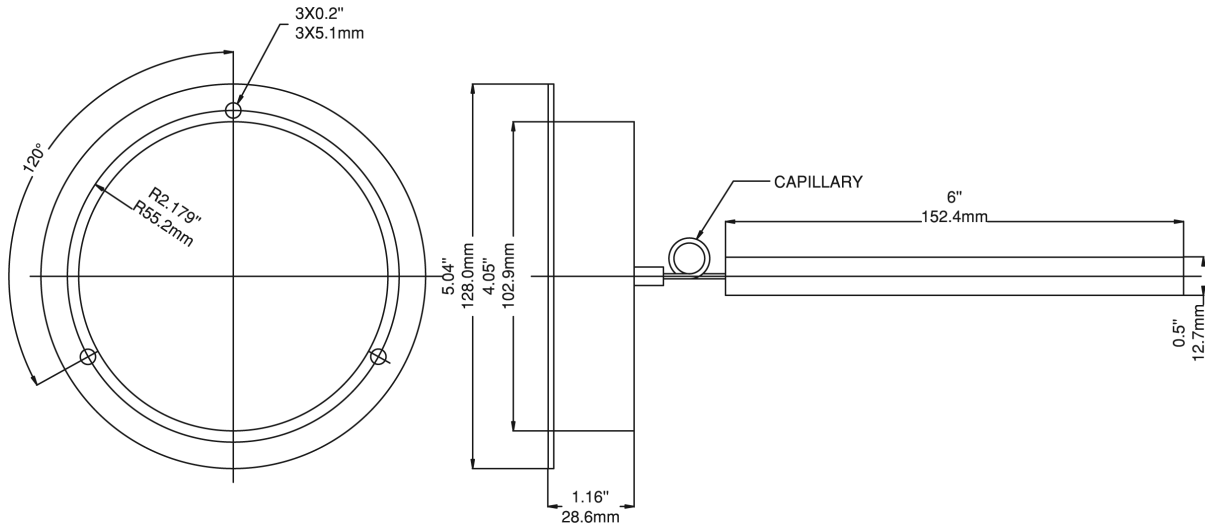
\*Ranges require stainless steel capillary and bulb

### Please contact us for:

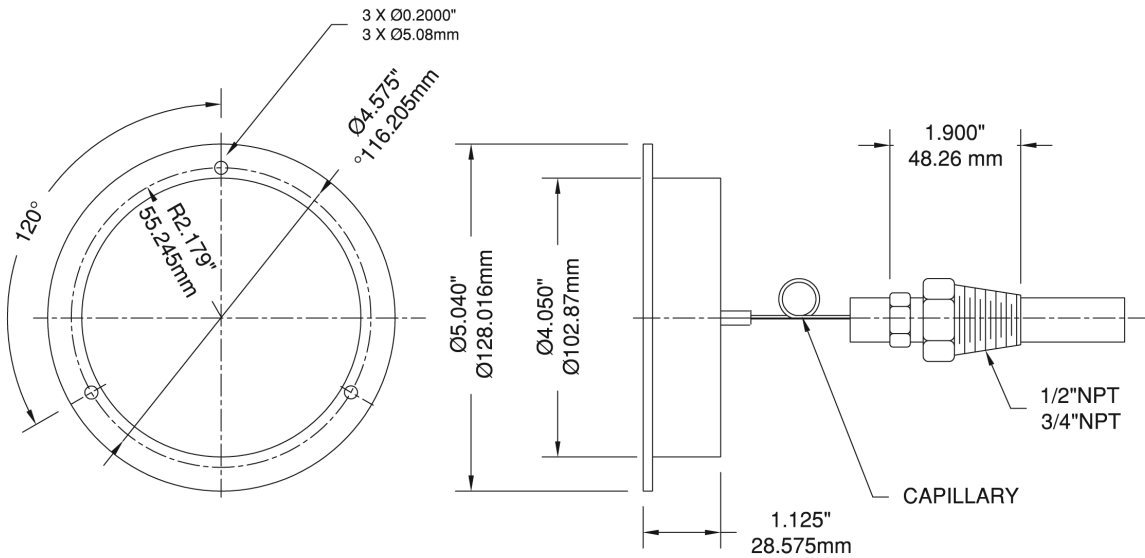
Duct flanges, sliding union, various bulb dimensions, averaging bulb (gas only), other ranges, stainless steel 4" (100mm) and 6" (150mm) cases and capillary available on gas remote/direct reading models

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.

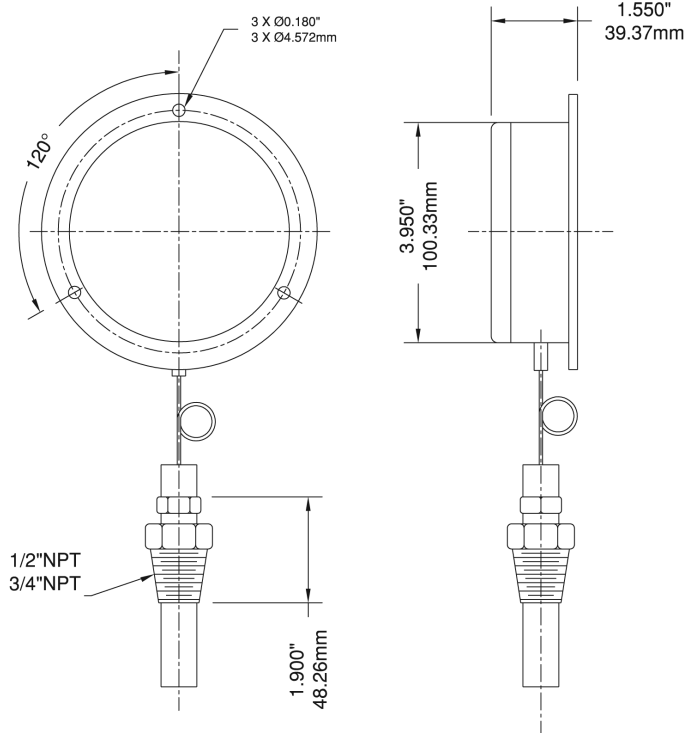
### 4" Back Connection, Front Flange, Plain Bulb



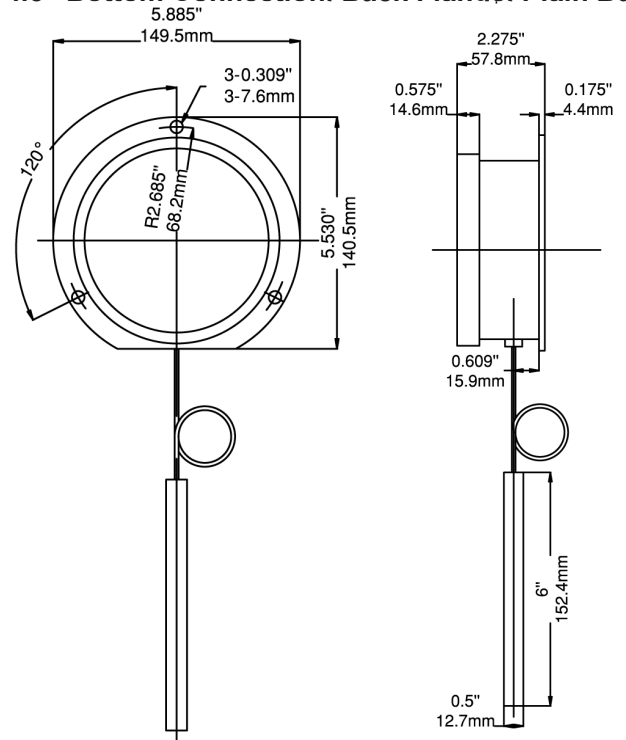
### 4" Back Connection, Front Flange, Sliding Union



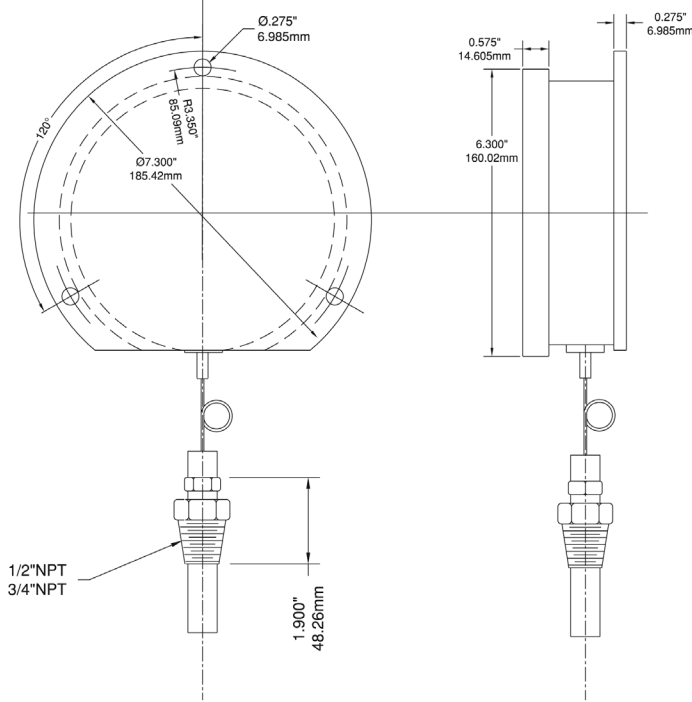
### 4" Bottom Connection, Back Flange, Sliding Union



### 4.5" Bottom Connection. Back Flange. Plain Bulb



### 6" Bottom Connection, Back Flange, Sliding Union



### 6" Bottom Connection, Back Flange, Sliding Union

