24-3910-0, Rev. G
Product/Technical Bulletin
Issue Date March 2016

T-5210
Pneumatic Temperature Transmitter

Features

- Ball type control port for increased accuracy
- New lever with reinforced edges for increased linearity
- New bimetal element to compensate for ambient temperature effect
- Integral hypodermic needle test point

The T-5210 Pneumatic Temperature Transmitter is designed to measure a temperature and convert this measurement to an air pressure signal that is transmitted to a pneumatic receiver, controller, or receiver-indicator. When used with a Dewcel® (purchased locally), the T-5210 can also be used as a dew point transmitter.

Pneumatic feedback is incorporated into the transmitter design to provide an exact proportional relationship between the measured temperature and the transmitted signal.

Various models are furnished with appropriate brackets for mounting to ductwork, walls, or directly to the hub of a duct flange or separable well.

Mounting

The T-5210 operates in any position and should be mounted on a rigid flat surface. The instrument requires a .007 in. restricted supply.

Transmitters with averaging elements or bulb elements with4 ft (122 cm) capillaries are furnished with a sheet metal bracket for surface mounting using #8 sheet metal screws.

Using the bracket as a template, mark the two mounting hole locations and drill a 1/8 in. hole at each of the marked positions. Transmitters with bulb elements and 5-1/2 in. (140 mm) capillaries are furnished with an angle bracket for mounting on the hub of a duct flange or separable well. The T-5210 is secured to the flange or well by tightening the spring locknut furnished with the well or flange.

Note: When inserting the bulb into a well other than a Johnson Controls® well, fill it one third full of thermal conductive material (F-1000-182) and insert the bulb until it hits the bottom of the well.

Fig. 1: T-5210 Pneumatic Temperature Transmitter

Repair Information

Field repairs must not be made. For a replacement T-5210, contact the nearest Johnson Controls branch office. Replacement covers are available, order T-5210-602.

Specifications

Product	T-5210 Pneumatic Temperature Transmitter
Action	Direct - Proportional
Models & Operating Ranges	See Table 1
Element Styles (Liquid Filled)	Bulb Type and Averaging (See Table 1)
Transmitter Output Pressure Range	3 to 15 PSIG (21 to 105 kPa)
Air Consumption and Output Flow Capacity	45 SCIM (12 mL/s) with .007 in. Restrictor
Supply Pressure	20 PSIG (140 kPa) Nominal, 25 PSIG (175 kPa) Maximum Air Supply Must Be Clean, Dry, and Oil Free
Mounting	With Appropriate Bracket Furnished
Air Connection	1/8 in. NPT Barbed Fitting for 5/32 or 1/4 in. O.D. Polytubing
Ambient Temperature Limits	-20 to 150°F (-29 to 66°C)
Accessories (Order Separately)	See Table 2

Part No. 24-3910-0, Rev. G
Code No. LIT-7171170

Table 1: Operating Ranges and Element Limits

T-5210 -Suffix	Shipping Weight lb*	Operating Temperature Range**	Element Temperature Limits**	Element Style
-1001	1.2	50 to 100°F	-40 to 230°F	Copper Bulb with 5-1/2 in. (140 mm) Copper Capillary
-2002	1.2	0 to 100°C		
-2003	1.2	-15 to 35°C		
-1002	1.2	0 to 100°F		
-1004	1.2	40 to 240°F	40 to 310°F	
-1008	1.2	50 to 150°F		
-1123	1.2	60 to 85°F	0 to 135°F	
-2001	1.2	10 to 35°C		
-1125	1.2	40 to 65°F		
-1113	1.2	-40 to 160°F	-40 to 230°F	Copper Bulb with 4 ft. (1.2 m) Copper Capillary
-2004	1.2	-40 to 60°C		
-1144	1.3	-20 to 80°F		
-1114	1.3	0 to 100°F		
-2005	1.3	-15 to 35°C		
-1151	1.3	20 to 120°F		
-1135	1.3	200 to 400°F	170 to 440°F	
-1007	1.4	50 to 150°F	0 to 270°F	8 ft. (2.4 m) Copper Averaging Element with 1 ft. (305 mm) Copper Capillary
-1006	1.4	40 to 240°F		
-1009	1.4	0 to 100°F		
-1124	1.4	40 to 65°F	0 to 135°F	
-2006	1.4	0 to 50°C		
-2007	1.4	-15 to 35°C		
-1150	1.4	20 to 120°F	0 to 270°F	
-1005	1.4	50 to 100°F		
-1116	1.4	50 to 150°F	0 to 270°F	17 ft. (5.2 m) Copper Averaging Element with 1 ft. (305 mm) Copper Capillary
-1118	1.4	0 to 100°F		
-2008	1.4	-15 to 35°C		

*** lb x 0.454 = kg**

**** Temperature Conversion Guide:**

°C = (°F - 32) ÷ 1.8

°F = (1.8 x °C) + 32

Table 2: Accessories (Order Separately)

Description	Shipping Weight lb*	Code Number
Bulb Holder	.05	T-275-100
Averaging Element Holder	.01	T-275-101
Single Hub Duct Flange	.13	T-800-1603
Double Hub Duct Flange	.75	T-800-1604
Brass Well; 6-1/2 in.	1.2	T-800-1605
Stainless Steel Well; 5-1/4 in.	1.2	T-800-1606
Bulb Element Adapter Nut 1/2 in. NPT	.20	T-800-1610
Brass Well; 9-1/2 in.	1.7	T-800-1618
Stainless Steel Well; 8-1/4 in.	1.5	T-800-1620
Sheet Metal Bracket	.05	T-5210-129
Dewcel® Adapter Kit	.13	T-5210-138
Bulb Weather Shield (Order from CPD)	.05	SHL10A-603R
.007 in. Restrictor Aqua Color	.01	R-3710 Series
Replacement Cover		T-5210-602
Thermal Conductive Material		F-1000-182

* Lb x 0.454 = kg

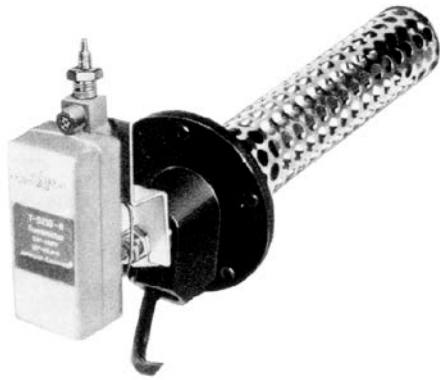


Fig. 2: T-5210 with Dewcel® Element

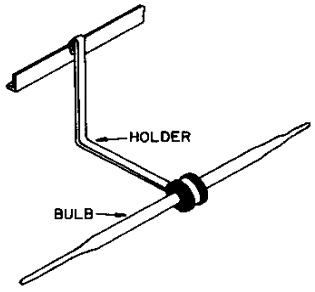


Fig. 3: T-275-100 Bulb Element Holder

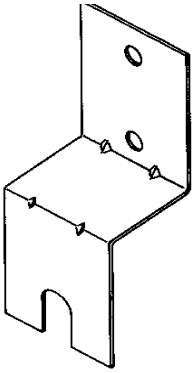


Fig. 4: T-5210-129 Sheet Metal Bracket

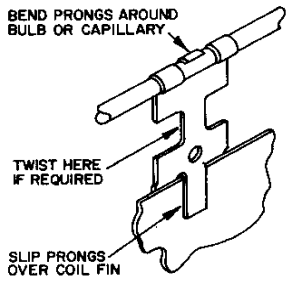


Fig. 5: T-275-101 Averaging Element Holder

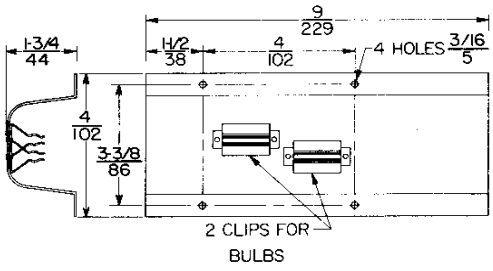


Fig. 6: SHL10A-603R Bulb Weather Shield Dimensions in. / mm

Dimensions $\frac{\text{in.}}{\text{mm}}$

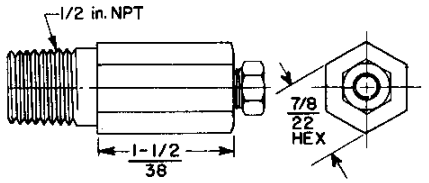


Fig. 7: T-800-1610 Adapter Nut

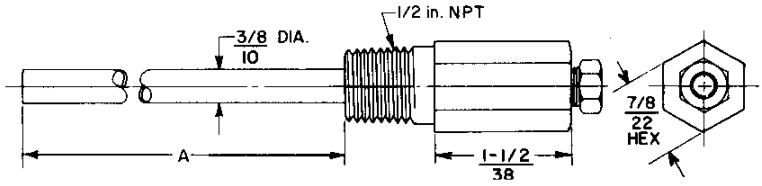


Fig. 8: Single Brass Well (See Table 3)

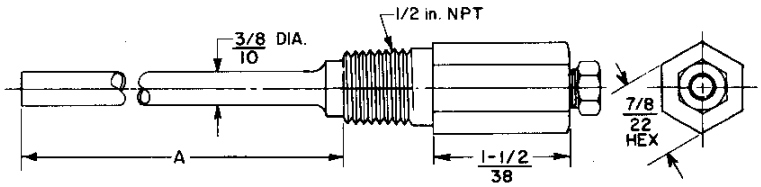


Fig. 9: Stainless Steel Well (See Table 3)

Table 3: Well Dimensions and Application

Single Brass	Stainless Steel	Dim. "A" $\frac{\text{in.}}{\text{mm}}$ Brass	Dim. "A" $\frac{\text{in.}}{\text{mm}}$ Stainless Steel	Temperature Span
T-800-1618	T-800-1620	9-1/2 / 241	8-1/4 / 210	25F° & 50F° or 14C° & 28C°
T-800-1605	T-800-1606	6-1/2 / 165	5-1/4 / 133	100F° & 200F° or 56C° & 111C°

Dimensions $\frac{\text{in.}}{\text{mm}}$

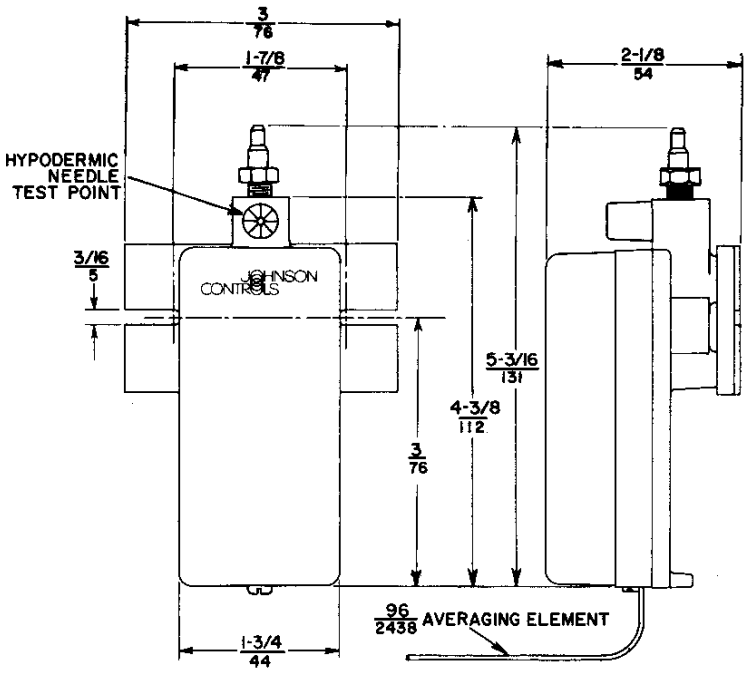


Fig. 10: T-5210 with Averaging Element

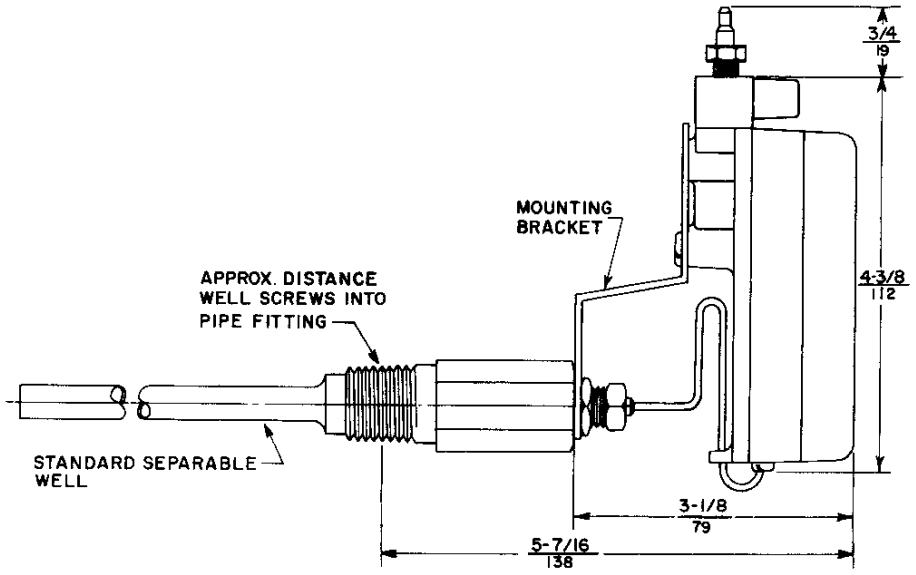


Fig. 11: T-5210 with Bulb Element and Well

Dimensions $\frac{\text{in.}}{\text{mm}}$

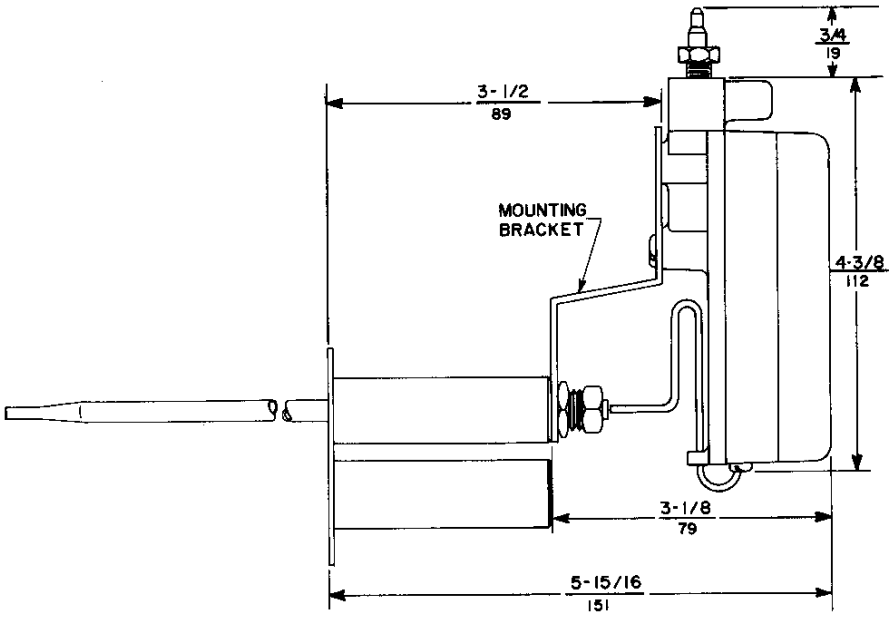


Fig. 12: T-5210 with Bulb Element and Duct Flange

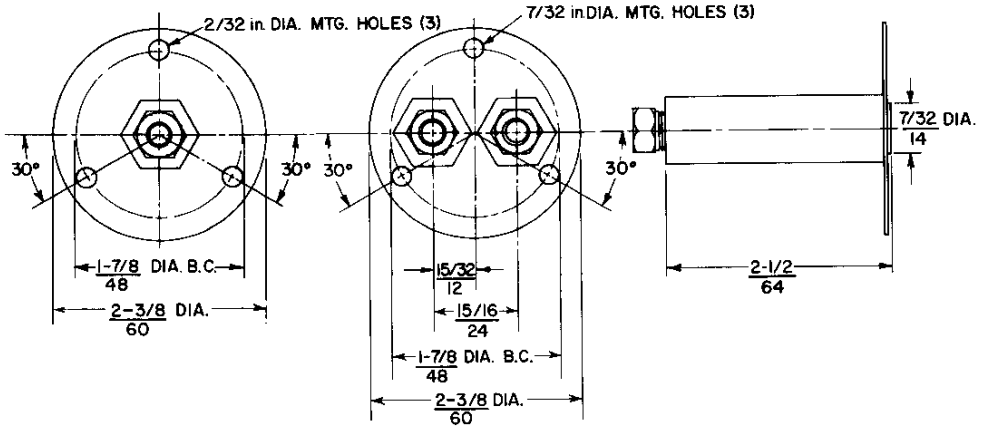


Fig. 13: T-800-1603 (Single Hub) & T-800-1604 (Double Hub) Duct Flange)

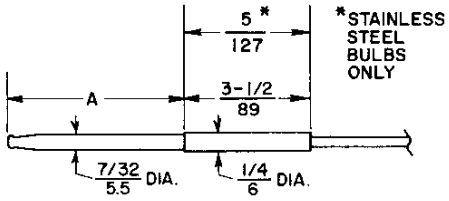
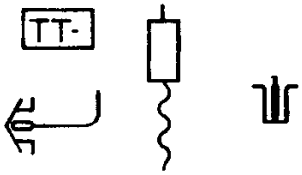


Fig. 14: Bulb Element Dimensions, in./mm (See Table 4)

Table 4: Bulb Element Dimensions

T-5210 -Suffix	Dim. "A" (Nominal) in. / mm	Usable Wells T-800 -Suffix
-1123 -1125 -2001 -2002 -2003	5-1/2 140	-1618 -1620
-1001 -1002 -1004 -1008 -1113 -1114 -1144 -1151 -2004 -2005	3-15/16 100	-1605 -1606 -1624
-1135	4-1/8 105	

Application and Drawing Identification



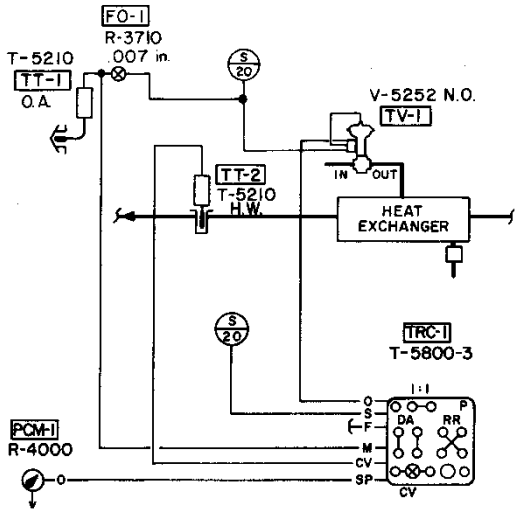


Fig. 16: T5210s used in Hot Water Reset Application

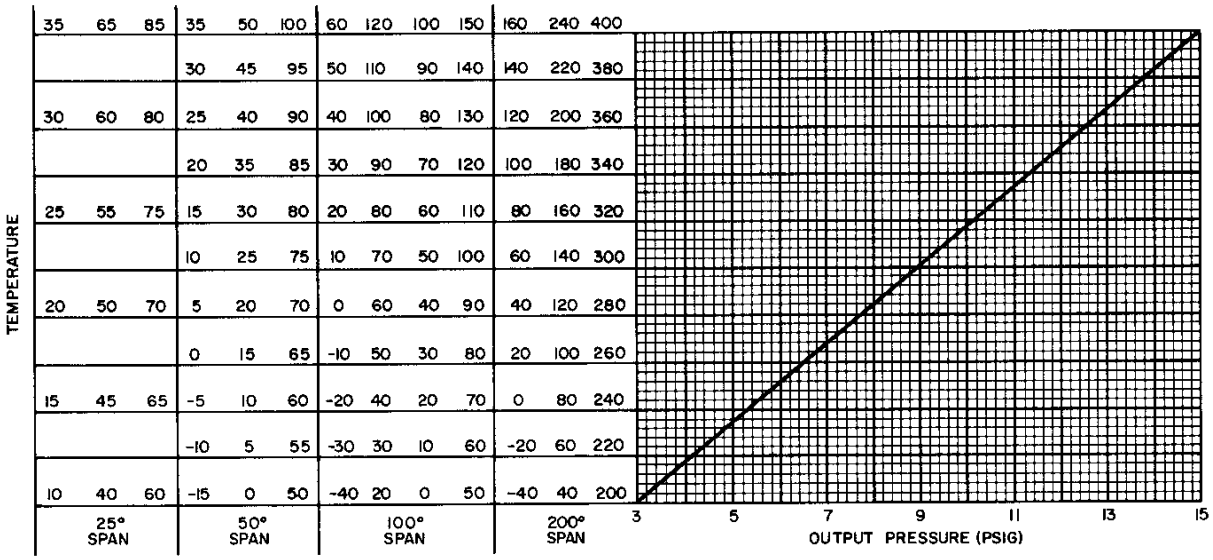


Fig. 16: Temperature vs. Output Pressure

Calibration

The T-5210 has a fixed span and is factory calibrated. The only adjustment necessary is for shifting the span for special applications or for fine tuning the instrument.

1. Accurately measure the temperature at the element.
2. From the graph in Fig. 17, find the proper transmission pressure corresponding to the measured temperature. Be sure to use the vertical scale on the graph which matches the range of the transmitter.
3. Turn the adjusting screw until the output pressure corresponds to the temperature at the element. The test connection for the output pressure of the transmitter is at the hypodermic needle test port.

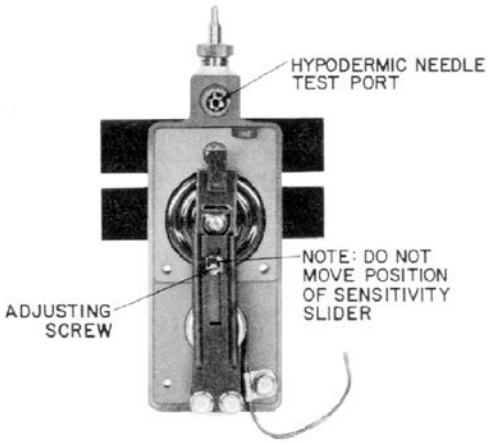


Fig. 17: **T-5210 with Cover Removed**

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45143 ESSEN
GERMANY

NA/SA Single Point of Contact:

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