JOHNSON CONTROLS

T-5220 High Volume Output Pneumatic Temperature Transmitter

Features

- High output capacity
- Ball type control port for increased accuracy
- Integral hypodermic needle test point
- Two-pipe connection for copper or plastic tubing

The T-5520 High Volume Output Pneumatic Temperature Transmitter is designed to measure temperature in ducts, pipes, tanks, or other areas requiring remote temperature measurement. This measurement is converted to an air pressure signal that is transmitted to a pneumatic receiver, controller, and/or receiver-indicator. The T-5220 is designed for applications which require a high output capacity, a high degree of accuracy, or a transmitter of industrial quality. When used with a Dewcel® (purchased locally), the T-5220 can also be used as a dew point transmitter.

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

Mounting

Vertical mounting is preferred; any other mounting position may cause a minor calibration shift. The T-5220 should be mounted on a rigid, flat surface that is free from vibration. All models except those with 5-1/2 in. (140 mm) capillaries can be mounted using the mounting ears provided and two #8 sheet metal screws. Transmitters with 5-1/2 in. capillaries are supplied with an angle bracket for mounting on the hub of a duct flange or separable well. The T-5220 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 not furnished by Johnson Controls, fill the well one third full of thermal conductive material (F-1000-182, ordered separately) and insert the bulb until it hits the bottom of the well.

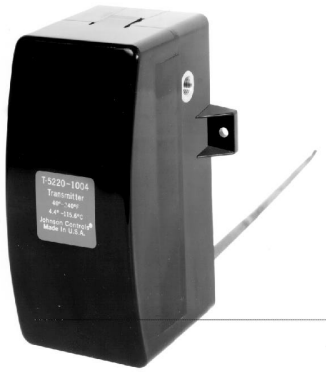


Fig. 1: T-5220 High Volume Output Temperature Transmitter

Specifications

Product		T-5220 High Volume Output 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)
Linearity		Terminal Base 2% of Span
Output Flow Capacity		1000 SCIM (273 mL/s) Minimum
Air Consumption		25 SCIM (6.8 mL/s)
Supply Pressure		20 PSIG (140 kPa) Nominal, 25 PSIG (175 kPa) Maximum, Air Supply Must Be Clean, Dry, and Oil Free
Ambient Storage Temperature Limits		–20 to 150°F (–29 to 66°C)
Preferred Operating Temperature Limits		Middle 50% of Operating Range
Air Connections		1/8 in. NPT Barbed Fittings for 5/32 or 1/4 in. O.D. Polytubing
Materials	**Cover**	Acrylic
	Body	Black Polysulfone Thermoplastic
	Instrument	Die Cast Aluminum - Iridite Finish
Accessories (Order Separately)		See Table 2

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Part No. 24-4354-1, Rev. C
Code No. LIT-7171175

Table 1: Operating Ranges and Element Limits

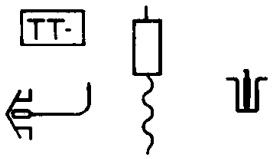
T-5220 Suffix Numbers	Shipping Weight lb*	Operating Temperature Range °F / °C	Element Temperature Limits °F / °C	Element Style
-1001	1.8	50 to 100 / 10 to 38	-40 to 230 / -40 to 110	Copper Bulb with 5-1/2 in. (140 mm) Copper Capillary
-1002	1.8	0 to 100 / -18 to 38		
-1004	1.8	40 to 240 / 4 to 116	40 to 310 / 4 to 154	
-1008	1.8	50 to 150 / 10 to 66		
-1113	1.9	-40 to 160 / -40 to 71	-40 to 230 / -40 to 110	Copper Bulb with 4 ft. (1.2 m) Copper Capillary
-1114	1.9	0 to 100 / -18 to 38		
-1006	2.0	40 to 240 / 4 to 116	0 to 270 / -15 to 130	8 ft. (2.4 m) Copper Averaging Element with 1 ft. (305 mm) Copper Capillary
-1009	2.0	0 to 100 / -18 to 38		
-1005	2.0	50 to 100 / 10 to 38		

*lb x 0.454 = kg

Repair Information

Field repairs must not be made. For a replacement T-5220, contact the nearest Johnson Controls branch office.

Application and Drawing Identification



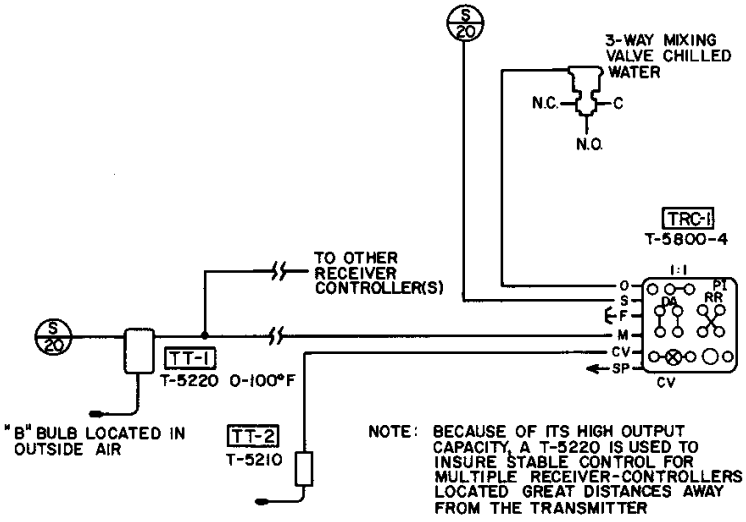


Fig. 2: T-5220 Controlling Dew Point

Table 2: Accessories (Order Separately)

Description	Shipping Weight lb*	Code Number
1/8 in. NPT Test Plug Fitting	.05	F-1000-171
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
1/8 in. Street Ell	.13	T-800-1611
1/8 in. Air Cock Union End	.12	T-800-1613
1/8 in. Three-Way Air Cock With Exhaust	.12	T-800-1614
Screw Type Shut-Off Cock No. 52 1/4 in. Comp.	.12	T-800-1615
Adapter Gage Tee 1/4 in. Comp.	.13	T-800-1616
1/8 in. Brass Pipe Plug	.10	T-800-1617
Brass Well; 9-1/2 in.	1.5	T-800-1618
Stainless Steel Well; 8-1/4 in.	1.5	T-800-1620
Dual Brass Well; 6-1/2 in.	1.7	T-800-1624
Dewcel® Adapter Kit	.13	T-5210-138
Bulb Weather Shield (Order from CPD)	.38	SHL10A-603R
Sheet Metal Bracket	.19	T-5210-129

***lb x 0.454 = kg**

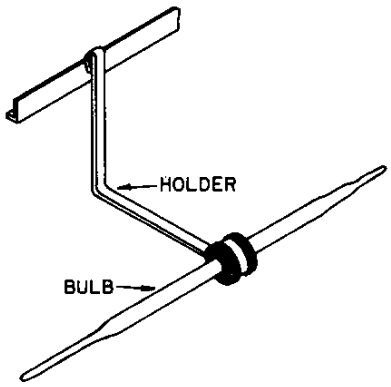


Fig. 3: T-275-100
Bulb Element Holder

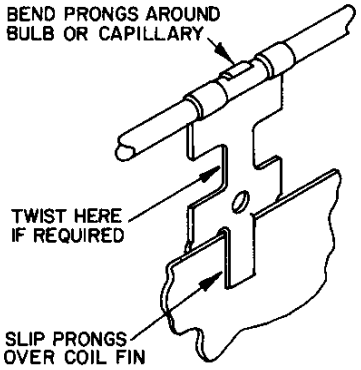


Fig. 4: T-275-101
Averaging Element Holder

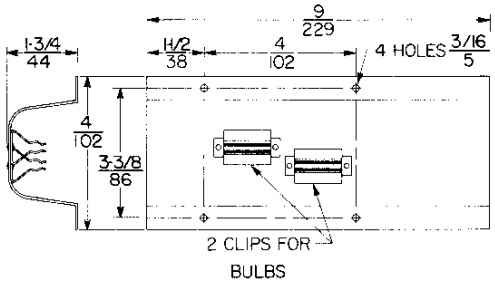


Fig. 5: SHL10A-603R Bulb Weather Shield
Dimensions in. / mm

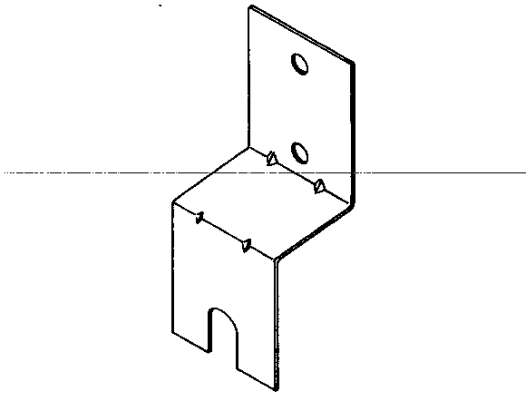


Fig. 6: T-5210-129
Sheet Metal Bracket

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

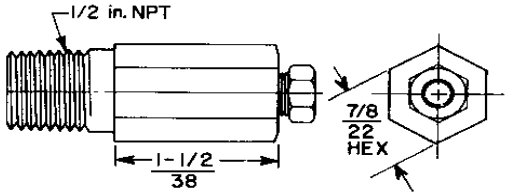


Fig. 7: T-800-1610 Adapter Nut

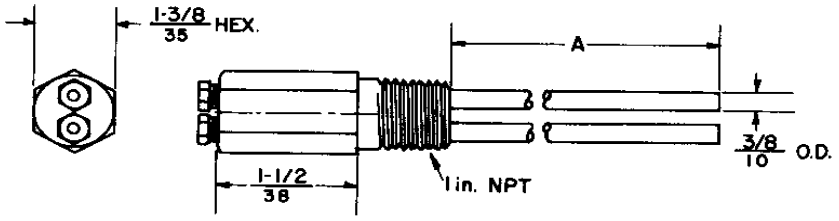


Fig. 8: Dual Brass Well (See Table 3)

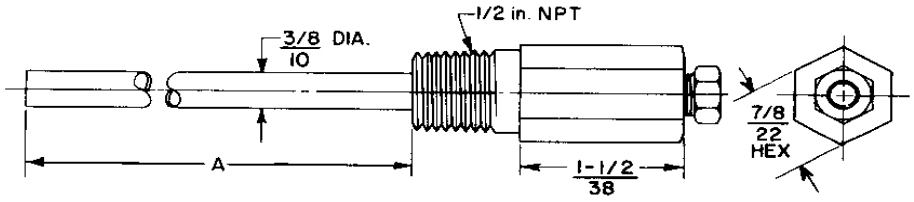


Fig. 9: Single Brass Well (See Table 3)

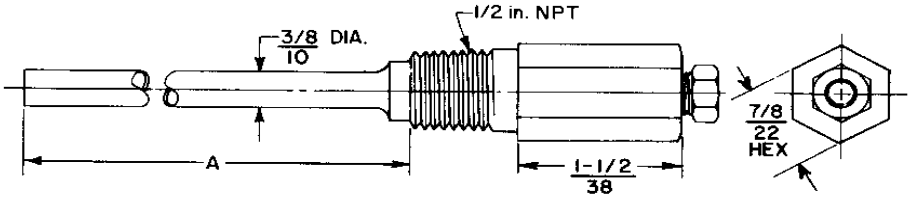


Fig. 10: Stainless Steel Well (See Table 3)

Table 3: Well Dimensions and Application

Dual Brass	Single Brass	Stainless Steel	Dim. "A" $\frac{\text{in.}}{\text{mm}}$		Temperature Span
			Brass	Stainless Steel	
———	T-800-1618	T-800-1620	9-1/2 241	8-1/4 210	25F° & 50F° or 14C° & 28C°
T-800-1624	T-800-1605	T-800-1606	6-1/2 165	5-1/4 133	100F° & 200F° or 56C° & 111C°

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

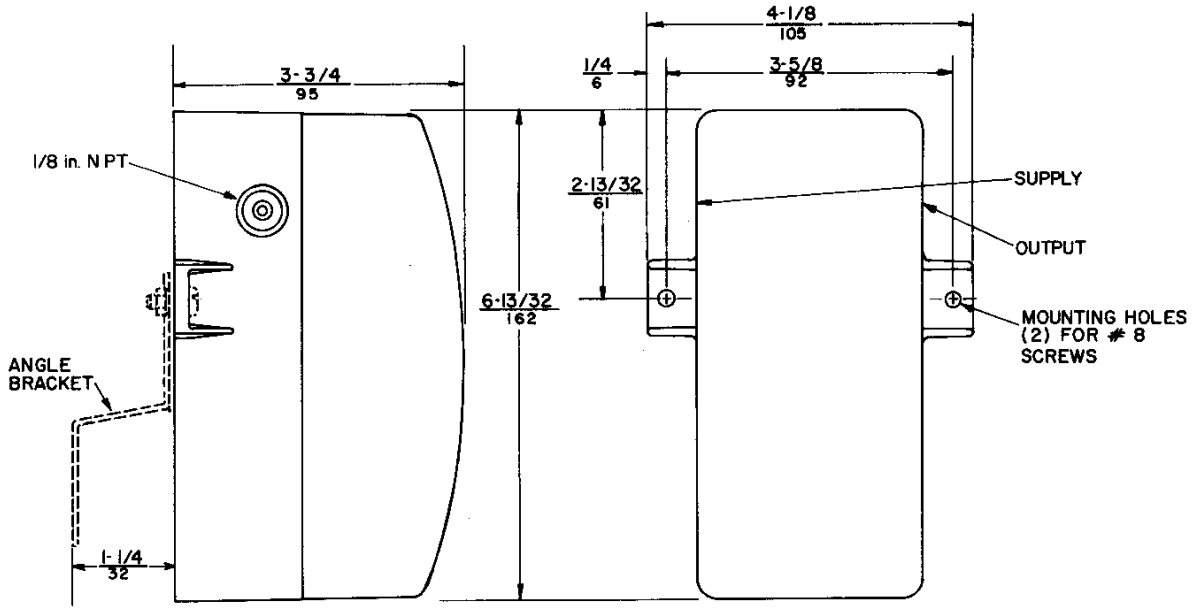


Fig. 11: T-5220 Dimensions

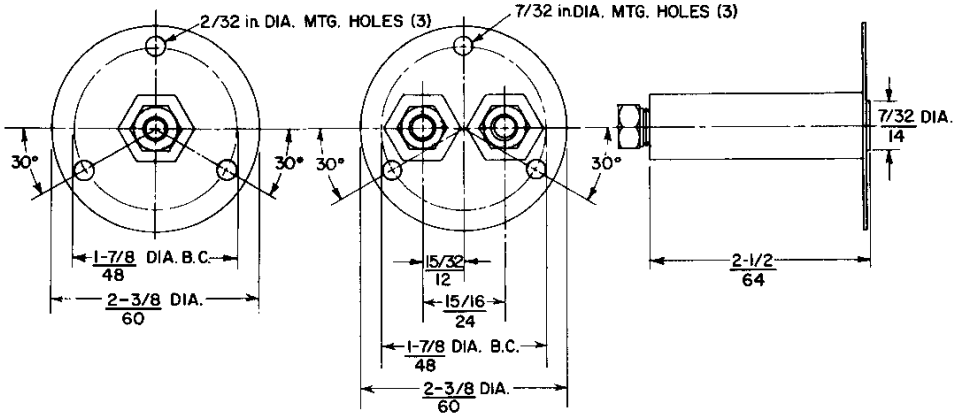


Fig. 12: T-800-1603 (Single Hub) &
T-800-1604 (Double Hub) Duct Flange

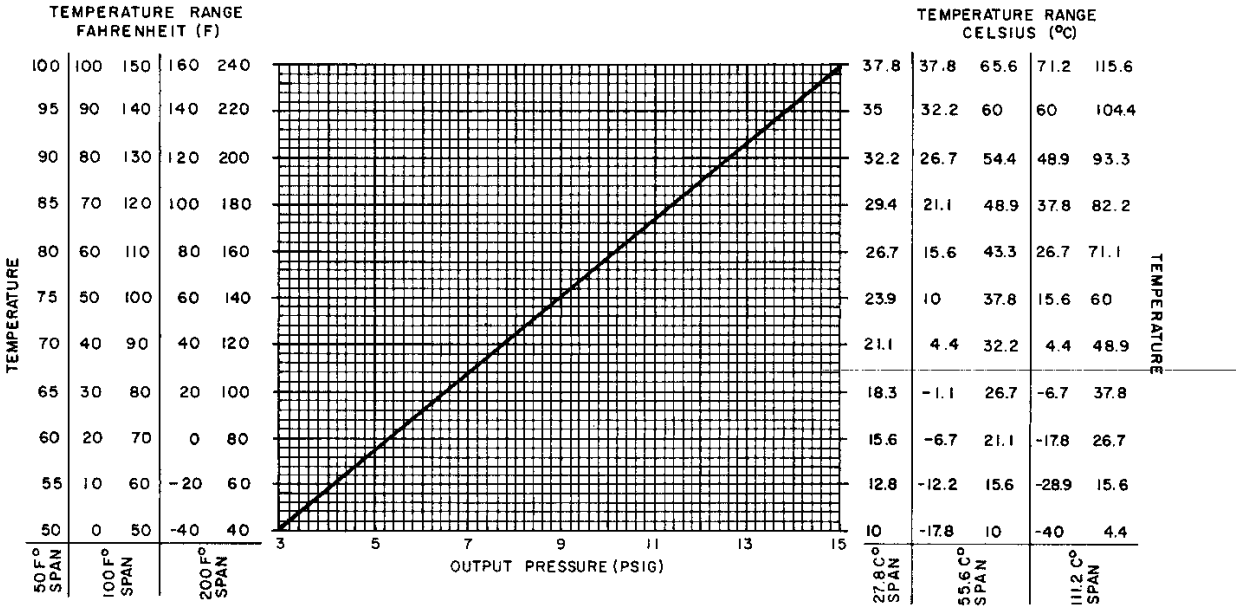


Fig. 13: Temperature vs Output Pressure

Calibration

The T-5220 has a fixed span and is factory calibrated. The only adjustment necessary is when shifting the span for special applications or fine tuning the instrument.

1. Accurately measure the temperature at the element.
2. From the graph above, 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 span adjusting screw until the output pressure corresponds to the temperature at the element. The test connection for the output pressure on the transmitter is at the hypodermic needle test point.

Note: To achieve the highest degree of accuracy for a given application, calibrate the T-5220 at the midpoint of the actual operating range.

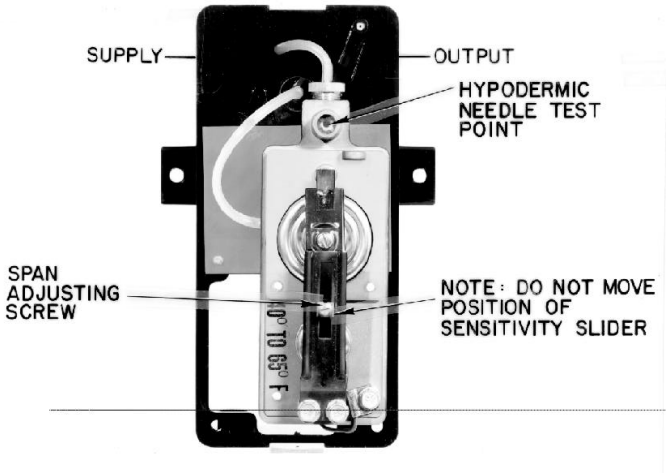


Fig. 14: T-5220 with Cover Removed

Notes

Notes

JOHNSON CONTROLS

Controls Group
507 E. Michigan Street
P.O. Box 423
Milwaukee, WI 53202

Printed in U.S.A.