

Duct, Immersion and Outdoor-Air Temperature Transmitters General Instructions

Application

2252 Series Temperature Transmitters are used in pneumatic control systems to measure air or fluid temperatures and transmit fixed-span, 3 to 15 psig pneumatic output signals to indicating and controlling devices, such as receiver gauges, receiver-controllers, sensitive pressure switches and narrow-differential snap-acting diverting relays.

These transmitters are available with several types of sensing elements. The transmitters are "one-pipe" devices requiring an external source of constant pressure main air, supplied through a 1.0 scfh restrictor or restrictor-tee. Their design features pneumatic feedback to assure accuracy and stability over a wide temperature span.

Features

- Transmitters permit remote readout (in multiple locations, if desired) and/or control of temperature associated with HVAC Systems.
- Eight different temperature ranges permit proper match of transmitter range to applications.
- Quality design and construction, with beryllium copper feedback bellows, provides excellent linearity, response and stability.
- Field-accessible "zero" adjustment.
- Liquid-filled sensing elements in the following styles:
 - 20 ft. (6.1 m) averaging, for air ducts.
 - Rigid, for immersion (in well), or air duct insertion.
 - 10 in. (25.4 cm) rigid coiled, for fast response in air ducts where averaging is not required.
- Remote-bulb, for various applications.

SPECIFICATIONS

Action: Direct, proportional.

Adjustments: None required, factory calibrated. (Field accessible zero adjustment.)

Supply air pressure: 20 psig ± 0.5 psi (138 kPa ± 3.4 kPa), clean, dry air, supplied through 1.0 scfh (0.0063" dia.) restrictor or restrictor-tee.

Maximum air pressure: 30 psig (207 kPa).

Output pressure: 3 to 15 psig (21 to 103 kPa).

Air connection: 1/8 in. FNPT.

Maximum case ambient temperature: 140°F (60°C).

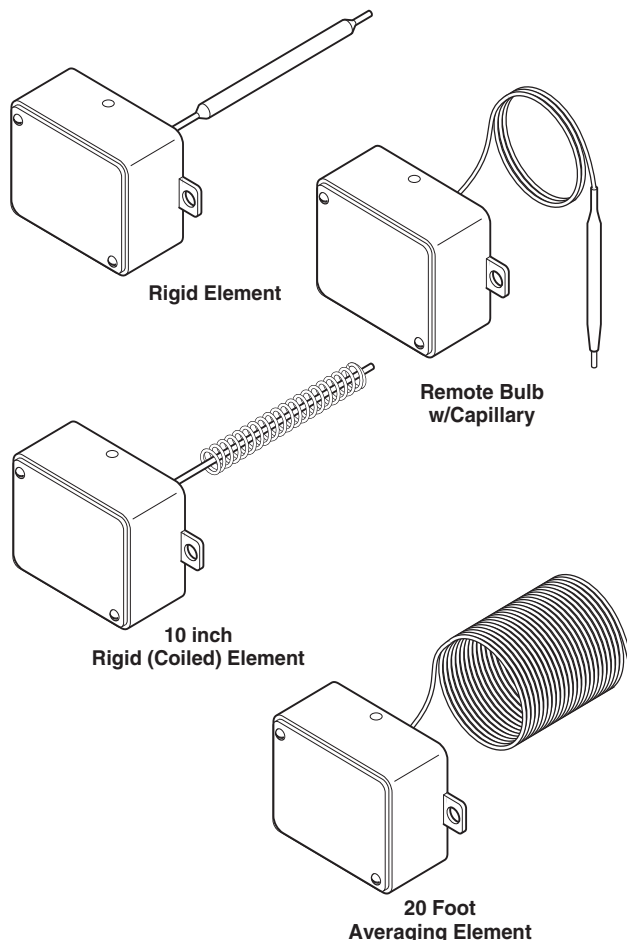
Minimum case operating ambient temperature
40 °F (4.4 °C).

Construction: Liquid-Filled copper sensing element, cast aluminum base, beryllium copper feedback bellows, zinc-plated steel cover.

Mounting: Duct, immersion, or remote-bulb applications. See "Model Chart".

Weight (nominal): 0.9 lb (0.4 kg).

Case dimensions: 2-5/8 H x 3-1/16 W x 1-3/4 D in. (67 x 78 x 44 mm).



ACCESSORIES

Part Number	Replaces Model	Description
20-778 ^a	100-17	3/8 x 7-1/32 in. copper well with 1/2 in. NPT bushing.
20-782	100-25	3/8 x 10-17/32 in. copper well with 1/2 in. NPT bushing.
20-803 ^a	100-47	Neck extension adaptor - converts 7-1/32 in. well to 10-17/32 in. well.
20-805	100-49	3/8 x 7-1/32 in. Stainless steel well with 1/2 in. NPT bushing (includes 20-803).
22-401	100-71	Adapter, brass, for mounting 2252 Series immersion transmitter in AT-201 or AT-203 well.
20-944	N4-32	Restrictor tee, copper tubing.
21-038	N100-0010	Restrictor tee, polyethylene tubing.
21-153	N100-2501	In-line restrictor.

^a Use together for copper well with extended neck.

Table-1 Model Chart.

TAC Model No.	Replaces	Range (non-adjustable) °F (°C)	Span °F (°C)	Mounting	Maximum Temp. of Thermal Element °F (°C)	Sensing Element Description	
2252-510	T150-1011	40 to 140 (4 to 60)	100 (56)	Duct or immersion	256 (124)	Rigid element, 1/4 x 9-3/8 in. long (6 x 238 mm)	
2252-501	T150-1012			Duct		Averaging element, 20 ft. long (6.1 m)	
2252-502	T150-1013					Rigid (coiled) element, 10 in. long (254 mm)	
2252-250	T150-1021	0 to 100 (-18 to 38)		Duct or immersion	216 (102)	Rigid element, 1/4 x 9-3/8 in. long (6 x 238 mm)	
2252-251	T150-1022			Duct		Averaging element, 20 ft. long (6.1 m)	
2252-252	T150-1023					Rigid (coiled) element, 10 in. long (254 mm)	
2252-610	T150-1031	40 to 240 (4 to 115)	200 (111)	Duct or immersion	471 (244)	Rigid element, 1/4 x 7-1/16 in. long (6 x 179 mm)	
2252-635	T150-1035					Remote bulb, 1/4 x 10-1/2 in. long (6 x 267 mm) with 9-ft. Capillary (2.7 m)	
2252-110	T150-1041	-40 to 160 (-40 to 71)				391 (199)	Rigid element, 1/4 x 7-1/16 in. long (6 x 179 mm)
2252-703	T150-1046						Remote bulb, 1/4 x 2.5 in. long (6 x 64 mm) with 42 in. (1.1 m) capillary
2252-151	T150-1054	-25 to 125 (-32 to 52)	150 (84)	Duct or outdoor air	241 (116)	Remote bulb, 1/4 x 4 in. long (6 x 102 mm) with 36 in. (0.91 m) capillary	
2252-655	T150-1055					Remote bulb, 1/4 x 10-1/2 in. long (6 x 267 mm) with 9 ft. (2.7 m) capillary	
2252-662	T150-1062	30 to 80 (-1 to 27)	50 (28)	Duct	138 (59)	Averaging element, 20 ft. long (6.1 m)	
2252-273	T150-1073	50 to 100 (10 to 38)			158 (70)	Rigid (coiled) element, 10 in. long (254 mm)	
2252-701	T150-1082	50 to 150 (10 to 66)	100 (56)			266 (130)	Averaging element, 20 ft. long (6.1 m)
2252-702	T150-1083						Rigid (coiled) element, 10 in. long (254 mm)

TYPICAL APPLICATION

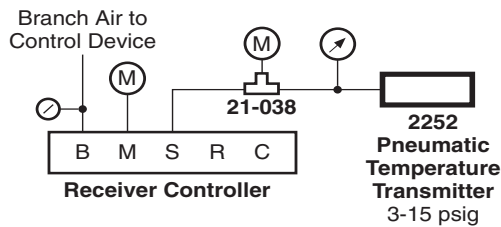


Figure-1 Typical Application.

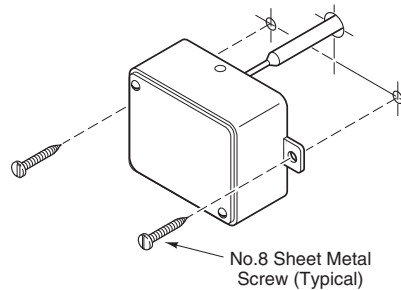


Figure-2 Surface Mounting Hole Dimensions and Duct Installation Detail.

INSTALLATION

Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately.
If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

DUCT INSTALLATION

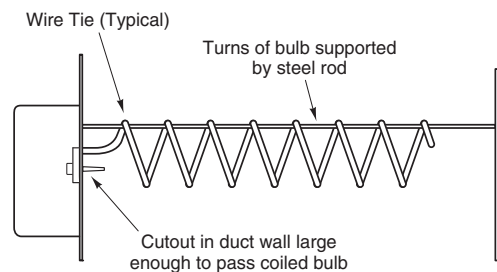
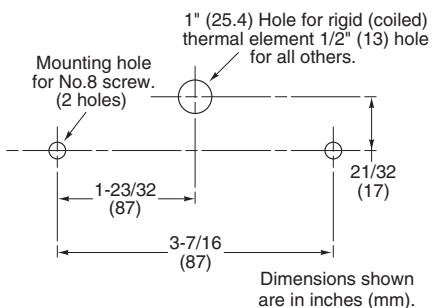
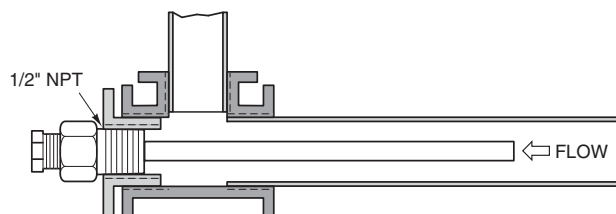


Figure-3 Averaging Element

IMMERSION INSTALLATION



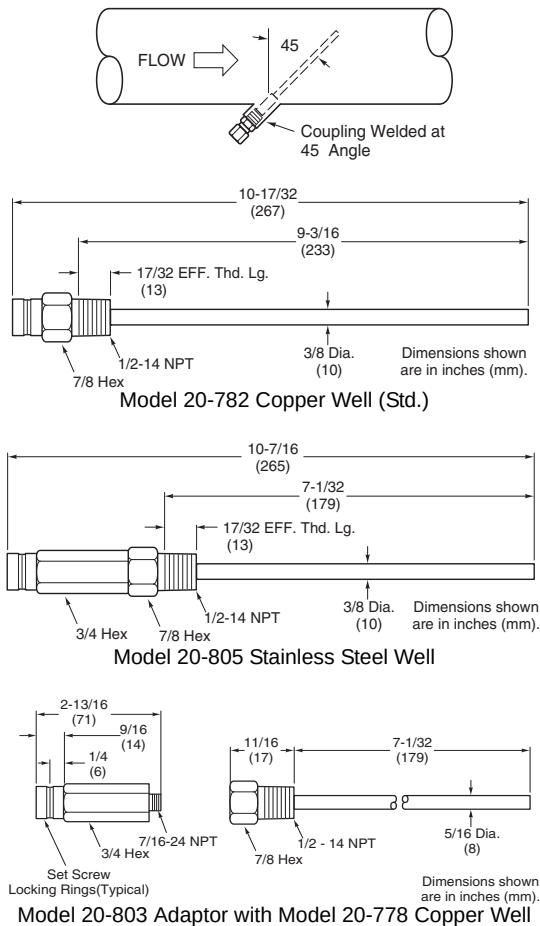


Figure-4 Series Immersion Well Pipe Installation and Dimensions.

Note: Use thermo-conductive paste (M-500) for best sensor performance.

Note: Maximum pressure rating of wells and adaptors is 500 psig (34.5 bar).

OUTSIDE WALL INSTALLATION

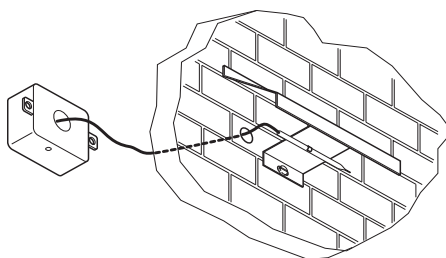


Figure-5 Outside Wall Mounting Detail.

ADJUSTMENTS

“Zero” Adjustment

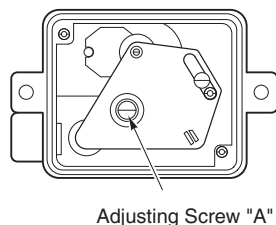


Figure-6 “Zero” Adjustment Screw Location.

The 2252 transmitters feature an accessible “zero” adjustment. In applications where it is desirable to obtain very accurate temperature indication (and/or control) within a given narrow temperature span, minor “zero” adjustments may be made as follows:

Caution: Do not attempt adjustment of transmitter span.

1. With the cover removed, measure the sensed temperature and transmitter output pressure with suitably accurate instruments.
 2. Turn adjusting screw “A” to increase or decrease the output pressure as required (clockwise turn increases output pressure). See Figure 6.
- The air supply to the restrictor must be 20 psig $\pm$ 0.5 psi (138 kPa $\pm$ 3.4 kPa) and must be clean, dry, oil free air.
 - The proper size restrictor must be used (0.0063" diameter, 1 SCFH; see “Accessories”), and must be clean and free of obstructions.

MAINTENANCE

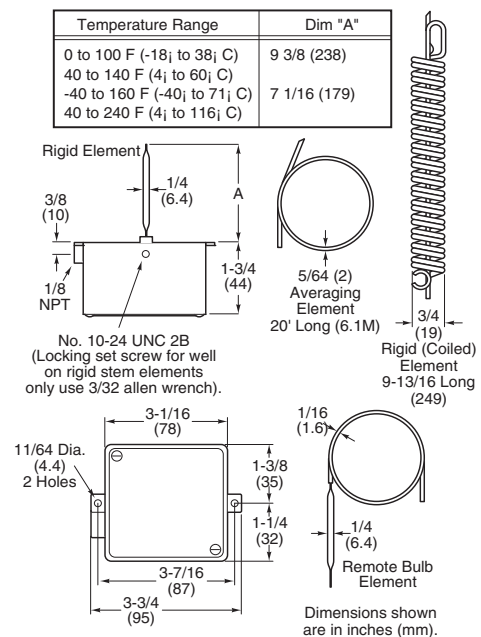
Regular maintenance of the total system is recommended to assure sustained, optimum performance.

FIELD REPAIR

None. If transmitter does not function properly when properly installed with clean 1.0 scfh (0.0063" diameter) restrictor or restrictor-tee and 20 psig clean, dry air supply, replace entire unit.

DIMENSIONAL DATA

Dimensions shown in inches and millimeters. Refer to Figure-7 for general description and dimensions.



1 2252-655 Remote bulb model, with 9 ft. (2.7m) capillary, has 1/4" OD copper sleeve silver-soldered to bulb, for use with immersion wells.

Figure-7 2252 Series Transmitter Dimensions.

Table-2 Pneumatic Temperature Transmitters Output Pressures vs. Temperatures.

Output Pressure for 2252 Pneumatic Temperature Transmitters								
TAC Model Numbers								Output psig (kPa)
2252-151 2252-662	2252-250 2252-251 2252-252	2252-510 2252-501 2252-502	2252-110 2252-703	2252-610 2252-635	2252-662	2252-273	2252-701 2252-702	
Temperature Range °F (°C)								
-25 to 125 (-32 to 52)	0 to 100 (-18 to 38)	40 to 140 (4 to 60)	-40 to 160 (-40 to 71)	40 to 240 (4 to 115)	30 to 80 (-1 to 27)	50 to 100 (10 to 38)	50 to 150 (10 to 66)	
-25 -22 -19	0 2 4	40 42 44	-40 -36 -32	40 44 48	30 31 32	50 51 52	50 52 54	3.0 (20.69) 3.24 (22.34) 3.48 (23.99)
-16 -13 -10	6 8 10	46 48 50	-28 -24 20	52 56 60	33 34 35	53 54 55	56 58 60	3.72 (25.65) 3.96 (27.30) 4.2 (28.96)
-7 -4 -1	12 14 16	52 54 56	-16 -12 -8	64 68 72	36 37 38	56 57 58	62 64 66	4.44 (30.61) 4.68 (32.27) 4.92 (33.92)
2 5 8	18 20 22	58 60 62	-4 0 4	76 80 84	39 40 41	57 66 61	68 70 72	5.16 (35.58) 5.4 (37.23) 5.64 (38.89)
11 14 17	24 26 28	64 66 68	8 12 16	88 92 96	42 43 44	62 63 64	74 76 78	5.88 (40.54) 6.12 (42.20) 6.36 (43.85)
20 23 26	30 32 34	70 72 74	20 24 28	100 104 108	45 46 47	65 66 67	80 82 84	6.6 (45.51) 6.84 (47.16) 7.08 (48.82)
29 32 35	36 38 40	76 78 80	32 36 40	112 116 120	48 49 50	68 69 70	86 88 90	7.32 (50.47) 7.56 (52.13) 7.8 (53.78)
38 41 44	42 44 46	82 84 86	44 48 52	124 128 132	51 52 53	71 72 73	92 94 96	8.04 (55.44) 8.28 (57.09) 8.52 (58.75)
47 50 53	48 50 52	88 90 92	56 60 64	136 140 144	54 55 56	74 75 76	98 100 102	8.76 (60.40) 9.0 (62.06) 9.24 (63.71)
56 59 62	54 56 58	94 96 98	68 72 76	148 152 156	57 58 59	77 78 79	104 106 108	9.48 (65.36) 9.72 (67.02) 9.96 (68.67)
65 68 71	60 62 64	100 102 104	80 84 88	160 164 168	60 61 62	80 81 82	110 112 114	10.2 (70.33) 10.44 (71.98) 10.68 (73.64)
74 77 80	66 68 70	106 108 110	92 96 100	172 176 180	63 64 65	83 84 85	116 118 120	10.92 (75.29) 11.16 (76.95) 11.4 (78.60)
83 86 89	72 74 76	112 114 116	104 108 112	184 188 192	66 67 68	86 87 88	122 124 126	11.64 (80.26) 11.88 (81.91) 12.12 (83.57)
92 95 98	78 80 82	118 120 122	116 120 124	196 200 204	69 70 71	89 90 91	128 130 132	12.36 (85.22) 12.6 (86.88) 12.84 (88.53)
101 104 107	84 86 88	124 126 128	128 132 136	208 212 216	72 73 74	92 93 94	134 136 138	13.08 (90.19) 13.32 (91.84) 13.56 (93.50)
110 113 116	90 92 94	130 132 134	140 144 148	220 224 228	75 76 77	95 96 97	140 142 144	13.8 (95.15) 14.04 (96.81) 14.28 (98.46)
119 122 125	96 98 100	136 138 140	152 156 160	232 236 240	78 76 80	98 99 100	146 148 150	14.52 (100.12) 14.76 (101.77) 15.0 (103.43)

On October 1st, 2009, TAC became the Buildings business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remains references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes.