

Duct Humidity Transmitter Data Sheet

The 2232-150 Duct Mounted Relative Humidity Transmitter is designed to measure relative humidity in an air duct and to transmit a 3 to 15 psig signal over its 0 to 100% R.H. span to remote controlling, indicating and alarm devices such as receiver-controllers, receiver gauges and sensitive pressure switches. The pressure versus relative humidity curve is shown in Figure 1.

The 2232-150 is a one-pipe, force-balance transmitter which utilizes an external restrictor in a supply line. It incorporates a highly sensitive hygroscopic nylon ribbon element and a ball valve for pneumatic feedback which ensures accuracy stability over the entire operating range. All internal parts are corrosion resistant and there is an internal filter to maintain cleanliness of operating parts. These features, along with simplified design and small movement of operating parts, provides an instrument with a long, maintenance-free life.

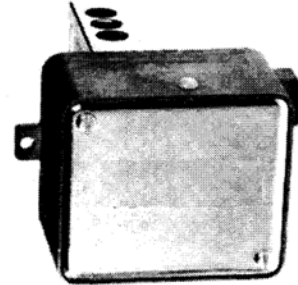


Table-1 Ordering Information.

TAC Wholesale Number	Replaces Model	Range	Comments
2232-150	H150-100	0 to 100% R.H.	Includes one each 21-596, 21-597 & 21-598 overlays & 2 No. 8 sheetmetal screws.

Table-2 Accessories.

TAC Wholesale Number	Replaces Model	Description
20-944	N4-32	Restrictor tee, copper tubing
21-038	N100-0010	Restrictor tee, polyethylene tubing
21-153	N100-2501	In-line restrictor

SPECIFICATIONS

Range: 0 to 100% R.H.

Action: direct, proportional.

Adjustments: see calibration instructions.

Main air pressure: 20 psig operating, 30 psig maximum.

Output pressure: 3 to 15 psig.

Ambient Temperature Limits:

Shipping & storage, -40 to 150°F (-40 to 65°C).

Operating,

Head (outside duct) 40 to 150°F (4 to 60°C)

Sensing element (inside duct) -20 to 140°F (-29 to 60°C).

Connections: 1/8" - 27 FNPT.

Sensitivity: see page 2.

GENERAL INSTRUCTIONS

This device is to be used on dry control air only, and will operate properly when mounted in any position.

The inherent reliability of this device is enhanced and prolonged through regular inspection and preventive maintenance by a qualified control expert. Should this device become inoperative, it should be replaced by a new unit.

Caution: This device should be installed by a qualified person with due regard for safety, as improper installation could result in a hazardous condition.

SENSITIVITY

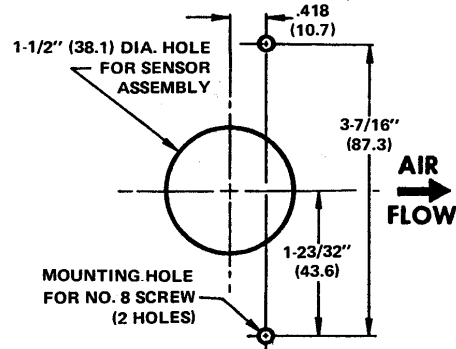
The output of the 2232-150 is non-linear. To determine the sensitivity of this device for calculating authority, the following method should be used:

1. Determine the desired throttling range for the receiver controller (Example: 10%).
2. Determine the desired setpoint (Example: 50% R.H.).
3. The throttling range becomes 45 to 55% R.H. Refer to Figure 1 and note that the output at 55% R.H. is 6.69 psig and at 45% R.H. it is 5.55 psig. This is a difference of 1.14 psig and equals the (TR x sensitivity) figure needed to calculate authority for receiver controller applications.

Relative Humidity 0 to 100%	Output (PSIG)
0	3.00
5	3.10
10	3.21
15	3.38
20	3.62
22	3.73
24	3.85
(25)	(3.91)
26	3.97
28	4.10
30	4.24
32	4.39
34	4.55
(35)	(4.63)
36	4.71
38	4.88
40	5.06
42	5.25
44	5.45
(45)	(5.55)
46	5.66
48	5.87
50	6.09
52	6.33
54	6.57
(55)	(6.69)
56	6.82
58	7.08
60	7.35
62	7.63
64	7.92
(65)	(8.07)
66	8.22
68	8.53
70	8.85
72	9.18
74	9.52
(75)	(9.69)
76	9.87
78	10.23
80	10.60
82	10.99
84	11.39
(85)	(11.59)
86	11.80
88	12.22
90	12.65
92	13.09
94	13.55
(95)	(13.79)
96	14.03
98	14.51
100	15.00

INSTALLATION & MOUNTING INSTRUCTIONS

Align air flow arrow with dust air flow, and cut holes as shown in Figure 2. Attach device using two No. 8 sheet metal screws provided.

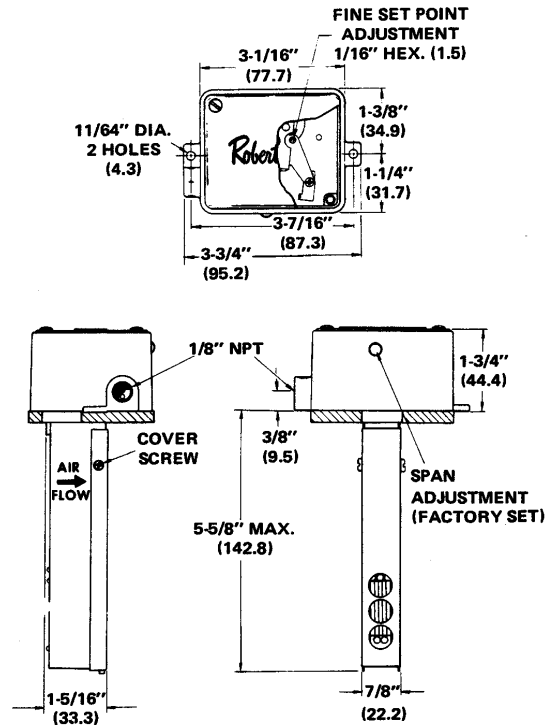


ADJUSTMENTS

To check calibration, a sling psychrometer and psychrometric chart should be used to determine the R.H. percentage. Compare the R.H. % with the desired output pressure as shown in Figure 1. If it is determined that the transmitter is out of calibration, adjust as follows:

Turning the fine set point adjustment screw clockwise to increase branch line pressure, and counterclockwise to decrease branch line pressure. Span adjustment is factory set.

MOUNTING DIMENSIONS



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Schneider Electric
1354 Clifford Avenue
P.O. Box 2940
Loves Park, IL 61132-2940

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www.schneider-electric.com/buildings