

# Q-DUCT SAFE

Duct Humidity or  
Humidity/Temperature Sensor  
Plastic Weatherproof Enclosure



## FEATURES

- Humidity or temperature/humidity option
- Durable NEMA 4X/IP 66 injection-molded watertight enclosure
- Patent Pending Quick Connect System eliminates wire nuts and screw terminals
- NTC thermistors, RTD elements and temp. transmitters available
- Dual filters to protect from contamination
- 2% / 3% / 5% accuracies
- Onboard DIP switches for selecting output in the field
- Coated circuit boards for moisture resistance
- Adjustable length
- Installed anti-vibration pad on flange
- Compatible with most control systems
- Optional 1/2" NPT conduit adapter
- CE & RoHS compliant
- 5 year limited warranty
- Made in the USA

## GENERAL INFORMATION

High quality duct mounted relative humidity transmitter in a NEMA 4X/IP 66 watertight injection-molded plastic enclosure. Circuit boards are coated to resist moisture. Onboard DIP switches enable user to select proper output signal in the field. Accurate with long term stability. Dual filters to resist contamination and ensure reliability.

Humidity sensors are also available with accurate thermistors, RTDs and field selectable temperature transmitters.

The polycarbonate cover and patent pending Quick Connect System make installation easy and reduce installation costs. Hinged cover stays open during installation.

## SPECIFICATIONS

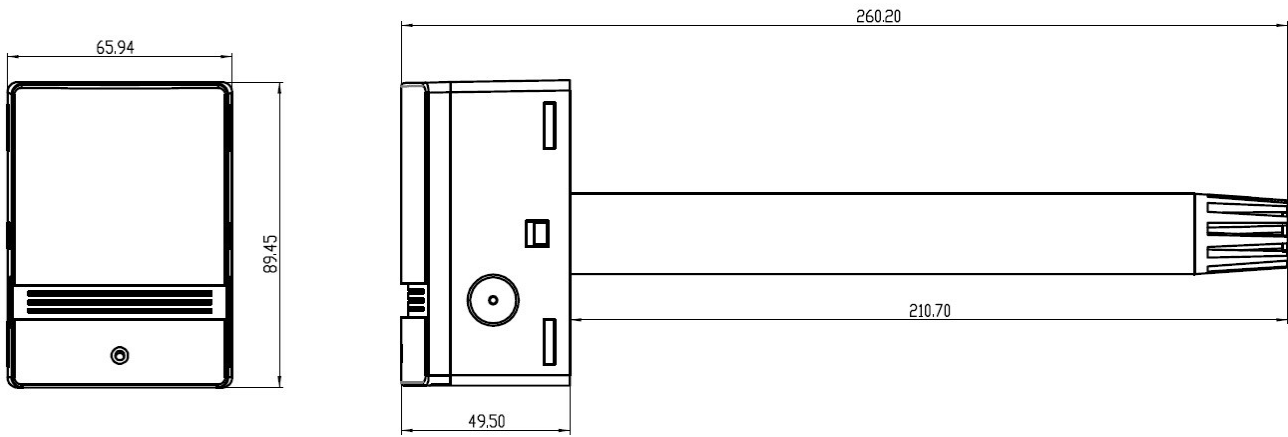
Enclosure Rating:	Weatherproof NEMA 4X/IP 66
Enclosure Material:	UL 94 V-2, UV resistant injection-molded polycarbonate
Cover:	Quick snap with hinges and screw down ability
Mounting:	Quick mount bracket system with snap in place housing
Probe Length:	Adjustable up to 8"
Probe Material:	Glass filled nylon UL 94 HB
Connection:	AWG 22-16 / 0.35—1.5mm <sup>2</sup> spring-loaded, patent-pending Quick Connect System

Humidity Transmitter:	±2% / ±3% / ±5% with selectable Output: 0 to 5V, 0 to 10V or 4 to 20mA
RH Supply Voltage (4-20mA):	(100 Ohm Load): 10 to 35 VDC
RH Supply Voltage (4-20mA):	(250 Ohm Load): 13 to 35 VDC

## SPECIFICATIONS CONT.

RH Supply Voltage (0-5V DC):	8 to 35 VDC / 10 to 35 VAC
RH Supply Voltage (0-10V DC):	13 to 35 VDC / 13 to 35 VAC
Voltage Output Current:	0-5V/0-10V mode 10-12mA
Voltage Output Resistance:	0-5V/0-10V mode 1 kOhm
Supply Current:	Voltage mode 32-35mA, Current mode 4-20mA
Long Term Stability:	Less than 0.25% per year
Repeatability:	0.8% RH @ average temp. 25°C / 77°F
Sensitivity:	0.1% RH
Accuracy:	2%/ 3% 10-90% RH, 5% 0-100% RH
Wiring:	4-20mA 2 wire, 0-5V/0-10V 3 wire
Range:	-40 to 60°C / -40 to 140°F
RH Sensor Type:	Capacitive, non-condensing
RH Measurement Range:	0-100% RH
Filter:	Polyethylene Filter, replaceable
Temperature Element:	Interchangeable NTC thermistor, 2-wire RTD Pt100, Pt1000, 2 wire RTD Ni1000-891, Ni1000-TC5, 2 wire
Sensor Value:	NTC 10K Ohm type 2 @ 25°C / 77°F NTC 10K Ohm type 3 @ 25°C / 77°F NTC 20K Ohm @ 25°C / 77°F NTC 3K Ohm @ 25°C / 77°F RTD Pt1000 1000 Ohm @ 0°C / 32°F RTD Pt100 100 Ohm @ 0°C / 32°F RTD Ni1000-891 891 Ohm @ 0°C / 32°F RTD Ni1000-TC5 1000 Ohm @ 0°C / 32°F (Other elements on request)
Accuracy:	NTC thermistor 0...70°C ± 0.2°C / 32...158°F ± 0.36°F Pt100 / Pt1000 Class B IEC751, ± 0.3°C / ± 0.5°F @ 0°C / 32°F Ni1000 DIN 43760, ± 0.5°C / ± 0.9°F @ 0°C / 32°F
Temp. Transmitter Element:	Pt1000 IEC 751
Loop Supply Voltage:	8 - 36 VDC, 100 Ohm load 10.5 - 36 VDC, 250 Ohm load 14.25 - 36 VDC
Supply Current:	4 - 24 mA
Resolution:	0.05% FSR
Accuracy:	0.1% - 0.4% FSR
Connection:	2-pole AWG 22-16 / 0.35 - 1.5mm <sup>2</sup> spring-loaded, Patent Pending Quick Connect Syst.
Operating Env.	-25°C- 50°C
Temp. Ranges:	Range 1 0°C - 100°C / 32°F - 212°F Range 2 -7°C - 49°C / 20°F - 120°F Range 3 -18°C - 38°C / 0°F - 100°F
Dimensions:	40mm X 19mm
Short Circuit Det.	< 840 Ohm
Open Circuit Det.	> 1500 Ohm
Fault Current:	>22.5 mA
Approval:	CE & RoHS compliant
Warranty:	5 year limited warranty
Accessories:	1/2" NPT conduit adapter

**DIMENSIONS (in mm)**



**HOW TO BUILD A TASSERON Q-DUCT SAFE HUMIDITY PART NUMBER**

Sample Part Number (THHDSA2A) —Q-Duct Safe Humidity sensor with 10k Type 2, 2% accuracy and 4-20mA output.

**T            H            H            D            S            A            2A**

**Tasseron**

**HVAC**

**Humidity**

**Duct**

**Safe**

**Element**

**Details**

A—10K-2	2A—2%, 4-20 mA
B—10K-3	2B—2%, 0-5V
C—20K	2C—2%, 0-10V
D—3K	3A—3%, 4-20mA
E—Pt1000	3B—3%, 0-5V
F—Ni1000-891	3C—3%, 0-10V
G—10K-4	5A—5%, 4-20mA
H— Pt100	5B—5%, 0-5V
I—4.7K	5C—5%, 0-10V

\*Other elements available on request

J—10K-3 (11K)
K— Ni1000-TC5
Z— Humidity only

**Transmitters:**

T—Range 1  
32°F– 212°F

U—Range 2  
20°F– 120°F

V—Range 3  
0°F– 100°F

# HVAC temperature measuring elements

## R/T TABLES

Temp		NTC thermistors					RTD elements			
		curve A	curve B	curve G	curve C	curve D	curve E	curve F	curve H	curve K
		NTC 10K type 2	NTC 10K type 3	NTC 10K type 4	NTC 20KOhm	NTC 3KOhm	Pt1000/B	Ni1000-891	Pt100/B	Ni1000-TC5
		R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (Ohm)	R (Ohm)	R (Ohm)	R (Ohm)
°C	°F									
-40	-40	341.4	242.1	191.9	784.6	97.40	843	697	84.3	831
-35	-31	246.2	181.0	146.6	558.8	71.53	862	719	86.2	851
-30	-22	179.5	136.6	112.9	402.7	52.80	882	743	88.2	872
-25	-13	132.2	103.9	87.59	293.6	39.16	902	766	90.2	893
-20	-4	98.34	79.64	68.47	216.3	29.24	922	790	92.2	914
-15	5	73.73	61.54	53.91	160.7	22.04	941	815	94.1	935
-10	14	55.78	47.91	42.74	120.5	16.74	961	839	96.1	956
-5	23	42.59	37.57	34.11	91.07	12.79	980	864	98.0	978
0	32	32.82	29.66	27.40	69.40	9.856	1000	891	100.0	1000
5	41	25.52	23.57	22.14	53.33	7.663	1020	916	102.0	1022
10	50	19.97	18.85	17.99	41.28	5.999	1039	942	103.9	1045
15	59	15.75	15.17	14.72	32.18	4.729	1058	968	105.8	1068
20	68	12.51	12.28	12.09	25.28	3.754	1078	994	107.8	1091
25	77	10.00	10.00	10.00	20.00	3.000	1097	1021	109.7	1114
30	86	8.048	8.184	8.308	15.92	2.416	1117	1048	111.7	1138
35	95	6.516	6.735	6.936	12.75	1.957	1136	1075	113.6	1162
40	104	5.306	5.577	5.819	10.27	1.595	1155	1102	115.5	1186
45	113	4.345	4.641	4.904	8.320	1.307	1175	1130	117.5	1210
50	122	3.578	3.877	4.151	6.779	1.076	1194	1158	119.4	1235
55	131	2.962	3.261	3.529	5.556	0.888	1213	1187	121.3	1260
60	140	2.464	2.756	3.012	4.577	0.737	1232	1216	123.2	1285
65	149	2.060	2.340	2.582	3.788	0.616	1252	1245	125.2	1311
70	158	1.730	1.996	2.221	3.150	0.518	1271	1274	127.1	1337
75	167	1.460	1.707	1.918	2.630	0.441	1290	1304	129.0	1364
80	176	1.236	1.466	1.663	2.206	0.377	1309	1334	130.9	1390
85	185	1.051	1.264	1.446	1.857	0.324	1328	1365	132.8	1417
90	194	0.896	1.095	1.262	1.570	0.278	1347	1396	134.7	1444
95	203	0.767	0.952	1.105	1.333	0.239	1366	1427	136.6	1472
100	212	0.659	0.831	0.970	1.136	0.206	1385	1459	138.5	1500
105	221	0.569	0.728	0.855	0.972	0.179	1404	1491	140.4	1528
110	230	0.493	0.640	0.755	0.834	0.156	1423	1524	142.3	1557
115	239	0.428	0.564	0.669	0.719	0.136	1442	1556	144.2	1586
120	248	0.374	0.499	0.594	0.621	0.119	1461	1590	146.1	1615
125	257	0.327	0.443	0.529	0.539	0.105	1479	1623	147.9	1645

\* Other elements on request

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