



## Room CO<sub>2</sub> or CO<sub>2</sub>/Temperature Sensor Low Profile Attractive Enclosure



### FEATURES

- CO<sub>2</sub> or CO<sub>2</sub>/Temp options
- Attractive, streamlined, low-profile ABS enclosure
- Quick Connect Wire Terminals
- NTC thermistors and RTD temperature elements available
- Dual beam infrared sensing technology (NDIR)
- CO<sub>2</sub> measurement in 0-5V, 0-10V or 4-20mA analog outputs
- CO<sub>2</sub> ranges 0-2000ppm, 0-5000ppm or 0-10,000ppm measurement
- Insulated back included
- CE & RoHS compliant
- 5 year limited warranty
- Made in the USA

### GENERAL INFORMATION

High quality room CO<sub>2</sub> with optional temperature sensor in an attractive low-profile plastic enclosure. These room sensors are available as a CO<sub>2</sub> only or as a combination sensor or with CO<sub>2</sub>/RH/temperature measurements.

Available with preset onboard DIP switches that enable user to select analog output signal of 0-5V, 0-10V and 4-20mA for CO<sub>2</sub> sensing. Digital outputs BACnet and MODBUS also available on request. Accurate CO<sub>2</sub> measurement from 400-10,000ppm CO<sub>2</sub>.

Dual channel technology and a solid state infrared source ensures long lifetime, excellent accuracy and repeatability with low drift and quick start up.

### SPECIFICATIONS

Enclosure: Injection-molded ABS  
Cover: Quick snap, injection-molded ABS  
Mounting: Direct mounting with quick snap faceplate. Fits standard single gang box or mounts directly to wall. Built in level for easy accurate installation.

## SPECIFICATIONS CONT.

Connection: AWG 22-16 / 0.35—1.5mm<sup>2</sup> spring-loaded, Quick Connect System  
Supply Voltage 24 VAC +/-20%; 18-35 VDC Max  
Power Consumption 3VA for 24VAC, 3W for 24VDC (peak);  
Output Signal Analog: 0-5 VDC, 0-10 VDC, 4-20 mA  
Digital (available on request): BACnet, MODBUS, I2C

### CO2 Sensing Specifications:

Sensing Technology Dual beam infrared sensing technology (NDIR)  
Measurement Range 0 to 2000 ppm, 0-5000ppm, 0-10,000ppm  
Accuracy ±30ppm +3%  
Temperature Operating Range 0 to 50°C / 32 to 122°F  
Response Time ≤ 2 minutes, diffusion  
Warm Up Time < 1 minute (@ full specs < 15 minutes)

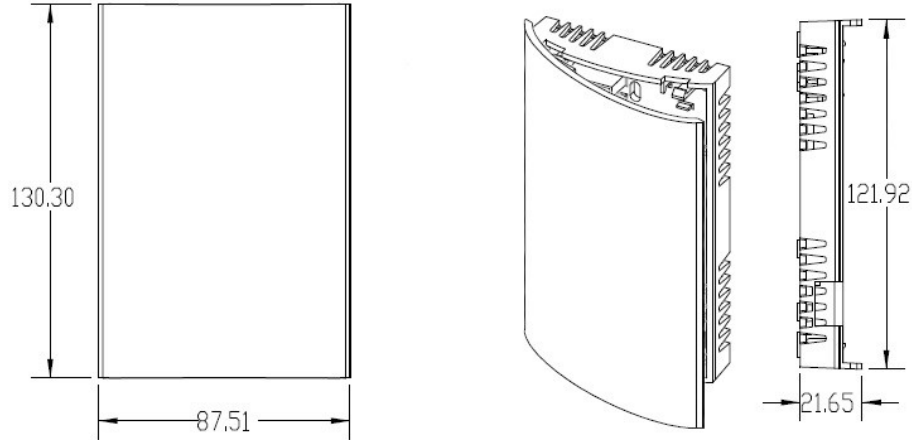
### Temperature Sensing Specifications:

Temperature Element: Interchangeable NTC thermistor, 2-wire  
RTD Pt1000, 2 wire  
RTD Ni1000-891, 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 Pt100 100 Ohm @ 0°C / 32°F  
RTD Pt1000 1000 Ohm @ 0°C / 32°F  
RTD Ni1000-891 891 Ohm @ 0°C / 77°F  
Accuracy: NTC thermistor 0...70° ± 0.2°C / 32...158°F ± 0.36°F  
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  
Approval: CE & RoHS compliant  
Warranty: 5 year limited warranty  
Accessories: Optional customer logo printed on cover

### Tasseron Sensors Inc.

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**DIMENSIONS ( in mm )**



**HOW TO BUILD A TASSERON HVAC CARBON DIOXIDE PART NUMBER**

Sample Part number (THCRAAZC) — CO2 Room sensor in 0-2000ppm range with 10k Type 2, no RH, and 0-10V output for CO2

**T H C R A A Z C**

TASSERON	HVAC	SENSOR TYPE	APPLICATION	CO2 RANGE	TEMP	RH ACCURACY	OUTPUT
		C-Carbon Dioxide	D—Duct R—Room	A—0-2000ppm B—0-5000ppm C— 0-10,000ppm	A—10K -2 B—10K -3 C—20K D—3K E—Pt1000 F—Ni1000-891 G—10K-4 H— Pt100 I—4.7K J—10K-3 (11K) K— Ni1000-TC5 Y—DIGITAL <b>Z—NO TEMP</b> T—Range 1 (4-20mA) 32°F– 212°F U—Range 2 (4-20mA) 20°F– 120°F V—Range 3 (4-20mA)	2—2% <b>Z— NO HUMIDITY</b>	A— 4-20mA B—0-5V C—0-10V D—Modbus E—BACnet F—I2C

# 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
°C	°F	R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (Ohm)	R (Ohm)	R (Ohm)	R (Ohm)
-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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## Room CO<sub>2</sub>/Humidity/Temperature Sensor Low Profile Attractive Enclosure

### FEATURES

- CO<sub>2</sub>/RH/Temp options
- Attractive, streamlined, low-profile ABS enclosure
- Quick Connect Wire Terminals
- NTC thermistors and RTD temperature elements available
- Dual beam infrared sensing technology (NDIR)
- CO<sub>2</sub> measurement in 0-5V, 0-10V or 4-20mA analog outputs
- CO<sub>2</sub> ranges 0-2000ppm, 0-5000ppm or 0-10,000ppm measurement
- 2% RH measurement in 0-5V, 0-10V or 4-20mA analog outputs
- Insulated back included
- CE & RoHS compliant
- 5 year limited warranty
- Made in the USA

### GENERAL INFORMATION

High quality room CO<sub>2</sub> with Relative Humidity and Temperature sensor in an attractive low-profile plastic enclosure. These room sensors are available as a CO<sub>2</sub> only or as a combination sensor with available CO<sub>2</sub>/RH/temperature measurements.

Available with preset onboard DIP switches that enable user to select analog output signal of 0-5V, 0-10V and 4-20mA for CO<sub>2</sub> and RH sensing. Digital outputs BACnet and MODBUS also available on request. Accurate CO<sub>2</sub> measurement from 400-10,000ppm CO<sub>2</sub> and 2% RH from 10-90%.

Dual channel technology and a solid state infrared source ensures long lifetime, excellent accuracy and repeatability with low drift and quick start up.

### SPECIFICATIONS

Enclosure: Injection-molded ABS  
Cover: Quick snap, injection-molded ABS  
Mounting: Direct mounting with quick snap faceplate. Fits standard single gang box or mounts directly to wall. Built in level for easy accurate installation.

## SPECIFICATIONS CONT.

Connection: AWG 22-16 / 0.35—1.5mm<sup>2</sup> spring-loaded, Quick Connect System  
Supply Voltage 24 VAC +/-20%; 18-35 VDC Max  
Power Consumption 3VA for 24VAC, 3W for 24VDC (peak);  
Output Signal Analog: 0-5 VDC, 0-10 VDC, 4-20 mA  
Digital (available on request): BACnet, MODBUS, I2C

### CO2 Sensing Specifications:

Sensing Technology Dual beam infrared sensing technology (NDIR)  
Measurement Range 0 to 2000 ppm, 0-5000ppm, 0-10,000ppm  
Accuracy ±30ppm +3%  
Temperature Operating Range 0 to 50°C / 32 to 122°F  
Response Time ≤ 2 minutes, diffusion  
Warm Up Time < 1 minute (@ full specs < 15 minutes)

### Relative Humidity Specifications:

Accuracy ±2% 10-90%; ±3% 0-100%  
Long Term Stability Less than 0.25% per year  
Repeatability 0.8% RH @ average temp. 25°C / 77°F  
Sensitivity 0.1% RH  
Sensor Type Capacitive, non-condensing

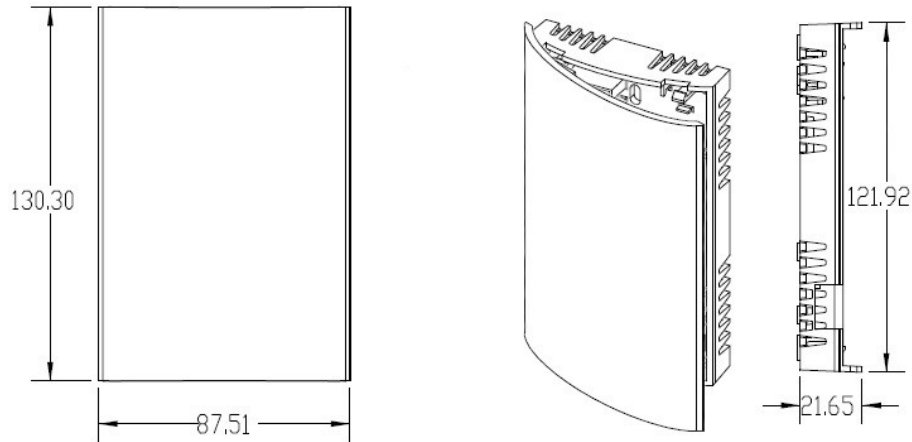
### Temperature Sensing Specifications:

Temperature Element: Interchangeable NTC thermistor, 2-wire  
RTD Pt1000, 2 wire  
RTD Ni1000-891, 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 Pt100 100 Ohm @ 0°C / 32°F  
RTD Pt1000 1000 Ohm @ 0°C / 32°F  
RTD Ni1000-891 891 Ohm @ 0°C / 77°F  
Accuracy: NTC thermistor 0...70° ± 0.2°C / 32...158°F ± 0.36°F  
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  
Approval: CE & RoHS compliant  
Warranty: 5 year limited warranty  
Accessories: Optional customer logo printed on cover

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**DIMENSIONS ( in mm )**



**HOW TO BUILD A TASSERON HVAC CARBON DIOXIDE PART NUMBER**

Sample Part number (THCRAA2C) — CO2 Room sensor in 0-2000ppm range with 10k Type 2, 2% accuracy RH, and 0-10V output for CO2 and RH

**T H C R A A 2 C**

TASSERON	HVAC	SENSOR TYPE	APPLICATION	CO2 RANGE	TEMP	RH ACCURACY	OUTPUT
		C—Carbon Dioxide	D—Duct R—Room	A—0-2000ppm B—0-5000ppm C— 0-10,000ppm	A—10K -2 B—10K -3 C—20K D—3K E—Pt1000 F—Ni1000-891 G—10K-4 H— Pt100 I—4.7K J—10K-3 (11K) K— Ni1000-TC5 Y—DIGITAL <b>Z—NO TEMP</b> T—Range 1 (4-20mA) 32°F– 212°F U—Range 2 (4-20mA) 20°F– 120°F V—Range 3 (4-20mA)	2—2% <b>Z— NO HUMIDITY</b>	A— 4-20mA B—0-5V C—0-10V D—Modbus E—BACnet F—I2C

# HVAC temperature measuring elements

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°C	°F	R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (kOhm)	R (Ohm)	R (Ohm)	R (Ohm)	R (Ohm)
-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
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-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
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