TotalSense Series

Outdoor Air Quality Sensor

Build a complete air quality system for indoor, duct, and outdoor
Six environmental sensors: PMx, VOC, CO2, RH, T, barometric pressure
BACnet/Modbus or analog outputs with set-point relay

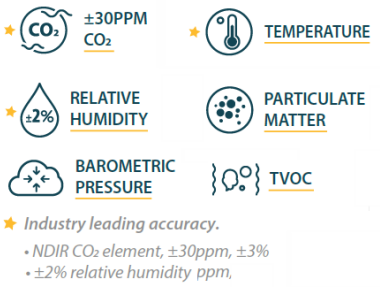
DESCRIPTION

The TotalSense Series Outdoor AQ sensor provides more data for more advanced ventilation control while drastically reducing installation cost and time on a project. It includes a comprehensive selection of AQ sensing with carbon dioxide (CO2), relative humidity (RH), and temperature plus options for total volatile organic compounds (TVOC), barometric pressure and particulate matter (PM). This sensor is enclosed in an outdoor rated enclosure to protect electronics from rain, overhead watering systems and harmful UV rays.

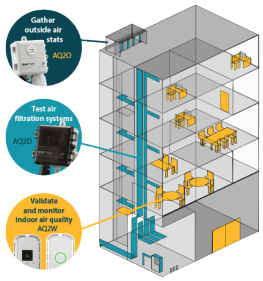
APPLICATIONS

- Measure outdoor air quality for indoor/outdoor comparison to meet ASHRAE 62.1 standard for air quality
- Verify effectiveness of IAQ strategies in post covid environment
- Energy management/building control
- Contributes toward satisfying Feature A08 and T06 under the WELL Building Standard®

Fully configurable display



Choose up to 6 air quality indicators



Build a full validation system

BACnet/Modbus protocols or up to 3 analog outputs

Made in USA; 7 year warranty on electronics

FEATURES

- Reduce installation costs with multiple sensors in a rugged, easy-mount outdoor enclosure
- Specify the exact product for your application with made in USA
- Sense unhealthy particulates or TVOC's before delivering it indoors
- Industry-leading temperature and barometric pressure compensated CO2 sensing with non-dispersive infrared sensing element (NDIR), 15+ year life expectancy on CO2 sensing element; ±30ppm, ±3% of reading
- Tamper-proof
- Field-replaceable RH, Temp, and CO2 sensors ease maintenance
- 7-year limited warranty / 3 years on CO2 sensor - 2 years on all others

ORDERING

AQ2 [ ] - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Package
D = Duct Mount
O = Outdoor

Output Type
A = Analog
B = BACnet/ Modbus

CO2
A = None
C = CO2
D = Dual Channel CO2

Relative Humidity
A = None
2 = 2% RH

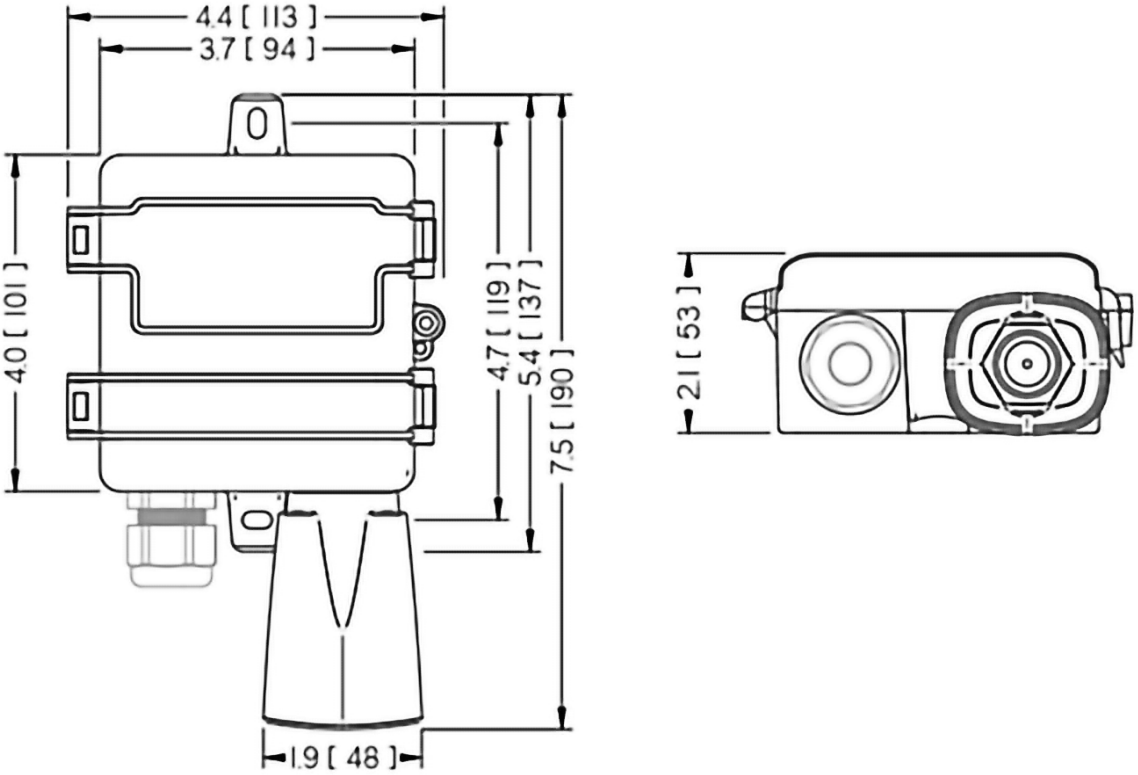
VOC
A = None
V = VOC

Particulate Matter
A = None
P = PM 1.0, 2.5, 4.0, 10.0

Temperature Output
A = None
B = Transmitter
C = 100Pt RTD
D = 1000Pt RTD
E = 10K Type 2
F = 10K Type 3
G = 10k w/11k
H = 3k
I = 2k2
J = 1k8
K = 20k

Display
X = None
D = OLED Display

DIMENSIONS



SPECIFICATIONS

Power Supply	Without Display	16-30VDC/24VAC(1), 3.5W nominal, 4W max.
	With Display	24-30 VDC/24VAC(1), 4.3W nominal, 5W max
Analog Outputs (Analog version only)	Quantity	Up to 3 outputs
	Source	CO2, RH%, Temp, PM, TVOC (selectable)
	Scale	0-5V, 0-10V, 4-20mA (switch selectable, programmable per output)
Protocol Output (Communications version only)	Protocol	BACnet MS/TP or Modbus RTU
	Connection	3-wire RS-485, with isolated ground
	Data Rate	9600, 19200, 38400, 57600, 76800, 115200 (switch selectable)
	Address Range	0-127
Relay Set-point (standard except for PM models)	Type	Solid-state output, 1A @ 30VAC/DC, N.O.
	Source	CO2 setpoint, RH setpoint, Temp setpoint, TVOC setpoint, air quality, off (selectable)
	Polarity	NO/NC (selectable)
CO2 (optional)	Type	Non-dispersive Infrared (NDIR)
	Accuracy	±(30ppm + 3% of reading) (400-2000ppm), -10-50ºC, 0-85%RH
		±(50ppm+ 5% of reading) (2000-5000ppm), -10-50ºC, 0-85%RH
		>5000ppm consult factory
	Resolution	1 ppm
	Range	0-2000 PPM (Default) (Programmable up to 10,000 PPM)
	Response time	90 seconds to 90% reading
	Sample rate	1s
	Temp and Pressure	Compensated. Barometric pressure also readable over communications
Relative Humidity (optional)	Type	Digital CMOS
	Accuracy(2)	±2% over 0 to 80%RH range
	Resolution	0.05%RH

	Response time (3)	30s
	Sample rate	3s
	Operating range	0 to 100%RH (non-condensing)
	Operating conditions (4)	-4 to 140oF (-20 to 60° C) @ RH>90%; -4 to 176oF @ RH=50%
Temperature Transmitter (optional)	Type	Silicon Band-gap
	Nominal Accuracy	±0.3° C (operating range)
	Maximum Accuracy (2)	±0.5° C (at 25° C), ±1.0° C
	Resolution	0.01° C
	Response time	30s
	Sample rate	3s
TVOC (optional)	Type	MOS
	Gas	Total VOC
	Range	0-10,000 µg/m3
	Response Time	<10s
	Temp, Pressure	Compensated
	Output	0-2000 µg/m3 (default) Programmable up to 10,000 µg/m3
PMx (optional)	Type	Optical
CLASS 1 LASER PRODUCT	Size Range	PM1.0, PM2.5, PM4.0, PM10.0
	Scale	0-1000 µg/m3
	Lower detection limit	0.3 µm
	Precision	±10 µg/m3 (0-100µg/m3); ±10% (100-1000 µg/m3)
Operating Environment	Temperature	-4 to 122oF (-20 to 50oC)
	Humidity	0-95% non-condensing
Enclosure	Material	ABS Plastic
	Dimensions	4.0”h x 4.4”w x 2.1”d (AQO: +2.8” solar shield)
Compliance	Agency	CE, RoHS

(1) One side of transformer, secondary is connected to signal common. Dedicated transformer is recommended.

(2) Models with PM sensor included achieve ±5% accuracy over 0 to 80%RH range and an additional temperature shift of up +0.5° C

(3) Time for reaching 63% of reading at 25° C and 1 m/s airflow

(4) Long term exposures to conditions outside normal range at high humidity may temporarily offset the RH reading (+3%RH after 60 hours.)

** Product improvement is a continual process as Senva and product features and specification may change without prior notice. Refer to instructions that accompany the product for installation and wiring.*