TotalSense Series

Duct 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

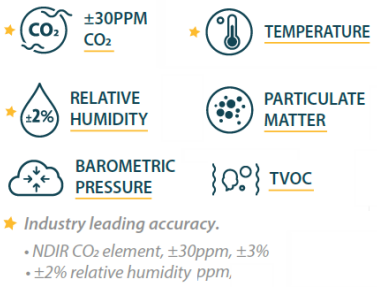
DESCRIPTION

The TotalSense Series 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) and particulate matter (PM).

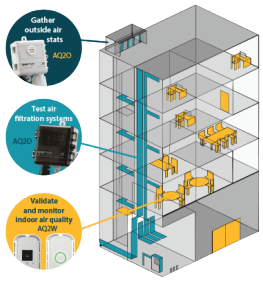
APPLICATIONS

- Measure duct air quality to validate filtration systems and deliver fresh air
- Verify effectiveness of IAQ strategies in post covid environment
- Energy management/building control
- Facilitates compliance with ASHRAE 62.1 standard for air quality
- 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

Built for building automation.

Made in USA; 7 year warranty on electronics

FEATURES

- Reduce installation costs with multiple sensors in a rugged, easy-mount duct enclosure
- Specify the exact product for your application with made in USA quality
- Sense unhealthy particulates or TVOC's in your duct system
- 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

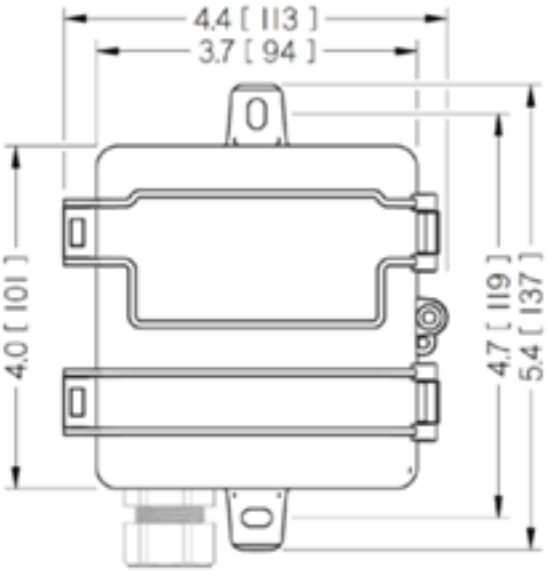
VOC
A = None
V = VOC

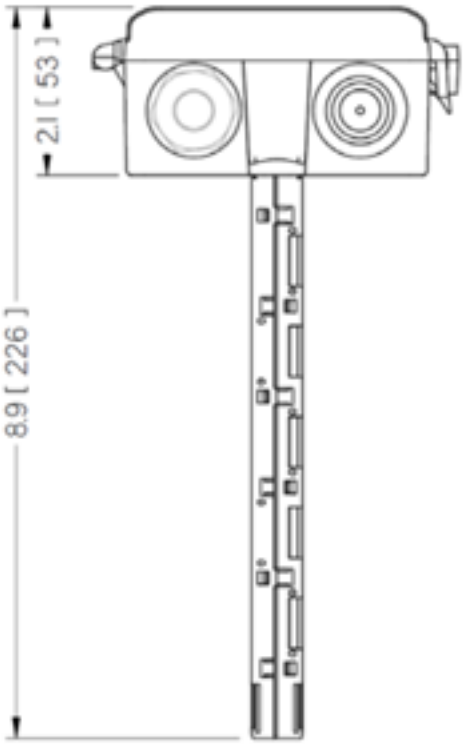
Particulate Matter
A = None
P = PM 1.0, 2.5, 4.0, 10.0

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%
	Type	Silicon Band-gap
Temperature Transmitter (optional)	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 (AQD: +6.8” probe)
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.*