TotalSense Series

Duct Air Quality Sensor

Select from six IAQ options per enclosure

Senva Sync App compatible

RS-485 Protocol or Analog output options



SENV SYNC COMPATIBLE

Modbus · BACnet · RoHS · CE · RESET · WELL

DESCRIPTION

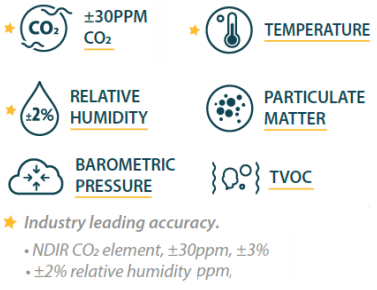
The TotalSense Series Duct AQ sensor provides more data for more advanced ventilation control while drastically reducing installation cost and time on a project. It includes a comprehensive selection of AQ sensing with carbon dioxide (CO2), relative humidity (RH), and temperature plus options for total volatile organic compounds (TVOC), barometric pressure and particulate matter (PM).

APPLICATIONS

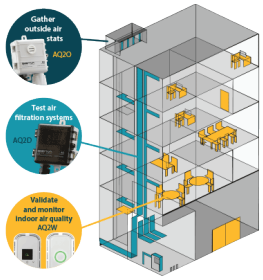
- Measure duct air quality to validate filtration systems and deliver fresh air
- Verify effectiveness of IAQ strategies in post covid environment
- Energy management/building control
- Facilitates compliance with ASHRAE 62.1 standard for air quality
- Contributes toward satisfying Feature A08 and T06 under the WELL Building Standard®



Fully configurable display



Choose up to 6 air quality indicators



Build a full validation system

Built for building automation.



Available with analog or...

Modbus

ASHRAE BACnet®





Replaceable CO2, RH, and temp sensors

RESET monitors are tested and certified for your RESET Air Projects

FEATURES

- NEW! Configure and update firmware with the SenvaSync app
- Reduce installation costs with multiple sensors in a rugged, easy-mount duct enclosure
- Specify the exact product for your application and made in USA
- 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 [D] - [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Package
D = Duct Mount

Output Type
A = Analog
B = BACnet/ Modbus
D = Dual Analog & BACnet Modbus

CO2
A = None
C = CO_2 Sensor
D = Dual Channel CO_2

Relative Humidity
A = None
2 = 2% RH Sensor

VOC
A = None
V = VOC

Advanced Sensors
A = None
P = Particulate Matter (PM)
O = Ozone***
C = CO**
Q = PM + Ozone
R = PM + CO**
L = Ambient Light+

Temperature***
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

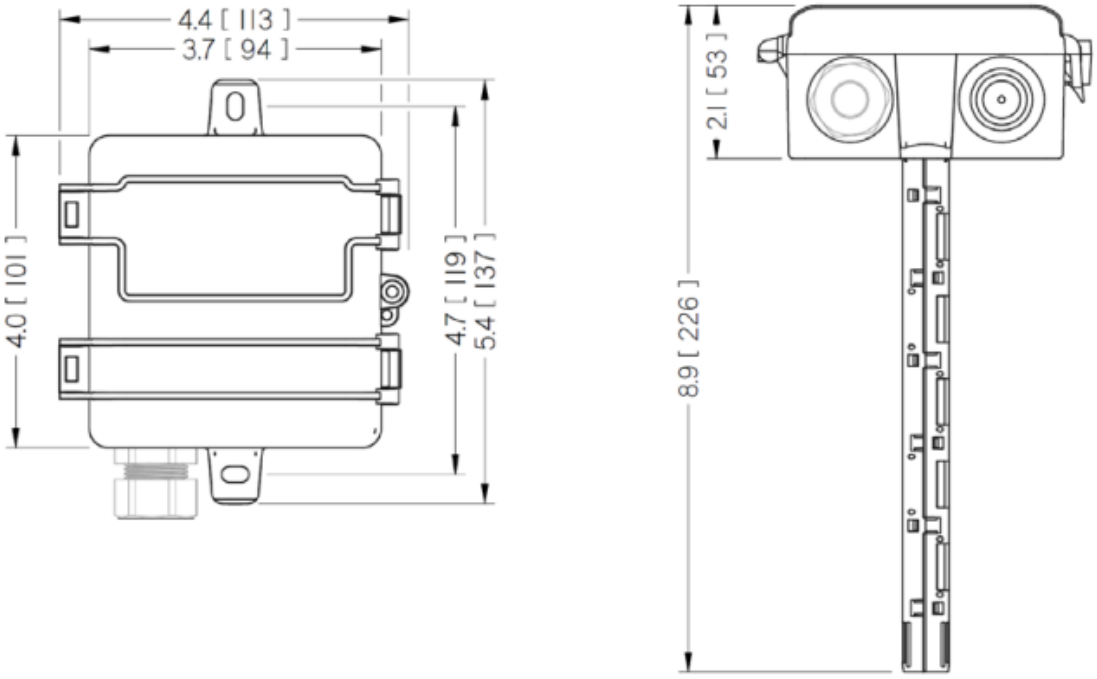
*Choose transmitter option for temperature display or BACnet/Modbus temp readings. Thermistor versions will be equipped with an isolated resistive thermistor circuit, so cannot be read on the display or over BACnet/Modbus.
** CO sensor only available with TEMP/RH and display for calibration purposes.
***Ozone (O3) only available with Temp/RH for calibration purposes. +Ambient light is only available on select Outdoor models with temp and RH, consult factory.

Example

	Mount		Output	CO_2	RH	TVOC	PM	Temp	Display
AQ2	D	-	B	C	2	V	P	F	D

(TotalSense Duct mount sensor with BACnet/Modbus RS-485, Temp, CO2, 2% RH, VOC, PM, 10K Type 3 Temperature, OLED Display)

DIMENSIONS



Warning: The datasheet is designed for reference only. Refer to installation instructions that accompany the product and heed all safety instructions. Product improvement is a continuing process at Senva. Changes may occur to products without prior notice.

SPECIFICATIONS

Power Supply	Non-Display	16-30VDC/24VAC(1), 3.5W nominal, 4W max.
Interface	OLED (optional)	1.5" Organic LED Display, 128x128, color
	Air Quality Ring	Color changing (red/yellow/green) LED Air Quality Ring
Analog Outputs (Analog or Dual version only)	Quantity	Up to 3 outputs
	Source	CO2, RH%, Temp, TVOC, PM, CO, Ozone (selectable)
	Scale	0-5V, 0-10V, 4-20mA (switch selectable, programmable per output)
Protocol Output (Comms or Dual 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	Type	Solid-state output, 1A @ 30VAC/DC, N.O.
	Polarity	NO/NC (selectable)
	Source	CO2 setpoint, RH setpoint, Temp setpoint, TVOC setpoint, PIR motion detection, Air Quality, off (selectal
CO2 (Optional)	Type	Non-dispersive Infrared (NDIR)
	Accuracy (Standard)	±(30ppm + 3% of reading) (400-2,000ppm), -10-50ºC, 0-85%RH
		±(50ppm+ 5% of reading) (2,000-5,000ppm), -10-50ºC, 0-85%RH
		>5,000ppm consult factory
	Accuracy(Dual)	±(30ppm + 3% of reading) (0-2,000ppm), @ 0-50ºC
		±(50ppm+ 3% of reading) (2,000-5,000ppm), @ -10-50ºC
		±(100ppm+ 10% of reading) (5,000-10,000ppm), @ 0-50ºC
	Drift with ABC disabled (Standard)	35ppm/month
	Drift with ABC disabled (Dual Channel)	5ppm/month

	Resolution	1 ppm
	Range	0-2,000 PPM (Default) (Programmable up to 10,000ppm)
	Response time	90 seconds to 90% reading
	Sample rate	1s
	Temp and Pressure Compensation	Yes, barometric pressure readable over comms
Relative Humidity (Optional)	Type	Digital CMOS
	Accuracy(2)	2% models, +/-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	Type	Silicon Band-gap
(Optional)	Nominal Accuracy	±0.3° C (operating range)
	Maximum Accuracy (2)	±0.5° C (at 25° C), ±1.0° C
	Resolution	0.1° C
	Response time	30s
	Sample rate	3s
TVOC (Optional)	Type	MOS
	Gas	Total VOC
	Formaldehyde CH2O Sensitivity	Responsive to Formaldehyde concentrations 50-1000 ppb
	Range	0-10,000 µg/m3
	Response Time	<10s
	Accuracy (5)	±20 µg/m3 + 15% at 1 to 500 µg/m3 (typical)
	Output	0-2,000 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	0-1,000 µg/m3
	Lower detection limit	0.3 µm
	Precision	±10 µg/m3 (0-100µg/m3); ±10% (100-1,000 µg/m3)
	Long-Term Drift	±1.25 µg/m3 / year
Carbon Monoxide	Type	Electrochemical
	Detection Range	0-200 ppm
	Accuracy	5% of reading
	Resolution	1 ppm
	Response Time	60 seconds
	Sensor Life	5 years
	Certifications	UL2034 Recognized Component
Ozone	Type	PMOS
	Ozone Detection Range	20-500 ppb
	Accuracy	±15% of FS @ 20° C
Operating Environment	Temperature	-4 to 122° F (-20 to 50° C). Devices including PM or CO sensors rated (-10 to 50° C) CO sensors can inte operate down to –20°C.”
	Humidity	0-95% non-condensing
Enclosure	Material	ABS/Polycarbonate
	Dimensions	4.0”h x 4.4”w x 2.1”d (+6.8” probe)
	Conduit Opening	Tapped 1/2” NPT

	Rating	IP43 or NEMA 3R
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).
(5) Wiring with silicone or other high VOC insulation will affect TVOC readings.

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