

TotalSense Series Duct Air Quality Sensor

Select from six IAQ options per enclosure
Senva Sync App compatible
RS-485 Protocol or Analog output options



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®

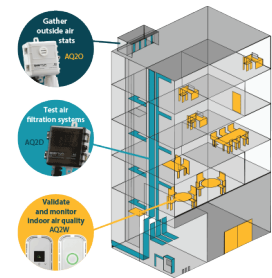


Fully configurable display

★ ±30PPM CO ₂	★ TEMPERATURE
★ RELATIVE HUMIDITY ±2%	★ PARTICULATE MATTER
★ BAROMETRIC PRESSURE	★ TVOC

★ Industry leading accuracy.
 • NDIR CO₂ element, ±30ppm, ±3%
 • ±2% relative humidity ppm,

Choose up to 6 air quality indicators



Build a full validation system

Built for building automation.

Available with analog or...



Designed and manufactured in America
World-class quality backed by seven year limited warranty

RESE Certified

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	<input type="checkbox"/> D	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Package		Output Type	CO₂	Relative Humidity	VOC	Advanced Sensors	Temperature***	Display
	D = Duct Mount		A = Analog B = BACnet/Modbus D = Dual Analog & BACnet Modbus	A = None C = CO ₂ Sensor D = Dual Channel CO ₂	A = None 2 = 2% RH Sensor	A = None V = VOC	A = None P = Particulate Matter (PM) O = Ozone*** C = CO** Q = PM + Ozone R = PM + CO** L = Ambient Light+	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	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.

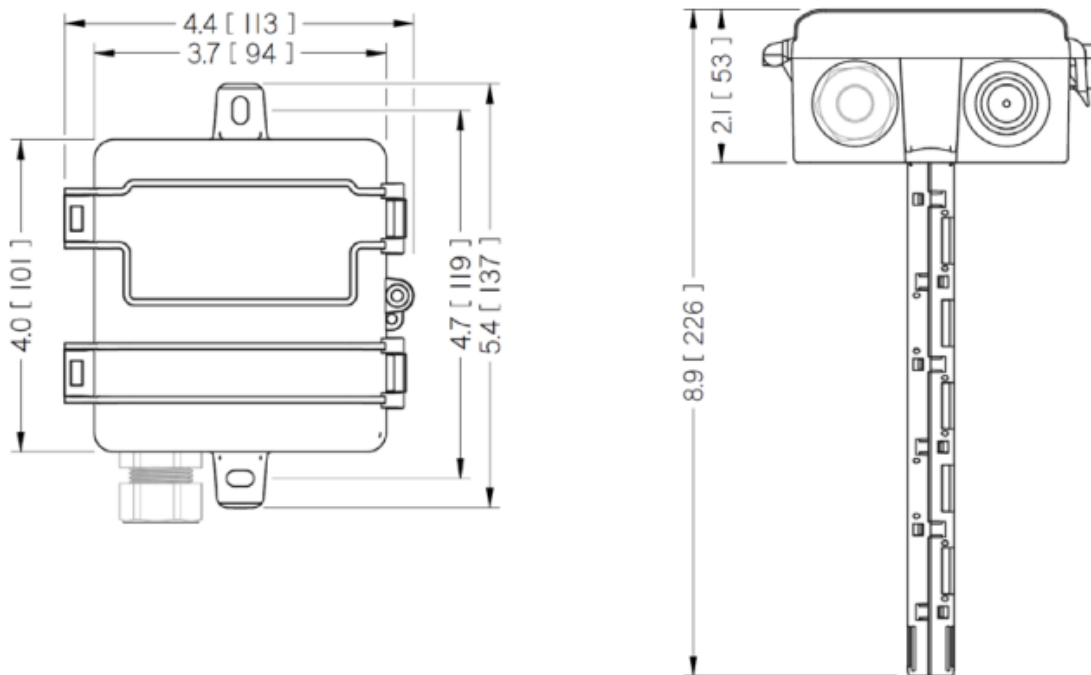
** CO sensor only available with display option for calibration purposes.

***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 CO₂ 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	CO ₂ , 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	CO ₂ setpoint, RH setpoint, Temp setpoint, TVOC setpoint, PIR motion detection, Air Quality, off (selectable)
CO ₂ (Optional)	Type	Non-dispersive Infrared (NDIR)
	Accuracy (Standard)	±(30ppm + 3% of reading) (400-2,000ppm), -10-50°C, 0-85%RH
		±(50ppm+ 5% of reading) (2,000-5,000ppm), -10-50°C, 0-85%RH
		>5,000ppm consult factory
	Accuracy(Dual)	±(30ppm + 3% of reading) (0-2,000ppm), @ 0-50°C
		±(50ppm+ 3% of reading) (2,000-5,000ppm), @ -10-50°C
		±(100ppm+ 10% of reading) (5,000-10,000ppm), @ 0-50°C
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 (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	0.1° 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 inter 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 $\pm 5\%$ accuracy over 0 to 80%RH range and an additional temperature shift of up $+0.5^{\circ}\text{C}$.
- (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.*