Maximizing Air Quality Monitoring with TotalSense: A Guide to Choosing the Right Solution for Your Application

INTRODUCTION

Indoor air quality (IAQ) has become a critical focus across all types of spaces—whether we're talking about homes, commercial buildings, agricultural operations, or even transportation facilities. Poor air quality impacts everything: it influences health, affects productivity, and can even compromise the preservation of valuable or historical items. But the specific needs for IAQ monitoring can vary significantly depending on the environment, making it essential to find solutions that meet each unique demand.

With its suite of ten specialized sensors, the TotalSense Indoor Air Quality Monitor delivers tailored insights for these varied applications. This guide walks through how to select the ideal TotalSense configuration for different environments, matching sensor features to IAQ challenges and enhancing air quality management to create healthier, safer, and more efficient spaces.

See All of Senva's Air Quality Products

Senva's TotalSense IAQ sensor can be configured with up to 10 sensors in one device, including CO2 and PIR. Learn more here: https://www.senvainc.com/en/products/indoor-air-quality

THE IMPORTANCE OF INDOOR AIR QUALITY

Optimal indoor air quality (IAQ) supports health, productivity, and operational efficiency. Clean air lowers the risk of respiratory issues, allergies, and long-term illnesses. It sharpens cognitive performance, boosting productivity in work and educational spaces. In homes and businesses, effective IAQ management enhances comfort and reduces energy costs by fine-tuning ventilation systems. Proactively managing IAQ creates healthier environments, leading to fewer sick days and a higher level of overall well-being. (Environmental Protection Agency)

The TotalSense Indoor Air Quality Monitor is designed to tackle diverse IAQ challenges by combining multiple sensors into a single, adaptable solution. Equipped with ten sensors—including **particulate matter (PM), Volatile Organic Compounds (VOCs), Carbon Dioxide (CO_2), humidity, and temperature**—TotalSense provides real-time, comprehensive IAQ data. This enables precise monitoring and control across environments such as offices, schools, healthcare facilities, and residential spaces, ensuring optimal air quality and compliance with health and safety standards.

In commercial buildings and educational institutions, where high occupancy can elevate **CO_2** and **VOC** levels, sensors focus on maintaining fresh air and comfort to enhance productivity and learning. Healthcare facilities require **PM and VOC monitoring** to control pathogens and chemical emissions, ensuring sterile, patient-safe conditions. Industrial settings benefit from **CO** and **PM** sensors to monitor hazardous emissions, while **humidity** control prevents equipment damage. Museums and archives use sensors to stabilize **humidity** and **temperature**, protecting artifacts from deterioration. Transportation hubs rely on **CO** and **PM** detection to manage exhaust fumes and ensure passenger comfort. Hospitality environments use **humidity** and **VOC** sensors to support guest comfort and cleanliness. Agricultural facilities benefit from **CO_2** and **VOC** sensors to optimize plant growth and animal welfare.

This guide helps you choose the right TotalSense Air Quality Monitor model for your specific application. The TotalSense monitor is designed to meet the unique indoor air quality (IAQ) challenges across various environments.

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THE TOTALSENSE INDOOR AIR QUALITY MONITOR

The TotalSense Indoor Air Quality Monitor integrates ten (10) sensors: **particulate matter (PM)**, **total volatile organic compounds** (**TVOC**), **carbon dioxide** (**CO_2**), **carbon monoxide** (**CO**), **passive infrared** (**PIR**) **motion detection** for occupancy detection, **relative humidity** (**RH**), **ambient light**, **temperature** (**T**), **barometric pressure**, and **ozone**. This comprehensive suite enables precise monitoring and management of diverse indoor air quality parameters across various environments. (Senva Inc.)

This guide outlines the flexibility of the TotalSense Indoor Air Quality Monitor, designed to meet the diverse IAQ needs across various applications. TotalSense allows users to configure the sensor suite—choosing from options like **CO_2, VOC, humidity, and temperature**—tailored to the specific requirements of each environment. With adaptable installation options, including indoor, outdoor, and duct-mounted versions, TotalSense ensures comprehensive IAQ monitoring that fits seamlessly into any setting. From commercial spaces and schools to healthcare facilities and industrial sites, this versatility supports optimal comfort, compliance, and efficiency in air quality management across a wide range of applications.

Application-Specific Indoor Air Quality (IAQ) Challenges

COMMERCIAL BUILDINGS

Indoor air quality (IAQ) in commercial buildings faces challenges from high occupancy and emissions from office materials. In crowded spaces, **CO_2** levels can rise quickly, leading to discomfort, fatigue, and reduced productivity if not properly ventilated. Office equipment, furniture, and cleaning supplies also release **volatile organic compounds** (**VOCs**), which can affect health and air quality. Effective IAQ management, including ventilation control and **humidity** regulation, is important to keep the environment comfortable, prevent static electricity, and support employee well-being while maintaining energy efficiency.

For IAQ monitoring in commercial buildings, the recommended TotalSense sensors include **CO_2** to assess ventilation needs, **VOC** to detect emissions from office materials, **RH** to maintain comfort and prevent static electricity, **temperature** to regulate indoor climate, and **Passive Infrared** (**PIR**) for occupancy detection, enabling demand-controlled ventilation. This configuration ensures dynamic control over ventilation and air quality, improving both employee comfort and energy efficiency.

Based on the ordering guide, the part number for a TotalSense configuration with these features would be **AQ2W-BC2VPBD**. This setup provides comprehensive IAQ monitoring tailored to commercial building environments.

In commercial buildings, comparing indoor **CO_2** levels to outdoor levels is a common strategy for assessing ventilation efficiency. Adding a duct sensor further improves air quality monitoring by providing real-time data on **CO_2** concentrations within the HVAC system, enabling precise adjustments to ventilation rates. Based on the ordering guide, the **AQ2D-BC2VPBX** is an ideal duct sensor model, featuring **CO_2,PM**, **RH**, and **temperature** monitoring capabilities. For outdoor monitoring, the **AQ2O-BC2VPBX** model is recommended, offering **CO_2, PM, RH**, and **temperature** sensing. These models integrate seamlessly with BACnet/Modbus systems,

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ensuring effective ventilation management and enhanced air quality in commercial spaces.

To address IAQ challenges in commercial buildings, implementing dynamic ventilation strategies is a strategic approach. By using **CO_2 sensors** to assess ventilation needs, **VOC sensors** to detect emissions, and **PIR motion detection for occupancy-based control**, the ventilation system can automatically adjust to the number of occupants and pollutant levels in real time. This approach ensures fresh air circulation, reduces energy costs, and enhances comfort. **RH** and **temperature** sensors further maintain optimal indoor conditions. For a detailed guide on **Demand-Controlled Ventilation (DCV)**, refer to the application note on DCV with PIR provided by Senva here.

EDUCATIONAL INSTITUTIONS

Indoor air quality (IAQ) in educational institutions requires careful management due to crowded classrooms, emissions from materials, and environmental pollutants. High occupancy often leads to elevated **CO_2** levels, causing fatigue and affecting students' focus. Building materials and classroom supplies release **VOCs** that can degrade air quality. Additionally, **temperature** and **humidity** fluctuations can cause discomfort and contribute to mold growth. **CO** from boiler rooms and **ozone (O_3)** from outdoor air present further risks. Monitoring **CO_2, VOCs**, **RH, temperature, CO, O_3**, and **occupancy** enables schools to dynamically control ventilation, creating a healthier, more stable learning environment. (Environmental Protection Agency)

The TotalSense Indoor Air Quality Monitor, tailored for educational settings, includes sensors for **CO_2** to monitor ventilation efficiency in densely populated areas, **VOCs** to track emissions from building materials, **RH** to control mold risk while maintaining comfort, and **temperature** to support a consistent learning atmosphere. Additionally, it integrates **PIR motion detection** to adjust ventilation based on room occupancy, a **CO sensor** to detect potential leaks from boiler rooms, and **O_3** tracking to monitor outdoor air infiltration. Together, this configuration addresses core IAQ concerns across classrooms, elevating air quality management and supporting healthier, more focused learning. The model we recommend for this application

is **AQ2W-BC2VQBDP**.

In educational settings, employing a redundancy strategy with duct-mounted air quality monitors ensures reliable, uninterrupted IAQ data across classrooms and facilities. By integrating backup sensors in the ductwork, schools can continuously monitor critical parameters such as **CO_2**, which ensures proper ventilation in densely occupied classrooms; **RH**, which helps prevent mold growth and supports comfort; **VOCs**, which detect emissions from cleaning products and building materials; and **O_3**, which can infiltrate from outdoor air. The sensor we recommend for this application is the **AQ2D-BC2VQBD.**

These duct-mounted sensors provide real-time data that enable quick ventilation adjustments and ensure efficient airflow distribution, helping to reduce energy costs by operating systems only when needed. This centralized monitoring approach allows schools to detect localized issues, prevent hidden mold, and comply with health standards—ensuring a healthier environment for students and staff. For outdoor comparative monitoring, the recommended configuration is the **AQ2O-BC2VQBX**, which measures outdoor levels of **CO_2, VOCs**, and **O_3**, facilitating accurate indoor-outdoor air quality assessments.

To create a healthy learning environment in educational institutions, effective ventilation control is crucial. Monitoring **CO_2** levels helps ensure that classrooms are well-ventilated, reducing fatigue and improving student focus in crowded spaces. **VOC sensors** detect emissions from materials, while **humidity control** prevents mold and keeps rooms comfortable. **Temperature sensors** maintain a stable climate, and **occupancy sensors** (**PIR**) enable ventilation adjustments based on room use. Additionally, **CO sensors** near boiler rooms and **O_3 sensors** for outdoor air prevent harmful exposure. Together, these strategies promote a safer, more comfortable space that supports learning and overall well-being. (Annesi-Maesano et al.)

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INDUSTRIAL SETTINGS

For effective IAQ monitoring in industrial settings, we've configured the TotalSense model with sensors for **CO**, **VOC**, **PM, RH, and temperature**. This setup ensures comprehensive monitoring: the **CO** sensor identifies toxic emissions, the **VOC sensor** tracks solvent and chemical releases, the **PM sensor** captures dust levels, **RH** prevents equipment corrosion, and the **temperature sensor** maintains a safe environment. Using the ordering guide, the optimal configuration is **AQ2W-BC2VPFDFSP**—a wall-mounted model with BACnet/Modbus, OLED display, and **PIR sensing,** providing real-time, actionable data to enhance worker safety and operational efficiency.

For a robust redundancy model, pairing the TotalSense wall-mounted sensor with duct- and outdoor-mounted sensors provides continuous monitoring and added security. The duct-mounted model, **AQ2D-BC2VPBD**, includes a **CO_2 sensor** to monitor carbon dioxide levels and ensure ventilation efficiency, an **RH sensor** to track relative humidity and prevent moisture-related issues, a **VOC sensor** to detect harmful off-gassing or **VOCs**, and a **temperature sensor** using a 10K thermistor to maintain stable indoor climate conditions. Additionally, it features a **PM sensor** to monitor dust and fine particulate pollution circulating through HVAC ducts and an OLED display for real-time monitoring. This ensures early identification of hazardous gases and contaminants in the HVAC system, preventing their distribution throughout the facility.

The outdoor-mounted sensor, **AQ2O-BC2VPBD**, complements this setup by capturing external air quality. It integrates a **CO_2 sensor** to measure outdoor **CO_2** levels for comparative analysis, an **RH sensor** to evaluate outdoor **humidity** and its potential impact on indoor environments, a **VOC sensor** to monitor outdoor emissions and pollutants, a **temperature sensor** to track ambient temperature conditions, and a **PM sensor** to detect dust and **particulate matter** in outdoor air. This model also includes an OLED display for easy outdoor monitoring.

In industrial settings, real-time IAQ monitoring allows facility managers to respond immediately to hazardous conditions, keeping workers safe. By continuously tracking pollutants like **CO**, **VOCs**, and **PM**, managers can identify contamination sources and activate filtration or ventilation as needed. HEPA filters tackle particulates, activated carbon removes **VOCs**, and UVGI neutralizes biological contaminants. **Demand-controlled ventilation (DCV)** optimizes airflow based on current pollutant levels. This proactive approach to monitoring and responding ensures a safe, compliant, and efficient work environment, reducing health risks and enhancing overall operational effectiveness. ("Case Study: Heat Recovery and Demand Controlled Ventilation in Industrial Kitchens")

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MUSEUMS AND ARCHIVES

Museums and archives house invaluable artifacts that are highly sensitive to environmental factors. **Humidity** variations can lead to mold growth, warping, or cracking, while fluctuating **temperatures** accelerate material degradation. Pollutants such as **VOCs** and **PM** further contribute to deterioration, originating from off-gassing materials or external contaminants. Dust accumulation exacerbates wear, and excessive light exposure fades pigments and weakens fibers. Advanced IAQ monitoring with sensors for **RH, temperature, VOC, PM, and ambient light** provides real-time data, enabling precise environmental control. This proactive approach is essential for preserving cultural heritage and ensuring artifact longevity. (Kraševec et al.)

Preserving artifacts in museums and archives requires precise environmental monitoring to protect them from degradation. The **RH sensor** monitors **humidity** to identify conditions that could lead to mold or warping, while the **temperature sensor** ensures stable thermal conditions. The **VOC sensor** detects harmful off-gassing from materials, and the **PM sensor** monitors dust accumulation that accelerates wear. Additionally, the **ambient light sensor** assesses light exposure to prevent pigment fading and fiber weakening. A robust, wall-mounted model like the **AQ2W-BC2VPASP** integrates these key sensors for comprehensive IAQ management, providing actionable insights that enable controlled environments to safeguard priceless collections.

Museums and archives rely on advanced solutions to maintain stable environments crucial for artifact preservation. Key tools include IAQ monitoring systems equipped with sensors for **RH, temperature, VOCs, PM, and ambient light**. **Humidity control systems** paired with **RH sensors** prevent mold growth and warping. HVAC systems with **demand-controlled ventilation (DCV)** optimize airflow based on pollutant levels. HEPA filters and activated carbon filters tackle particulate and chemical contaminants, while UVGI systems neutralize biological threats. **Ambient light sensors** help manage illumination to prevent fading and degradation. These technologies work together to safeguard collections and ensure their longevity. (Kraševec et al.)

TRANSPORTATION HUB

Transportation hubs, such as airports, train stations, and bus terminals, face significant indoor air quality (IAQ) challenges. High foot traffic leads to elevated **CO_2** levels, while vehicle emissions contribute to **CO** and **PM** pollution. Maintaining passenger comfort requires regulating **temperature (T)** and **RH**. Advanced IAQ solutions integrate sensors for **CO_2, CO, PM, T, and RH** to monitor and optimize air quality in real time. These sensors support ventilation efficiency, detect exhaust infiltration, and ensure compliance with health and safety standards, creating a safer, more comfortable environment for passengers and reducing the risk of adverse health effects. (Jensen)

Transportation hubs require comprehensive indoor air quality (IAQ) monitoring to address the challenges posed by high foot traffic and vehicular emissions. Senva's TotalSense AQ2 sensor is an ideal solution, offering key IAQ monitoring capabilities. The recommended configuration includes sensors for **CO_2** to monitor ventilation efficiency in crowded spaces, **CO** to detect vehicle exhaust infiltration, **PM** to measure **particulate matter** pollution, **RH** to maintain passenger

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comfort by managing **humidity**, and **temperature** to regulate the indoor climate. A suitable model, configured as **AQ2W-BC2VPFX**, integrates these sensors with a wall-mounted design and BACnet/Modbus interface. While this model does not include an OLED display, it provides comprehensive monitoring for effective air quality management in transportation hubs.

To ensure reliable and comprehensive air quality monitoring in transportation hubs, a redundancy strategy integrating complementary duct-mounted and outdoor sensors is recommended. For duct applications, the Duct Mount Gas Sensor (model **AQ2D-BC2VPBX**) is ideal for monitoring **CO_2** levels, **PM**, and **temperature** (10K Type 2). This setup ensures air quality is monitored at the HVAC intake to prevent pollutant infiltration. For outdoor monitoring, an outdoor-mounted sensor configured as **AQ2O-BC2VPBX** is recommended to measure **CO_2, PM, and temperature** in ambient air. These models provide critical data points to maintain IAQ, ensure passenger comfort, and achieve regulatory compliance.

Facility managers at transportation hubs use a combination of design strategies and monitoring technologies to ensure healthier air quality for passengers and visitors. Advanced ventilation systems equipped with HEPA or MERV-rated filters remove pollutants like **PM**, while dedicated exhaust systems near vehicle access points minimize **CO** and **NO_2**. Air curtains and sealed entryways limit outdoor pollutants, supported by green spaces that naturally purify air. IAQ monitors play a critical role by providing real-time data on **CO_2, PM, and VOC** levels, enabling ventilation systems to dynamically adjust airflow and filtration, ensuring sustained air quality and safety. (Environmental Protection Agency)

HOSPITALITY INDUSTRY

The hospitality industry faces unique indoor air quality (IAQ) challenges, including mold growth from high **humidity**, **VOC emissions** from cleaning products, and the need for optimal comfort conditions. To address these issues, facilities implement **humidity sensors** to maintain levels that prevent mold while ensuring guest comfort. **VOC sensors** monitor and minimize exposure to harmful chemical emissions, enhancing air quality. **CO_2 sensors** optimize ventilation for fresh air flow, while **temperature sensors** regulate guest room climates for comfort. Paired with **occupancy detection (PIR)** for energy efficiency, these systems create healthier, more inviting spaces that improve guest satisfaction and operational performance.

Maintaining superior indoor air quality (IAQ) is vital for guest satisfaction and operational efficiency in hotels. Key sensors include **RH** to manage **humidity** and prevent mold growth, **VOC** to monitor emissions from cleaning products, **CO_2** to ensure adequate ventilation, **temperature** to regulate guest room comfort, and **PIR** for occupancy detection to enable energy-saving strategies. Based on the ordering guide, the ideal TotalSense model for hospitality applications is **AQ2W-BD2VPBXP**, featuring a wall-mounted design with BACnet/Modbus interface, **RH, VOC, CO_2, temperature** sensing, and **PIR functionality**. This configuration ensures optimal IAQ management while aligning with energy efficiency goals.

Hotels adopt a combination of advanced design strategies and air quality monitoring to ensure healthy

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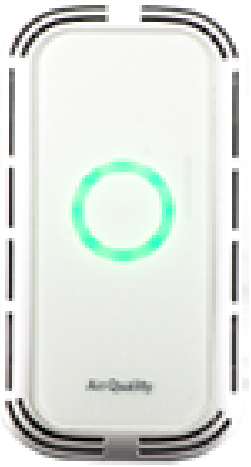
indoor air for guest satisfaction and safety. High-efficiency HVAC systems with advanced filtration, such as HEPA filters, remove airborne particles, allergens, and pollutants. Proper ventilation design ensures a steady supply of fresh outdoor air while minimizing energy loss, often incorporating energy recovery ventilators (ERVs). Humidity control systems maintain moisture levels between 30-60%, reducing the risk of mold and dust mites. **Low-VOC** materials, including paints, furnishings, and cleaning products, limit chemical emissions. Integrating air quality monitoring enhances these efforts by providing real-time data on **CO_2, VOCs,** and **humidity**, enabling hotels to proactively address IAQ issues, optimize ventilation, and ensure continuous compliance with health and comfort standards. This combined approach promotes guest well-being and operational efficiency. (Gupta)

AGRICULTURAL FACILITIES

Indoor agricultural facilities require precise environmental control to maximize productivity and ensure the health of plants and animals. **CO_2 sensors** play a critical role in maintaining optimal levels for photosynthesis, boosting plant growth and yield. **Temperature** and **humidity sensors** are essential for regulating climate conditions, preventing stress on plants and livestock. In animal husbandry, **VOC sensors** detect harmful gases like **ammonia (NH_3)** and **hydrogen sulfide (H_2S)**, triggering ventilation systems to maintain safe air quality. These sensors enable real-time monitoring and control, ensuring optimal growing conditions, protecting livestock health, and improving operational efficiency in modern agricultural facilities. (Delgado et al.)

Indoor agricultural facilities rely on precise environmental monitoring to optimize productivity and ensure plant and animal health. A configuration like the **AQ2W-BC2VPFR** integrates essential sensors to comprehensively address these needs. The dual-channel **CO_2 sensor** maintains ideal levels for photosynthesis, boosting plant growth and yields. The **2% RH sensor** regulates moisture levels to prevent plant stress and ensure livestock comfort. The **VOC sensor** detects harmful gases such as **NH_3** and **H_2S**, ensuring safe air quality in animal facilities. The integrated **temperature sensor** equipped with a 10K thermistor, helps control climate conditions to prevent overheating or frost damage. The **PM** sensor



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(P) monitors particulate matter, which is critical for maintaining clean air in both plant and animal settings. Additionally, the **BACnet/Modbus output (B)** enables seamless communication and remote monitoring, while the **LED ring (R)** provides a visual indication of environmental status. This configuration offers a reliable and streamlined solution for optimizing environmental conditions in agricultural settings.

Indoor agriculture relies on advanced solutions to maintain optimal air quality for crop growth and animal health. Controlled environments utilize **CO_2** monitoring to maintain ideal levels for photosynthesis, boosting plant productivity. **Temperature** and **humidity sensors** regulate climate conditions, supported by automated ventilation systems to maintain consistency. **VOC sensors** detect harmful gases like **NH_3** or **H_2S** in animal facilities, triggering ventilation or filtration systems to ensure safety. High-efficiency air filtration systems remove **PM** and airborne pathogens, while energy recovery ventilators (ERVs) reduce energy loss. These integrated strategies create sustainable environments that enhance yield and health. ("Clearing the Air for Indoor Farming")

CHOOSING THE RIGHT TOTALSENSE CONFIGURATION

Identifying specific indoor air quality (IAQ) requirements begins with evaluating the unique needs of your application. Consider the environment—whether it's a commercial building, agricultural facility, or transportation hub—and assess factors like occupancy levels, pollutant sources, and desired outcomes. For instance, **CO_2** monitoring is crucial in high-occupancy spaces to ensure proper ventilation, while **VOC sensors** are essential for detecting harmful emissions in industrial or agricultural settings. **Temperature** and **humidity** control is vital for comfort and productivity, while **PM** monitoring ensures compliance with health standards. Tailoring IAQ solutions to these parameters ensures optimized environmental performance and safety.

Choosing the right sensors starts with understanding the specific environment and its known pollutants. In high-occupancy spaces, **CO_2 sensors** ensure proper ventilation, while **VOC sensors** are critical for detecting chemical emissions in industrial or agricultural settings. **RH** and **temperature sensors** maintain optimal conditions for comfort, productivity, or plant growth. For environments with airborne particulates**, PM sensors** ensure compliance with health standards. In applications like animal husbandry, **VOC sensors** are essential for safety. Tailoring sensor selection to these factors enables effective monitoring and enhances environmental health and efficiency.

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TotalSense sensors provide a versatile solution to meet diverse facility needs by aligning features with operational goals. For energy efficiency, **PIR sensors** enable occupancy-based HVAC control, reducing costs. In high-occupancy spaces, **CO_2 sensors** ensure proper ventilation, improving air quality and occupant comfort. **VOC** and **PM sensors** detect harmful pollutants, ensuring compliance with safety standards in industrial or agricultural settings. **Temperature** and **humidity monitoring** support optimal environmental control for productivity and health. By tailoring TotalSense features to specific operational objectives, facilities can achieve improved air quality, operational efficiency, and regulatory compliance.

CONCLUSION

Investing in indoor air quality (IAQ) solutions supports long-term facility success by improving energy efficiency, ensuring regulatory compliance, and fostering healthier environments. TotalSense's versatility across commercial, agricultural, and industrial applications ensures customized monitoring for your unique requirements. With 500,000 configurations available, we can create any setup you envision. If you have an air quality monitoring need that isn't listed here, give us a call—we'll gladly help you design the perfect model for your application. Call us today!

SENVA SYNC COMPATIBLE

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To effectively manage indoor air quality across various environments, selecting the appropriate sensors is crucial. Each setting presents unique challenges, such as pollutant sources, occupancy levels, or operational goals. For instance, **CO_2 sensors** are vital in high-occupancy areas to ensure adequate ventilation, while **VOC sensors** are essential for detecting chemical emissions in industrial or agricultural facilities. **Temperature** and **humidity sensors** maintain comfort and productivity, help meet health standards in environments prone to airborne particles. The TotalSense sensor suite provides a comprehensive and versatile solution for diverse facility needs. Features such as **PIR sensors** for occupancy-based HVAC control enhance energy efficiency, while **VOC** and **PM sensors** detect harmful pollutants, ensuring compliance with safety standards. By tailoring sensor configurations to specific applications, facilities can achieve improved air quality, operational efficiency, and regulatory compliance.

The reference table below matches recommended sensors to specific applications:

Application	PIR	RH	T	CO2	VOC	PM	O3	CO	P
Commercial Buildings	✓	✓	✓	✓	✓	✓			✓
Educational Institutions	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industrial Settings		✓	✓		✓	✓		✓	✓
Museums & Archives		✓	✓		✓	✓			✓
Transportation Hubs		✓	✓	✓		✓		✓	✓
Hospitality Industry	✓	✓	✓	✓	✓				✓
Agricultural Facilities		✓	✓	✓	✓	✓			✓

TEMPERATURE OPTIONS

The transmitter option is ideal for applications requiring real-time temperature monitoring and control through building automation systems. It provides seamless integration with HVAC or environmental management systems, enabling accurate and continuous data transmission. This option is particularly suitable when temperature data needs to be displayed locally on the device for immediate reference or accessed remotely via BACnet/Modbus protocols for centralized monitoring and analytics. Its versatility ensures compatibility with modern smart building infrastructures, making it a preferred choice for advanced temperature control applications.

THERMISTOR OPTIONS

APPLICATION	RECOMMENDED THERMISTOR OPTIONS
Commercial Buildings	10K Type 2, 10K Type 3
Educational Institutions	10K Type 2, 10K Type 3
Industrial Settings	100Pt RTD, 1000Pt RTD, 3K
Museums and Archives	100Pt RTD, 20K
Transportation Hubs	10K Type 2, 10K Type 3
Hospitality Industry	10K Type 2, 10K Type 3, 10K with 11K Shunt
Agricultural Facilities	3K, 10K Type 2, 10K Type 3

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

Mounting Type
W = Wall Mount

Output Type *(1)(3)(4)(5)(7)*
A = Analog
B = BACnet/Modbus
D = Dual Analog + BACnet/Modbus

CO2 *(2)*
A = None
C = CO_2
D = Dual Channel CO_2

Humidity Sensor (RH) *(3)*
A = None
2 = 2% RH Sensor

Total Volatile Organic Compounds (TVOC)
A = None
V = TVOC

Advanced Sensors *(4)(6)(7)*
A = None
C = CO
O = O_3
P = (PM) Particulate Matter 1.0, 2.5, 4.0,10.0
Q = PM + O_3
R = PM + CO

Temperature *(3)(5)*
A = None
B = Transmitter
C = 100PtRTD
D = 1000PtRTD
E = 10K Type 2
F = 10K Type 3
G = 10K W/ 11K
H = 3K
I = 2K2
J = 1K8
K = 20K

Display *(1)(5)(6)(7)*
X = None
D = OLED Display
S = OLED w Solid Cover
R = Air Quality Ring

Optional Accessories
Blank = None
(See below for options)

Setpoint Slider *(7)*
Blank = None
C = 1K Ω
F = 10K Ω
G = 20K Ω
T = 200-900 Ω

Slider Offset Resistor
Blank = None
E = 910 Ω
K= 6K Ω

Pushbutton *(7)*
Blank= None
S = Slider Override Pushbutton *(8)*
O = Thermistor Override Pushbutton *(9)*
U = Stand Alone PB Terminals
B = Comms Only PB (No Terminals)

PIR Sensor
Blank = None
P = PIR Sensing

(1) Ambient light detection standard on all models selected with BACnet/Modbus and D= OLED Display Option.
(2) Barometric pressure sensing included standard on all models with CO2!
(3) Models with RH have a separate temp sensor that reads to the display and BACnet/Modbus, if chosen with any temperature selection.
(4) All PM options only available with BACnet/Modbus models.
(5) Only Transmitter and RH option is shown on display and readable via BACnet/Modbus. Thermistor versions not available to display on OLED or to read over BACnet/Modbus. See note (3).
(6) CO sensor only available with display and Temp/RH for calibration purposes.
(7) Slider and pushbutton options not available with PM sensor. Call for additional slider and override options. Slider value will show on the OLED Display and via BACnet/Modbus, if the appropriate options are selected.
(8) Slider required, shorts slider terminals to read pushbutton.
(9) Thermistor Required, shorts thermistor terminals to read pushbutton.

Example:

	Mount	Output	CO_2	RH	TVOC	PM	Temp	Display	Slider	Push-Button	PIR
AQ2	W	- B	C	2	V	P	F	D	F	S	P

(TotalSense Wall mount with BACnet/Modbus RS-485, Temp, CO2, 2% RH, VOC, PM, 10K T3

Replacement Sensors:

AQS - [CO2] Replacement CO2 Sensor
AQS - [D] [CO2] Replacement Dual CO2 Sensor

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