

**IAQSens Series** - Advanced Indoor Air Quality (IAQ) Sensing Technology



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**IAQ-100-N OVERVIEW**

**EBTRON's** IAQ-100-N is an innovative wall mount CO<sub>2</sub> sensor that provides precision measurement in a single device packaged with BACnet<sup>®</sup> MS/TP or Modbus<sup>®</sup> RTU interface for interoperability with all modern building automation systems (BAS). It is ideal for maintenance of IAQ in variable occupancy spaces where direct occupant counting is not well suited. The **EBTRON** IAQ-100-N is key in the acquisition of LEED<sup>®</sup> credits as well as for true demand controlled ventilation in compliance with the Ventilation Rate Procedure (VRP) of ASHRAE<sup>®</sup> Standard 62.1-2007. A patented continuous CO<sub>2</sub> self-calibration feature eliminates routine maintenance. Microprocessor-based electronics, with industrial grade integrated circuits ensure exceptional accuracy and long term reliability. Simple field configuration is accomplished by DIP switches on the main circuit board, or through the BACnet<sup>®</sup> and Modbus<sup>®</sup> RTU interface.

**APPLICATIONS**

- Precision CO<sub>2</sub> sensing element for integration in modern BAS systems.
- Implement for true demand controlled ventilation compliance with the Ventilation Rate Procedure (VRP) of **ASHRAE<sup>®</sup> 62.1**.
- Key in the acquisition of **LEED<sup>®</sup> Energy and Atmosphere** and **Indoor Environmental Quality Credits**.

**SYSTEM FEATURES**

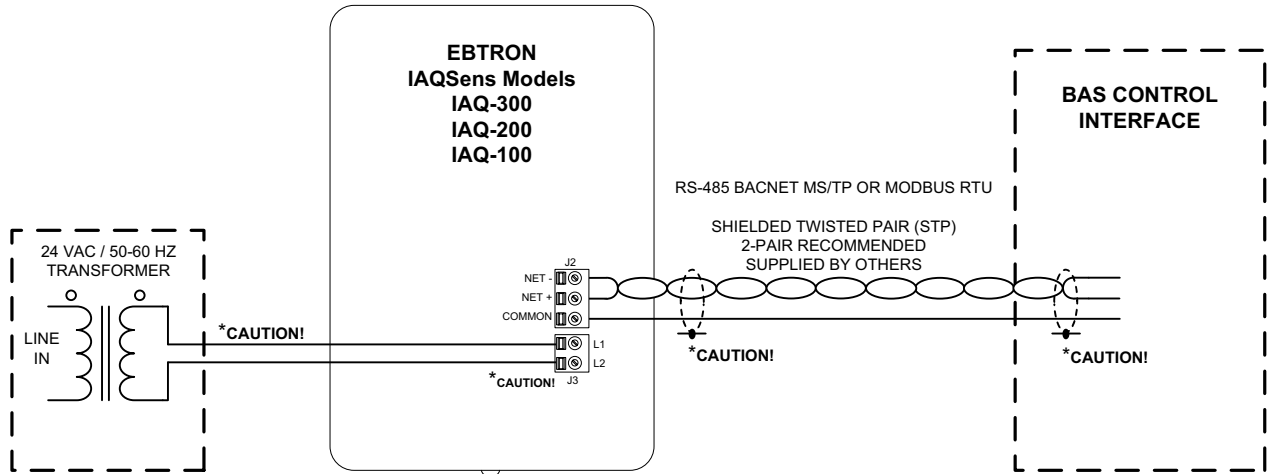
- Integrated BACnet<sup>®</sup>/Modbus<sup>®</sup> RTU device with precision CO<sub>2</sub> sensing element.
- Continuous automatic CO<sub>2</sub> self-calibration feature eliminates routine maintenance.
- Integral RS-485 BACnet<sup>®</sup> MS/TP and Modbus<sup>®</sup> RTU interface for interoperability with modern BAS devices.
- Microprocessor-based electronics with industrial grade integrated circuits.
- Convenient DIP switch user interface for simple field configuration.
- Architecturally neutral enclosure with tamper resistant hardware option compatible with standard single-gang electrical box, and surface mount applications.

**IAQ-100-N SPECIFICATIONS**

Sensor Complement: . . . . .	Advanced precision CO <sub>2</sub> sensing element with RS-485 BACnet <sup>®</sup> MS/TP and Modbus <sup>®</sup> RTU interface	Brownout-Protection: . . . . .	Internal brownout watchdog circuit
CO <sub>2</sub> Sensor Technology: . . . . .	Non Dispersive Infrared (NDIR), gold plated optics, diffusion sampling with patented self-calibration algorithm)	Electrical Protection: . . . . .	Overvoltage, overcurrent, surge protection
CO <sub>2</sub> Range: . . . . .	400-2,000 ppm (factory default) Adjustable to 10,000 ppm	Enclosure: . . . . .	Attractive low profile wall mount enclosure compatible with standard single-gang electrical box, and surface mount applications.
CO <sub>2</sub> Accuracy*: . . . . .	±35ppm at up to 500ppm ±60ppm at up to 800ppm ±75ppm at up to 1000ppm ±90ppm at up to 1200ppm *77 °F (25 °C)	Dimensions: . . . . .	4.650 x 3.250 x 1.090 in (118.11 x 82.55 x 27.69 mm)
CO <sub>2</sub> Stability: . . . . .	<2% of FS over life of sensor (15 years typical)	User Interface: . . . . .	Simple DIP switch selection
IAQ-100-N Signal Processing: . . . . .	Microprocessor-based	Output to Host Controls: . . . . .	RS-485 BACnet <sup>®</sup> MS/TP or Modbus <sup>®</sup> RTU
Power Supply: . . . . .	Integral power supply powered by external 24 VAC (22.8-26.4VAC), 50/60 Hz source.	Baud rates: . . . . .	Selectable 76.8K, 38.4K, 19.2K, 9.6K baud
		System Diagnostics: . . . . .	On board LED status indicator
		Operating Temperature Range: 32° F to 122° F (0° C to 50° C)	
		Operating Humidity Range: . . . . .	0 to 95% RH, noncondensing
		Limited Warranty: . . . . .	36 months from shipment (1 year for CO <sub>2</sub> module) - refer to <b>EBTRON</b> Standard Terms and Conditions of Sale" for complete warranty information.

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**IAQ-100-N TYPICAL WIRING DIAGRAM**

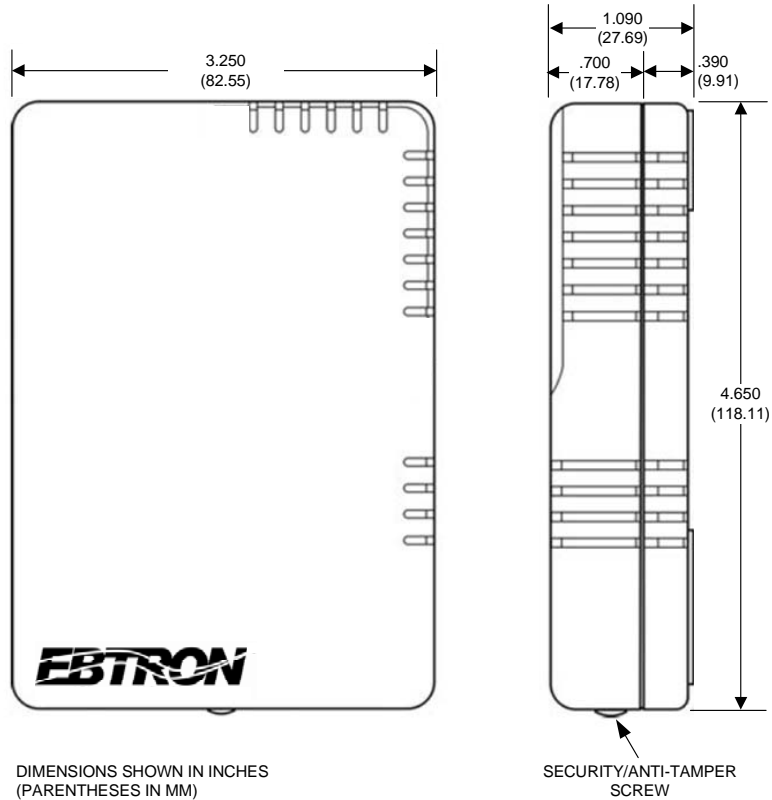


**\* CAUTION!**

When multiple devices are powered from a common 24VAC power source, ensure that all devices are wired in phase with 24VAC power at L1, and 24VAC return at L2! Damage will occur to the IAQSens device and/or other devices if this caution is not observed.

On RS-485 networks that are ground referenced to earth, IAQSens terminal L2 may also be connected to a wire ground referenced to earth. However, on RS-485 networks that are not ground referenced to earth, terminal L2 must not be connected to a wire ground referenced to earth. Damage may occur to the IAQSens or other network devices if this caution is not observed.

**IAQ-100-N DIMENSIONS**



DIMENSIONS SHOWN IN INCHES  
(PARENTHESES IN MM)

SECURITY/ANTI-TAMPER  
SCREW