

## RS-485 BACnet/Modbus Duct Mount CO<sub>2</sub> Sensor with Pitot Tube Pickup and In-line Replaceable Filter



- NDIR CO<sub>2</sub> sensing technology
- 0 to 2,000 ppm range
- ABC logic ensures long-term calibration stability
- Replaceable filter allows prevents sensor fouling in dirty environments
- Isolated RS-485 output circuitry
- Time-tested and reliable BACnet and Modbus firmware
- Field selectable BACnet MS/TP or Modbus RTU protocols
- BACnet master
- DIP switch selectable baud rates
- Attractive wall-mount package
- Compatible with all GreenTrol application specific controllers

- √ Use with GreenTrol outdoor airflow controllers to provide advanced CO<sub>2</sub>-DCV or ASHRAE 62.1 compliant population-based DCV
- √ Demonstrate compliance with ASHRAE Standards 62.1, 90.1 and 189.1
- √ Satisfy LEED requirements
- √ Maintain acceptable indoor air quality
- √ Save energy

The GS-N100-D is a high performance CO<sub>2</sub> sensor for today's demanding DCV applications. It uses Telaire's NDIR sensing technology and GreenTrol's high performance signal processing circuitry.

A pitot tube pickup probe is provided that is easily inserted into the side of a duct. The pickup probe is typically installed in the return air duct near the air handler for single zone applications or in the return duct of individual spaces on multi-zone

applications.

The GS-N100-D time-tested and reliable BACnet MS/TP and Modbus RTU firmware is superior to competitive CO<sub>2</sub> sensors. Its reliability makes it the only approved network duct mounted CO<sub>2</sub> sensor for GreenTrol outdoor air controllers.

When combined with a GreenTrol outdoor air controller, this CO<sub>2</sub> sensor can be used to improve traditional CO<sub>2</sub> demand control ventilation by using a unique control algorithm that resets the outdoor air setpoint between user defined upper and lower airflow limits (not damper positions) to maintain the space CO<sub>2</sub> level. This control method eliminates the under- and over-ventilation that is prevalent with traditional CO<sub>2</sub>-DCV.

An even more advanced control method uses the measured airflow rate and CO<sub>2</sub> level to estimate the population and calculates the required outdoor airflow, thus meeting the actual requirements of ASHRAE Standard 62.1.

Long term stability and high-performance components ensure years of trouble free performance.

# GS-N100-D Technical Specifications

## Functionality

**CO<sub>2</sub> Measurement:** Provides the CO<sub>2</sub> level in ppm via the network connection

**System Status Alarm:** Yes

## User Interface

**Baud Rate, Protocol and Addressing:** DIP switch

**End of Line Termination:** Jumper

*Important: Modification of the factory default settings requires that power is cycled to the device. It is recommended that each device is bench configured prior to installation OR settings are provided at the time of order so that the device can be factory configured prior to shipment.*

## CO<sub>2</sub> Sensor

**Technology:** Telaire Non Dispersive Infrared (NDIR)

**Range:** 400 to 2,000 ppm

**Sampling Method:** Duct mounted pitot tube provided with two 3 foot tubes and inline filter

**Required Duct Velocity:** 300 to 1,500 FPM [1.52 to 7.62 m/s]

**Accuracy:**

400 to 1,250 ppm ±30 ppm or 3% of reading, whichever is greater

1,250 to 2,000 ppm ±5% of reading + 30 ppm

**Temperature Dependence:** 0.36% FS/°F [0.2% FS/°C]

**Pressure Dependence:** 0.33% of reading per 0.1 in. [2.54 mm] Hg

**Stability:** <2% of FS over life of sensor (15 year typical)

**Calibration Interval:** Not required when ABC logic is enabled

**Response Time:** <2 minutes for 90% step change typical

**Signal Update:** Every 4 seconds

**Warmup Time:** 2 minutes operational, 10 minutes to achieve maximum accuracy

## Network Connection

**N1**

**Type:** Isolated, field selectable MS/TP BACnet master or Modbus RTU connection

**B.A.S. Object/Register Read/Write Access:** Yes

**Device Load:** 1/8 load

**Supported Baud Rates:** 9.6, 19.2, 38.4 and 76.8 kbaud

## Environmental Limits, Power Requirements & Dimensions

**Environmental Limits**

**Temperature:** 32 to 122 °F [0 to 50 °C]

**Humidity:** 5 to 95%

**Power Requirement:** 24 VAC (22.8 to 26.4 under load) @1.5V-A

**Dimensions:** 6.01H x 3.57W x 1.58D in. [152.6 x 90.7 x 40.1 mm]

**Pitot Tube Length:** 5.4 in. [137.2 mm]