

GreenSense 300 Series



GS-300-N-CO₂/RH/T OVERVIEW

GreenTrol introduces the GreenSense line of wall mounted IAQ room sensors, designed for monitoring indoor air quality in single sensor, dual sensor and triple sensor versions; Models GS-100, GS-200 and GS-300 respectively. Model GS-300-N-CO₂/RH/T is an innovative precision CO₂/relative humidity (RH)/temperature measurement device in a single device package with BACnet® MS/TP or Modbus® RTU interface for interoperability with virtually all modern building automation systems (BAS). It is ideal for integration into applications for maintenance of IAQ in variable occupancy spaces where direct occupant counting is not well suited. The GS-300-N-CO₂/RH/T is key in the acquisition of LEED® credits for true demand controlled ventilation compliance with the Ventilation Rate Procedure (VRP) of ASHRAE® Standard 62.1-2007. A patented continuous CO₂ self calibration feature eliminates routine maintenance, while microprocessor-based electronics and industrial grade integrated circuits ensure exceptional accuracy and long term reliability. Simple field configuration is accomplished using DIP switches on the main circuit board, or through the BACnet and Modbus RTU interface. The GS-300-N-CO₂/RH/T is housed in a low profile enclosure suitable for mounting on standard single gang electrical boxes or for surface mounting.

APPLICATIONS

- Combined precision CO₂, relative humidity and temperature sensor elements in a single instrument for integration into modern BAS systems; eliminates compatibility and communications issues typically encountered with individual sensors.
- Implement for true demand controlled ventilation compliance with the Ventilation Rate Procedure (VRP) of ASHRAE 62.1.
- Key in the acquisition of **LEED** credits for **Energy and Atmosphere** and **Indoor Environmental Quality**.

SYSTEM FEATURES

- Integrated BACnet/Modbus RTU device with complement of precision sensing elements for CO₂, RH and Temperature measurement.
- Continuous CO₂ self-calibration feature eliminates routine maintenance.
- Integral RS-485 BACnet MS/TP and Modbus 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.
- Low profile enclosure designed for standard single-gang electrical junction boxes or for surface mount applications.

GS-300-N-CO₂/RH/T SPECIFICATIONS

Sensor Complement: Precision sensing elements for CO₂, humidity and temperature

CO₂ Sensor Technology: . . . Non Dispersive Infrared (NDIR); gold plated optics; diffusion sampling; patented self-calibration algorithm

CO₂ Range: 400-2,000 ppm (factory default)
Adjustable to 10,000 ppm

CO₂ Accuracy@77°F/25°C: . ±35ppm at up to 500ppm;
±60ppm at up to 800ppm;
±75ppm at up to 1000ppm;
±90ppm at up to 1200ppm

CO₂ Stability: <2% of FS over life of sensor
(15 years typical)

RH Sensor Technology: . . . Planar Capacitive Polymer

RH Range: 0 to 100% RH, non condensing

RH Accuracy: ±2% @ 20% - 80% RH, 77°F (25°C)
±3%: <20% ->80% RH, 77°F (25°C)

RH Resolution: 0.4% RH

Temperature Sensor Type: . Integral band gap PTAT

Temperature Range: -58°F to 302°F (-50°C to 150°C)

Temperature Accuracy: . . . ±1.08°F at 77°F (±0.6°C at 25°C)

Temperature Resolution: . . . 0.36°F (0.2°C)

Signal Processing: Microprocessor-based

Power Supply: Integral power supply powered by 24 VAC (22.8-26.4VAC), 50/60 Hz source. Power supply features over-voltage, overcurrent, surge protection and brownout watchdog circuit

Enclosure: Low profile wall mount enclosure, compatible with standard single gang electrical box and surface mount applications.

Dimensions: 4.650 x 3.250 x 1.090 in
(118.11 x 82.55 x 27.69 mm)

User Interface: Convenient DIP switch selection

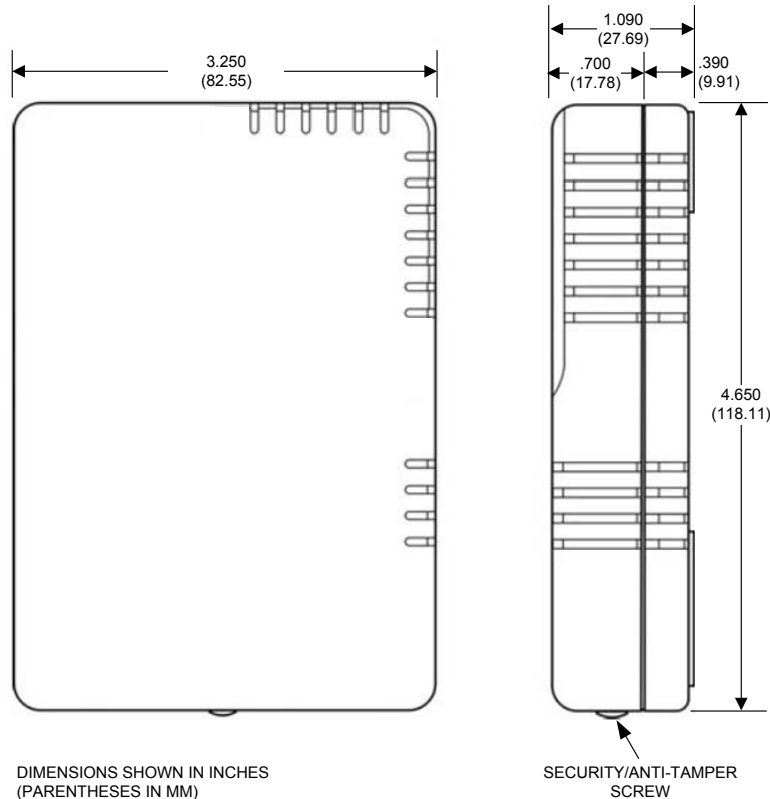
Output to Host Controls: . . . RS-485 BACnet MS/TP or Modbus RTU at 76.8K, 38.4K 19.2K or, 9.6 K baud rates

System Diagnostics: On board LED status indicator

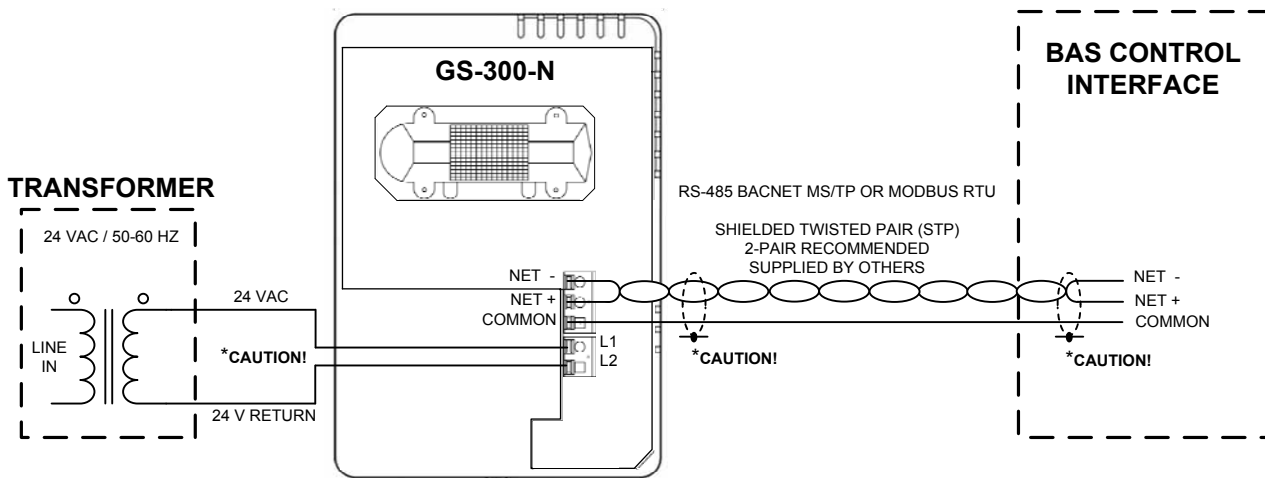
Operating Temp. Range: . . . 32° F to 122° F (0° C to 50° C)

Operating Humidity Range: . 0 to 95% RH, non-condensing

GS-300-N-CO₂/RH/T MECHANICAL DETAIL



GS-300-N-CO₂/RH/T 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 GS-300-N and/or other devices if this caution is not observed.

On RS-485 networks that are ground referenced to earth, GS-300-N 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 GS-300-N or other network connected devices if this caution is not observed.