

## Outdoor Airflow Controller Module with Analog Control Output Signal for Proportional Actuators and Analog Input Fan Speed Controllers



- √ Compensate for damper hysteresis, filter loading, wind, stack and fan speed variations
- √ Provide continuous verification of intake flow rates
- √ Demonstrate compliance with ASHRAE Standards 62.1, 90.1 and 189.1
- √ Satisfy LEED prerequisites and document code compliance
- √ Improve indoor air quality and thermal comfort
- √ Save energy

The OAC-4000 can be provided with a single integrated IAT-DI duct probe, one or two integrated IAT-UI or IAT-US universal mount probes or an approved external BACnet MS/TP airflow measurement device.

The OAC-4000 interfaces with approved MS/TP BACnet CO<sub>2</sub> sensors and occupancy counters when DCV is required.

- ❑ Compatible with GreenTrol IAT integrated thermal dispersion airflow/temperature sensors or approved BACnet MS/TP airflow measuring devices
- ❑ 24 VAC/DC or MS/TP BACnet binary input activates occupied mode operation
- ❑ Provide airflow setpoint control, CO<sub>2</sub>-DCV or population based-DCV during occupied mode
- ❑ Accepts approved BACnet MS/TP CO<sub>2</sub> sensors or occupancy counters when DCV is required
- ❑ Clamp DCV airflow rates between minimum and maximum airflow limits
- ❑ Supports unoccupied airflow setpoint control
- ❑ Built-in notification alarms
- ❑ Contact closure relay can be assigned to notification alarms or active control mode
- ❑ MS/TP BACnet connection

The OAC-4000 modulates a proportional damper actuator or variable speed fan (VFD or ECM with analog speed control input) to maintain the outdoor airflow rate when an external binary trigger is active (i.e. occupied mode). The binary trigger is typically provided by a thermostat or other analog or MS/TP BACnet binary output. The trigger can also be provided by the 24 VAC control signal used when a two-position actuator is provided for outdoor air control (replace the two-position actuator with a proportional actuator).

Advanced logic and airflow measurement improves traditional CO<sub>2</sub>-DCV when demand control ventilation is required. The OAC-4000 controller resets the outdoor airflow setpoint between user defined minimum and maximum airflow limits to maintain either a user defined fixed CO<sub>2</sub> level or variable airflow setpoint based on the population using a built-in CO<sub>2</sub>/airflow counting algorithm or external occupancy counter.

The OAC-4000 interfaces with most MS/TP BACnet building automation systems and supports full read/write privileges as a BACnet 1/8 load master. An RS-485 signal isolator is available when an isolated MS/TP network is required.

# OAC-4000 Controller Module Technical Specifications

## Functionality

### Outdoor Air Control (OAC) Modes Supported

- FLOW:** Maintains a user defined airflow setpoint
- CO2:** Maintains a user defined CO<sub>2</sub> level by resetting the outdoor airflow setpoint (requires a CO<sub>2</sub> sensor)
- CO2/OAF:** Maintains a calculated outdoor airflow setpoint based on the estimated ventilation zone population (requires a CO<sub>2</sub> sensor)
- COUNT:** Maintains a calculated outdoor airflow setpoint based on the occupancy counter population (requires an occupancy counter)
- FIXED:** Maintains a fixed damper position (no control)

**Unoccupied Air Control (UAC) Mode Option:** Yes, maintains a user defined airflow setpoint

### Notification Alarms

- "Unoccupied Mode" High/Low Airflow Alarm
- "Outdoor Airflow Mode" High/Low Airflow Alarm
- "All Modes" CO<sub>2</sub> Alarm (requires a CO<sub>2</sub> sensor)
- "All Modes" System Trouble Alarm

*Note: Alarms can be assigned to the contact closure relay*

## User Interface

- Display:** 16-character alpha-numeric LCD
- Navigation:** 4-button interface

## Integrated Sensor Capability

**Type:** Accepts GreenTrol IAT-DI, IAT-UI and IAT-US Thermal Dispersion Airflow and Temperature Measurement Probe (required unless an external MS/TP airflow measurement device is provided). See appropriate IAT product data sheet for probe information.

### Available Configurations: IAT-DI Probes

**Single Probe:** 1 probe x 1 or 2 sensor nodes/probe

### Available Configurations: IAT-UI and IFT-US Probes

- Single Probe:** 1 probe x 1 sensor node/probe
- Dual Probe:** 2 probes x 1 sensor node/probe

## General Purpose Input

### GP1

- Type:** Binary Input (BI1)
- Assignment:** Mode activation trigger signal
- Configurable Ranges:** 0-24VAC or 0-24VDC
- Trigger Threshold:**
  - VAC Configuration:** 7 VAC
  - VDC Configuration:** 3 VAC

## Analog Output

### A01

- Assignment:** Airflow control signal
- Configurable Ranges:** 0-5V, 0-10V, 2-10V, or 4-20mA
- Maximum Number of Actuators Supported:**
  - 0-5V, 0-10V or 2-10 V:** Unlimited
  - 4-20mA:** 2

## Contact Closure Relay

### R1

- Type:** Dry contact w/ onboard jumper to drive a remote LED
- Assignment:** OAC alarms or Control Mode
- Status:** Normally Open (N.O.)
- Rating:** 30 VDC or 24 VAC @ 3 amp. max.

## Network Connection

### N1

- Type:** Non-isolated MS/TP BACnet master connection (provide an RS-485 network isolator if isolation is required)
- B.A.S. Object Read/Write Access:** Yes
- Device Load:** 1/8 load
- Supported Baud Rates:** 9.6, 19.2, 38.4 and 76.8 kbaud
- MS/TP BACnet Airflow Sensor Capability:** One GreenTrol Automation or approved third-party airflow measurement device (cannot be used if an integrated airflow measurement device is connected).
- MS/TP BACnet CO<sub>2</sub> Sensor Capability:** One GreenTrol Automation or approved third-party space mounted or return air CO<sub>2</sub> sensor
- MS/TP BACnet Occupancy Counter Capability:** One to four GreenTrol Automation or approved third-party occupancy counters

## Environmental Limits, Power Requirements & Dimensions

### Environmental Limits

- Temperature:** -20 to 120 °F [-28.9 to 48.9 °C]
- Humidity:** 5 to 95%

*Important: Provide a weather-proof enclosure if the controller module is mounted outdoors*

- Power Requirement:** 24 VAC (22.8 to 26.4 under load) @8.5V-A
- Dimensions:** 4.34H x 6.59W x 1.83D in. [110.2 x 167.3 x 46.6 mm]