OAC Series

OAC-5000 Controller

Product Data

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

- ❑ 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_2-DCV or population based-DCV during occupied mode
- ❑ Accepts **analog** or approved BACnet MS/TP CO_2 sensors or occupancy counters when DCV is required
- ❑ Clamp DCV airflow rates between minimum and maximum airflow limits
- ❑ Analog airflow output signal
- ❑ Supports unoccupied airflow setpoint control
- ❑ Built-in notification alarms
- ❑ Contact closure relay can be assigned to notification alarms or active control mode

- √ 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-5000 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-5000 interfaces with analog or approved MS/TP BACnet CO_2 sensors and occupancy counters when DCV is required. An analog airflow output signal is also provided.

The OAC-5000 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 is 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_2-DCV when demand control ventilation is required. The OAC-5000 controller resets the outdoor airflow setpoint between user defined minimum and maximum airflow limits to maintain either a user defined fixed CO_2 level or variable airflow setpoint based on the population using a built-in CO_2/airflow counting algorithm or external occupancy counter.

The OAC-5000 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

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OAC-5000 Controller Module Technical Specifications

Functionality

Outdoor Air Control (OAC) Modes Supported

FLOW: Maintains a user defined airflow setpoint

CO2: Maintains a user defined CO_2 level by resetting the outdoor airflow setpoint (requires a CO_2 sensor)

CO2/OAF: Maintains a calculated outdoor airflow setpoint based on the estimated ventilation zone population (requires a CO_2 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_2 Alarm (requires a CO_2 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 Inputs

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 VDC

GP2

Type: Analog Input (AI1)

Assignment: Analog output CO_2 sensor

Configurable Ranges: 0-5V, 0-10V, 2-10V, or 4-20mA

Analog Outputs

AO1

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

AO2

Assignment: Airflow output signal

Configurable Ranges: 0-5V, 0-10V or 2-10V

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_2 Sensor Capability: One GreenTrol Automation or approved third-party space mounted or return air CO_2 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 ^{o}F [-28.9 to 48.9 ^{o}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: 4.72H x 7.29W x 1.36D in. [119.9 x 185.2 x 34.5 mm]