Economizer Minimum Outdoor Airflow Controller Module for Economizer Controllers with Analog Proportional Actuators

- ❑ Compatible with GreenTrol IAT integrated thermal dispersion airflow/temperature sensors or approved BACnet MS/TP airflow measuring devices

- ❑ Provide airflow setpoint control, CO_2-DCV or population based-DCV during MOA mode

- ❑ Accepts approved BACnet MS/TP CO_2 sensors or occupancy counters when DCV is required

- ❑ **Accepts an analog CO_2 sensor when actuator fault/feedback is not 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

√ 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

√ Detect economizer and system faults

The EMOAC-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 EMOAC-5000 interfaces with approved MS/TP BACnet

CO_2 sensors and occupancy counters when DCV is required. It can be used with an analog CO_2 sensor if an actuator fault/feedback signal is not required.

The EMOAC-5000 modulates the control signal to a proportional analog outdoor/return air damper actuator to maintain the minimum ventilation rate required whenever the economizer controller (by others) is in minimum outdoor air mode. The controller can be configured to maintain an unoccupied outdoor airflow setpoint to provide unoccupied pressurization.

Advanced logic and airflow measurement improves traditional CO_2-DCV when demand control ventilation is required. The EMOAC-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 EMOAC-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 when an isolated MS/TP network is required.

EMOAC-5000_ProductData_r1a

EMOAC-5000 Technical Specifications

Functionality

Minimum Outdoor Air Control (MOAC) 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)

PASS: Passes the economizer controller output signal (no control)

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

Economizer Controller Fault Signal Output: Yes (ECO FAULT=ON)

Note: If an economizer controller fault signal is required, an actuator feedback signal must be connected to AI2 and an analog input for a CO_2 sensor is not available. Use an approved BACnet MS/TP sensor if CO_2 measurement is required.

Notification Alarms

"Unoccupied Mode" High/Low Airflow Alarm

"Minimum 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 IAT-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: Analog Input (AI1)

Assignment: Economizer controller actuator output signal

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

GP2

Type: Analog Input (AI2)

Assignment: Actuator feedback signal or analog output CO_2 sensor

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

Analog Outputs

AO1

Assignment: Economizer actuator 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: Economizer controller fault feedback 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: EMOAC 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 °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: 4.72H x 7.29W x 1.36D in. [119.9 x 185.2 x 34.5 mm]