

Andover Continuum™

b3885 VAV Controllers with Built-in Actuator

The Andover Continuum™ b3885 VAV Controller is a native BACnet controller that communicates on an RS-485 field bus as Master devices using the MS/TP BACnet protocol.



Andover Continuum b3885 VAV Controllers with Built-in Actuator Features



PRODUCT AT A GLANCE

- Native BACnet MS/TP Communications for Interoperability to Third-Party Systems
- Supports 18 BACnet Object Types including Trends, Schedules, Calendars, and Loops
- Compact Terminal Controller Provides Low-cost VAV Control
- Built-in Damper Actuator Simplifies Hardware Installation
- Two Universal Inputs; Two Form A Outputs for Flexible Control Options
- Non-Volatile Flash Memory Allows Easy On-Line Software Updates and Application Storage
- On-Board Airflow Sensor
- Local On-Board Service Port
- Typical VAV Applications:
 - Cooling-Only
 - Cooling with 1 or 2-Stage Electric Heat
 - Cooling with Reheat Valve, PWM Control
 - Fan Powered with 1-Stage Electric Reheat
- BTL Listed B-AAC Controller with Local Trends



The low-cost b3885 VAV Controller is equipped with a built-in actuator to streamline hardware installation and save commissioning time. Two universal inputs, an airflow sensor, two Form A Triac-based outputs, and an integrated damper actuator, make this controller perfect for smaller VAV applications.

Similar to all b3 controllers, the b3885 features Flash memory and a fast (32-bit) processor for faster scan times.

As a native BACnet controller, the b3885 can communicate with other BACnet devices on the MS/TP network, in strict accordance with ANSI/ASHRAE standard 135-2004, and is listed with the BACnet Testing Labs (BTL) as BACnet Advanced Application Controller (B-AAC). By connection to the Andover Continuum bCX1 or b4920 device, the b3885s and other MS/TP devices can share and gather data from the wider Ethernet/IP network of controllers. Among those Ethernet controllers can be Andover Continuum controllers (BACnet or Andover Continuum Infinet) or third-party BACnet IP devices. All Andover Continuum devices, both BACnet and Andover Continuum Infinet, are fully compatible with the Andover Continuum CyberStation front-end software, a fully native BACnet Operator Workstation (B-OWS) application.

Increased Reliability with Flash Memory

The b3885's non-volatile Flash memory stores your operating system and application programs, so that in the event of a power loss, your application will be restored when power is returned. In addition, the Flash memory allows for easy upgrades of your operating system via software downloads, eliminating the need to swap out proms.

Andover Continuum b3885 VAV Controllers with Built-in Actuator

Features (continued)

Inputs

The input configuration of the b3885 consists of two full range Universal inputs that accept voltage (0-5VDC), digital (on/off), counter signals (up to 4Hz), or temperature signals, plus an on-board air flow sensor. Typically the two inputs are used for room temperature, and either supply air temperature or a setpoint adjustment signal.

Outputs

The b3885 contains two Form A Triac-based outputs. Each Triac is ground referenced. These outputs can be used separately for on/off or pulsed control of lighting, heat, and fan units or for bi-directional control of dampers and valves; or configured into one Form K Tri-state output. Outputs are rated for AC loads only. Typically, the outputs are used for 1 or 2-stages of electric heat, or a PWM reheat valve.

Damper Actuator

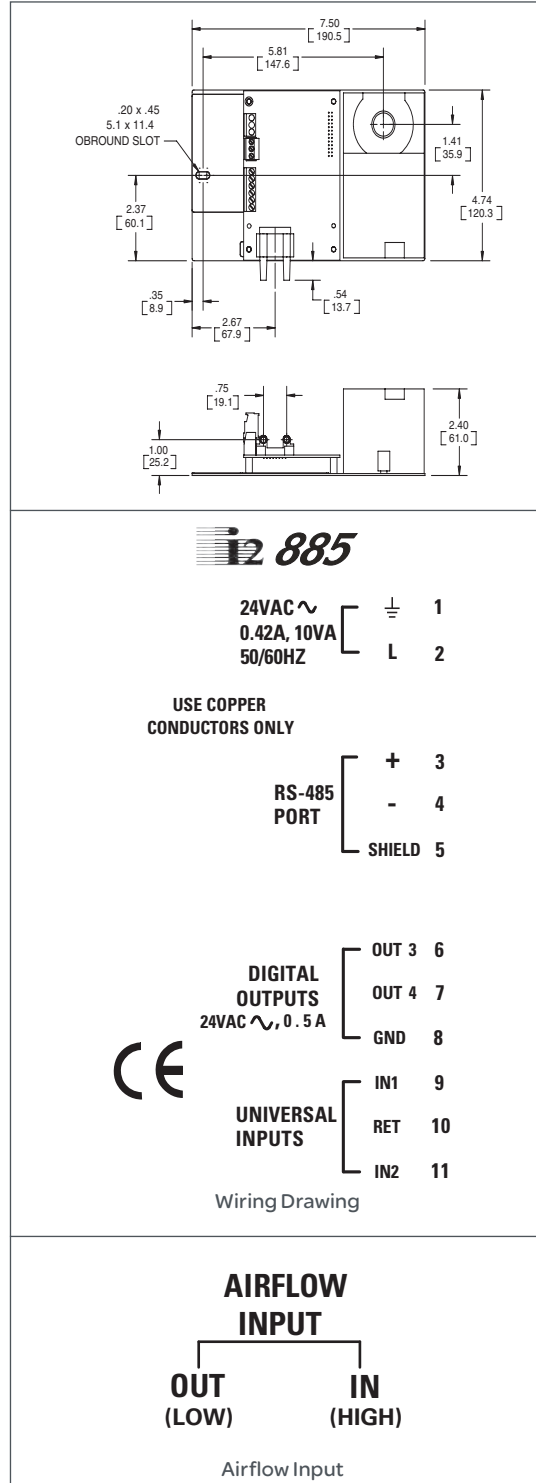
The integrated Belimo® damper actuator allows simple direct mounting of the b3885 directly over the existing damper shaft. This eliminates the need for separate mounting, wiring, and positioning of the damper motor. All b3885 controllers have built-in software over-drive protection which senses repeated motor limit stall conditions and helps to prevent motor damage. Also, the actuator has a built-in clutch button to temporarily disengage the direct-drive gears during commissioning. The b3885 actuator may be preset for a limited range of motion using the mechanical “stops” provided.

Software Capabilities

The dynamic memory of the b3885 can be allocated for any combination of programs, scheduling, alarming, and data logging using the powerful Andover Plain English programming language. Our object-oriented Plain English language with intuitive keywords provides an easy method to tailor the controller to meet your exact requirements. Programs are entered into the b3885 using the Andover Continuum CyberStation™. Programs are then stored in, and executed by, the b3885.

Programming multiple b3885s is inherently easy with Plain English. A complete copy of one b3885's programs can be loaded directly into other b3885s without changing any point names or programs.

Dimensional Drawings



Andover Continuum b3885 VAV Controllers with Built-in Actuator Specifications

b3885 VAV Controllers

Electrical

Power

24 VAC, +10% -15%, 50/60 Hz

Power Consumption

10 VA

Overload Protection

Fused with 1 amp fuse. MOV protected

Software Real-Time Clock

Synchronized through MS/TP via BACnet

Mechanical

Operating Environment

32°–120°F (0–49°C),

10–95% RH (non-condensing)

Size

5.28" H x 7.50" W x 2.40" D

(134.5H x 190.5W x 61D) mm

Weight

1.70 lbs. (0.77kg)

Enclosure Type

None; UL Open Class. Recommend Nema Type 1 Enclosure. Flammability rating of UL94-5V

Communications

Communications Interface

RS-485, BACnet MS/TP

Communications Speed

9600, 19.2K, 38.4K, 76.8K baud

Bus Length

4,000 ft. (1,220m) standard;

BACnet repeater module allows extension to longer distances

Bus Media

Twisted, shielded pair,

low capacitance cable

BACnet Device Profile

B-AAC, BACnet Advanced

Application Controller

BTL Listed

B-AAC with Local Trends



Inputs

2 Universal inputs: Voltage (0-5.115 VDC);

Temperature -30°F to 230°F (-34°C to 110°C),

Digital (on/off), Counter (up to 4Hz at 50% duty cycle, 125 ms min. pulse width).

Current input (0 - 20 mA)

using external 250 ohm resistor

1 airflow sensor (0 to 1" W.C.)

Input Voltage Range

0-5.115 volts DC

Input Impedance

10K ohm to 5.120V

Input Protection

±1000V transients

(Tested according to EN61000-4-4)

Input Resolution

5.0 mV

Input Accuracy

±15mV (±0.56°C from -23°C to +66°C or

±1°F from -10°F to +150°F)

Airflow Input

Range: 0 to 1" W.C. (0-250 Pa)

Resolution: 0.005" W.C. (1.25 Pa) @
23° C (73° F)

Accuracy: ±0.05" W.C. (12.50 Pa)
@23°C (73°F)

Outputs

2 single pole single throw (SPST) Form

A Triacs can also be configured as one

Tri-state Form K

1 integrated damper actuator

SPST Output Rating

Maximum 0.5A, 24VAC,

±2000V transients

(Tested according to EN61000-4-4)

Minimum: 30 mA AC

Each Triac is ground referenced,

DC loads not permitted

Output Accuracy

SPST Output Accuracy:

0.1 sec. for pulse width modulation

User LEDs/Switches

Status Indicator LEDs

CPU CPU Active

Switch

Motor Direction Switch

Andover Continuum b3885 VAV Controllers with Built-in Actuator Specifications (continued)



b3885 VAV Controllers

Damper Actuator

Rated Torque

35 in-lb. (3.95 Nm)

Range of Travel

0-95 degrees, with adjustable mechanical stops

Rotation Speed

1.0 degree/sec nominal

Position Resolution

0.1 degrees with a 1.0 degree min. positioner movement

Actuator Output

1.0 sec minimum pulse duration

Shaft Accommodations

Accepts shafts 1/4" - 5/8" diameter (6.35mm - 15.9mm)

Connections

Power

2-position fixed screw terminal connector

Communications

3-position removeable screw terminal connector

Inputs/Outputs

6-position fixed screw terminal connector

Damper Shaft

1/4" - 5/8" diameter (6.35mm - 15.9mm)

Service Port

4-position connector

General

Memory

512KB SRAM, 1MB FLASH

Processor

Motorola 32-bit Coldfire

Agency Listings

UL/CUL 916, FCC CFR 47 Part 15, ICES-003, EN55022, AS/NZS 3548, and VCCI Class A, CE

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