The VAV Single Duct Zone Controller provides zone level temperature and air quality control for a variety of pressure-independent VAV applications. This advanced controller features an integral actuator for easy installation onto single duct air terminals. It also features native BACnet communications and plug-and-play connectivity to the Carrier i-Vu Open Control System. The Carrier i-Vu Open Control System combines state-of-the-art Carrier equipment, plug-and-play controllers, and the powerful, web-based i-Vu user interface to form a cohesive, intuitive, and fully-integrated BACnet® Building Automation System.

**Application Features**
- Sophisticated factory-engineered and tested control programs provide reliability and energy efficiency
- Pressure independent space temperature control
- Supports modulating hot water, single-position hot water, single-stage electric heat, or zone perimeter heat
- Built-in advanced control routines for zone level humidity control or zone level demand control ventilation (ASHRAE 62)
- Adaptive optimal start and PID control for maximum occupant comfort
- Supports Carrier SPT room sensors, which allow for local setpoint adjustment and local overrides
- Quick and easy test & balancing process

**Hardware Features**
- Integral, brushless actuator for reliability and longevity
- Capable of system or stand-alone operation
- Native BACnet MS/TP communications

**System Benefits**
- Integrated Carrier airside linkage algorithm for plug-and-play integration with Carrier air sources
- Fully plug-and-play with the Carrier i-Vu Open Control System
- Supports demand limiting for maximum energy savings
- Compatible with i-Vu Tenant Billing for tracking tenants’ after-hours energy usage
## Specifications

**Part Number:** OPN-VAVB1

### BACnet Support
- **Advanced Application Controller (B-AAC),** as defined in BACnet 135-2001 Annex L
- **BACnet port:** EIA-485 port for BACnet MS/TP communications (9600 bps, 19.2 kbps, 38.4 kbps, & 76.8 kbps);
  - **Local Access port:** For system start-up and troubleshooting using a PC or BACview (115.2 kbps);
  - **Rnet port:** For connecting SPT room sensors. The Rnet port supports up to 4 SPT Standard sensors and 1 SPT Plus or SPT Pro sensor for averaging or high/low select control.

### Integral Actuator
- Brushless DC motor, torque 35 inch-pounds (4Nm), runtime 205 seconds for 90 degree travel during control

### Integral Pressure Sensor
- Precision low flow AWM series 0–2 in. H₂O, sensitive down to ±0.001 in. H₂O. Barbed tapered airflow connections accept 3/16 in. (4.75 mm) I.D. tubing. Allows for readings across the 0–2 in. H₂O range, accurate to ±5% of full flow at 2 in. H₂O

### Inputs
- **3 analog inputs:** RH/CO2 (0-5V), T55 (10k thermistor), SAT (10k thermistor). AI’s have 10 bit A/D resolution.
- **1 binary input:** Remote Occupancy (dry contact).

### Outputs
- **1 analog output:** Hot Water Valve/Actuator (HWV/ACT). AO is 0 to 10VDC (5mA maximum) with 8 bit D/A resolution using filtered PWM.
- **1 binary output:** HEAT1. Relay contact rated at 1A max @ 24VAC/VDC, configured normally open.

### Protection
- Incoming power and network connections are protected by non-replaceable internal solid-state polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

### Battery
- 10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data retention during power outages

### Status Indicators
- LED status indicators for BACnet communication, run status, error, power, and all digital outputs

### Controller Addressing
- Rotary DIP switches set BACnet MS/TP address

### Listed by
- UL-916 (PAZX), cUL-916 (PAZX7), FCC Part 15-Subpart B-Class A, CE EN50082-1997, UL94-5VA plenum rated enclosure

### Operating Temperature
- 0 to 130°F (-18 to 54ºC)
- 10 to 90% RH, non-condensing

### Storage Temperature
- -24 to 140°F (-30 to 60ºC)
- 10 to 90% RH, non-condensing

### Power Requirements
- 24VAC ± 10%, 50-60Hz, 14 VA power consumption (20 VA with BACview), 26VDC (25V min, 30V max), Single Class 2 source only, 100 VA or less

### Dimensions

<table>
<thead>
<tr>
<th>Overall</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: 7” (17.8cm)</td>
<td>D: 5-5/8” (14.3 cm)</td>
</tr>
<tr>
<td>B: 6-1/32” (15.4 cm)</td>
<td>E: 4-9/16” (24.3 cm)</td>
</tr>
<tr>
<td>C: 6” (15.2 cm)</td>
<td>F: 1-5/16” (3.3 cm)</td>
</tr>
<tr>
<td>Depth: 2-1/2” (6.4 cm)</td>
<td>G: 7/8” (2.4 cm)</td>
</tr>
<tr>
<td>Weight: 1.7 lbs (0.77 kg)</td>
<td>H: 1-5/16” (3.3 cm)</td>
</tr>
</tbody>
</table>

- Minimum Shaft Diameter: 3/8” (.95 cm)
- Maximum Shaft Diameter: 1/2” (1.27 cm)
- Minimum Shaft Length: 1-3/4” (4.45 cm)

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs, without notice or without incurring obligations.

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