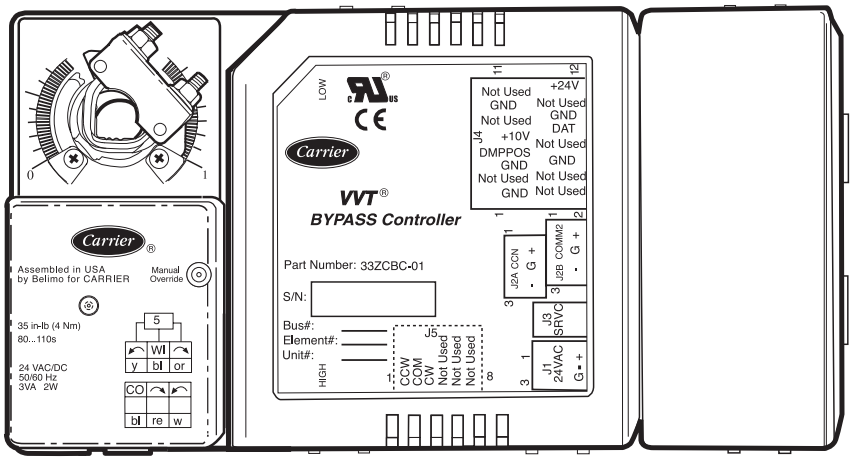
Product Specification

3V™ Control System Bypass Controller with Integrated Actuator

Part Number: 33ZCBC-01



BYPASS CONTROLLER

The Bypass Controller is a component of Carrier's 3V system and is used to regulate the supply duct static pressure for Variable Volume and Temperature Applications. The Bypass Controller is an essential system component that allows constant volume HVAC equipment to provide zone level temperature control. The Bypass Controller provides the following features:

- System or stand-alone operation
- Integrated pressure sensor
- Determines system-operating mode

The Bypass Controller operates on the 3V system network and is compatible with all Carrier communicating devices. A user interface is not required for everyday operation of the bypass controller. The Bypass Controller can be configured or operated through the Carrier Network with optional interface tools including the System Pilot or Carrier Software.

Features/Benefits

- Supply air temperature and pressure sensors determine system operating mode to ensure proper operation in case of communication failure.
- Air source leaving air temperature protection minimizes the occurrence of heating and/or cooling lockouts based on unacceptable discharge temperatures.
- Quick and easy commissioning and balancing process via a dedicated maintenance table
- Stand-alone or linked system operation
- Carrier linkage system capability
- Foreign language support for ASCII based character sets
- Carrier communicating network device

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Features/Benefits (cont)

- High-speed (38.4K baud) communications network
- Thermistor type duct temperature sensor
- Pressure sensor
- UL94-5V plenum rated controller housing
- Actuator preassembled to housing and rated at 35 in.-lb (3.95 N-m) torque, an adjustable 90-degree stroke, and provides 90-second nominal timing at 60 Hz
- Actuator assembly has an integrated conduit box and cover
- Both covers for the control are hinged
- Actuator suitable for mounting onto a $^3/_8$-in. (9.5 mm) square or round VVT box damper shaft or onto a $^1/_2$-in. (13 mm) round damper shaft. The minimum VVT box damper shaft length is $1^3/_4$-in. (45 mm)
- Actuator will operate with dampers having 90, 60, and 45 degree strokes
- Mounts directly onto bypass damper shaft
- Can drive up to 4 linked damper actuators
- Designed for vertical or horizontal mounting
- Both controller housing and actuator are UL94-5V plenum rated
- Control complies with ASHRAE 62.1

→ Functions

- Auto pressure sensor zero calibration
- Manual pressure sensor calibration
- Bypass damper calibration
- Bypass damper modulation
- Leaving air temperature protection
- Network tables and alarms
- System PIlot interface

Specifications

Inputs

- Duct temperature sensor
- Damper position feedback potentiometer (factory installed)
- System pressure (factory installed)

Outputs

- Integrated factory-wired pressure dependent damper actuator

Physical characteristics

Dimensions . . . . . 2.36 in. H x 9.2 in. W x 4.84 in. D (60 mm x 233.7 mm x 123 mm)

→ Electrical characteristics

Input Volts 40 va at 24 vac ± 10% (50/60 Hz)

Environmental requirements

Operating Temperature. . . . .32 F to 131 F (0° C to 55 C)

Storage Temperature . . . . . 32 F to 158 F (0° C to 70 C

Operating Humidity . . . . . 10% to 95% non-condensing

Storage Humidity . . . . . 10% to 41% at 158 F condensing

Communications characteristics

Local communications between Carrier communicating network devices at up to 38.4 KB. Computer access available.

Remote access through modem at up to 38.4 KB. Computer access available.

Wiring requirements

Communication Bus — 3-Conductor, 18-Gage, Stranded, with Shield

Power — 2-Conductor, 18-Gage, Stranded, with Shield

Vibration

Performance Vibration:

1.5 G measured at 20 to 300 Hz

Corrosion

Office environment. Indoor use only.

Agency Approvals

NEC Class 2

UL 916-PAZX and UL 873

Conforms to requirements per European Consortium standards EN50081-1 (CISPR 22, Class B) and EN50082-1 (IEC 801-2, IEC 801-3, and IEC 801-4) for CE mark labeling.

UL94-5V (actuator)

Field-installed accessories

System Pilot — The 33PILOT-01 System Pilot is a user interface to the Bypass Controller with a full complement of display features that can be used to configure and operate the Bypass Controller. The System Pilot communicates to the Bypass Controller over the main network Bus through Comm1.

Field-Installed Actuators — Belimo Multi-Function Technology actuators may be ordered direct from Belimo. The following accessory actuators may be used instead of the integrated actuator:

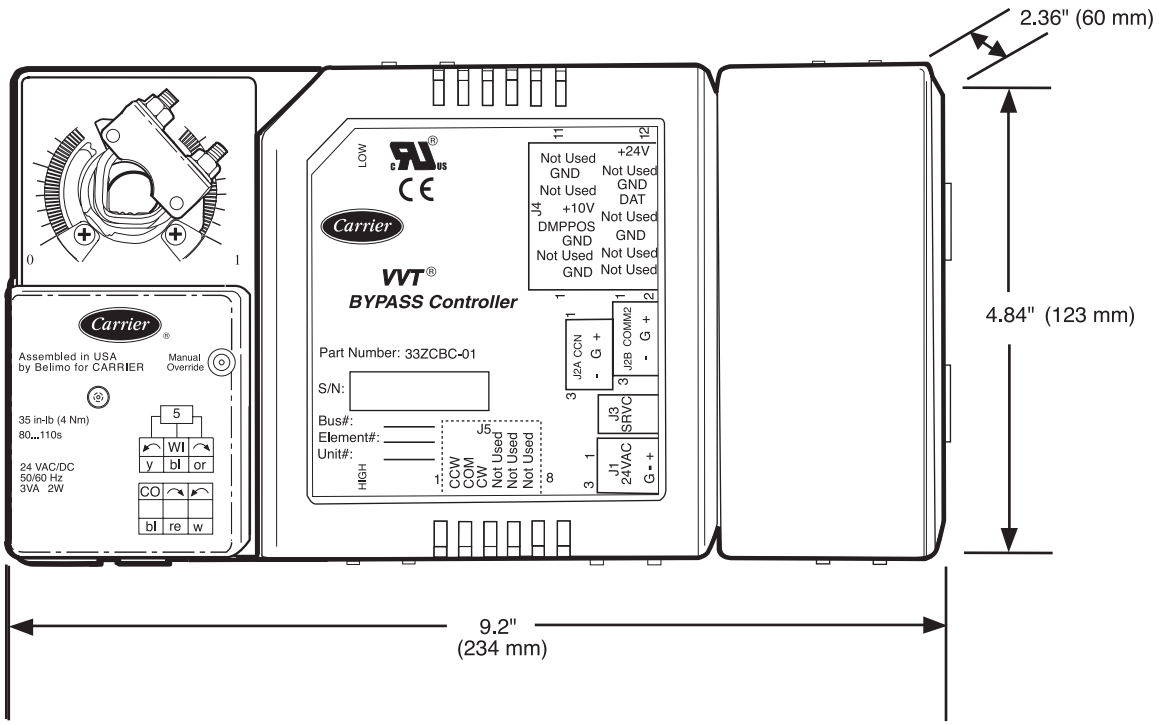
- NM24-MFT US P-30002 — 70 in.-lb actuators with floating point control and 0 to 10 vdc feedback.
- AM24-MFT US P-30002 — 160 in.-lb actuators with floating point control and 0 to 10 vdc feedback.

The following actuators may be used as linked actuators. Up to four actuators may be linked to the master actuator:

- LM24-MFT US P-10002 — 35 in.-lb actuators with 0 to 10 vdc control and 0 to 10 vdc feedback.
- NM24-MFT US P-10002 — 70 in.-lb actuators with 0 to 10 vdc control and 0 to 10 vdc feedback.
- AM24-MFT US P-10002 — 160 in.-lb actuators with 0 to 10 vdc control and 0 to 10 vdc feedback.

Dimensions

→ **BYPASS CONTROLLER**



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