



# Mounting Instructions

Part Numbers 33ZCVVTZC-01, 33ZCBC-01

**IMPORTANT:** This document contains mounting information only. Refer to the Installation, Start-Up, and Configuration manual for zone controller and bypass controller installation. Refer to the Installation, Start-Up, and Configuration manual for configuration procedures.

## GENERAL

The VVT bypass controller is a component of Carrier's 3V™ control 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 (heating, ventilation and air conditioning) equipment to provide zone level temperature control. The bypass controller will need to be mounted on the damper.

The VVT zone controller is a component of Carrier's 3V control system and is used to provide zone level temperature and air quality control for Variable Volume and Temperature Applications. The VVT zone controller is a pressure dependent device that maintains space temperature by modulating the amount of supply airflow through its primary damper. An integrated 35 in.-lb actuator is standard on all VVT zone controllers.

The VVT zone controllers are available factory-mounted to Carrier's round and rectangular dampers. Round dampers are available in 6, 8, 10, 12, 14, and 16-in. sizes. Rectangular dampers are available in 8x10, 8x14, 8x18, and 8x24-in. sizes. All damper assemblies are equipped with an integrated duct temperature sensor.

## TOOLS REQUIRED

- 1/4-in. nut driver
- 8-mm wrench or socket
- No. 1 Phillips head screwdriver

## INSTALLATION

**Location** — The zone controller or bypass controller must be mounted on the air terminal's damper actuator shaft. For service access, there should be at least 12 in. of clearance between the front of the controller and adjacent surfaces. See Fig. 1 for dimensions.

**Mounting** — Perform the following steps to mount the controller:

1. Visually inspect the damper and determine the direction in which the damper shaft moves to open the damper — clockwise (CW) or counterclockwise (CCW).

If the damper rotates CCW to open, it does not require any configuration changes.

If the damper rotates CW to open, then the damper actuator logic must be reversed. This is done in the software when performing system start-up and damper calibration test. Do not attempt to change damper rotation by changing wiring. This will upset the damper position feedback potentiometer readings.

2. Rotate the damper shaft to the fully closed position.
3. Press the release button on the actuator and rotate the clamp in the same direction that was required to close the damper in Step 2.
4. Press the actuator release button and rotate the actuator back one-position of graduation. Release the button and lock the actuator in this position.
5. Mount the controller to the terminal by sliding the damper shaft through the actuator clamp assembly. See Fig. 2 for details. Remove the controller wiring access cover. Secure the controller by installing the screw provided through the grommet in the anti-rotation slot. Detach the grommet from the slot so it can slide from side to side. Be sure the floating grommet is in the center of the slot. **FAILURE TO CENTER THE GROMMET MAY CAUSE THE ACTUATOR TO STICK OR BIND.**
6. Tighten the actuator clamp assembly to the damper shaft. Secure by tightening the two 8-mm nuts.
7. If the damper has less than 90 degrees of travel between the fully open and fully closed positions, then a mechanical stop must be set on the actuator. The mechanical stop prevents the damper from opening past the maximum damper position. To set the mechanical stop, perform the following procedure:
  - a. Press the actuator release button and rotate the damper to the fully open position.
  - b. Using a No. 1 Phillips screwdriver, loosen the appropriate stop clamp screw and move the stop clamp so that it contacts the edge of the cam on the actuator.
  - c. Secure the stop clamp in this position by tightening the screw.
8. Verify that the damper opens and closes. Press the actuator release button and rotate the damper. Verify that the damper does not rotate past the fully open position. Release the button and lock the damper in the fully open position.
9. *Bypass Controller Only:*

Remove the cover from the bypass controller. Install field-supplied 1/4-in. pneumatic tubing (rated for the application) from the high-side pressure transducer to the system pressure pick-up. Connect to the P1 port of the airflow transducer. Be careful to avoid sharp bends in the tubing, because malfunctions may occur if the tubing is bent too sharply. For best operation, use at least 2 ft of tubing. Replace cover.

NOTE: A filter is not provided for the pressure transducer. For typical control retrofit applications where the existing ductwork is left intact, a filter is not required. However, it is recommended that for installations on new systems or systems where high degrees of impurity exist (for example: new construction, jobs where the existing ductwork has been disturbed, or systems where high relative humidity is present in the supply plenum), an air filter should be purchased and installed in the pneumatic piping between the high-pressure pickup and the transducer. A suitable filter

(paper type, with a 5 micron rating) is available from Carrier Replacement Components Division. The filter part number is KH10MZ001.

10. Replace wiring access cover.
11. For further instructions regarding sensors, options, and start-up, configuration, and troubleshooting of the controller, refer to the Installation, Start-Up, and Configuration Instructions available from a local Carrier representative.

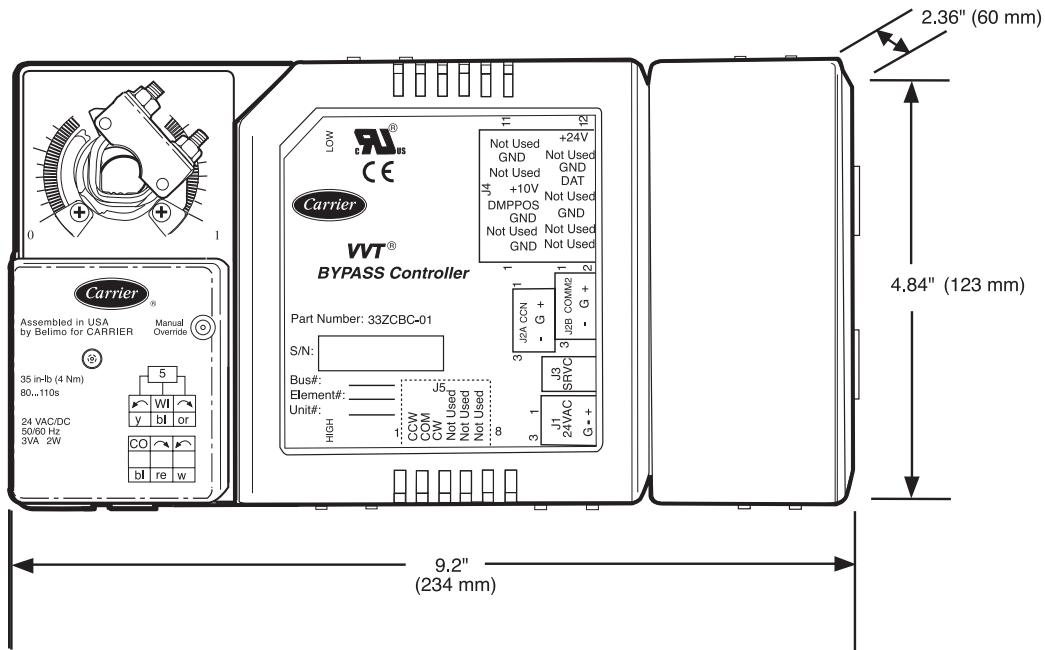


Fig. 1 — Zone Controller/Bypass Controller Dimensions (Bypass Controller Shown)

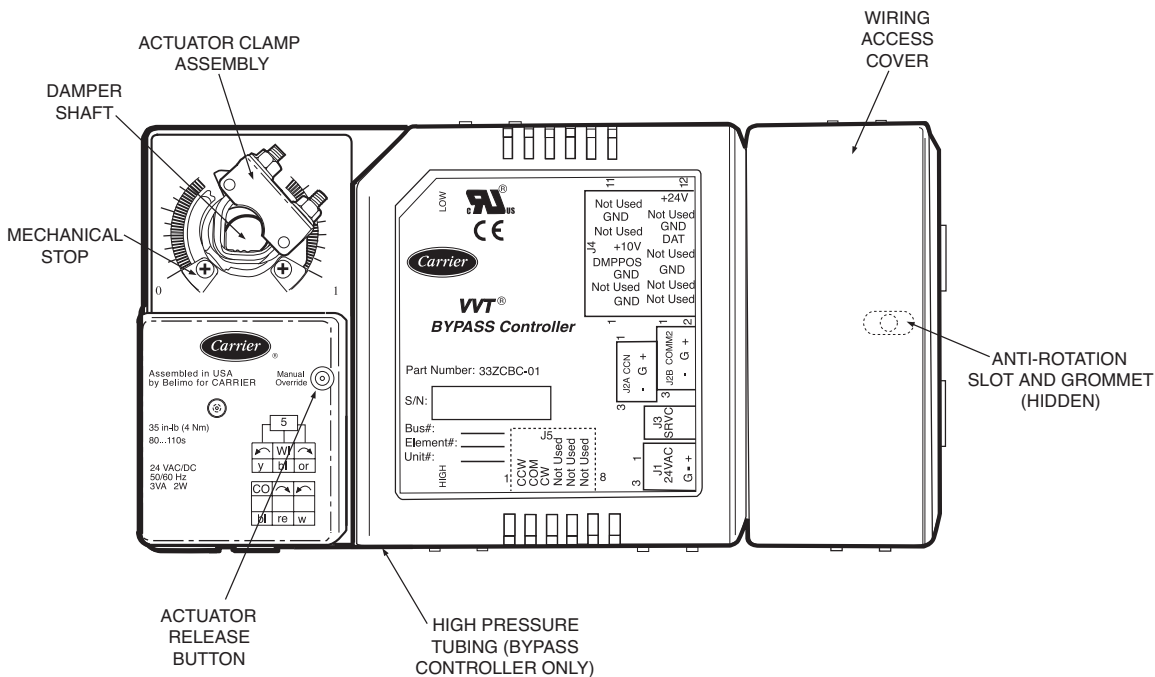


Fig. 2 — Zone Controller/Bypass Controller Details (Bypass Controller Shown)