SIEMENS

Installation Instructions
Document No. 550-972
January 31, 2008

Siemens BACnet VAV Actuator

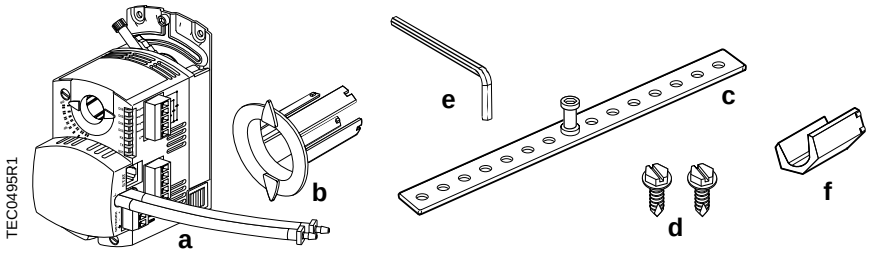

Figure 1. Actuator Parts.

Parts List

a. Actuator with pre-terminated tubing
b. Position indicator
c. Mounting bracket
d. Self-tapping mounting screws
e. 4 mm hex key
f. 3/8 inch shaft adapter (8 to 10 mm shafts)

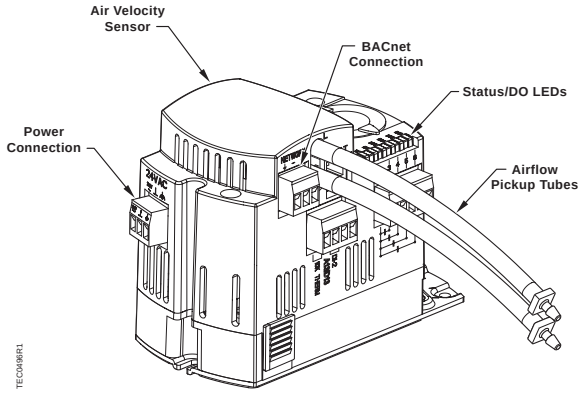

Figure 2. Siemens BACnet VAV Actuator.

Control Applications

2560 through 2567

Product Description

These installation instructions describe direct-coupled mounting of the Siemens BACnet VAV Actuator. A combination TEC and OpenAir™ GDE131 Non-spring Return Rotary Electronic Damper Actuator.

A version using the GLB gear train is also available and provides 88 in. lbs. of torque.

Product Numbers

550-430	Siemens BACnet VAV Actuator (GDE)
550-431	Siemens BACnet VAV Actuator (GLB) with Reheat/Fan/Spare DO

Warning/Caution Notations

WARNING:

Personal injury/loss of life may occur if you do not follow the procedures as specified.

CAUTION:

Equipment damage or loss of data may occur if you do not follow the procedures as specified.

Expected Installation Times

25 minutes.

Required Tools and Materials

- 4 mm hex wrench
- Small flat-blade screwdriver
- 1/4-inch Hex drill/driver set
- Marker or pencil
- Torque Wrench

Instructions

1. Determine the size of the damper shaft.

    - If the damper shaft is 1/2-inch, proceed to Step 2.

The actuator comes with a factory installed 1/2-inch damper shaft guide.

    - If the damper shaft is **5/8-inch:**

    a. Remove the 1/2-inch shaft guide, Figure 3.

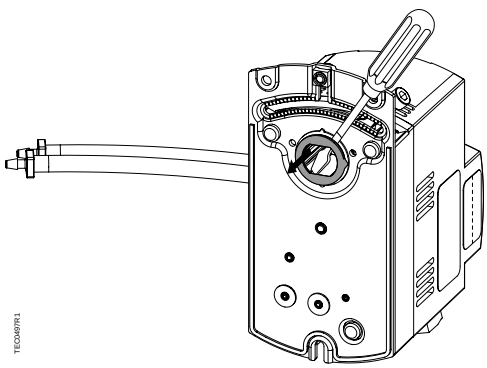

Figure 3. Removing the 1/2-inch shaft guide.

    b. Proceed to Step 2.

    - If the damper shaft is **3/8 inch:**

    a. Remove the 1/2-inch shaft guide, Figure 3.

    b. Use the 3/8-inch adapter, provided in the actuator packaging, Figure 4. Hold the shaft insert so that the raised tabs are inserted last when placing the insert into the back of the actuator.

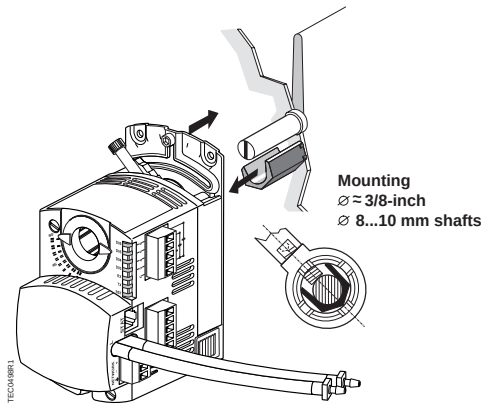

Figure 4. Installing the 3/8-inch shaft adapter.

    c. Proceed to Step 2.

2. Determine the damper blade rotation, clockwise or counterclockwise to open, Figure 5.

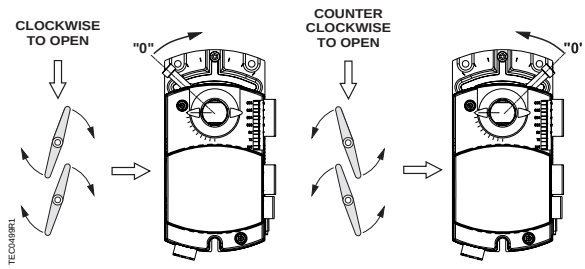

Figure 5. Damper Rotation.

    - If the blades will rotate counterclockwise, slide the manual override switch to manual, and move the adjustment lever to the right. Return the switch to automatic, Figure 6.
    - If the blades will rotate clockwise, slide the manual override switch to manual, and move the adjustment lever to the left. Return the switch to automatic, Figure 6.

Changes to the motor setup will be required when installing the 88 in. lb. version (550-431). The motor run time must be changed to 125 seconds.

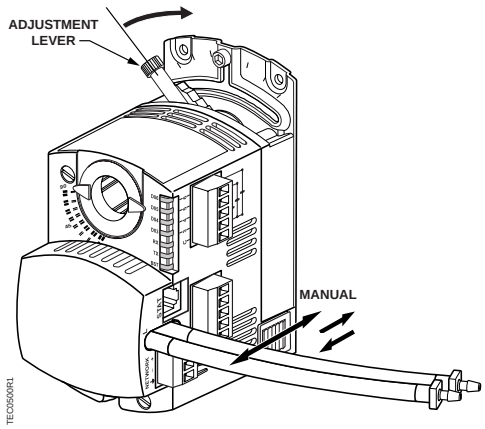

Figure 6. Setting the Direction of Rotation.

3. Close the damper blades, Figure 8.

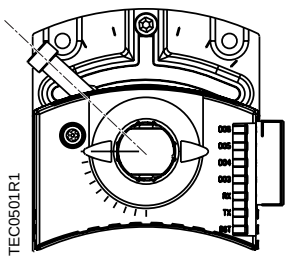

Figure 7. Set screw in shaft hole.

4. Mark the end of the damper shaft with a pencil/marker, Figure 8.
5. Tighten the set screw until the first thread can be seen in the shaft hole, Figure 7.

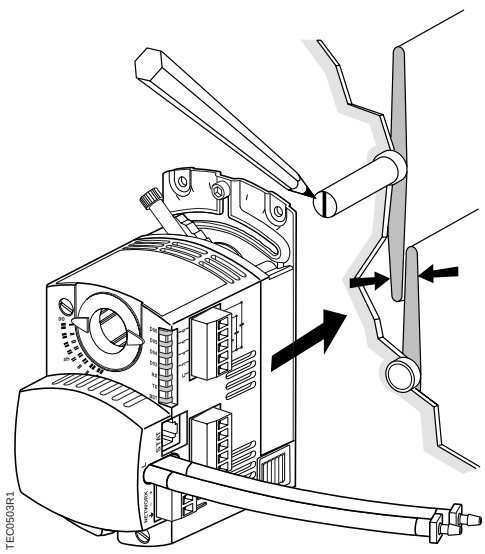

Figure 8. Mounting the actuator.

6. Mount the actuator on the damper shaft, Figure 8.
7. Install the position indicator, Figure 9.
8. Tighten the adjustment lever to the proper torque listed:
   - 70 +/- 5 inch-pounds for solid metal
   - 37 +/- 2 inch-pounds for plastic graphite composite (hollow metal shafts require an insert to prevent shaft damage).

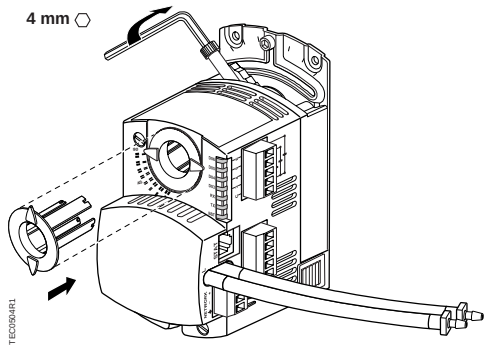

Figure 9. Position indicator and adjustment lever.

9. Attach the mounting bracket, Figure 10.

When installing the mounting bracket directly on the ductwork be sure to position the bracket such that the screws do not obstruct the damper blade movement inside the box.

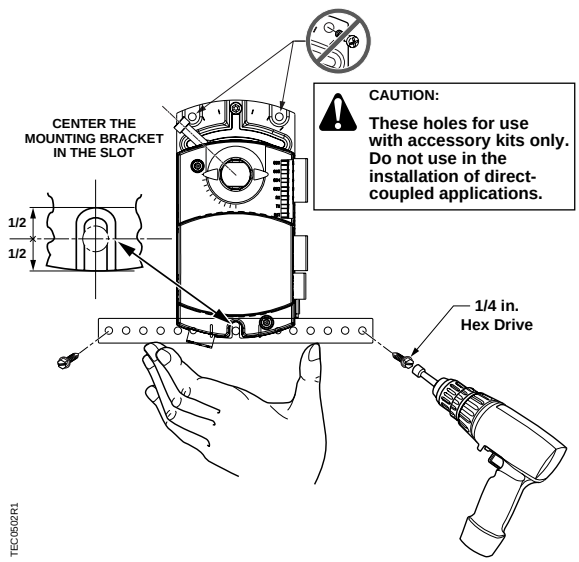

Figure 10. Installing the mounting bracket.

10. Connect the airflow tubing for the Differential Pressure Sensor.

    - RED connect to HIGH.
    - BLUE connects to LOW.

Wiring

WARNING:

Installations requiring CE Conformance

— All wiring for CE rated actuators must be Separated Extra Low Voltage (SELV) or Protective Extra Low Voltage (PELV) per HD384-4-41.

— Use safety-isolating transformers (Class III transformer) per EN 61558. They must be rated for 100% duty cycle.

— Over current protection for supply lines is maximum 4A.

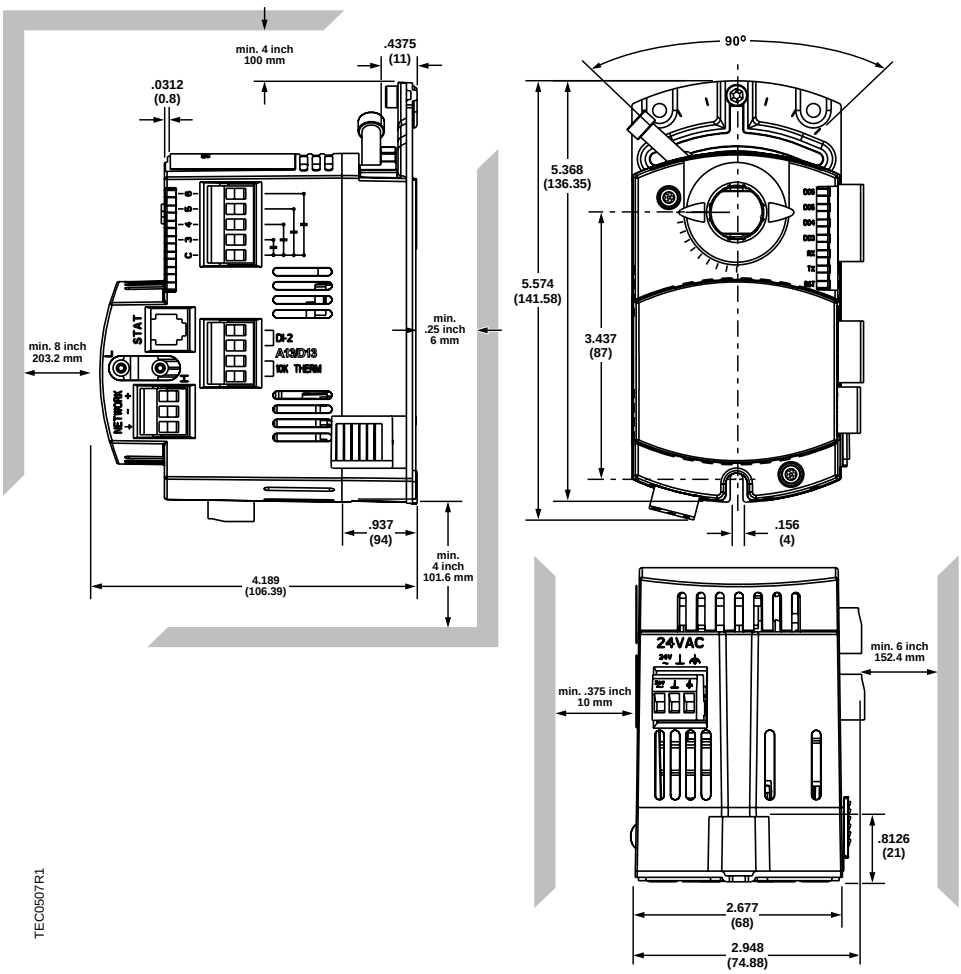

Figure 11. Siemens BACnet VAV Actuator Dimensions (not to scale).

Wiring Instructions

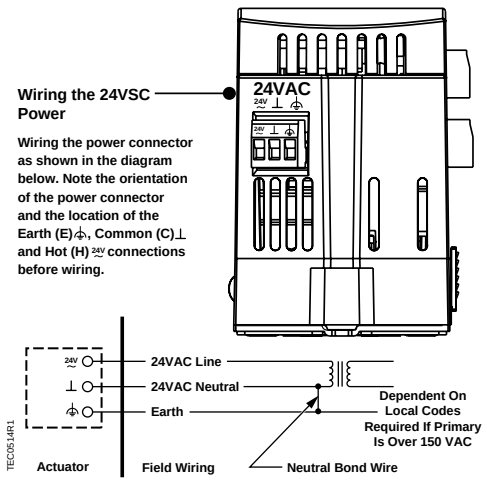

Figure 12. Power Wiring.

Digital Outputs (DO):

The Digital Outputs on the Siemens BACnet VAV Actuator are dry ouput Triac type outputs. 24 Vac must be applied to the “C” pin of the DO connector, the side view of the Actuator shows output pin details. By providing dry output Triac DOs, the application can switch either Phase or Neutral depending application needs. In a 24 Vac circuit, neutral is determined by which side of the transformer is earth grounded. If neither side is earth grounded (at the transformer) then the 24 Vac is considered a floating (isolated source) source.

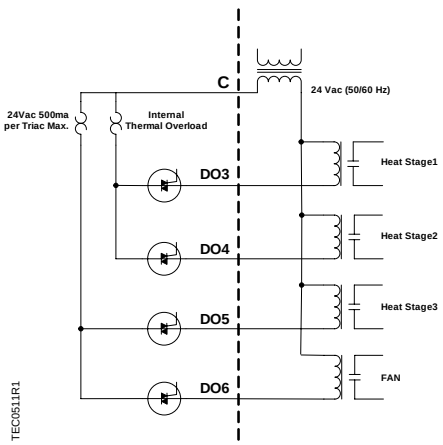

Figure 13. Siemens BACnet VAV Actuator with Electric Heat and Fan.

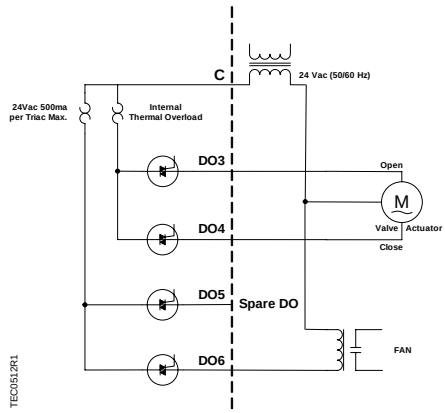

Figure 14. Siemens BACnet VAV Actuator with Hot Water Reheat, Fan and Spare DO.

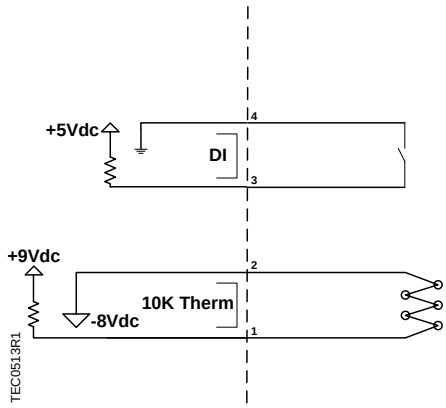

Figure 15. Wiring for DI2 / AI3.

Wiring DI Common (pin 4) to 10K Thermistor - 8Vdc (pin 2) incorrectly, will cause the Actuator to shut down. No damage will occur. When the wiring is corrected the Actuator will resume operation.

Wiring Diagrams

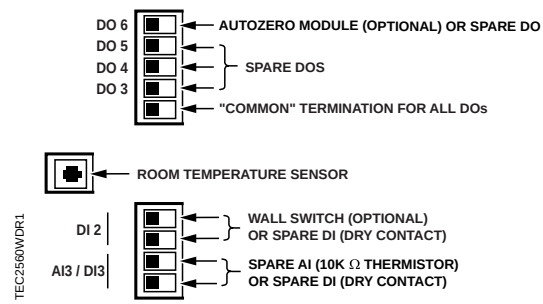

Figure 16. Application 2560 Wiring Diagram (Cooling Only).

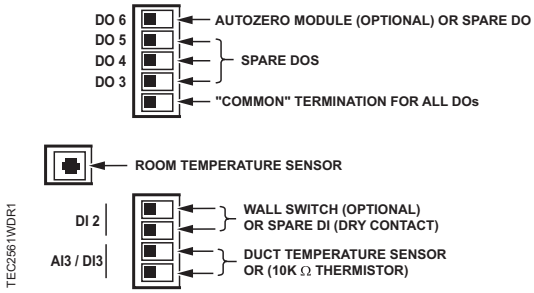

Figure 17. Application 2561 Wiring Diagram (Heating or Cooling).

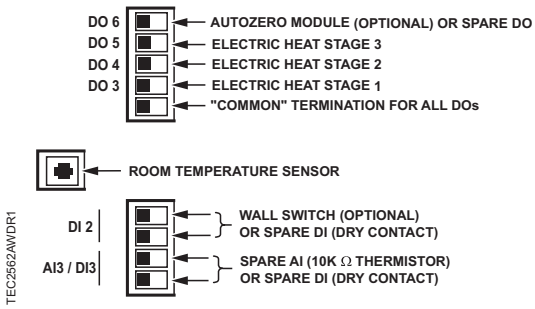

Figure 18. Application 2562 Wiring Diagram (Electric Heat Stages).

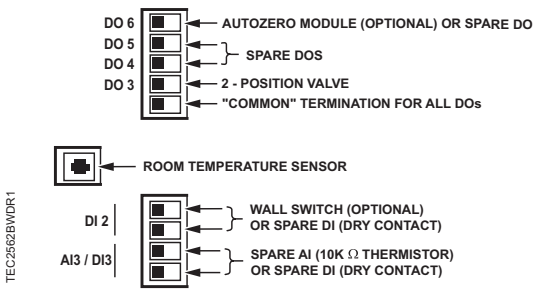

Figure 19. Application 2562 Wiring Diagram (Baseboard Radiation).

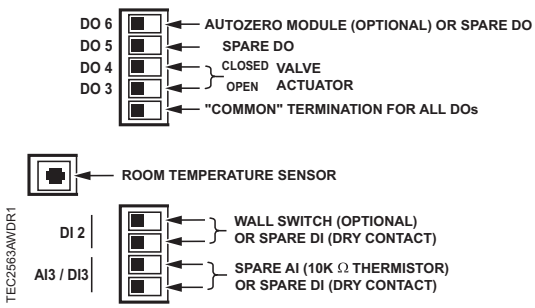

Figure 20. Application 2563 Wiring Diagram (Hot Water Heat and Spare DO).

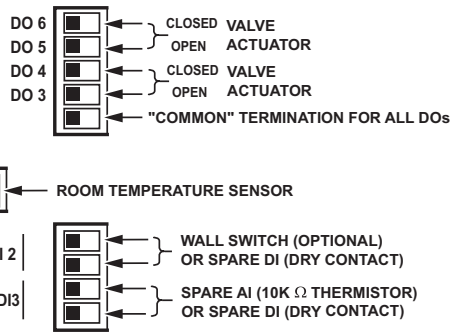

Figure 21. Application 2563 Wiring Diagram (Hot Water Heat 2 motors).

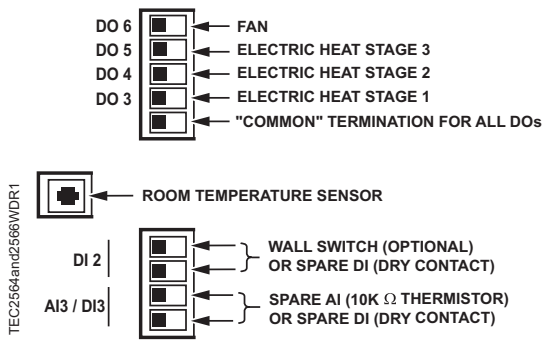

Figure 22. Application 2564 / Application 2566 Wiring Diagram (Electric Heat Stage & Series or Parallel Fan).

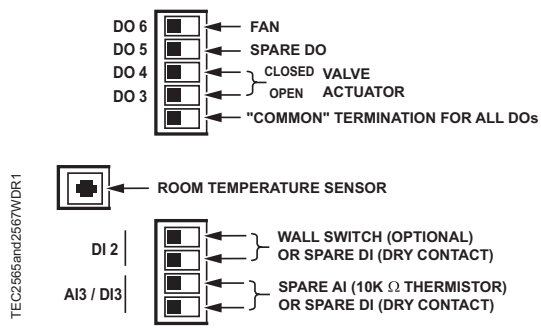

Figure 23. Application 2565 / Application 2567 Wiring Diagram (Hot Water Heat & Series or Parallel Fan).