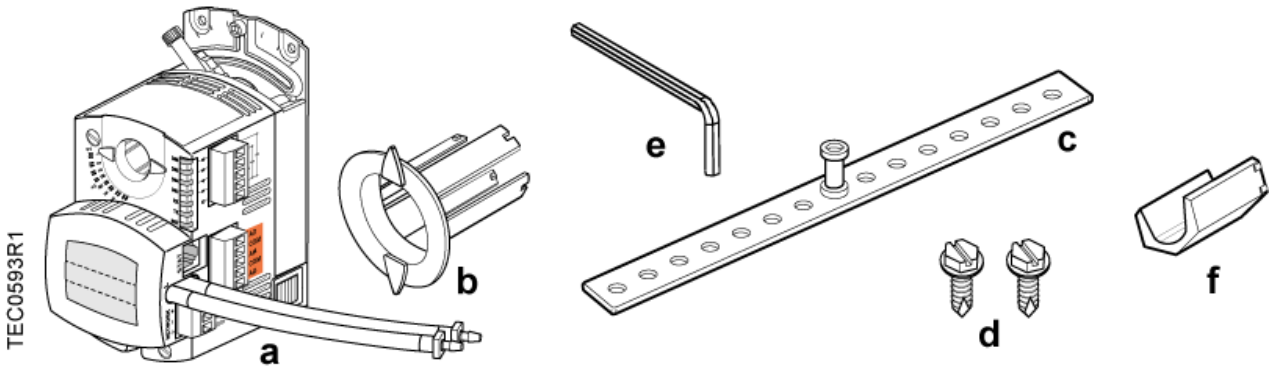
SIEMENS

Installation Instructions
Document No. 550-162
June 18, 2015

BACnet ATEC Controller



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)

Control Applications

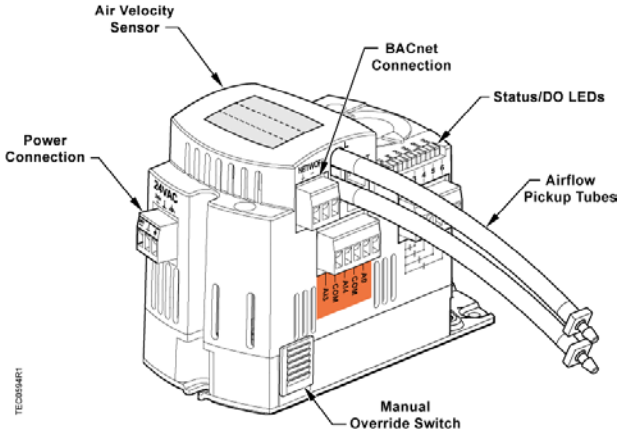
6630 through 6637

Product Description

These installation instructions describe direct-coupled mounting of the BACnet Actuating Terminal Equipment Controller (ATEC). This is 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.

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



Generic Controller I/O Layout. See *Wiring Diagram* for application specific details.

Warning/Caution Notation

⚠ 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.

Product Numbers

BACnet Actuating Terminal Equipment Controller (ATEC) (GDE)	550-430PA
BACnet Actuating Terminal Equipment Controller (ATEC) (GLB)	550-431PA

Accessories

Low cost temporary temperature sensor, 10K Ω thermistor with RJ11 (1” long), that enables space control if the permanent room or duct sensor is not installed (pack of 25).	540-658P25
Duct Temperature Sensor, NTC 10K Ω Type 2, 3" Probe for Commissioning only	QAM1030.008P50

Parts for CE Compliance:

Approved 2-RJ11 RTS cable in 25 ft, 50 ft, or 100 ft (7.6 m, 15.2 m, 30.48 m).	588-100 series

Expected Installation Time

25 minutes

NOTE:
You may require additional time for database work at the field panel.

Required Tools and Equipment

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

- Torque wrench
- ESD wrist strap

Prerequisites

- Wiring conforms to NEC and local codes and regulations. For further information see the *Wiring Guidelines Manual* (125-3002).
- *(Optional)* Room temperature sensor installed.
- 24 Vac Class 2 power available.
- Supply power to the unit is OFF.
- Any application specific hardware or devices installed.
- Air velocity sensors installed in ducts.

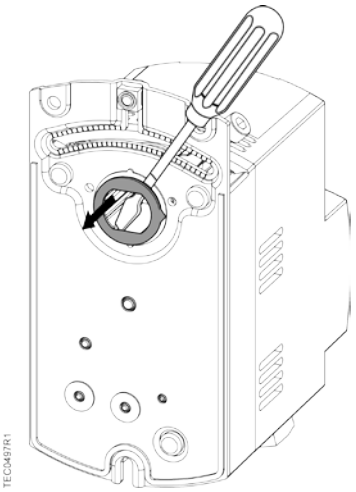
NOTE:
A low-cost temporary RTS (540-658P25) is available that plugs into the RTS port on the controller, providing temperature input and actual space control until a permanent RTS is installed.

Installation Instructions

1. Determine the size of the damper shaft by doing one of the following:

   - **If the damper shaft is 1/2-inch**, proceed to Step 2.
     NOTE: The actuator comes with a factory installed 1/2-inch damper shaft guide.
   - **If the damper shaft is 5/8-inch**,

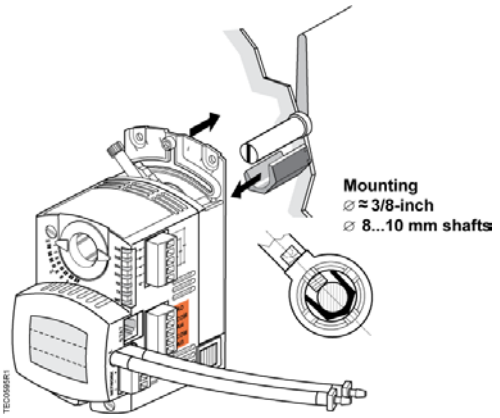
   ⇨ remove the 1/2-inch shaft guide and proceed to Step 2.



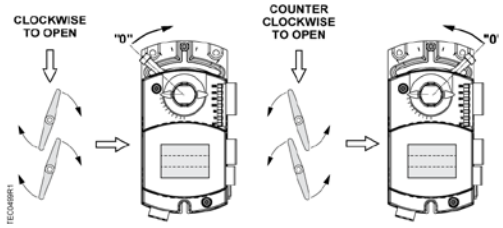
   - **If the damper shaft is 3/8 inch**,

   ⇨ remove the 1/2-inch shaft guide.

   ⇨ Use the 3/8-inch adapter, provided in the actuator packaging. Hold the shaft insert so that the raised tabs are inserted last when placing the insert into the back of the actuator. Proceed to Step 2.



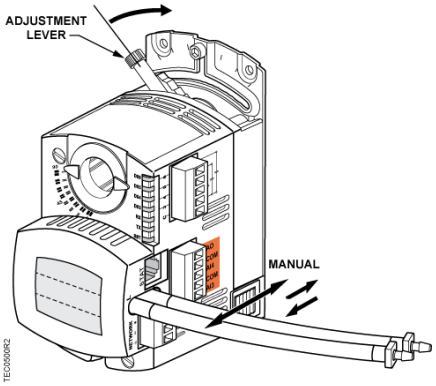
2. Determine the damper blade rotation, clockwise or counterclockwise to open.



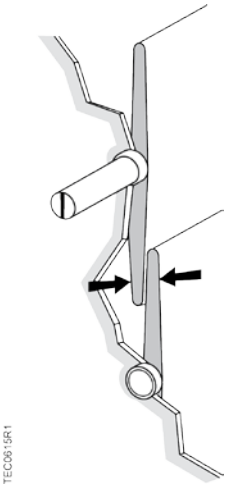
   ⇨ If the blades will rotate counterclockwise, slide the manual override switch to manual,

and move the adjustment lever to the right. Return the switch to automatic.

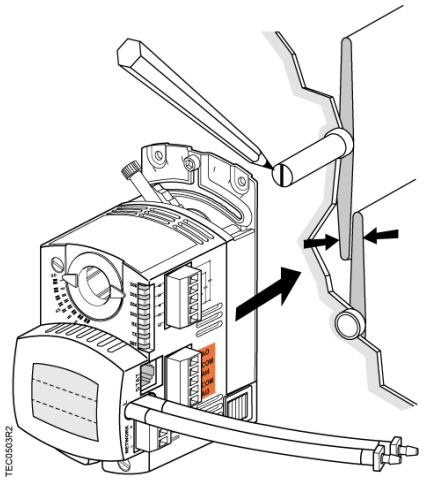
⇨ If the blades will rotate clockwise, slide the manual override switch to manual, and move the adjustment lever to the left. Return the switch to automatic.



3. Close the damper blades.



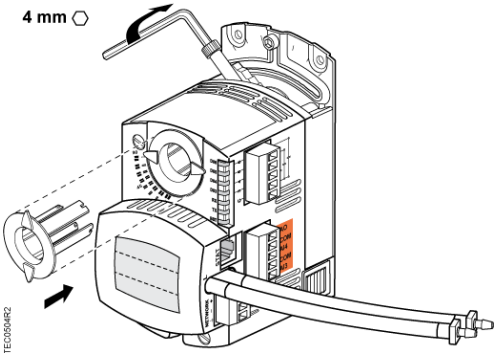
4. Mark the end of the damper shaft with a pencil/marker.



5. Tighten the set screw until the first thread can be seen in the shaft hole.

6. Using the pencil mark as a guide, mount the actuator on the damper shaft.

7. Install the position indicator.

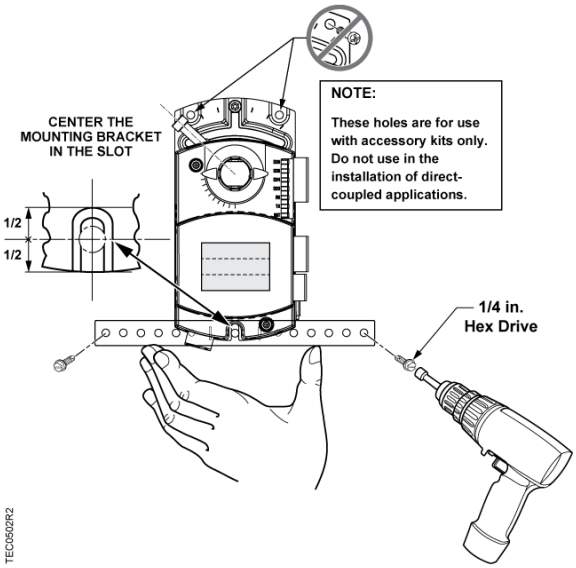


8. Tighten the adjustment lever to the proper torque listed:
   - 70 +/- 5 inch-pounds for solid metal.
   - 37 +/- 2 inch-pounds for plastic graphite composite (hollow metal shafts require an insert to prevent shaft damage).

9. Attach the mounting bracket.

   NOTE: 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.



10. Connect the airflow tubing for the Differential Pressure Sensor.
    - RED connects to HIGH.
    - BLUE connects to LOW.

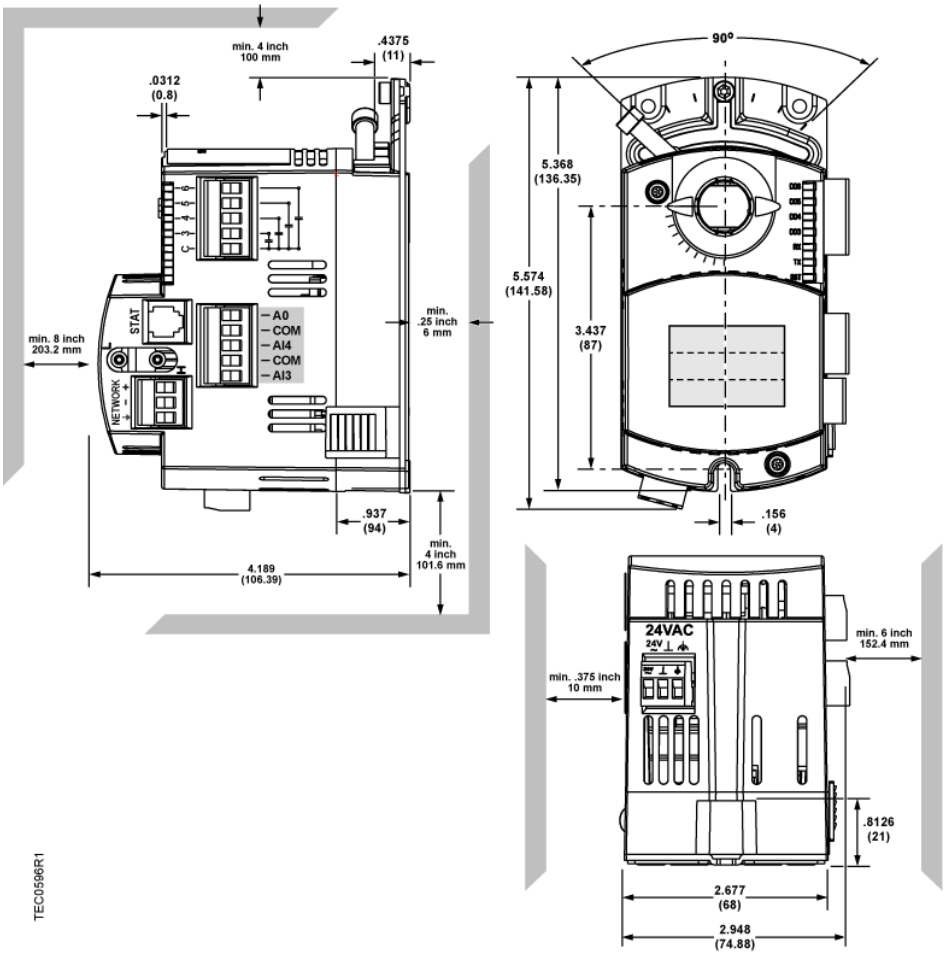
NOTE:
Suggested use of the 3-part serial number labels: Remove one of the self-adhesive controller ID labels (three part label located at the top of the controller board) and place it on the bottom of the terminal box next to the Terminal Box ID. Remove the second tear-off label and place it on the box schedule next to the Terminal Box ID. The remaining label can be added to a floor plan layout, job log or on the inside of the room unit cover.

The installation is complete.

⚠ WARNING

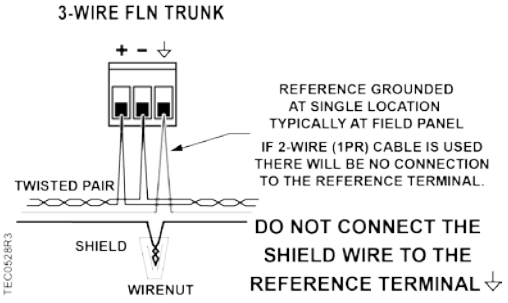
Installations requiring CE Compliance

— 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.



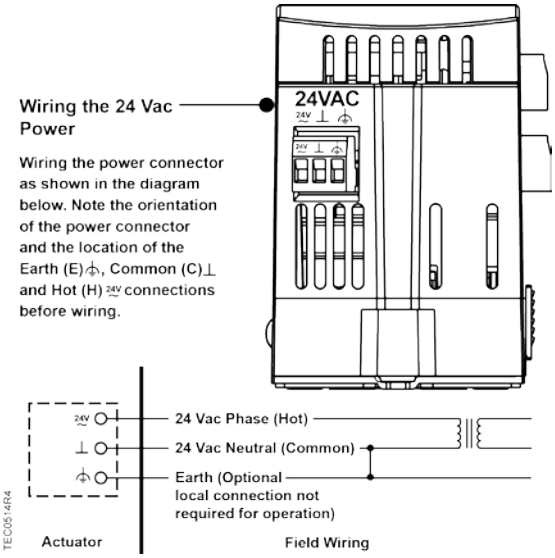
Wiring Instructions

1. Connect the FLN.



FLN Wiring.

2. Connect the power trunk. DO NOT apply power to the controller without first consulting the specialist. This ATEC is designed to work with 2-wire AC power (Neutral and Phase (hot) at 24 Vac +/-20%. Use of the earth terminal is optional and if used it should be connected to the nearest earth ground (building steel, conduit or duct work (if earthed)).) The optional earth ground is connected near where the ATEC is mounted.

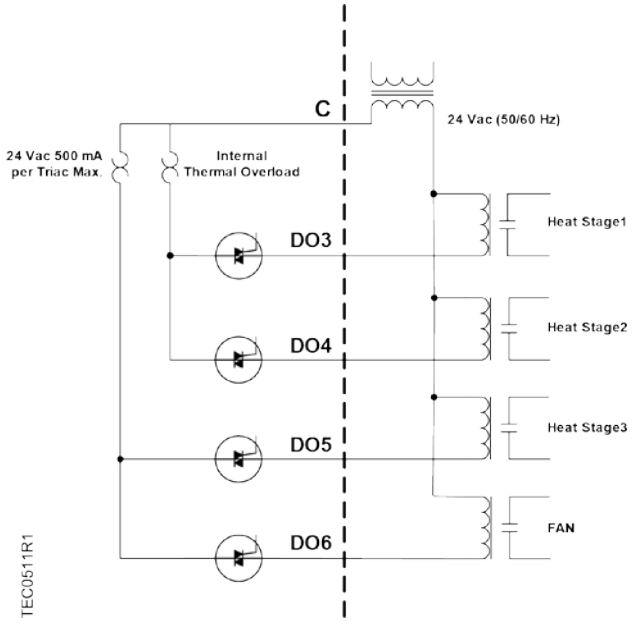


Power Wiring.

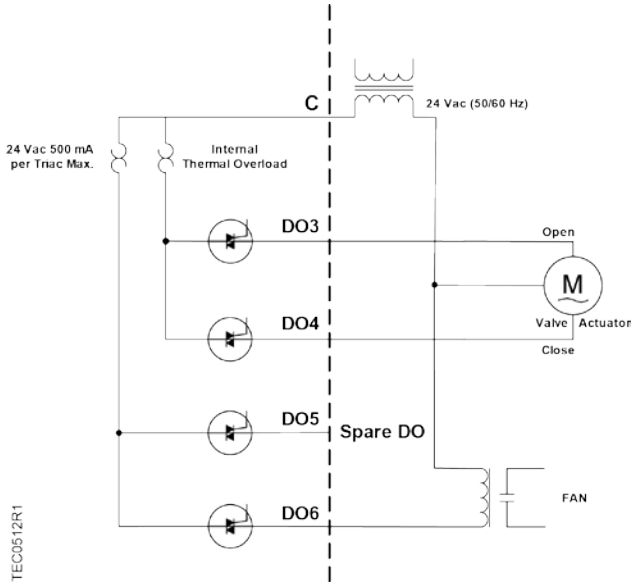
	CAUTION
	It is important that the neutral that supplies the TEC must be earth grounded at the source of the 24 Vac power. Possible erratic equipment operation or damage if neutral is not grounded.

Digital Outputs

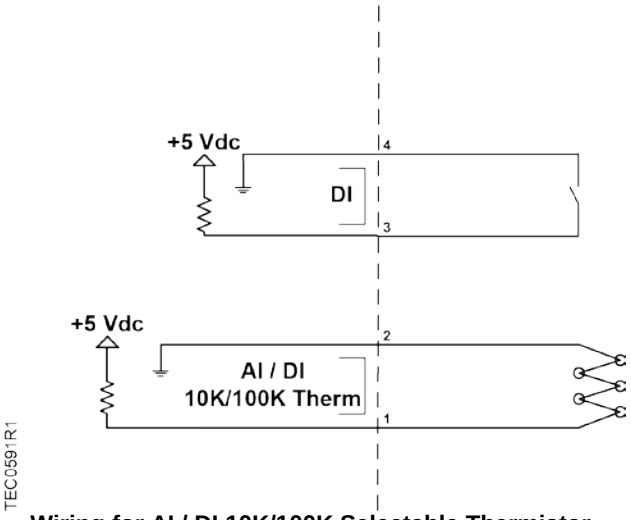
The digital outputs on the ATEC are Triac type outputs. 24 Vac must be applied to the “C” pin of the DO connector, the side view of the actuator shows output pin details. By providing Triac DOs, the application can switch either 24 Vac or Neutral depending on application needs. In a 24 Vac circuit, neutral 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).



ATEC with Electric Heat and Fan.



ATEC with Hot Water Reheat, Fan and Spare DO.

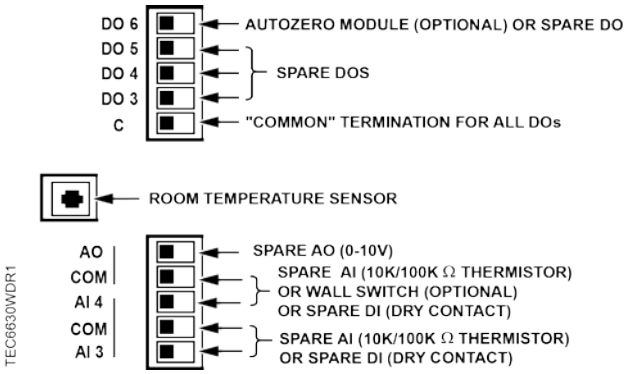


Wiring for AI / DI 10K/100K Selectable Thermistor.

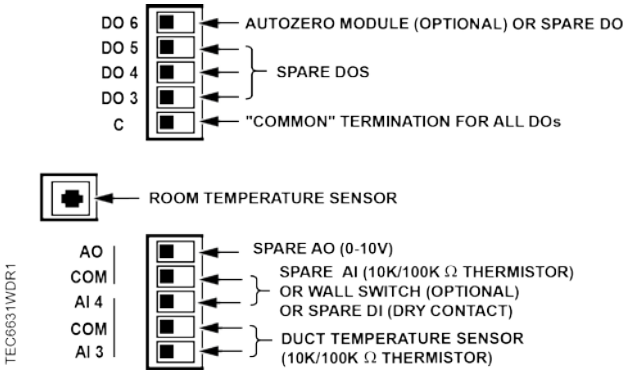
Wiring Diagram

NOTE:
The controller's DOs control 24 Vac loads only. The maximum rating is 12 VA for each DO. An external interposing relay is required for any of the following:

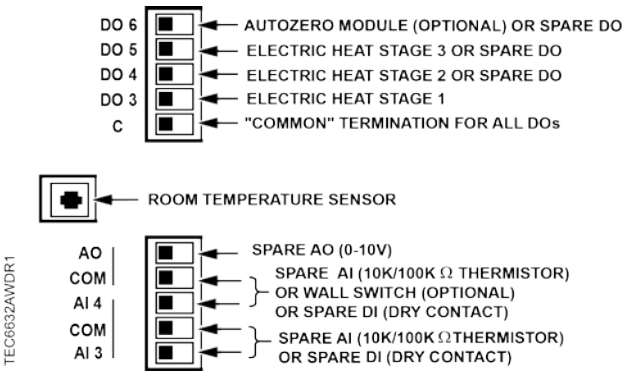
- VA requirements higher than the maximum
- 110 or 220 Vac requirements
- DC power requirements
- Separate transformers used to power the load
(for example part number 540-147, Terminal Equipment Controller Relay Module)



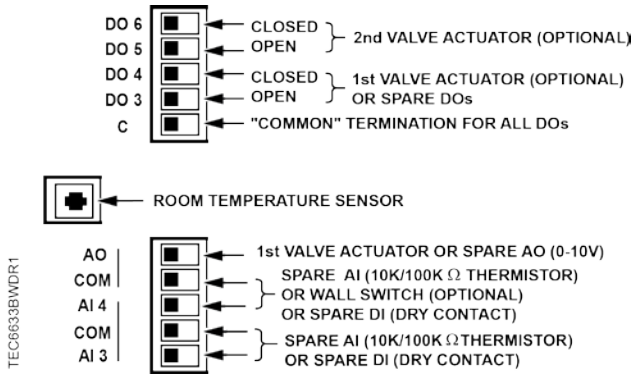
Application 6630 VAV Cooling Only Wiring Diagram.



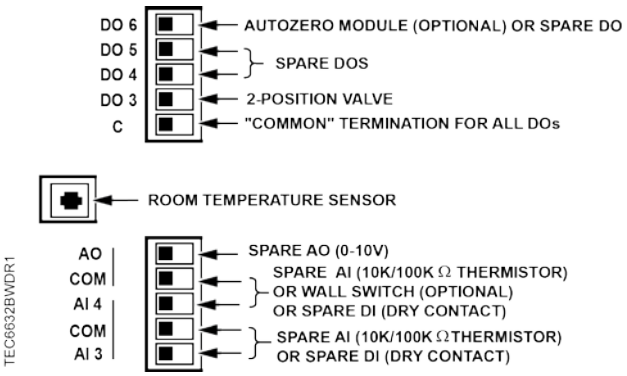
Application 6631 VAV Cooling and Heating Wiring Diagram.



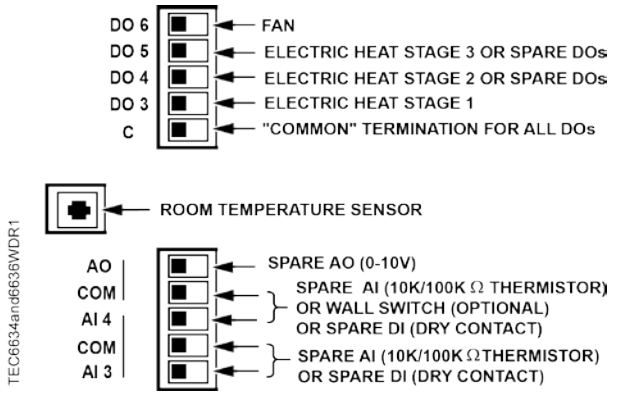
Application 6632 VAV with Electric Heat Wiring Diagram.



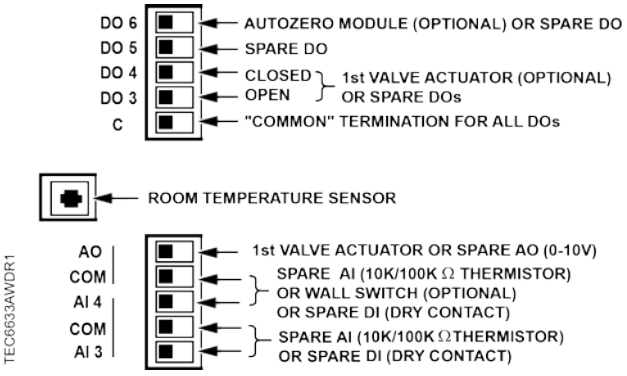
Application 6633 VAV with Two Hot Water Valves Wiring Diagram.



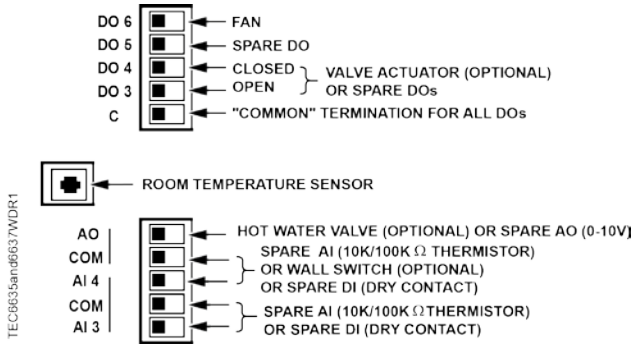
Application 6632 VAV with Baseboard Radiation Wiring Diagram.



Application 6634/6636 VAV Series Fan or Parallel Fan and Electric Heat Wiring Diagram.



Application 6633 VAV with One Hot Water Valve Wiring Diagram.



Application 6635/6637 VAV Series Fan or Parallel Fan and Hot Water Heat Wiring Diagram.

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