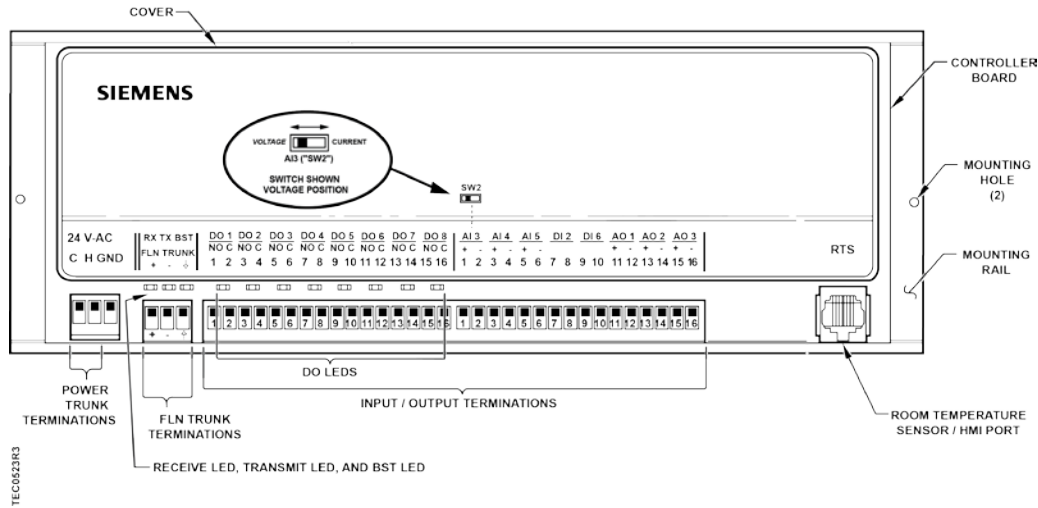


BACnet PTEC Unit Vent Controller



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

Control Applications

6675 through 6679

Product Description

These instructions explain how to field install or replace a Siemens BACnet PTEC Unit Vent Controller.

Product Numbers

Siemens BACnet PTEC Unit Vent Controller 550-493PA

Shipping carton includes a controller assembly, a mounting rail, and two self-tapping/drilling screws.

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.

	⚠ CAUTION
	Keep the unit in its static-proof bag until installation. Otherwise, you run the risk of damage to the printed circuit board from electrostatic discharge.

Accessories

Low cost temporary temperature sensor, 10K 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

Expected Installation Time

New controller installation	10 Minutes
Replacement (old controller has removable terminal blocks)	6 Minutes
Replacement (old controller does not have removable terminal blocks)	16 Minutes



NOTE:

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

Required Tools and Equipment

- Small flat-blade screwdriver (1/8-inch blade width)
- Cabling and connectors
- Cordless drill/driver set
- ESD wrist strap

Prerequisites

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



NOTE:

If the controller is being installed on a box with 1 or more stages of electric heat, the 550-809 MOV with pre-terminated spade connectors must be installed across the manufacturer-supplied airflow switch. MOVs can be installed at the time the controller is factory mounted; coordinate with the box manufacturer prior to order placement. For field installation, see *Metal Oxide Varistor Kit Installation Instructions* (540-986).



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.

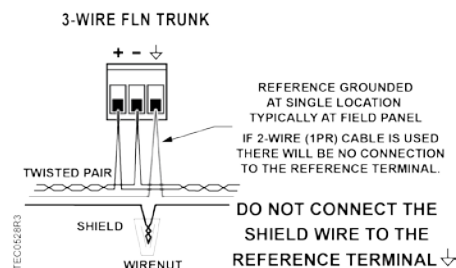
Installation Instructions



NOTE:

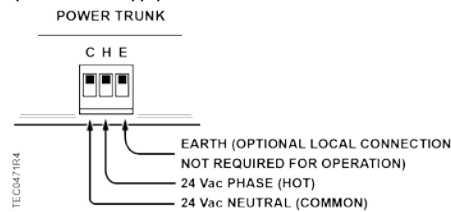
All wiring must conform to national and local codes and regulations (NEC, CE, etc.).

1. Secure the mounting rail in the controller's desired location.
2. Place the ESD wrist strap on your wrist and attach it to a good earth ground.
3. Remove the controller from the static proof bag and snap it into place on the mounting rail.
4. Connect the FLN.



5. Connect the point wiring (see *Wiring Diagrams*).

6. Plug the room temperature sensor cable into the RTS port.
7. Connect the power trunk. DO NOT apply power to the controller without first consulting the specialist. This TEC 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)).)



	CAUTION
<p>It is very important that the neutral that supplies the TEC be earth grounded at the source of the 24 Vac power.</p> <p>Possible erratic equipment operation or damage if neutral is left floating.</p>	

The installation is complete.

Wiring Diagram Cross Reference Tables


Application 6675 (ASHRAE Cycles I and II) and Application 6676 (ASHRAE Cycle III)			
	Wiring Diagram		
Heating and Chilled Water Cooling	ASHRAE Cycles I and II	ASHRAE Cycle III	Exceptions
CHW coil, Valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	No heating coil, heating valve actuator, or aux. radiation.
CHW coil, FBP damper control	Wiring Diagram 3 [→ 6]	Wiring Diagram 3 [→ 7]	No heating coil or auxiliary radiation.
HW coil, valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	1. No cooling coil, cooling valve actuator. 2. LTDT recommended.
HW coil, FBP damper control	Wiring Diagram 3 [→ 6]	Wiring Diagram 3 [→ 7]	1. No cooling coil. 2. LTDT recommended if 2-position valve is used.
Steam coil, valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	1. No cooling coil or cooling valve actuator. 2. LTDT recommended.
Steam coil, FBP damper control	Wiring Diagram 3 [→ 6]	Wiring Diagram 3 [→ 7]	1. No cooling coil. 2. LTDT recommended if 2-position valve is used.
Electric coil, step control	Wiring Diagram 2 [→ 6]	Wiring Diagram 2 [→ 7]	1. No cooling coil or cooling valve actuator. 2. No LTDT.
2-pipe, HW/CHW coil, valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	1. No heating coil or heating valve actuator. Terminate heating/cooling valve actuator at AO2.

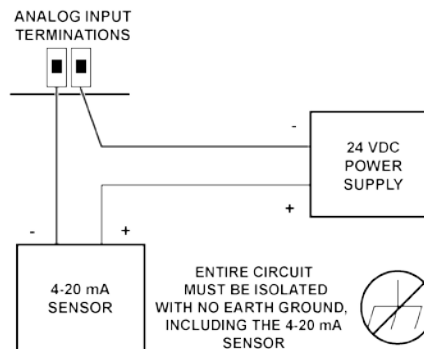
Application 6675 (ASHRAE Cycles I and II) and Application 6676 (ASHRAE Cycle III)			
	Wiring Diagram		
Heating and Chilled Water Cooling	ASHRAE Cycles I and II	ASHRAE Cycle III	Exceptions
			2. LTDT recommended.
2-pipe, HW/CHW coil, FBP damper control	Wiring Diagram 4 [→ 6]	Wiring Diagram 4 [→ 7]	LTDT recommended.
4-pipe, HW and CHW coils, valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	LTDT recommended.
4-pipe, HW and CHW coils, FBP damper control	Wiring Diagram 3 [→ 6]	Wiring Diagram 3 [→ 7]	1. 2-position valves required if automatic heat/coolswitchover is required. 2. LTDT recommended if 2-position valve is used.
4-pipe, steam and CHW coils, valve control	Wiring Diagram 1 [→ 5]	Wiring Diagram 1 [→ 7]	LTDT recommended.
4-pipe, steam and CHW, FBP damper control	Wiring Diagram 3 [→ 6]	Wiring Diagram 3 [→ 7]	1. 2-position valves required if automatic heat/cool switchover is required. 2. LTDT recommended if 2-position valve is used.
Electric coil, step control, and CHW coil, valve control	Wiring Diagram 2 [→ 6]	Wiring Diagram 2 [→ 7]	None.

Application 6677 (ASHRAE Cycles I and II) and Application 6678 (ASHRAE Cycle III).			
	Wiring Diagram		
Heating and DX Cooling	ASHRAE Cycles I and II	ASHRAE Cycle III	Exceptions
DX coil, single step control	Wiring Diagram 1 [→ 8]	Wiring Diagram 1 [→ 9]	1. No heating coil, heating valve actuator, or auxiliary radiation. 2. No LTDT.
Hot water and DX coils, valve and single step control	Wiring Diagram 1 [→ 8]	Wiring Diagram 1 [→ 9]	LTDT recommended.
Hot water and DX coils, FBP damper control and single step control	Wiring Diagram 3 [→ 8]	Wiring Diagram 3 [→ 9]	LTDT recommended if 2-position valve is used.
Steam and DX coils, valve and single step control	Wiring Diagram 1 [→ 8]	Wiring Diagram 1 [→ 9]	LTDT recommended.
Steam and DX coils, FBP damper control and single step control	Wiring Diagram 3 [→ 8]	Wiring Diagram 3 [→ 9]	LTDT recommended if 2-position valve is used.
Electric and DX step control	Wiring Diagram 2 [→ 8]	Wiring Diagram 2 [→ 9]	None.

Application 6679 (Nesbitt Cycle W).		
Nesbitt Cycle W	Wiring Diagram	Exceptions
HW coil, valve control	Wiring Diagram 2 [→ 10]	1. No DX coil. 2. LTDT recommended.
Steam coil, valve control	Wiring Diagram 2 [→ 10]	1. No DX coil. 2. LTDT recommended.
4-pipe, HW and CHW coils, valve control	Wiring Diagram 1 [→ 10]	LTDT recommended.
4-pipe, steam and CHW coils, valve control	Wiring Diagram 1 [→ 10]	LTDT recommended.
HW and DX coils, valve and single step control	Wiring Diagram 2 [→ 10]	1. None. 2. LTDT recommended.
Steam and DX coils, valve and single step control	Wiring Diagram 2 [→ 10]	LTDT recommended.

Wiring Diagram

	<p>CAUTION</p> <p>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:</p> <ul style="list-style-type: none"> • 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)
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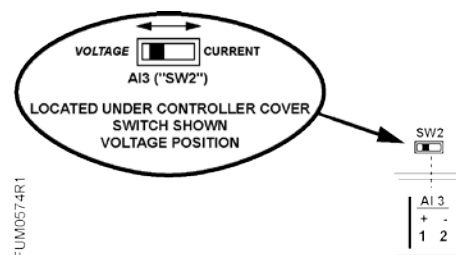
CAUTION:

Each 4-20 mA sensor requires a SEPARATE, dedicated power limited 24 VDC power supply. DO NOT use the same transformer to power both the sensor and controller.

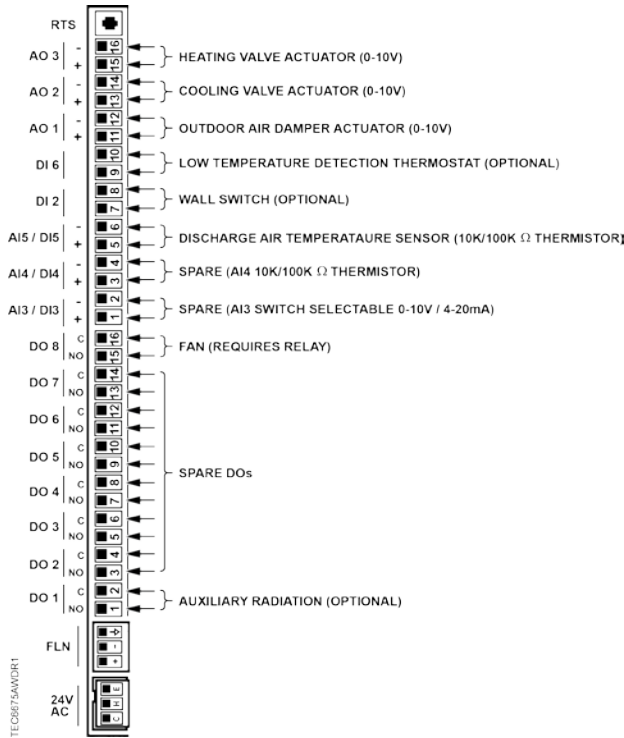
Wiring for AI with a 4 to 20 mA Sensor.

NOTE:

If the voltage/current switch is set to current and a 4 to 20 mA sensor is connected to an AI, then special wiring requirements must be followed.

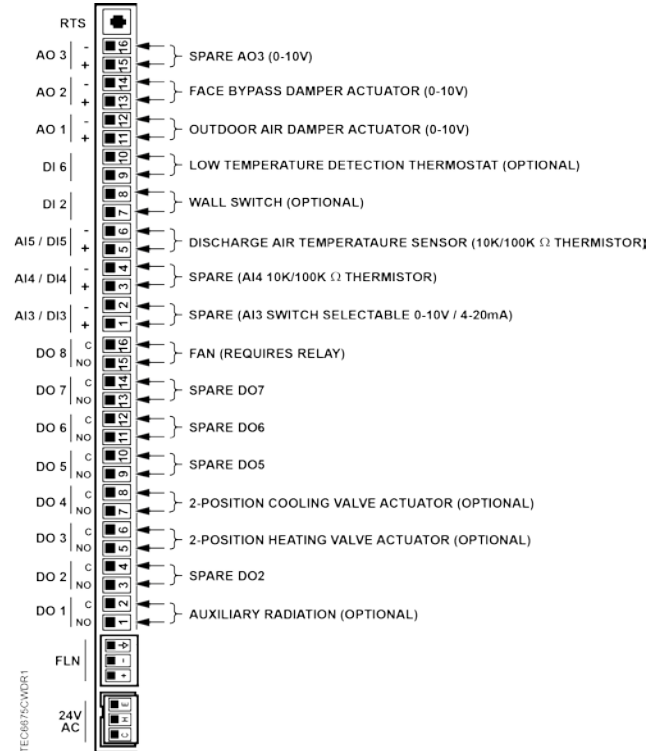


Wiring Diagram 1



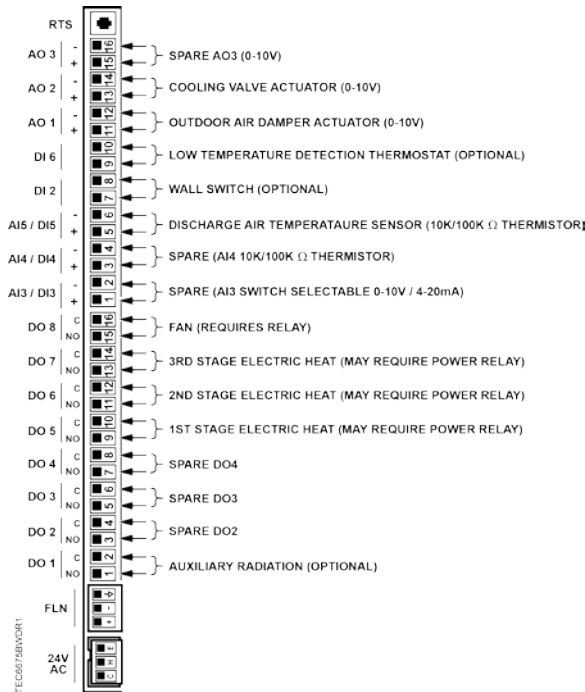
Application 6675 Wiring Diagram 1

Wiring Diagram 3



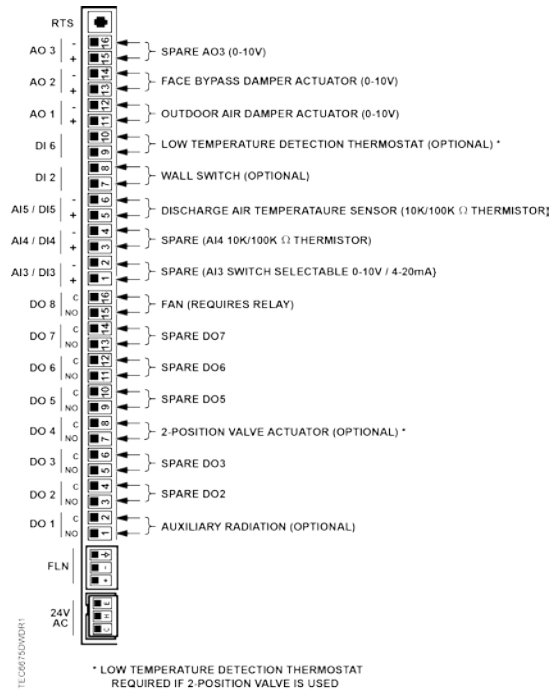
Application 6675 Wiring Diagram 3.

Wiring Diagram 2



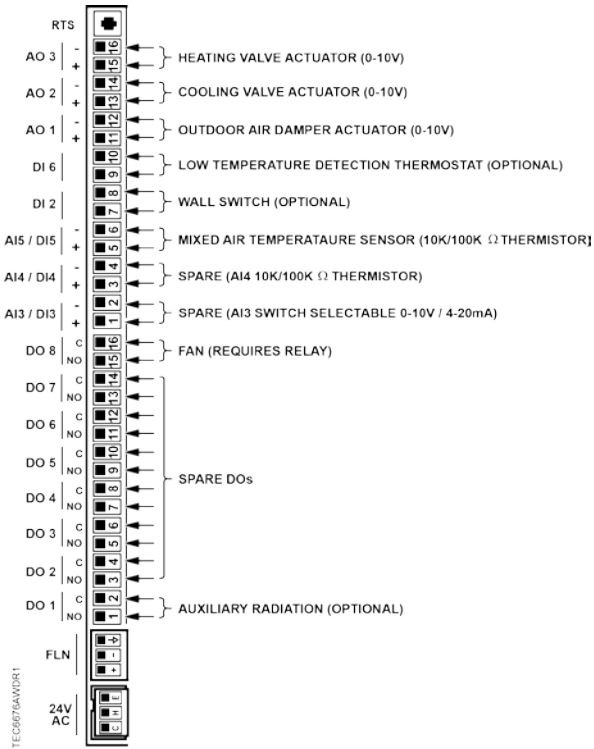
Application 6675 Wiring Diagram 2.

Wiring Diagram 4



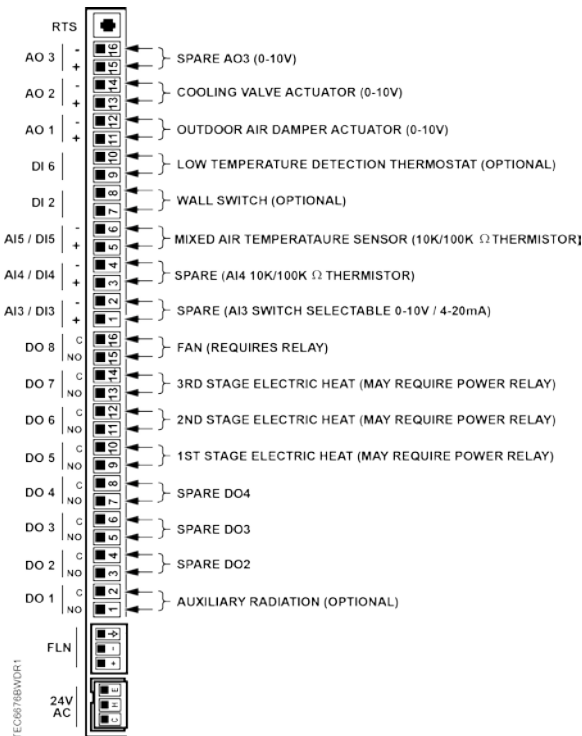
Application 6675 Wiring Diagram 4.

Wiring Diagram 1



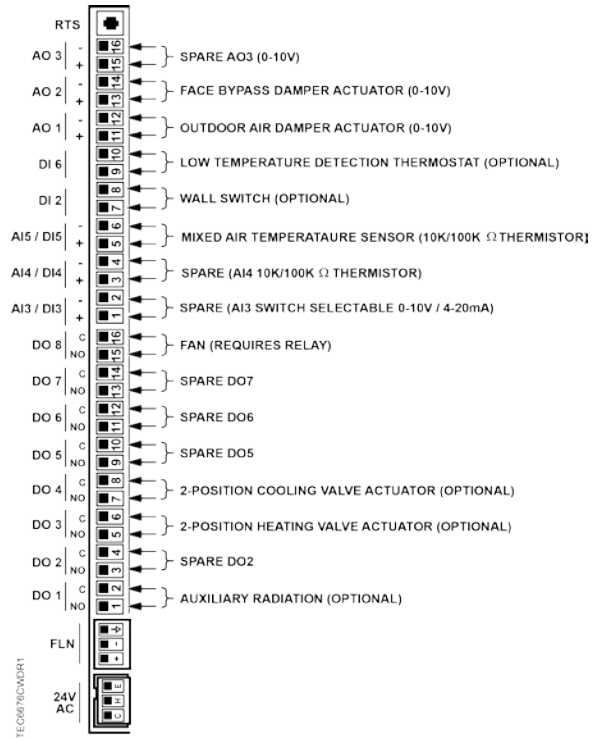
Application 6676 Wiring Diagram 1.

Wiring Diagram 2



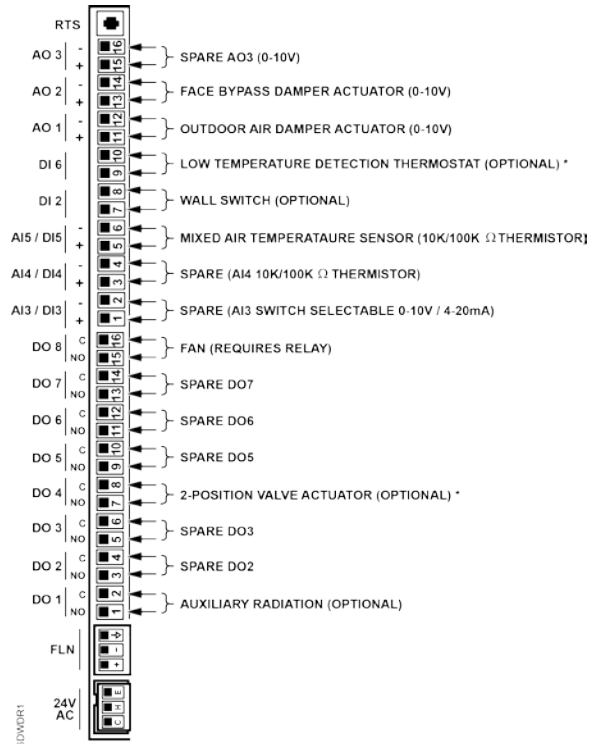
Application 6676 Wiring Diagram 2.

Wiring Diagram 3



Application 6676 Wiring Diagram 3.

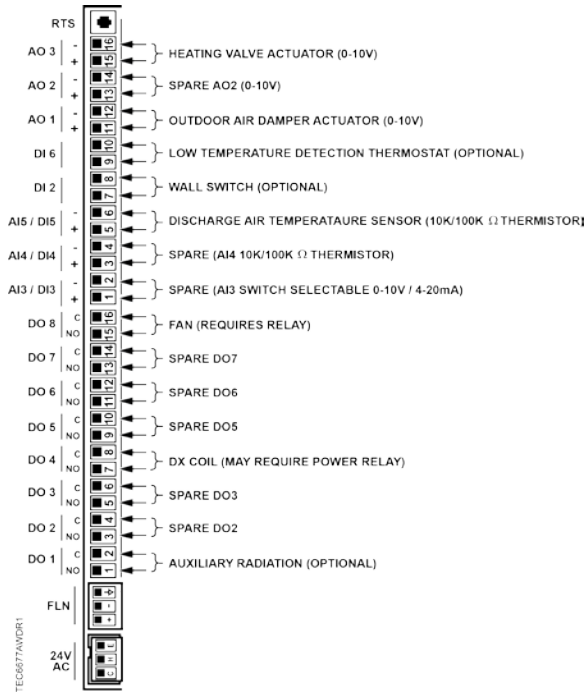
Wiring Diagram 4



* LOW TEMPERATURE DETECTION THERMOSTAT REQUIRED IF 2-POSITION VALVE IS USED

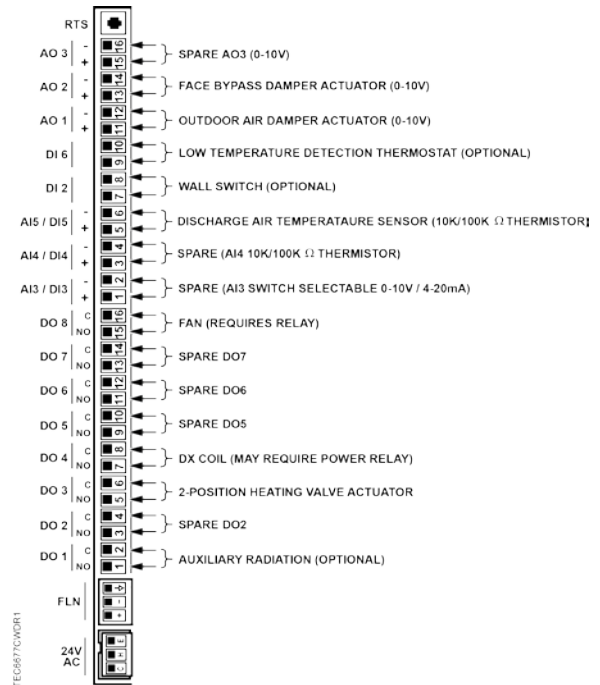
Application 6676 Wiring Diagram 4.

Wiring Diagram 1



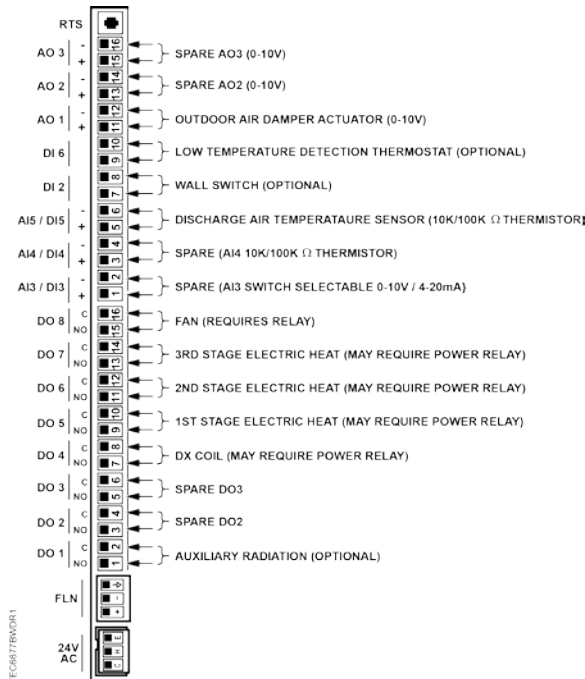
Application 6677 Wiring Diagram 1.

Wiring Diagram 3



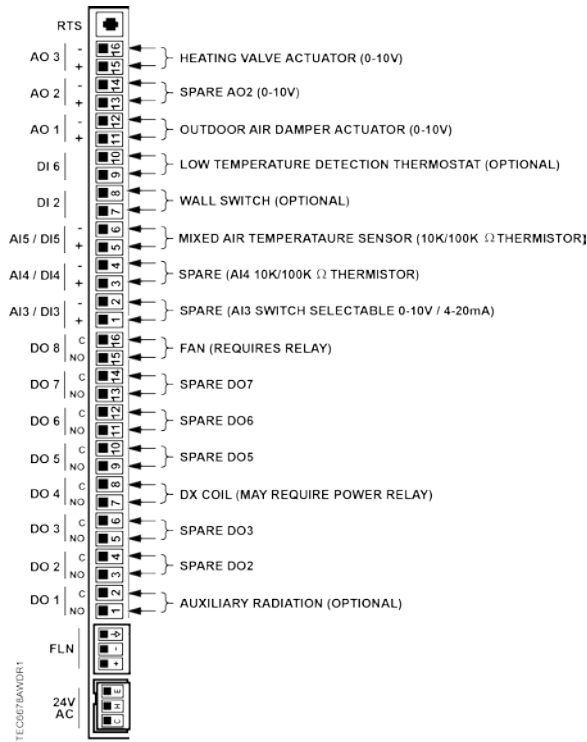
Application 6677 Wiring Diagram 3.

Wiring Diagram 2



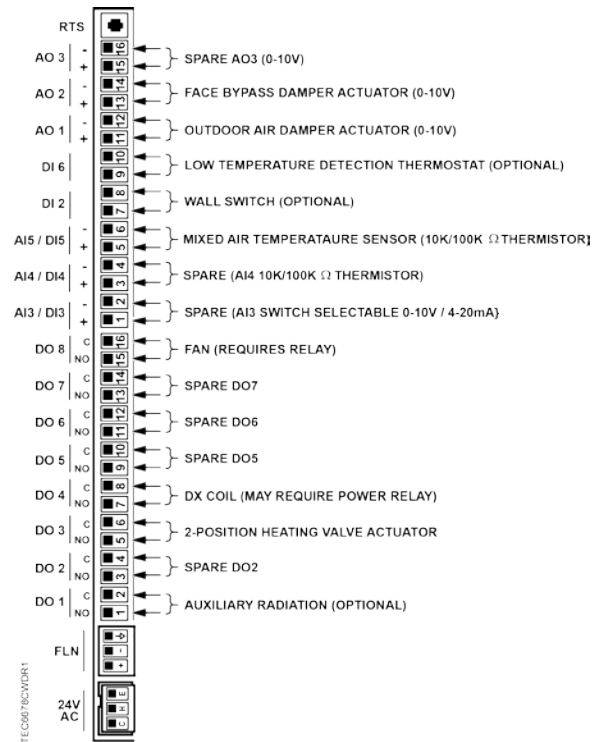
Application 6677 Wiring Diagram 2.

Wiring Diagram 1



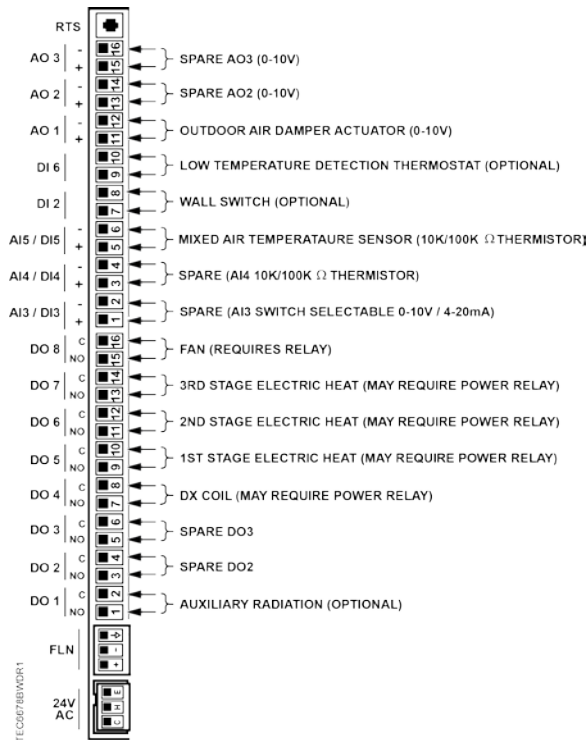
Application 6678 Wiring Diagram 1.

Wiring Diagram 3



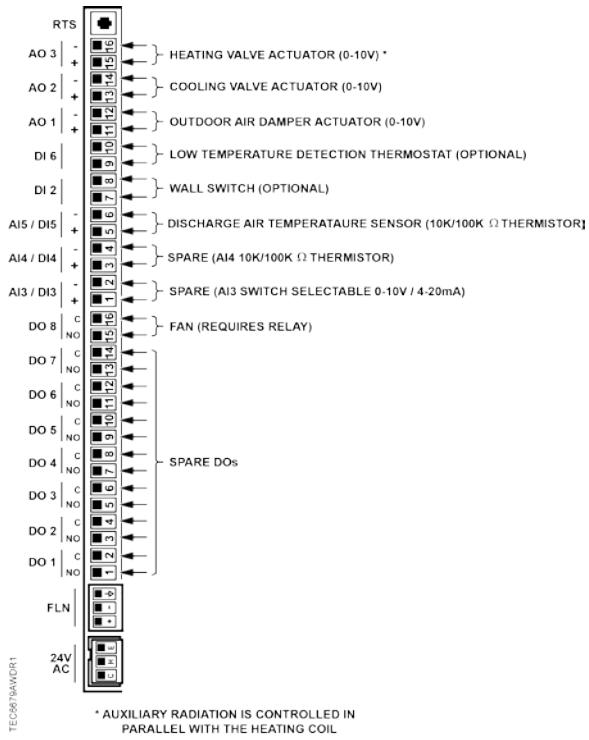
Application 6678 Wiring Diagram 3.

Wiring Diagram 2



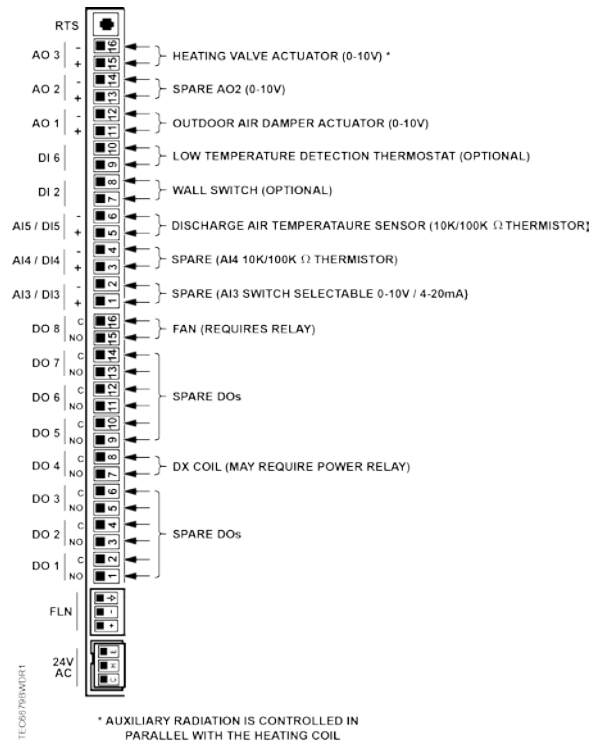
Application 6678 Wiring Diagram 2.

Wiring Diagram 1



Application 6679 Wiring Diagram 1.

Wiring Diagram 2



Application 6679 Wiring Diagram 2.

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