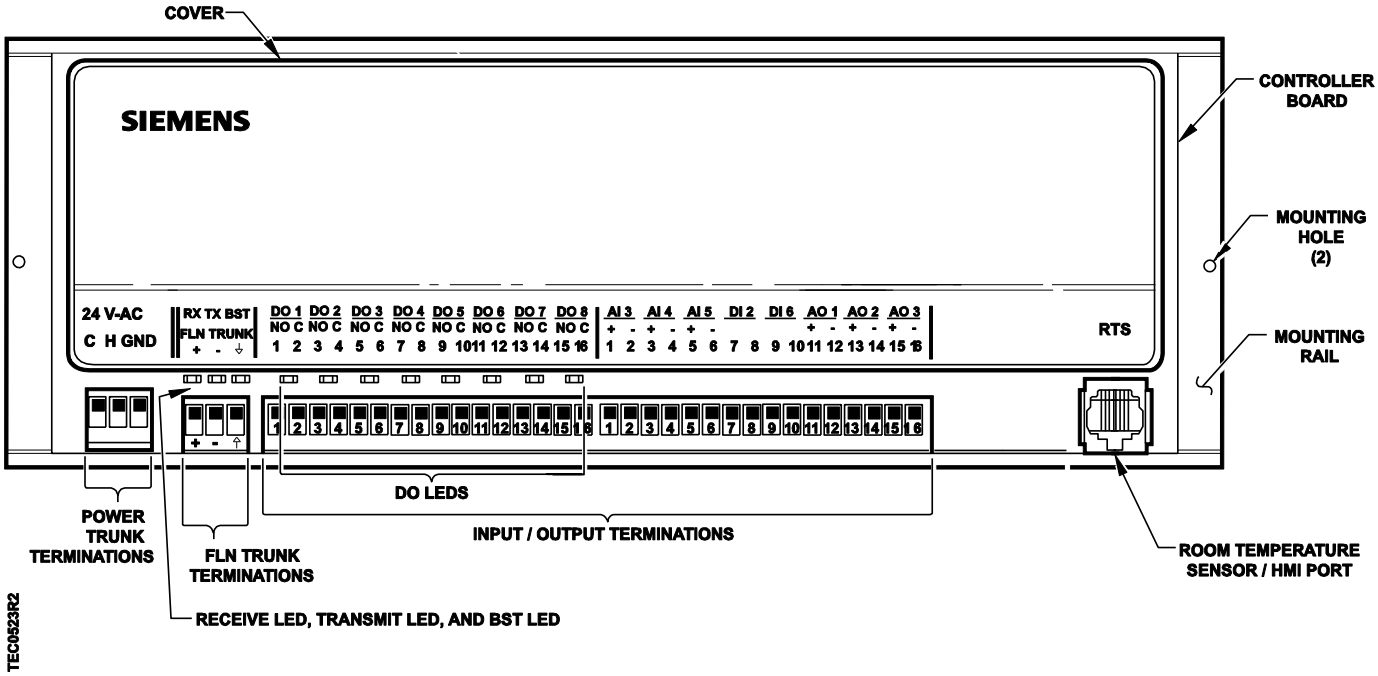
SIEMENS

Installation Instructions
Document No. 550-127
January 1, 2011

Smoke Control Listed BACnet PTEC Unit Vent Controller



Smoke Control Listed BACnet PTEC Unit Vent Controller.

Control Applications

6575 through 6579

Product Description

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

Product Number

Smoke Control Listed Siemens BACnet PTEC Unit Vent Controller	550-493PK

Shipping cartons includes a controller assembly (controller board and cover), a mounting rail, and two self-tapping/drilling screws.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.

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

Accessories

Low cost temporary temperature sensor that enables space control if the permanent room or duct sensor is not installed.	QAM1030.008P 50

Parts for Smoke Control Compliance

Smoke Control Listed Large Equipment Controller Enclosure	550-002K
UL Listed Class 2 transformer with 120 Vac 60 HZ primary w/ hub and 24Vac 100VA secondary w/ hub and circuit breaker	TR100VA004

NOTE: For smoke control application, primary rating is only 120V/ 60 Hz.

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

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

Prerequisites

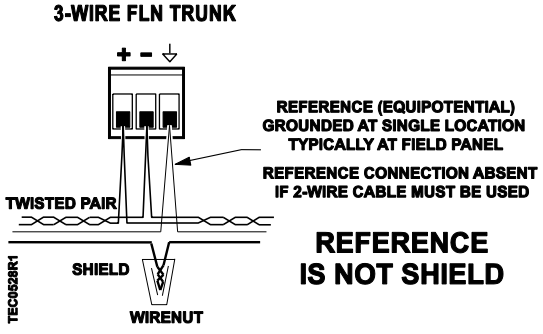
- Wiring conforms to NEC and local codes and regulations. For further information see the *Wiring Guidelines Manual*.
- Room temperature sensor installed (optional).
- 24 Vac Class 2 power available.
- Supply power to the unit is OFF.
- Any application specific hardware or devices installed.
- Air velocity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

NOTE: 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 installation instructions 540-986.

Installation

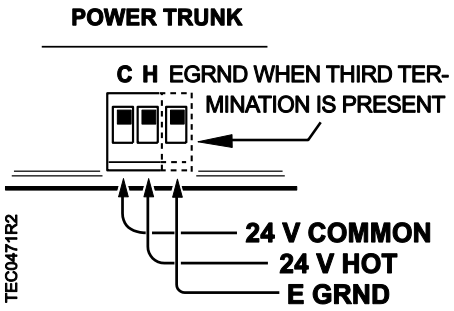
NOTE: All wiring must conform to national and local codes and regulations (NEC, CE, etc.).

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.



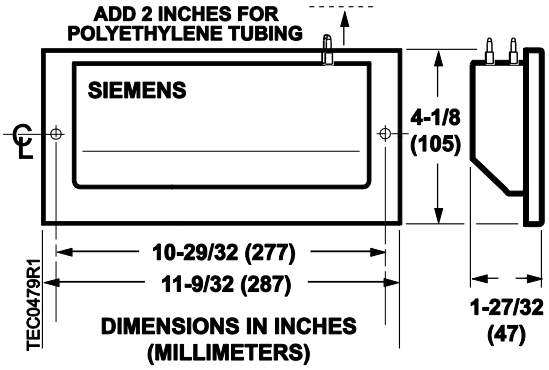
5. Connect the point wiring (see *Wiring Diagrams*).

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.



NOTE: As a standard grounding procedure, ensure that 3" - 5" ground wire is connected directly on the common terminal on the secondary side of the 24 Vac transformer.

8. Connect the tubing from the air velocity sensor pickups to the ports on the controller. Connect HI to HI and LO to LO.



Smoke Control Compliance

The following instructions and information apply if used for smoke control sequence.

1. Install Smoke Control Listed products, enclosure and transformer (see the *Product Numbers* and *Accessories* sections for more information.
2. Input Rating:
   - 24V 60 HZ 60 VA maximum
3. Digital Output (DO) are the only I/O suitable for smoke control application.
   Digital Output (DO) Electrical Ratings:
   - 5VA per DO/ maximum 40 VA total.
4. The room temperature sensor (RTS) is installed in the same room as the TEC.
5. Connection from the TEC to the field panel is a maximum 4000 feet, 24 AWG minimum.
6. Wiring Range:
   - Transformer: primary 14 AWG
   - 24 Vac Input Power: 14 to 18 AWG
   - DO: AI: 18 to 20 AWG
   - DI: 18 AWG
   - LAN: 20 to 24 AWG
   - RST: 24 AWG

   All circuits are power limited; FLN is RS-485, RTS is RS-232. Digital Inputs (DI) are dry contacts.

See the following documents for more information on configuring smoke control applications:

- *Smoke Control Systems Application and Engineering Manual (*125-1806)
- *Smoke Control System Application Guide (*125-1816)
- *NFPA and UL Standards Relevant to Smoke Control System Application Guide (*125-1817)

NOTE: The 24 Vac relay module is not applicable for smoke control application.

The installation is now complete.

Wiring Diagram Crossreference Tables

Application 6575 (ASHRAE Cycles I and II) and Application 6576 (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 [→ 7] (6575)	Wiring Diagram 1 [→9] (6576)	No heating coil, heating valve actuator, or aux. radiation.
CHW coil, FBP damper control	Wiring Diagram 3 [→ 8] (6575)	Wiring Diagram 3 [→ 10] (6576)	No heating coil or auxiliary radiation.
HW coil, valve control	Wiring Diagram 1 [→ 7] (6575)	Wiring Diagram 1 [→ 9] (6576)	1. No cooling coil, cooling valve actuator. 2. LTDT recommended.
HW coil, FBP damper control	Wiring Diagram 3 [→ 8] (6575)	Wiring Diagram 3 [→ 10] (6576)	1. No cooling coil. 2. LTDT recommended if 2-position valve is used.
Steam coil, valve control	Wiring Diagram 1 [→ 7] (6575)	Wiring Diagram 1 [→ 9] (6576)	1. No cooling coil or cooling valve actuator. 2. LTDT recommended.
Steam coil, FBP damper control	Wiring Diagram 3 [→ 8] (6575)	Wiring Diagram 3 [→ 10] (6576)	1. No cooling coil. 2. LTDT recommended if 2-position valve is used.
Electric coil, step control	Wiring Diagram 2 [→ 7] (6575)	Wiring Diagram 2 [→ 9] (6576)	1. No cooling coil or cooling valve actuator. 2. No LTDT.
2-pipe, HW/CHW coil, valve control	Wiring Diagram 1 [→ 1] (6575)	Wiring Diagram 1 [→ 9] (6576)	1. No heating coil or heating valve actuator. Terminate heating/cooling valve actuator at AO2. 2. LTDT recommended.
2-pipe, HW/CHW coil, FBP damper control	Wiring Diagram 4 [→ 8] (6575)	Wiring Diagram 4 [→ 10] (6576)	LTDT recommended.
4-pipe, HW and CHW coils, valve control	Wiring Diagram 1 [→ 7] (6575)	Wiring Diagram 1 [→ 9] (6576)	LTDT recommended.
4-pipe, HW and CHW coils, FBP damper control	Wiring Diagram 3 [→ 8] (6575)	Wiring Diagram 3 [→ 10] (6576)	1. 2-position valves required if automatic heat/coolswitchover is required. 2. LTDT recommended if 2-position valve is used.

Application 6575 (ASHRAE Cycles I and II) and Application 6576 (ASHRAE Cycle III)			
	Wiring Diagram		
Heating and Chilled Water Cooling	**ASHRAE Cycles I and II**	**ASHRAE Cycle III**	**Exceptions**
4-pipe, steam and CHW coils, valve control	Wiring Diagram 1 [→ 7] (6575)	Wiring Diagram 1 [→ 9] (6576)	LTDT recommended.
4-pipe, steam and CHW, FBP damper control	Wiring Diagram 3 [→ 8] (6575)	Wiring Diagram 3 [→ 10] (6576)	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 [→ 7] (6575)	Wiring Diagram 2 [→ 9] (6576)	None.

Application 6577 (ASHRAE Cycles I and II) and Application 6578 (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 [→ 11] (6577)	Wiring Diagram 1 [→ 12] (6578)	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 [→ 11] (6577)	Wiring Diagram 1 [→ 12] (6578)	LTDT recommended.
Hot water and DX coils, FBP damper control and single step control	Wiring Diagram 3 [→ 12] (6577)	Wiring Diagram 3 [→13] (6578)	LTDT recommended if 2-position valve is used.
Steam and DX coils, valve and single step control	Wiring Diagram 1 [→ 11] (6577)	Wiring Diagram 1 [→ 12] (6578)	LTDT recommended.
Steam and DX coils, FBP damper control and single step control	Wiring Diagram 3 [→ 12] (6577)	Wiring Diagram 3 [→ 13] (6578)	LTDT recommended if 2-position valve is used.
Electric and DX step control	Wiring Diagram 2 [→ 11] (6577)	Wiring Diagram 2 [→ 13] (6578)	None.

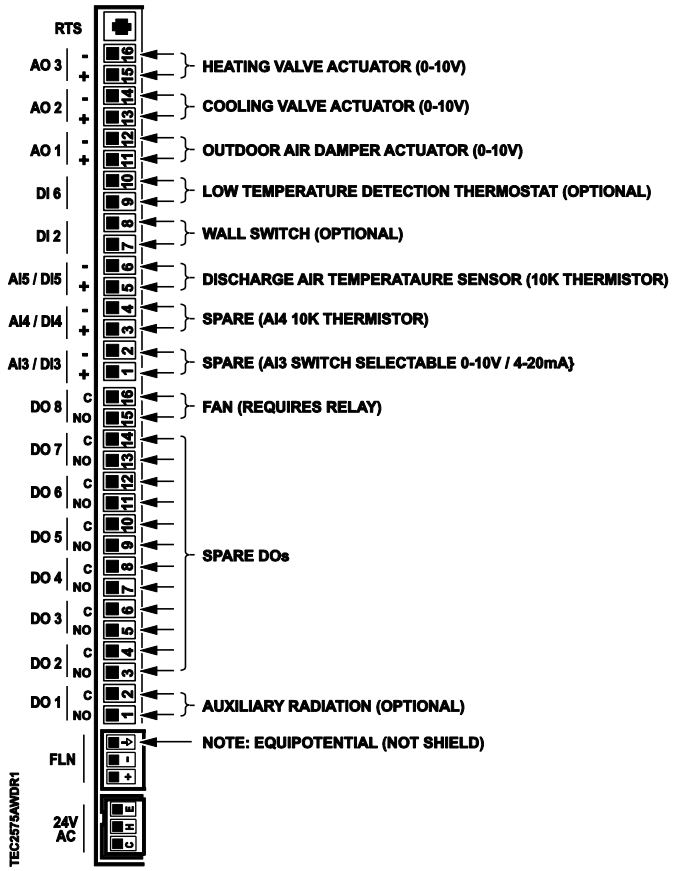
Application 6579 (Nesbitt Cycle W).		
Nesbitt Cycle W	**Wiring Diagram**	**Exceptions**
HW coil, valve control	Wiring Diagram 2 [→ 14]	1. No DX coil. 2. LTDT recommended.
Steam coil, valve control	Wiring Diagram 2 [→ 14]	1. No DX coil. 2. LTDT recommended.

Application 6579 (Nesbitt Cycle W).		
Nesbitt Cycle W	**Wiring Diagram**	**Exceptions**
4-pipe, HW and CHW coils, valve control	Wiring Diagram 1 [→ 14]	LTDT recommended.
4-pipe, steam and CHW coils, valve control	Wiring Diagram 1 [→ 14]	LTDT recommended.
HW and DX coils, valve and single step control	Wiring Diagram 2 [→ 14]	1. None. 2. LTDT recommended.
Steam and DX coils, valve and single step control	Wiring Diagram 2 [→ 14]	LTDT recommended.

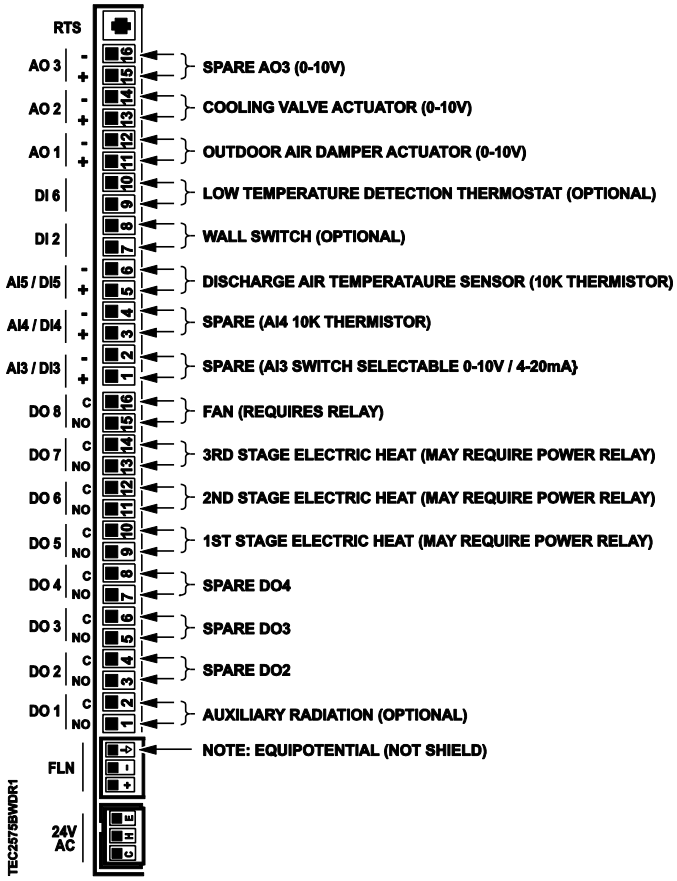
Wiring Diagram

The controller's DOs control 24 Vac loads only. The maximum rating is 5 VA for each DO. An external interposing relay is required for any of the following:

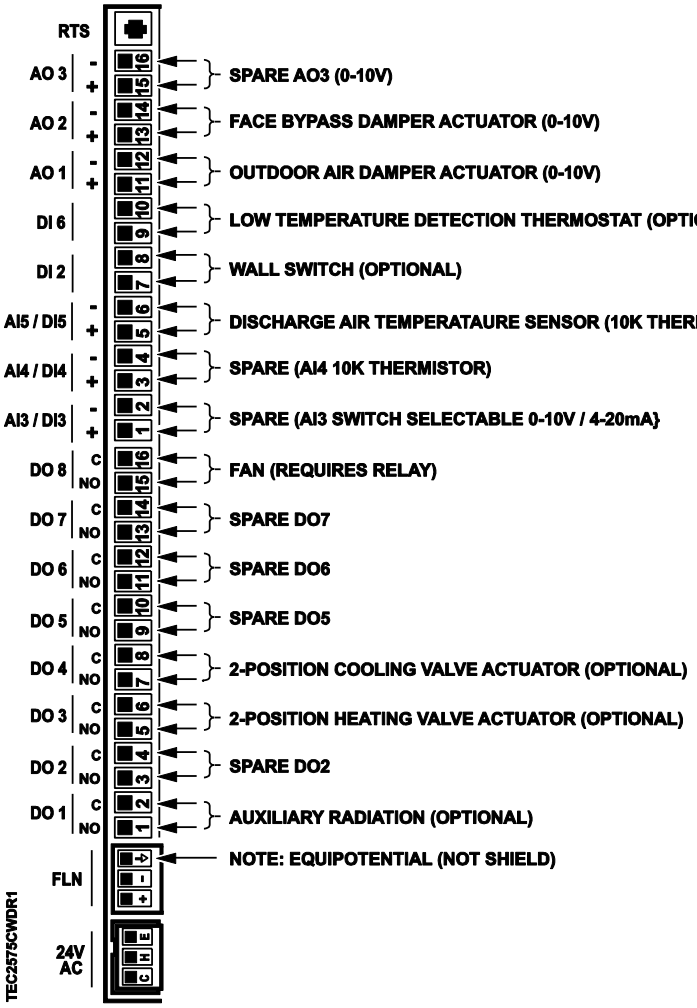
- VA requirements higher than the maximum
- 110 or 220 Vac requirements
- DC power requirements
- Separate transformers used to power the load. (for example part number 540-147, Terminal Equipment Controller Relay Module)



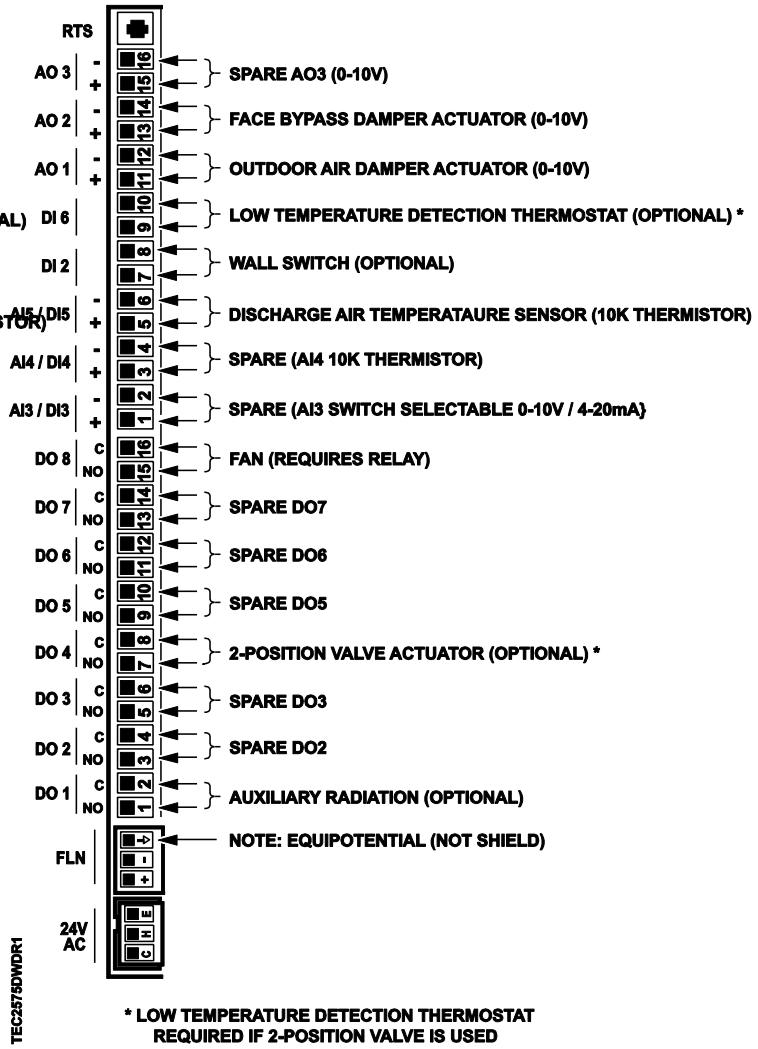
Application 6575 –Wiring Diagram 1.



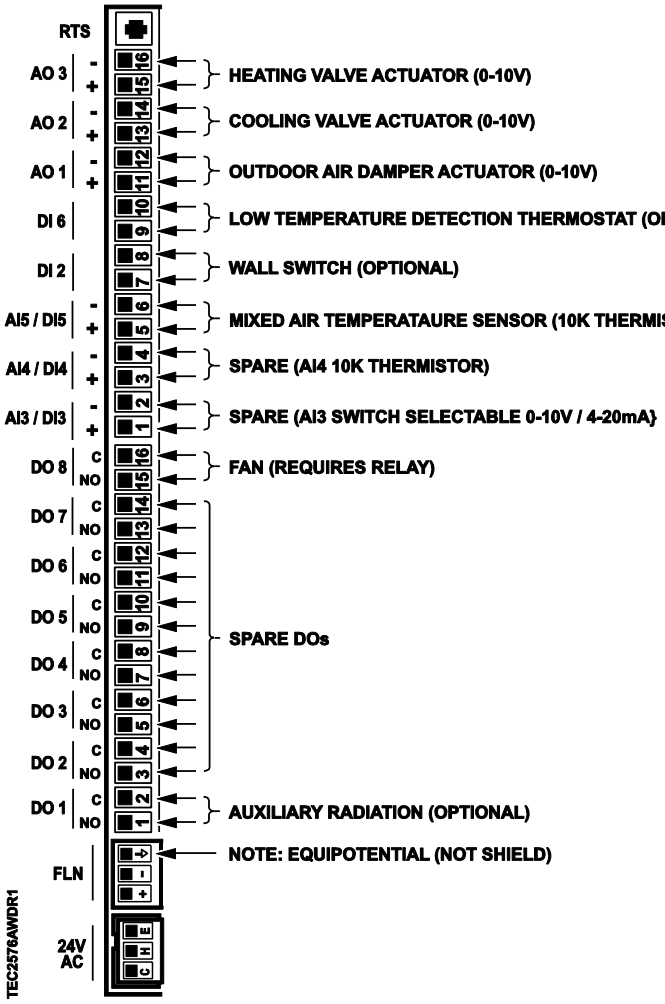
Application 6575 – Wiring Diagram 2.



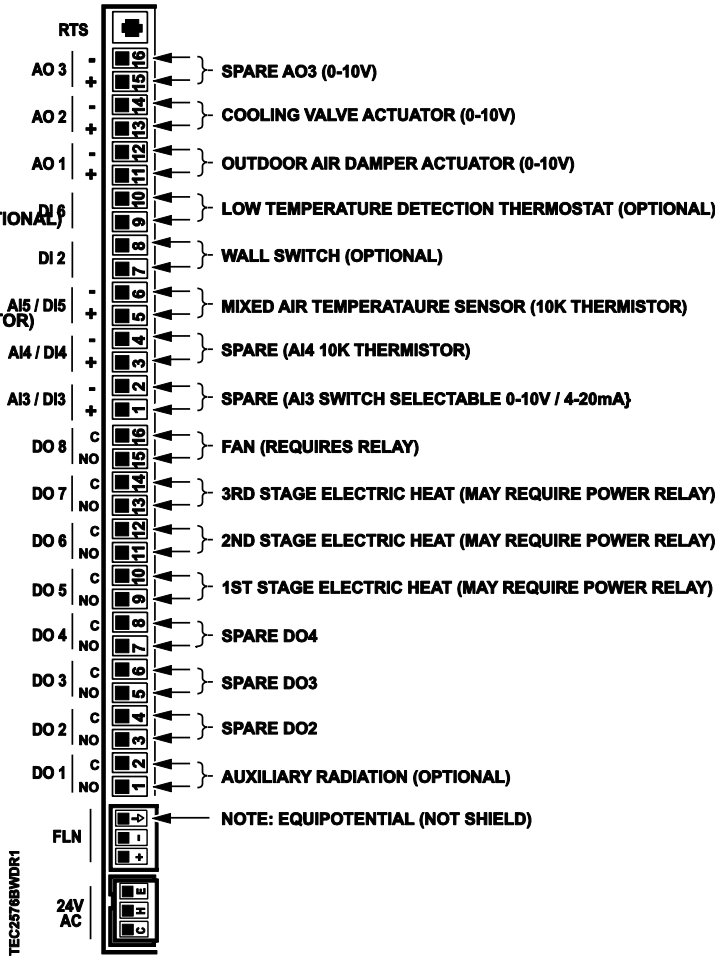
Application 6575 – Wiring Diagram 3.



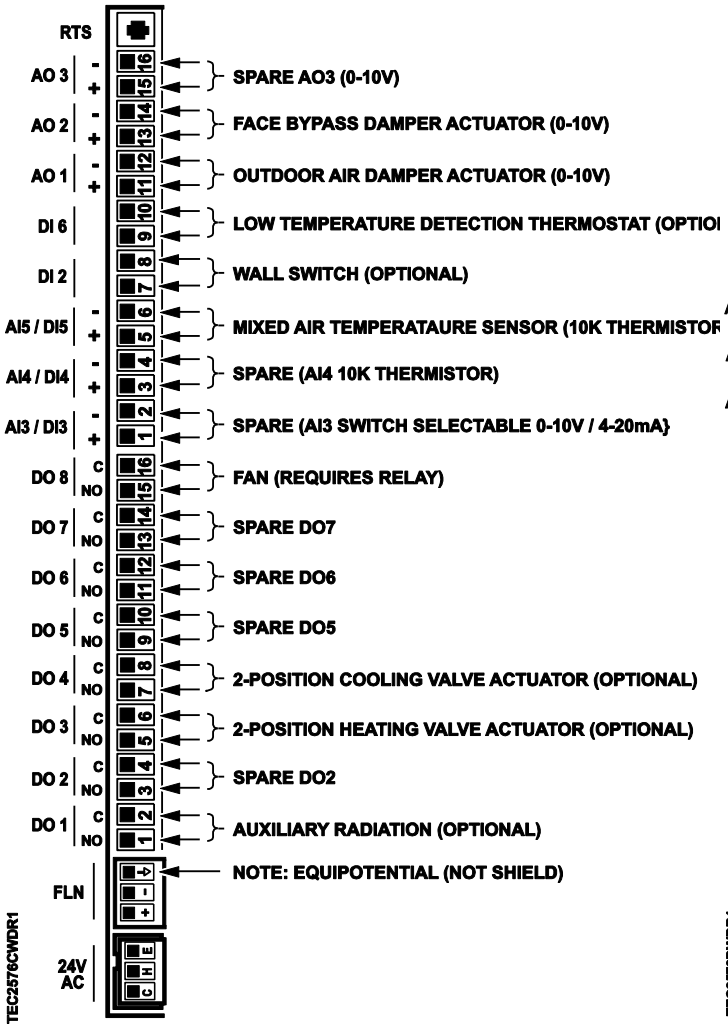
Application 6575 – Wiring Diagram 4.



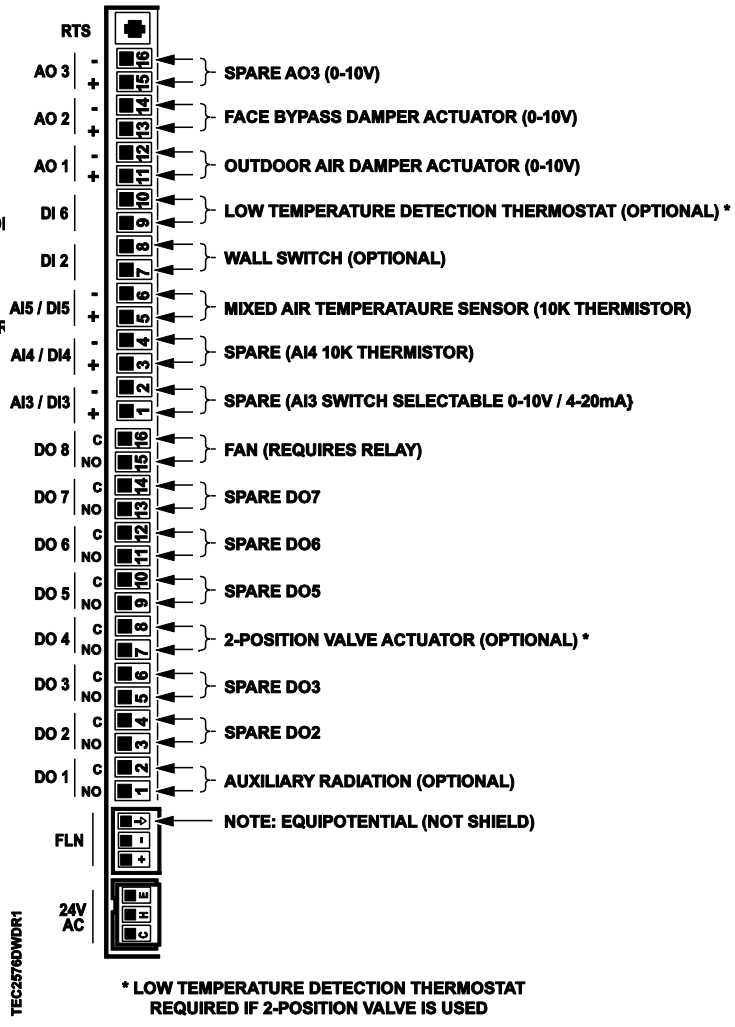
Application 6576 – Wiring Diagram 1.



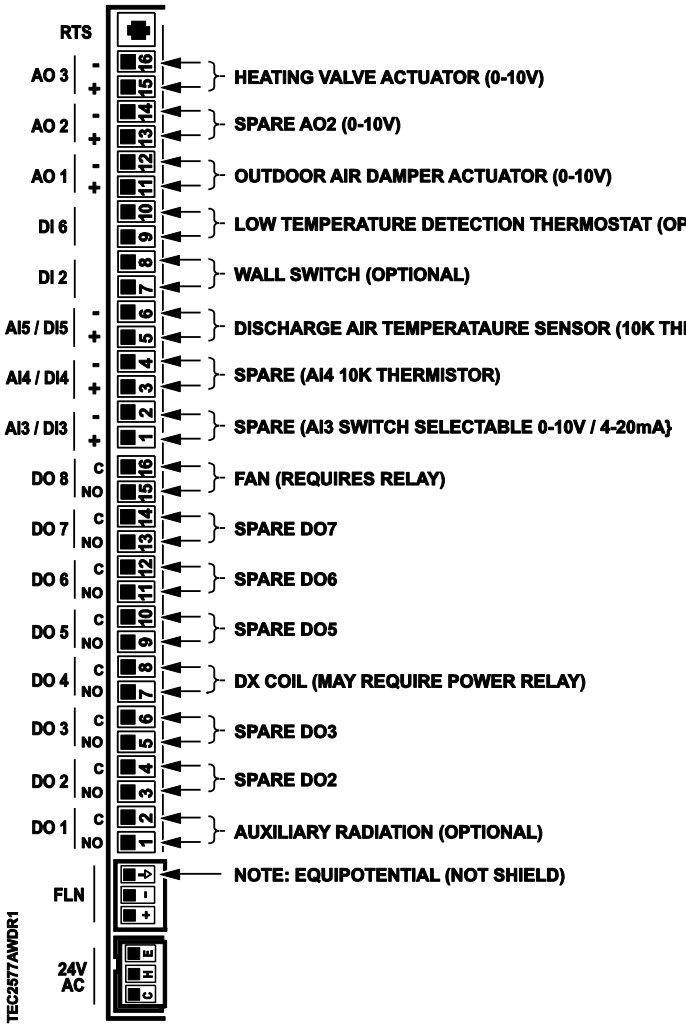
Application 6576 – Wiring Diagram 2.



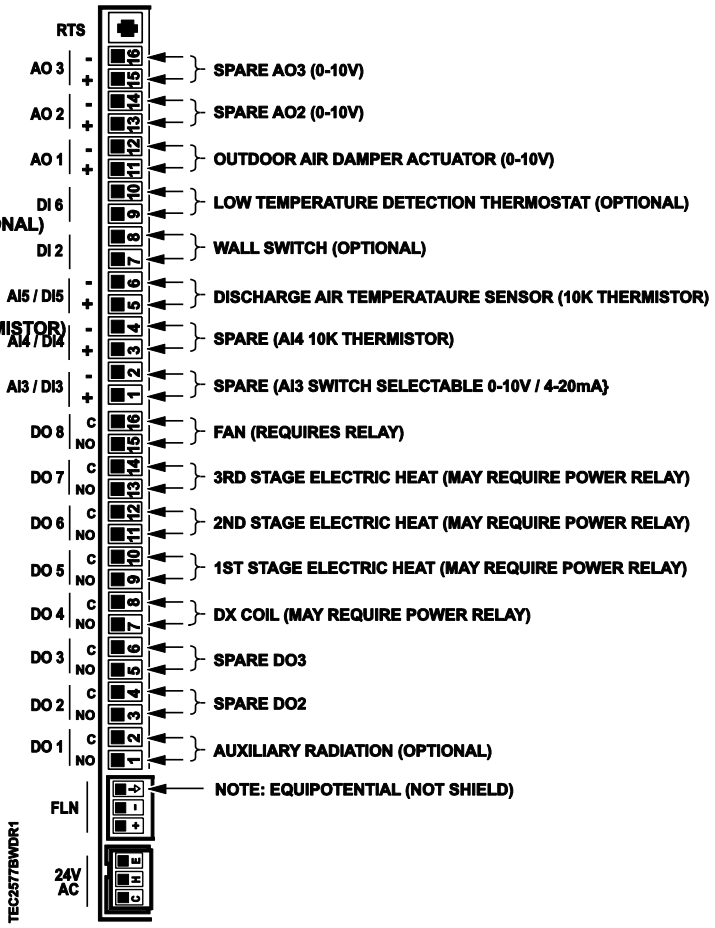
Applications 6576 – Wiring Diagram 3.



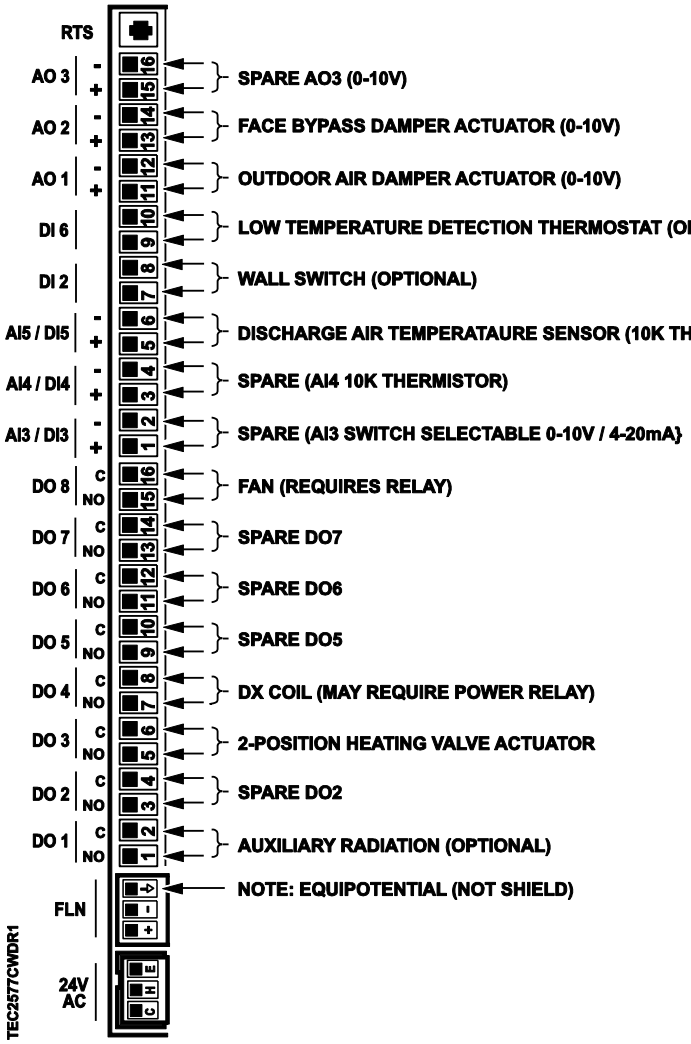
Applications 6576 – Wiring Diagram 4.



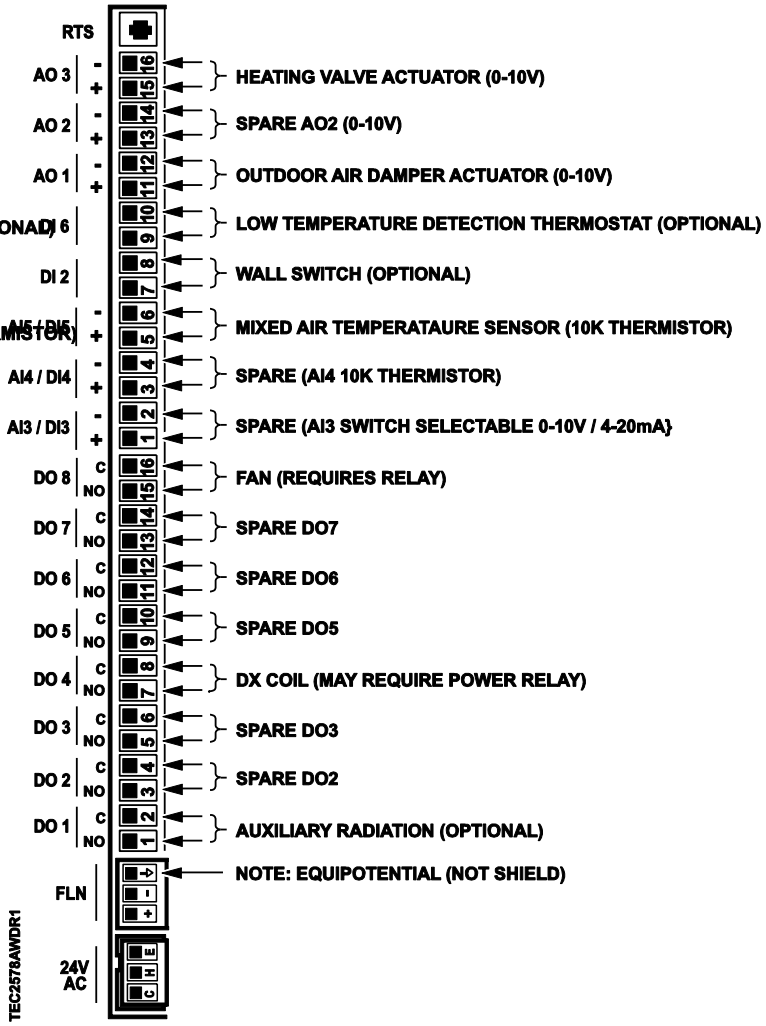
Applications 6577 – Wiring Diagram 1.



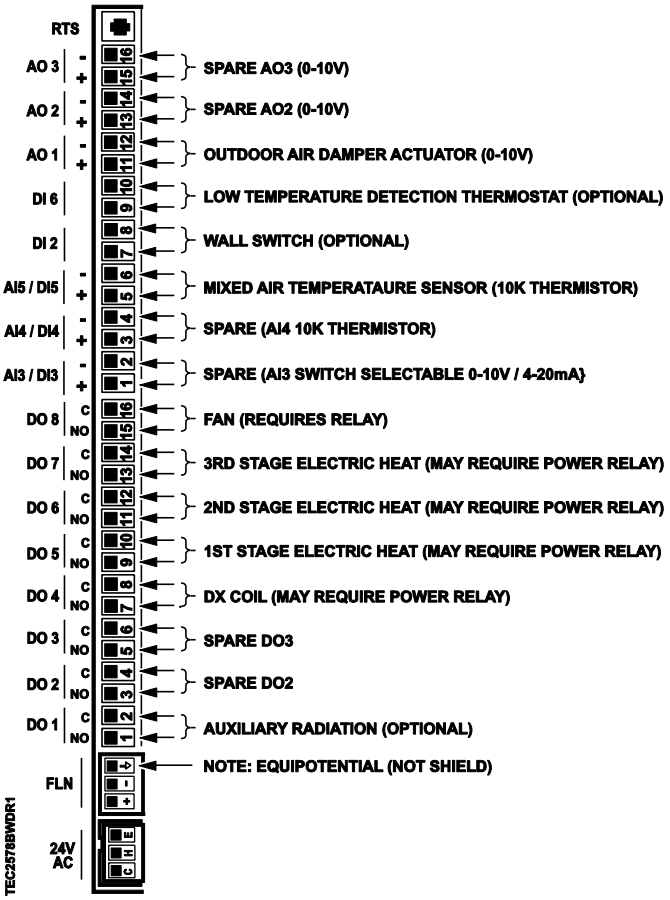
Applications 6577 – Wiring Diagram 2.



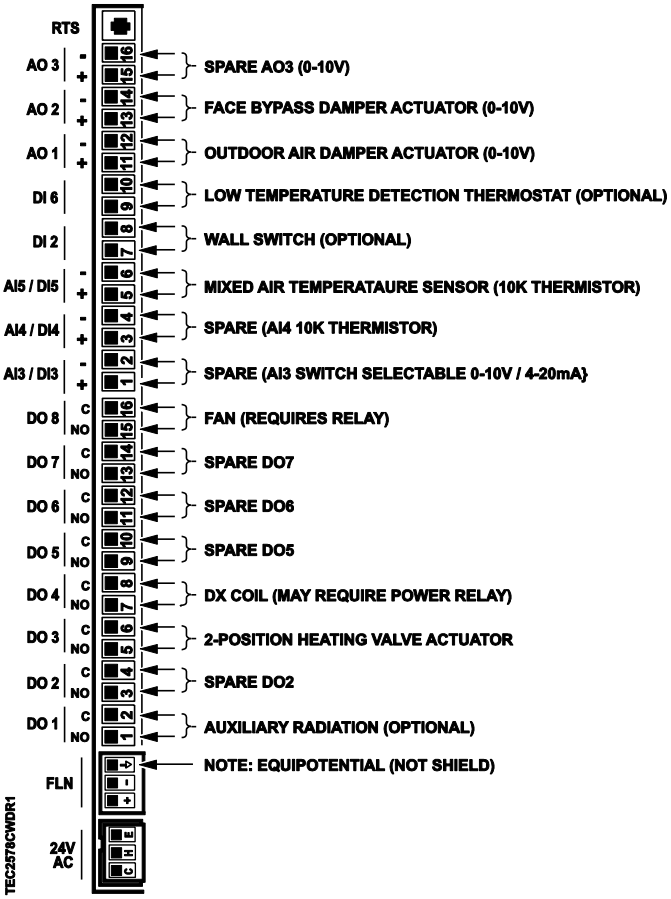
Applications 6577 – Wiring Diagram 3.



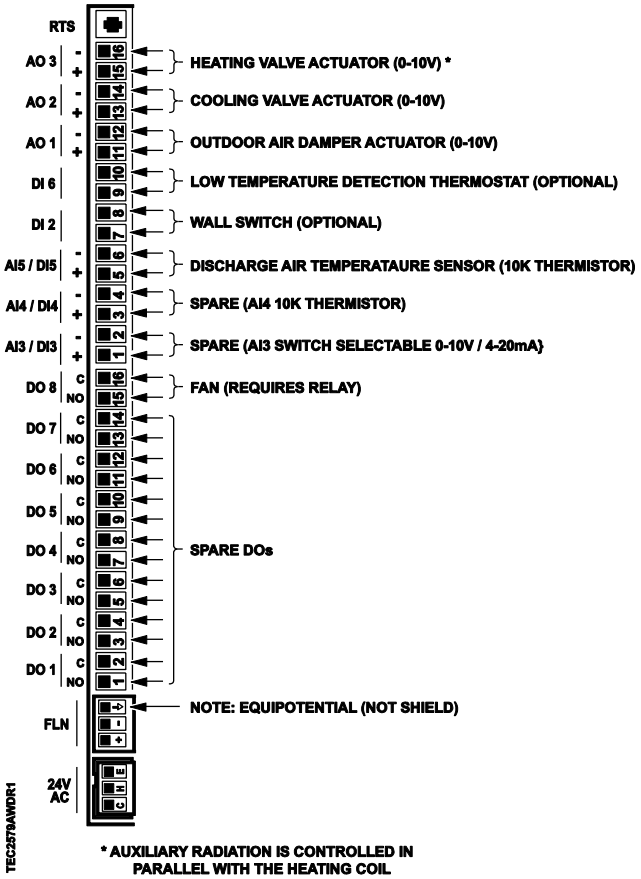
Applications 6578 – Wiring Diagram 1.



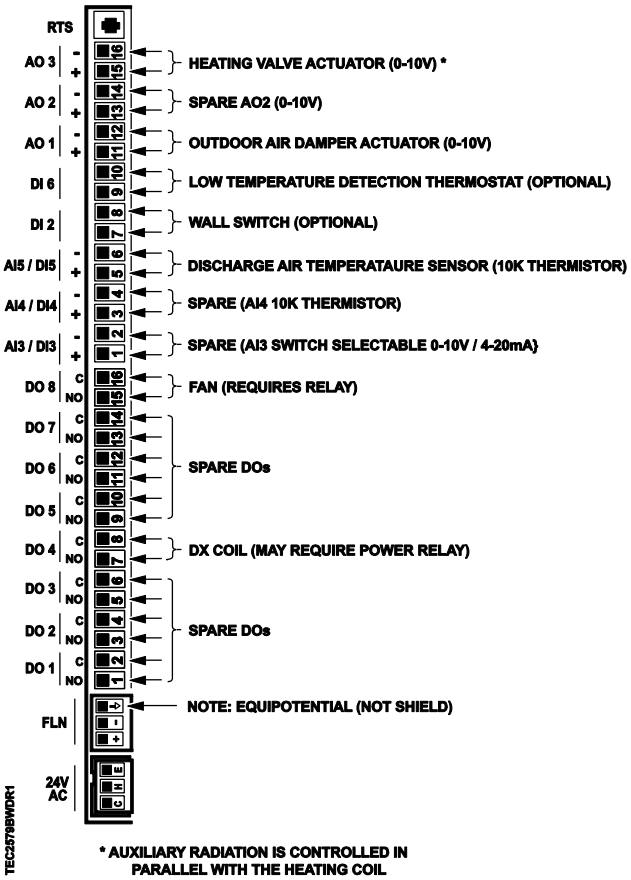
Applications 6578 – Wiring Diagram 2.



Applications 6578 – Wiring Diagram 3.



Applications 6579 – Wiring Diagram 1.



Applications 6579 – Wiring Diagram 2.