SIEMENS

Siemens BACnet Programmable TEC Unit Conditioner (Fan Coil) Controller

Owner's Manual
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For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To the Reader

Your feedback is important to us. If you have comments about this manual, please submit them to: mailto:Sbt_technical.editor.us.sbt@siemens.com

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How To Use This Manual

This manual is written for the owner and user of the Siemens BACnet PTEC Fan Coil Controller. It is designed to help you become familiar with the Siemens BACnet PTEC and its applications.

This section covers manual organization, manual conventions, symbols used in the manual, and other information that will help you use this manual.

Manual Organization

This manual contains the following chapters:

- **Chapter 1, Hardware**, describes the hardware components and the accessories that are used with the BACnet PTEC.
- **Chapter 2, Applications**, describes the control applications available in the model of the BACnet PTEC that includes a terminal block for wireable input/output connections.
- **Chapter 3, Point Database**, defines the point database descriptors and includes address and applications.
- **Chapter 4, Troubleshooting**, describes basic corrective measures you can take should you encounter a problem when using the BACnet PTEC. For issues not covered in this chapter, consult your local Siemens Solution Partner, Authorized TALON Dealer.
- The **Glossary** describes the terms and acronyms used in this manual.
- The **Index** helps you locate information presented in this manual.

Manual Conventions

The following table lists conventions to help you use this manual in a quick and efficient manner.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbered Lists (1, 2, 3…) indicate a procedure with sequential steps.</td>
<td>1. Turn OFF power to the field panel. 2. Turn ON power to the field panel. 3. Contact the local Siemens Solution Partner, Authorized TALON Dealer.</td>
</tr>
<tr>
<td>Conditions that must be completed or met before beginning a task are designated with a ▶. Intermediate results (what will happen following the execution of a step), are designated with a ◀. Results, which inform the user that a task was completed successfully, are designated with a ➤.</td>
<td>▶Composer software is properly installed. ➤A Valid license is available. 1. Select <strong>Start &gt; Programs &gt; Siemens &gt; GMS &gt; Composer</strong>. ➤The Project Management window displays. 2. Open an existing project or create a new one. ➤The project window displays.</td>
</tr>
<tr>
<td>Actions that should be performed are</td>
<td>Type F for Field panels.</td>
</tr>
</tbody>
</table>
How To Use This Manual

How To Use This Manual

Convention | Examples
--- | ---
specified in boldface font. | Click **OK** to save changes and close the dialog box.
Error and system messages are displayed in Courier New font. | The message *Report Definition successfully renamed* displays in the status bar.
New terms appearing for the first time are italicized. | The field panel continuously executes a user-defined set of instructions called the *control program.*

This symbol signifies Notes. Notes provide additional information or helpful hints.

Cross references to other information are indicated with an arrow and the page number, enclosed in brackets: [*→92*]

For more information on creating flowcharts, see Flowcharts [*→92*].

**Manual Symbols**
The following table lists the safety symbols used in this manual to draw attention to important information.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTICE</td>
<td>CAUTION</td>
<td>Equipment damage may occur if a procedure or instruction is not followed as specified. (For online documentation, the NOTICE displays in white with a blue background.)</td>
</tr>
<tr>
<td>CAUTION</td>
<td>CAUTION</td>
<td>Minor or moderate injury may occur if a procedure or instruction is not followed as specified.</td>
</tr>
<tr>
<td>WARNING</td>
<td>WARNING</td>
<td>Personal injury or property damage may occur if a procedure or instruction is not followed as specified.</td>
</tr>
<tr>
<td>DANGER</td>
<td>DANGER</td>
<td>Electric shock, death, or severe property damage may occur if a procedure or instruction is not followed as specified.</td>
</tr>
</tbody>
</table>

**Getting Help**
For more information about the Siemens BACnet PTEC Fan Coil Controller, contact your local Siemens Solution Partner, Authorized TALON Dealer.

**Where to Send Comments**
Your feedback is important to us. If you have comments about this manual, please submit them to SBT_technical.editor.us.sbt@siemens.com
Chapter 1 – Product Overview

The Siemens BACnet PTEC Fan Coil Controller is used in pressure dependent box, fan coil unit, and induction unit applications. It provides Direct Digital Control (DDC) for seven applications.

- The controller can operate as an independent, stand-alone, DDC room controller or it can be networked with a field panel.
- The controller provides all termination, input/output, system and local communication connections.
- The controller hardware consists of the controller with cover and mounting bracket (See the figure [9] Siemens BACnet PTEC Fan Coil Controller).

The following applications are covered:

Pressure Dependent Terminal Boxes
- Cooling or Heating (Application 6540)
- Hot Water Heat (Application 6541)

Fan Coil Units
- Cooling or Heating (Application 6550)
- Cooling and Heating (Application 6551)
- Two-stage Cooling and Electric Heat (Application 6552)
- Two-stage Cooling and Hot Water Heat (Application 6553)
- Cooling and Electric Heat or VAV Pressure Dependent with Electric Heat (Application 6554)
- Slave Mode (No control; available for set up and point extension device) (Application 6591)

NOTE: Application 6554 can also control a Variable Air Volume pressure dependent terminal box with electric heat. See the application description [23] for Application 6554.

Ordering Notes

Siemens BACnet PTEC Fan Coil Controller

P/N 550-496P
Siemens BACnet PTEC Fan Coil Controller.

**Hardware Inputs**

**Analog**
- Duct temperature sensor – Application 6540
- Pipe temperature sensor – Application 6550
- Room temperature sensor (RTS)
- Room temperature setpoint dial (optional)

**Digital**
- Night mode override (optional)
- Wall switch (optional)
Hardware Outputs

Analog

- None

Digital

- Damper actuator
  Application 6540
  Application 6541
- Fan (switched 24 Vac, pilot duty)
  Application 6550
  Application 6551
  Application 6552
  Application 6553
  Application 6554
- First valve actuator (required)
  Application 6541
  Application 6550
- Second valve actuator (optional)
  Application 6541
  Application 6550
- Cooling valve actuator
  Application 6551
- Heating valve actuator
  Application 6551
  Application 6553
- Stage 1 cooling (2-position valve actuator, or cooling compressor)
  Application 6552
  Application 6553
- Stage 2 cooling (2-position valve actuator, or cooling compressor)
  Application 6552
  Application 6553
- Stage 1 electric heat
  Application 6552
  Application 6554
- Stage 2 electric heat
  Application 6552
  Application 6554
- Stage 3 electric heat
  Application 6552
  Application 6554
- Valve actuator; or, damper actuator
  Application 6554
Power Wiring

The controller is powered by 24 Vac. Power wiring connects to the two screw terminals on the controller labeled “C” (Common) and “H” (Hot) on the terminal block labeled “24 VAC”. No earth ground connection is required. See the following figure.

![Power Wiring Diagram]

Communication Wiring

The controller connects to the field panel by means of a Floor Level Network (FLN) trunk. Communication wiring connects to the three screw terminals on the controller labeled “+” (positive), “-” (negative), and “∅” (Reference ground or “Equipotential”). See the following figure.

![Communication Wiring Diagram]
Controller LED Indicators

The controller has eleven Light Emitting Diode (LED) indicators (see the figure [► 9] Siemens BACnet PTEC Fan Coil Controller). Table 2 lists the type, the abbreviation on the controller, and the indication of each LED.

<table>
<thead>
<tr>
<th>LED Type</th>
<th>Label (if present)*</th>
<th>LED Number</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
<td>DO1 - DO8</td>
<td>1 – 8</td>
<td>Indicates the ON/OFF status of the DO associated with it. A glowing LED indicates that the DO is energized.</td>
</tr>
<tr>
<td>Receive</td>
<td>RX</td>
<td>9</td>
<td>Indicates, when flashing, that the controller is receiving information from the field panel.</td>
</tr>
<tr>
<td>Transmit</td>
<td>TX</td>
<td>10</td>
<td>Indicates, when flashing, that the controller is transmitting information to the field panel.</td>
</tr>
<tr>
<td>BST</td>
<td>&quot;Basic Sanity Test&quot;</td>
<td>11</td>
<td>Indicates, when flashing ON and OFF once per second, that the controller is functioning properly.</td>
</tr>
</tbody>
</table>

Temperature Sensors

Temperature sensors used with the Siemens BACnet PTEC Fan Coil Controller include an electronic room temperature sensor and an optional duct temperature sensor.

Room Temperature Sensor

The controller room temperature sensor connects to the controller by means of a cable terminated at both ends with a six-conductor RJ-11 plug-in connector.

See the Ordering Notes [► 9] section for the location of the room temperature sensor/Human Machine Interface (HMI) port.

Duct Temperature Sensor

An optional duct temperature sensor provides duct air temperature sensing inputs to the controller.

For more information about temperature sensors, contact your local Siemens Solution Partner, Authorized TALON Dealer.
Actuators

Actuators used with the Siemens BACnet PTEC Fan Coil Controller include electronic damper motors, electronic valve motors, and electronic valve assemblies. These actuators are powered through the controller to position reheat valves or supply air dampers.

Related Equipment

- Damper Actuator(s)
- Duct Temperature Sensor (10K W) (optional)
- Pipe Temperature Sensor (optional)
- Room Temperature Sensor
- Valve Actuator(s)

Contact your local Siemens Solution Partner, Authorized TALON Dealer for product numbers and more information.
Chapter 2 – Applications

Basic Operation

The Siemens BACnet PTEC Fan Coil Controller provides Direct Digital Control (DDC) technology for pressure dependent Variable Air Volume (VAV), fan coil, and induction unit applications. The pressure dependent VAV applications control space temperature by directly driving the damper. There is no airflow measurement and no explicit flow control. The fan coil and induction applications control temperature with hot water or up to three stages of electric reheat, chilled water, or up to two stages of direct expansion cooling.

Control Temperature Setpoints

The controller maintains a specified temperature setpoint based on Day/Night mode, the heating/cooling mode, or the setpoint dial (if used).

Day/Night Mode

The controller maintains the specified day setpoint temperature during daytime hours and the specified night setpoint at night.

Night Mode Override Switch

If the RTS has an override switch, it can be used to command the controller into day mode for an adjustable amount of time. This only affects a controller in night mode.

Control Loops

Temperature Loop – Heating Loop – Cooling Loop

Maintains temperature setpoint by modulating the heating source, cooling source, or damper.

Calibration

Calibration may be set to take place automatically or manually.

Valve

Calibration of a hot water valve (if used) is done by briefly commanding the valve closed.

Fail-safe Operation

If the RTS or the setpoint dial fails, then the controller operates using the last known temperature value.
Heating and Cooling Switchover

The heating/cooling switchover determines whether the controller is in heating or cooling mode by monitoring the room temperature and the demand for heating and cooling (as determined by the temperature control loops).

When the controller is in cooling mode, the heating valve(s) are closed. The heating loop modulates the heating valve(s) to warm up the room. In cooling mode, the heating valve is closed.

If more than one valve is present, the two valves can be sequenced in series or parallel.

Electric Reheat

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that the equipment is supplied with safeties by others, to ensure there is airflow across the heating coils when they are to be energized.</td>
</tr>
</tbody>
</table>

The heating loop controls up to three stages of electric reheat to warm up the room. The electric reheat is time modulated using a duty cycle. When the controller is in cooling mode, the electric heat is OFF at all times.

Staged Cooling

When the controller is in cooling mode, up to two stages of cooling can be cycled to maintain temperature. In heating mode, the cooling stages are off.

Fan Operation

Day Mode

The fan can be set to be ON all the time or cycle on when heating or cooling is needed.

Night Mode

The fan cycles ON when heating or cooling is needed.

Notes

1. If the temperature swings in the room are excessive, or if there is trouble in maintaining the setpoint, contact your local Siemens Solution Partner, Authorized TALON Dealer for more information.

2. The Siemens BACnet PTEC Fan Coil Controller, as shipped from the factory, keeps all associated equipment OFF. The controller and its equipment are released to application control at start-up.

3. “Safeties by Others”: This note implies that the associated equipment has safety features.
Application 6540 Variable Air Volume Pressure Dependent Cooling or Heating

In Application 6540, the controller modulates the supply air damper of the terminal box for cooling and heating. In order for it to work properly, the central air-handling unit must provide cool supply air in the cooling mode and warm supply air in the heating mode.

See the following figure.
Application 6541 Variable Air Volume Pressure Dependent with Hot Water Heat

In Application 6541, the controller modulates the supply air damper of the terminal box for cooling and modulates a reheat valve(s) for heating. When in heating, minimum airflow (limited by a mechanical stop on the terminal box) is provided to the room. In order for the terminal box to work properly, the central air-handling unit must provide cool supply air.

See the following figure.

Application 6541 - VAV Pressure Dependent with Hot Water Heat.
Application 6550 Two-Pipe Fan Coil Unit Cooling or Heating

In Application 6550, the controller modulates a valve in the fan coil unit for heating or cooling mode. It can also control an optional second valve for heating. The fan coil unit also has a fan to circulate room air. In order for the fan coil unit to work properly, the central plant must provide chilled water in the cooling mode and hot water in the heating mode.

See the following figure.
Application 6551 Fan Coil Unit Cooling and Heating

In Application 6551, the controller modulates separate valves in the fan coil unit for cooling and heating. The fan coil unit also has a fan to circulate room air. In order for the fan coil unit to work properly, the central plant must provide chilled and hot water.

See the following figure.

[Diagram of Application 6551 - Cooling or Heating with Fan]
Application 6552 Fan Coil Unit 2-Stage Cooling and Electric Heat

In Application 6552, the controller energizes a maximum of two stages of cooling and a maximum of three stages of electric heat in the fan coil unit. The fan coil unit also has a fan to circulate room air.

See the following figure.

Application 6552 - 2-Stage Cooling and Electric Heat.
Application 6553 Fan Coil Unit 2-Stage Cooling and Hot Water Heat

In Application 6553, the controller energizes a maximum of two stages of cooling and a hot water valve for heating in the fan coil unit. The fan coil unit also has a fan to circulate room air. In order for the fan coil unit to work properly, the central plant must provide hot water in the heating season.

See the following figure.
Application 6554 Fan Coil Unit Cooling and Electric Heat or VAV Pressure Dependent with Electric Heat

In Application 6554, the controller energizes a valve or damper for cooling and controls a maximum of three stages of electric heat for heating in the fan coil unit. The fan coil unit also has a fan to circulate room air. This application can also be used to control a pressure-dependent terminal box with electric heat. If a damper is being controlled, the central plant must supply chilled air in the cooling mode in order for the terminal box to work properly.

See the following figures.
Application 6591 Slave Mode

Application 6591 is the slave mode application for the BACnet PTEC (see Ordering Notes [9] for product numbers). Slave mode is the default application that comes up when power is first applied to the controller. Slave mode provides no control. Its purpose is to allow the operator to perform equipment checkout before a control application is put into effect and to set some basic controller parameters (CTRLR ADDRESS, APPLICATION, etc.).

Using Auxiliary Points

It is possible to have extra points available on a Siemens BACnet PTEC Fan Coil Controller in addition to the ones used by the current application that is running in the controller. If these extra points will be controlled by a field panel, they must be unbundled at the field panel. Or, these points may now be controlled directly by the BACnet PTEC with the addition of customized programming. See Chapter 3 for point database information.
Using the Controller as a Point Extension Device

A controller in default state can also be used as a point extension device by unbundling spare I/O points at the field panel.

If the controller is only used as a point extension device, with no control application in effect, then its application must be set to slave mode and the points must be unbundled at the field panel. All points must be controlled from the field panel in order to be used. Unbundling points at the field panel or adding customized programming at the BACnet PTEC allows you to use these available points.

All DOs can be used as separate DOs. They can also be used in pairs, (DO 1 and DO 2), (DO 3 and DO 4), and (DO 5 and DO 6), to control a motor as shown in the example.

**NOTE:**
If using either a motor or DOs as auxiliary points, be sure to set MTR SETUP to the correct value. See the following table. If using a pair of DOs to control a motor, then the DOs cannot be unbundled or commanded separately. Only MTR 1 COMD, MTR 2 COMD and MTR3 COMD can be unbundled to control the motors.

<table>
<thead>
<tr>
<th>Table. Motor Enable/Reverse Values for MTR SETUP.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor 1 Enabled</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Motor 2 Not Used</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Motor 2 Enabled</td>
</tr>
<tr>
<td>Motor 2 Enabled and Reversed</td>
</tr>
<tr>
<td>Motor 3 Not Used</td>
</tr>
<tr>
<td>Motor 3 Enabled</td>
</tr>
<tr>
<td>Motor 3 Enabled and Reversed</td>
</tr>
<tr>
<td>49</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Example**

If using DO 1 and DO 2 as the physical terminations for a direct acting motor, then follow these steps:

1. Set MTR SETUP to 1 to enable the motor.
2. Unbundle MTR 1 COMD at the field panel to command the motor from the field panel.

Contact your local Siemens Solution Partner, Authorized TALON Dealer for other combinations of DOs and motors.
## Chapter 3 – Point Database

This chapter presents a description of the Siemens BACnet PTEC Fan Coil Controller database including point descriptors, point addresses, and a listing of applications in which each point is found.

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Address¹</th>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRLR ADDRESS</td>
<td>01</td>
<td>All</td>
<td>Identifies the controller on the FLN trunk.</td>
</tr>
<tr>
<td>APPLICATION</td>
<td>02</td>
<td>All</td>
<td>The identification number of the program running in the controller.</td>
</tr>
<tr>
<td>RMTMP OFFSET</td>
<td>03</td>
<td>All</td>
<td>Compensates for deviations between the value of ROOM TEMP and the actual room temperature. This corrected value is displayed in CTL TEMP. RMTMP OFFSET + ROOM TEMP = CTL TEMP</td>
</tr>
<tr>
<td>ROOM TEMP</td>
<td>(04)²</td>
<td>All</td>
<td>Actual reading from the room temperature sensor.</td>
</tr>
<tr>
<td>HEAT.COOL</td>
<td>(05)</td>
<td>All except 6591</td>
<td>Current mode of operation for applications that can be in either a heating mode or a cooling mode.</td>
</tr>
<tr>
<td>DAY CLG STPT</td>
<td>06</td>
<td>All except 6591</td>
<td>The temperature setpoint, in degrees, that the controller maintains during day periods in cooling mode if a room temperature sensor setpoint dial is not present or is not used. See STPT DIAL.</td>
</tr>
<tr>
<td>DAY HTG STPT</td>
<td>07</td>
<td>All except 6591</td>
<td>The temperature setpoint, in degrees, that the controller maintains during day periods in heating mode if a room temperature sensor setpoint dial is not present or is not used. See STPT DIAL.</td>
</tr>
<tr>
<td>NGT CLG STPT</td>
<td>08</td>
<td>All except 6591</td>
<td>The temperature setpoint, in degrees, that the controller maintains during night periods in cooling mode.</td>
</tr>
<tr>
<td>NGT HTG STPT</td>
<td>09</td>
<td>All except 6591</td>
<td>The temperature setpoint, in degrees, that the controller maintains during night periods in heating mode.</td>
</tr>
<tr>
<td>RM STPT MIN</td>
<td>11</td>
<td>All except 6591</td>
<td>The minimum temperature setpoint, in degrees, that the controller can use from the setpoint dial. This overrides any temperature setpoint from the setpoint dial that falls below this minimum.</td>
</tr>
<tr>
<td>RM STPT MAX</td>
<td>12</td>
<td>All except 6591</td>
<td>The maximum temperature setpoint, in degrees, that the controller can use from the setpoint dial. This overrides any temperature setpoint from the setpoint dial that falls above this maximum.</td>
</tr>
<tr>
<td>RM STPT DIAL</td>
<td>{13}²</td>
<td>All</td>
<td>The temperature setpoint, in degrees, from the room temperature sensor (not available on all temperature sensor models). This setpoint will be used for control in day mode (heating or cooling) when enabled by STPT DIAL.</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------</td>
<td>-------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>STPT DIAL</td>
<td>14</td>
<td>All except 6591</td>
<td>YES indicates that there is a room setpoint dial on the room temperature sensor and it is to be used as the temperature setpoint for control in day mode. NO indicates that the appropriate preset setpoint (Point 6) will be used as the temperature setpoint for control in day heating mode or cooling mode. Valid input: YES or NO.</td>
</tr>
<tr>
<td>AUX TEMP</td>
<td>{15}</td>
<td>All except 6540, 6550</td>
<td>Actual reading from a 10K W thermistor connected to the controllers AI 3 input. When a thermistor is connected at AI 3, DI 3 is not available. See DI 3.</td>
</tr>
<tr>
<td>SUPPLY TEMP</td>
<td>{15}</td>
<td>6540, 6550</td>
<td>Actual reading from a 10K W thermistor connected to the controller's AI 3 input. The controller uses this value to determine whether it is in heating mode or cooling mode.</td>
</tr>
<tr>
<td>VLV 1 START</td>
<td>16</td>
<td>6541, 6550</td>
<td>When HTG LOOPOUT is above this value, Valve 1 starts to open.</td>
</tr>
<tr>
<td>VLV 1 END</td>
<td>17</td>
<td>6541, 6550</td>
<td>When HTG LOOPOUT is below this value, valve 1 is at the end of its stroke.</td>
</tr>
<tr>
<td>WALL SWITCH</td>
<td>18</td>
<td>All</td>
<td>YES indicates that the controller is to monitor the status of a wall switch that is connected to DI 2. NO indicates that the controller will not monitor the status of a wall switch, even if one is connected. Valid input: YES or NO.</td>
</tr>
<tr>
<td>DI OVRD SW</td>
<td>{19}²</td>
<td>All</td>
<td>Actual indication of the status of the override switch (not physically available on all temperature sensor models) at the room temperature sensor. ON indicates that the switch is being pressed. OFF indicates that the switch is released. Valid input: ON or OFF.</td>
</tr>
<tr>
<td>OVRD TIME</td>
<td>20</td>
<td>All except 6591</td>
<td>The amount of time, in hours, that the controller will operate in day mode when the override switch is pressed while the controller is in night mode.</td>
</tr>
<tr>
<td>NGT OVRD</td>
<td>{21}</td>
<td>All except 6591</td>
<td>Indicates the mode that the controller is operating in with respect to the override switch. NIGHT indicates that the switch has not been pressed and the override timer is not active. DAY indicates that the switch has been pressed and the override timer is active. The controller then uses a day mode temperature setpoint. This point is only in effect when DAY.NGT indicates night mode.</td>
</tr>
<tr>
<td>VLV 2 START</td>
<td>22</td>
<td>6541, 6550</td>
<td>When HTG LOOPOUT is above this value, Valve 2 starts to open.</td>
</tr>
<tr>
<td>VLV 2 END</td>
<td>23</td>
<td>6541, 6550</td>
<td>When HTG LOOPOUT is below this value, valve 2 is at the end of its stroke.</td>
</tr>
<tr>
<td>DI 2</td>
<td>{24}</td>
<td>All</td>
<td>Actual status of a contact connected to the controller at DI 2.</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address¹</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DI 3</td>
<td>{25}²</td>
<td>All except 6540, 6550</td>
<td>Actual status of a contact connected to the controller at DI 3/Al 3. ON indicates that the contact is closed; OFF indicates that the contact is open. When a contact is connected at DI 3, Al 3 is not available. See AUX TEMP.</td>
</tr>
<tr>
<td>DAY.NGT</td>
<td>{29}</td>
<td>All</td>
<td>Indicates the mode in which the controller is operating. Day temperature setpoints will be used in day mode. Night temperature setpoints will be used in night mode. This point is normally set by the field panel.</td>
</tr>
<tr>
<td>MTR 3 COMD</td>
<td>{37}</td>
<td>6540, 6591</td>
<td>The value to which the Motor 3 actuator is commanded in percent of full value.</td>
</tr>
<tr>
<td>VLV 2 COMD</td>
<td>{37}</td>
<td>6541</td>
<td>The value to which the Valve 2 actuator is commanded in percent of full travel for applications using a second water valve.</td>
</tr>
<tr>
<td>MTR 3 POS</td>
<td>{38}</td>
<td>6540, 6591</td>
<td>The current position of the Motor 3 actuator in percent of full travel. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>VLV 2 POS</td>
<td>{38}</td>
<td>6541</td>
<td>The current position of Valve 2 in percent of full travel. This value is calculated based on valve run time.</td>
</tr>
<tr>
<td>MTR 3 TIMING</td>
<td>39</td>
<td>6540, 6541, 6591</td>
<td>The time required for the Motor 3 actuator to travel from the full closed position to the full open position.</td>
</tr>
<tr>
<td>CLG STG 1</td>
<td>{41}</td>
<td>6552, 6553</td>
<td>This point is DO 1 in applications with staged cooling. This digital output controls the contactor for the first cooling stage and has a status of ON or OFF.</td>
</tr>
<tr>
<td>DO 1</td>
<td>{41}</td>
<td>All except 6552, 6553</td>
<td>Digital output 1 controls a 24 Vac load with an ON or OFF status. If Motor 1 is enabled, then DO 1 is coupled with DO 2 to control an actuator.</td>
</tr>
<tr>
<td>CLG STG 2</td>
<td>{42}</td>
<td>6552, 6553</td>
<td>This point is DO 2 in applications with staged cooling. This digital output controls the contactor for the second cooling stage and has a status of ON or OFF.</td>
</tr>
<tr>
<td>DO 2</td>
<td>{42}²</td>
<td>All except 6552, 6553</td>
<td>Digital output 2 controls a 24 Vac load with an ON or OFF status. If Motor 1 is enabled, then DO 2 is coupled with DO 1 to control an actuator.</td>
</tr>
<tr>
<td>DO 3</td>
<td>{43}</td>
<td>All except 6552, 6554</td>
<td>Digital output 3 controls a 24 Vac load with an ON or OFF status. If Motor 2 is enabled, then DO 3 is coupled with DO 4 to control an actuator.</td>
</tr>
<tr>
<td>HTG STG 1</td>
<td>{43}</td>
<td>6552, 6554</td>
<td>This point is DO 3 in applications with electric reheat. This digital output controls the contact for the first stage of heating and has a status of ON or OFF.</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address¹</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DO 4</td>
<td>{44}</td>
<td>All except 6552, 6554</td>
<td>Digital output 4 controls a 24 Vac load with an ON or OFF status. If Motor 2 is enabled, then DO 4 is coupled with DO 3 to control an actuator.</td>
</tr>
<tr>
<td>HTG STG 2</td>
<td>{44}</td>
<td>6552, 6554</td>
<td>This point is DO 4 in applications with electric reheat. This digital output controls the contact for the second stage of heating and has a status of ON or OFF.</td>
</tr>
<tr>
<td>DO 5</td>
<td>{45}</td>
<td>All except 6552, 6554</td>
<td>Digital output 5 controls a 24 Vac load with an ON or OFF status. If Motor 3 is enabled, then DO 5 is coupled with DO 6 to control an actuator.</td>
</tr>
<tr>
<td>HTG STG 3</td>
<td>{45}</td>
<td>6552, 6554</td>
<td>This point is DO 5 in applications with electric reheat. This digital output controls the contact for the third stage of heating and has a status of ON or OFF.</td>
</tr>
<tr>
<td>DO 6</td>
<td>{46}</td>
<td>6540, 6541, 6591</td>
<td>Digital output 6 controls a 24 Vac load with an ON or OFF status. If Motor 3 is enabled, then DO 6 is coupled with DO 5 to control an actuator.</td>
</tr>
<tr>
<td>FAN</td>
<td>{46}</td>
<td>All except 6540, 6541, 6591</td>
<td>This point is a digital output used to control the fan. ON indicates that the DO is energized; OFF indicates that the DO is de-energized.</td>
</tr>
<tr>
<td>DMPR COMD</td>
<td>{48}</td>
<td>6540, 6541</td>
<td>The value to which the damper motor is commanded in percent of full travel.</td>
</tr>
<tr>
<td>VLV 1 COMD</td>
<td>{48}</td>
<td>6550, 6551, 6554</td>
<td>The value to which the Valve 1 actuator is commanded in percent of full travel for applications using a water valve.</td>
</tr>
<tr>
<td>MTR 1 COMD</td>
<td>{48}²</td>
<td>6591</td>
<td>The value to which the Motor 1 actuator is commanded in percent of full travel.</td>
</tr>
<tr>
<td>DMPR POS</td>
<td>{49}</td>
<td>6540, 6541, 6550</td>
<td>The current position of the damper motor in percent of full travel. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>VLV POS</td>
<td>{49}</td>
<td>6550, 6551, 6554</td>
<td>The current position of Valve 1 in percent of full travel for applications using a water valve. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>MTR 1 POS</td>
<td>{49}</td>
<td>6591</td>
<td>The current position of damper Motor 1 in percent of full travel. This value is calculated based on motor run time. See MTR1 TIMING.</td>
</tr>
<tr>
<td>MTR1 TIMING</td>
<td>51</td>
<td>All except 6552, 6553</td>
<td>The time required for the Motor 1 actuator to travel from full closed to the full open position.</td>
</tr>
<tr>
<td>MTR 2 COMD</td>
<td>{52}</td>
<td>6540, 6591</td>
<td>The value to which the Motor 2 actuator is commanded in percent of full travel (for use as an auxiliary slave point).</td>
</tr>
<tr>
<td>VLV COMD</td>
<td>{52}</td>
<td>6553</td>
<td>The value to which the valve actuator is commanded in percent of full travel for applications using a water valve.</td>
</tr>
</tbody>
</table>
| VLV 1 COMD   | {52}     | 6541                 | The value to which the Valve 1 actuator is commanded in
<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Address¹</th>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLV 2 COMD</td>
<td>{52}</td>
<td>6550, 6551</td>
<td>The value to which the Valve 2 actuator is commanded in percent of full travel for applications using a water valve.</td>
</tr>
<tr>
<td>MTR 2 POS</td>
<td>{53}</td>
<td>6540, 6591</td>
<td>The current position of the Motor 2 actuator in percent of full travel (for use as an auxiliary slave point). This value is calculated based on motor run time. See MTR2 TIMING.</td>
</tr>
<tr>
<td>VLV POS</td>
<td>{53}</td>
<td>6553</td>
<td>The current position of the valve in percent of full travel for applications using a water valve. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>VLV 1 POS</td>
<td>{53}²</td>
<td>6541</td>
<td>The current position of Valve 1 in percent of full travel for applications using a water valve. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>VLV 2 POS</td>
<td>{53}</td>
<td>6550, 6551</td>
<td>The current position of Valve 2 in percent of full travel for applications using a water valve. This value is calculated based on motor run time.</td>
</tr>
<tr>
<td>MTR2 TIMING</td>
<td>55</td>
<td>All except 6552, 6554</td>
<td>The time required for the Motor 2 actuator to travel from full closed to the full open position.</td>
</tr>
<tr>
<td>MTR1 ROT ANG</td>
<td>56</td>
<td>All except 6552, 6553</td>
<td>The number of degrees that Motor 1 is free to travel.</td>
</tr>
<tr>
<td>MTR2 ROT ANG</td>
<td>57</td>
<td>All except 6552, 6554</td>
<td>The number of degrees that Motor 2 is free to travel.</td>
</tr>
<tr>
<td>MTR SETUP</td>
<td>58</td>
<td>All</td>
<td>The configuration setup code for Motors 1 and 2. This enables the motors individually and sets each motor to be either direct or reverse acting. <strong>Note:</strong> When a motor is enabled, its associated DOs are enabled.</td>
</tr>
<tr>
<td>DO DIR.REV</td>
<td>59</td>
<td>All</td>
<td>The configuration setup code for DOs. Allows the DOs to be direct or reverse acting (enabled equals energized or disabled equals de-energized).</td>
</tr>
<tr>
<td>CYCLE FAN</td>
<td>60</td>
<td>All except 6540, 6541, 6591</td>
<td>ON indicates the fan will cycle during day mode. OFF indicates the fan is on all the time in day mode.</td>
</tr>
<tr>
<td>COOL TEMP</td>
<td>61</td>
<td>6540, 6550</td>
<td>The discharge air temperature where the controller will switch from heating mode to cooling mode. Used only in applications with SUPPLY TEMP.</td>
</tr>
<tr>
<td>HEAT TEMP</td>
<td>62</td>
<td>6540, 6550</td>
<td>The discharge air temperature where the controller will switch from cooling mode to heating mode. Used only in applications with SUPPLY TEMP.</td>
</tr>
<tr>
<td>CLG P GAIN</td>
<td>63</td>
<td>All except 6591</td>
<td>The proportional gain value for the cooling temperature control loop.</td>
</tr>
<tr>
<td>CLG I GAIN</td>
<td>64</td>
<td>All except</td>
<td>The integral gain value for the cooling temperature control</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address(^1)</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CLG D GAIN</td>
<td>65</td>
<td>All except 6591</td>
<td>The derivative gain value for the cooling temperature control loop.</td>
</tr>
<tr>
<td>CLG BIAS</td>
<td>66</td>
<td>All except 6591</td>
<td>The biasing of the cooling temperature control loop. See CLG LOOPOUT.</td>
</tr>
<tr>
<td>HTG P GAIN</td>
<td>67</td>
<td>All except 6591</td>
<td>The proportional gain value for the heating temperature control loop.</td>
</tr>
<tr>
<td>HTG I GAIN</td>
<td>68</td>
<td>All except 6591</td>
<td>The integral gain value for the heating temperature control loop.</td>
</tr>
<tr>
<td>HTG D GAIN</td>
<td>69</td>
<td>All except 6591</td>
<td>The derivative gain value for the heating temperature control loop.</td>
</tr>
<tr>
<td>HTG BIAS</td>
<td>70</td>
<td>All except 6591</td>
<td>The biasing of the heating temperature control loop. See HTG LOOPOUT.</td>
</tr>
<tr>
<td>CLG 1 ON</td>
<td>71</td>
<td>6552, 6553</td>
<td>The value, in percent, which the cooling loop (CLG LOOPOUT) must exceed for the first stage of cooling to turn ON.</td>
</tr>
<tr>
<td>CLG 1 OFF</td>
<td>72</td>
<td>6552, 6553</td>
<td>The value, in percent, which the cooling loop (CLG LOOPOUT) must go below for the first stage of cooling to turn OFF.</td>
</tr>
<tr>
<td>CLG 2 ON</td>
<td>73</td>
<td>6552, 6553</td>
<td>The value, in percent, which the cooling loop (CLG LOOPOUT) must exceed for the second stage of cooling to turn ON.</td>
</tr>
<tr>
<td>CLG 2 OFF</td>
<td>74</td>
<td>6552, 6553</td>
<td>The value, in percent, which the cooling loop (CLG LOOPOUT) must go below for the second stage of cooling to turn OFF.</td>
</tr>
<tr>
<td>CLG STG CNT</td>
<td>75</td>
<td>6552, 6553</td>
<td>The number of cooling stages used by the application. DOs associated with unused stages may be used as spare DOs.</td>
</tr>
<tr>
<td>CLG MIN ON</td>
<td>76</td>
<td>6552, 6553</td>
<td>The minimum time, in minutes, which the cooling stages will remain ON before turning OFF.</td>
</tr>
<tr>
<td>CLG MIN OFF</td>
<td>77</td>
<td>6552, 6553</td>
<td>The minimum time, in minutes, which the cooling stages will remain OFF before turning ON.</td>
</tr>
<tr>
<td>CTL TEMP</td>
<td>({78})(^2)</td>
<td>All except 6591</td>
<td>The temperature used as input for the temperature control loops. This value will be the same as the value in ROOM TEMP + RMTMP OFFSET unless it is overridden.</td>
</tr>
<tr>
<td>CLG LOOPOUT</td>
<td>({79})</td>
<td>All except 6591</td>
<td>The cooling temperature control loop output value, in percent.</td>
</tr>
<tr>
<td>HTG LOOPOUT</td>
<td>({80})</td>
<td>All except 6591</td>
<td>The heating temperature control loop output value, in percent.</td>
</tr>
<tr>
<td>AVG HEAT OUT</td>
<td>({81})</td>
<td>6552, 6554</td>
<td>This value is equal to HTG LOOPOUT x HTG STG CNT in applications with electric heat. It is used to determine what</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
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<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>HTG STG MAX</td>
<td>82</td>
<td>6552, 6554</td>
<td>The value, in percent, which the heating loop (HTG LOOPOUT) must exceed for the electric heat to be ON for the full duty cycle (HTG STG TIME).</td>
</tr>
<tr>
<td>HTG STG MIN</td>
<td>83</td>
<td>6552, 6554</td>
<td>The value, in percent, which the heating loop (HTG LOOPOUT) must go below for the electric heat to be OFF for the full duty cycle (HTG STG TIME).</td>
</tr>
<tr>
<td>STAGE FAN</td>
<td>84</td>
<td>All except 6540, 6541, 6591</td>
<td>The value that the output of the current temperature loop must exceed in order for the fan to turn ON in night mode.</td>
</tr>
<tr>
<td>SWITCH LIMIT</td>
<td>85</td>
<td>All except 6540, 6591</td>
<td>The active temperature control loop output must be less than this value to switch between cooling mode and heating mode. Actual switchover depends on SWITCH DBAND being exceeded and is subject to SWITCH TIME being expired.</td>
</tr>
<tr>
<td>SWITCH TIME</td>
<td>86</td>
<td>All except 6540, 6550, 6591</td>
<td>The time, in minutes, before the heat/cool mode can change over when the other parameters are appropriate.</td>
</tr>
<tr>
<td>HTG STG CNT</td>
<td>88</td>
<td>6552, 6554</td>
<td>The number of electric heating stages used by the application. DOs associated with unused stages may be used as spare DOs.</td>
</tr>
<tr>
<td>VALVE CNT</td>
<td>88</td>
<td>6541, 6550</td>
<td>The number of heating valves available.</td>
</tr>
<tr>
<td>HTG STG TIME</td>
<td>89</td>
<td>6552, 6554</td>
<td>The cycle time, in minutes, for the electric reheat stages. For example, if there are three stages of electric heat and STAGE TIME=10 minutes, HTG STG CNT=3, and AVG HEAT OUT=150% then, Stage 1 will be ON for 10 minutes (100% of the time), Stage 2 will be ON for 5 minutes (50% of 10 minutes) and OFF for 5 minutes, and Stage 3 will be OFF.</td>
</tr>
<tr>
<td>SWITCH DBAND</td>
<td>90</td>
<td>All except 6540, 6550, 6591</td>
<td>The temperature range, in degrees, which is compared to the difference between CTL TEMP and CTL STPT. The difference must exceed this value for temperature control mode to change over. Changeover is also subject to SWITCH TIME being expired.</td>
</tr>
<tr>
<td>CTL STPT</td>
<td>(92)$^2$</td>
<td>All except 6591</td>
<td>The actual setpoint value being used as input for the active temperature control loop.</td>
</tr>
<tr>
<td>CAL TIMER</td>
<td>96</td>
<td>All</td>
<td>Time interval, in hours, between the calibration sequences.</td>
</tr>
<tr>
<td>LOOP TIME</td>
<td>98</td>
<td>All except 6591</td>
<td>The time, in seconds, between control loop calculations.</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Address$^1$</td>
<td>Application</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ERROR STATUS</td>
<td>{99}$^2$</td>
<td>All</td>
<td>The status code indicating any errors detected during controller power up. A status of 0 indicates there are no problems.</td>
</tr>
<tr>
<td>AI 4 OFFSET</td>
<td>122</td>
<td>All</td>
<td>Optional point that works similarly to RMTMP OFFSET. When an auxiliary temperature sensor is being used at these inputs, AI 4 OFFSET can be used for calibration purposes, if necessary.</td>
</tr>
<tr>
<td>AI 5 OFFSET</td>
<td>123</td>
<td>All</td>
<td>Optional point that works similarly to RMTMP OFFSET. When an auxiliary temperature sensor is being used at these inputs, AI 4 OFFSET can be used for calibration purposes, if necessary.</td>
</tr>
<tr>
<td>STAT SUPV</td>
<td>124</td>
<td>All</td>
<td>This new point is used to determine which version of room unit is connected and how the STAT SUPV point responds to a possible communication loss between the controller and the room unit. The different versions of room units (legacy Series 1000 and 2000 stats; and the newly released Series 2200 and 3200 stats) display the communication failure uniquely. This is an indicator for the occupant to know that there is a communication problem between the controller and room unit.</td>
</tr>
<tr>
<td>RM CO2</td>
<td>{125}</td>
<td>All</td>
<td>This new point can be unbundled in the controller for monitoring purposes. This point may be used in a control strategy as occupancy increases (CO2 levels increase) in the room being controlled.</td>
</tr>
<tr>
<td>RM RH</td>
<td>{126}</td>
<td>All</td>
<td>This new point can be unbundled in the controller for monitoring purposes. This point may be used in a control strategy as humidity levels increase in the room being controlled.</td>
</tr>
<tr>
<td>PPCL STATE</td>
<td>{127}</td>
<td>All</td>
<td>This new point is an indicator that customized programming has been added in addition to the normal control strategy of the application being used. This point is read as LOADED or EMPTY. A status of LOADED indicates that there is PPCL programming in the controller, and it is providing unique control to meet a customer's job specification. A status of EMPTY indicates that no unique programming is present.</td>
</tr>
</tbody>
</table>

---

1) Points not listed are not used in this application.

2) Point numbers that appear in brackets ( ) may be unbundled at the field panel.
Chapter 4 – Troubleshooting

This chapter describes corrective measures you can take should you encounter a problem when using a BACnet PTEC.

You are not required to do any controller troubleshooting. You may want to contact your local Siemens Solution Partner, Authorized TALON Dealer if a problem occurs or you have any questions about the controller.

NOTE:
When troubleshooting, record the problem and what actions were performed immediately before the problem occurred. Being able to describe the problem in detail is important should you need assistance from your local Siemens Solution Partner, Authorized TALON Dealer.

Basic Service Information

Always remove power to the BACnet PTEC when installing or replacing it. Since the controller does not have a power switch, the recommended method of removing power to a locally powered controller is to turn OFF the power to the 24 Vac transformer. The recommended method of removing power to a controller on a power cable (even to service a single controller) is to turn OFF the power at the transformer.

NOTE:
When removing power to a controller to perform maintenance or service, make sure that the person in charge of the facility is aware of this and that appropriate steps are taken to keep the building in control.

Never remove the cover from the BACnet PTEC. There are no serviceable parts inside. If a problem is found with this device, contact your local Siemens Solution Partner, Authorized TALON Dealer for replacement. An anti-static wrist strap is recommended when installing or replacing controllers.

Preventive Maintenance

Most controller components are designed so that, under normal circumstances, they do not require preventive maintenance. Periodic inspections, voltage checks, and point checks are normally not required. The rugged design makes most preventive maintenance unnecessary. However, devices that are exposed to dusty or dirty environments may require periodic cleaning to function properly.
Safety Features

The controller board stores the controller’s address, applications, and point values. In the event of a power failure or a reset, these values are retrieved from the controller’s permanent memory and are used by the controller unless overridden by a field panel. If one of the following conditions occurs, the controller will activate safety features present in its fail-safe mode.

- Sensor failure.
- Loss of power. Upon controller power loss, communication with the controller is also lost. The controller will appear as failed (*F*) at the field panel.

Controller LEDs

NOTE:
The TX and RX LEDs indicate communication over the FLN.

To determine if the controller is powered up and working, verify that the Basic Sanity Test (BST) Light Emitting Diode (LED) is flashing ON/OFF once per second. The controller contains eleven LEDs located on the circuit board. See the Controller LED Indicators [→ 13] section of Chapter 1 - Product Overview for more information about LEDs.
Glossary
The glossary contains terms and acronyms that are used in this manual. For definitions of point database descriptors, see Chapter 3 - Point Database, in this manual.

**airflow**
Rate at which a volume of air moves through a duct. Usually expressed in cubic feet per minute (cfm) or liters per second (lps).

**algorithm**
Mathematical formula that uses varying inputs to calculate an output value.

**AVS**
Air Velocity Sensor.

**centralized control**
Type of control offered by a controller that is connected by means of Field Level Network (FLN).

**cfm**
Cubic Feet per Minute.

**control loop**
PID algorithm that is used to control an output that is based on a setpoint and an input reading from a sensor.

**DDC**
Direct Digital Control.

**DO**
Digital Output. Physical output point that sends a two-state signal (ON/OFF, OPEN/CLOSED, YES/NO).

**English units**
The foot-pound-second system of units for weights and measurements.

**equipment controller**
FLN device that provides additional point capacity to a field panel or provides individual room or mechanical equipment control.
field panel
A device containing a microprocessor for centralized control of system components and equipment controllers.

FLN
Field Level Network. Network consisting of equipment controllers, FLN end devices, fume hoods, etc.

Ips
Liters per Second.

loopout
Output of the control loop expressed as a percentage.

HMI
Human Machine Interface. Terminal and its interface program that allows you to communicate with a field panel or equipment controller.

override switch
Button on a room temperature sensor that an occupant can press to change the status of a room from unoccupied to occupied (or from night to day) for a predetermined time.

pressure independent
Variable Air Volume (VAV) room temperature control system in which the temperature drives an airflow setpoint.

PID
Proportional, Integral, Derivative.

RTS
Room Temperature Sensor.

setpoint
Virtual point that stores a point value such as a temperature setting. Points that monitor inputs, such as temperature, report actual values.

SI units
Systeme International d'Unites. The international metric system.

slave mode
Default application that displays when power is first applied to an equipment controller. No control action is initiated in the slave mode.
stand-alone control
Type of control offered by a controller that is providing independent DDC control to a space.

Terminal Equipment Controller
Siemens Industry, Inc. product family of equipment controllers (one is the Siemens BACnet PTEC Fan Coil Controller) that house the applications software used to control terminal units, such as heat pumps, VAV terminal boxes, fan coil units, unit ventilators, etc.

UI
Universal Input. Can be used as an AI or DI. An AI input is a point receiving a signal that represents a condition that has more than two states. A DI input is a physical input point that receives a two-state signal.

unbundle
Term used to describe the entering of a point that resides in a controller's database into the field panel's database so that it can be monitored and controlled from the field panel.

VAV
Variable air volume. Ventilation system that changes the amount of air supplied to and exhausted from the rooms served.
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