

SIEMENS

BACnet PTEC Unit Conditioner (Fan Coil) Controller

Start-up Procedures

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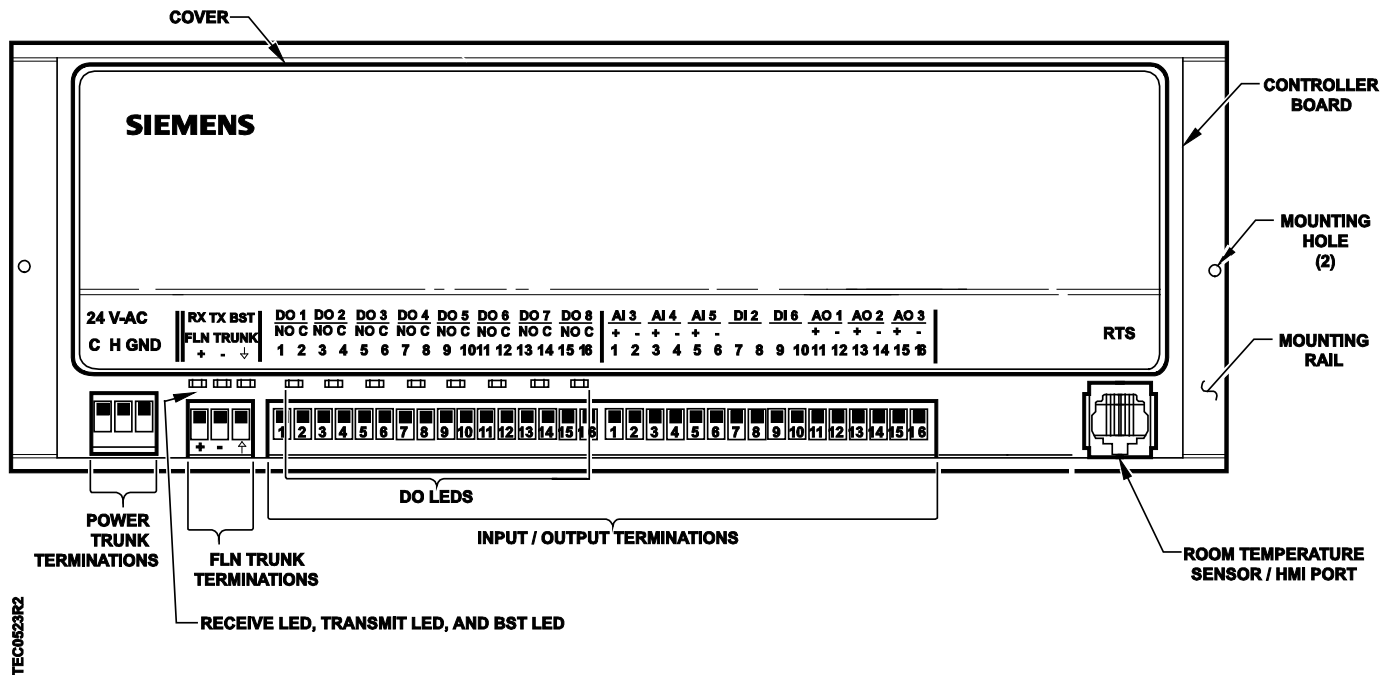
Before You Begin



NOTE:

WCIS version 3.0 or later must be used to configure Siemens BACnet MS/TP Equipment Controllers.

Do not check the Metric check box in the Device Properties dialogue box if the controller is communicating through the MS/TP driver in the field panel. Metric can be checked only if the controller is communicating through a router. If you need metric and the controller is communicating through the MS/TP driver in the field panel, then the Metric check box in the Device Properties dialogue box must be unchecked and the conversion must be handled in the field panel.



Communication and DO Indicators

The Siemens BACnet PTEC Fan Coil Controller has LEDs to indicate communication (yellow) and DO (digital output) status BST (yellow).

The RX LED will flash for data packets received by the actuator from the MS/TP network. The TX LED will flash for data packets sent by the actuator to the MS/TP network. Each DO has an associated LED located above its termination point. This LED point is on when the associated DO is commanded ON; otherwise, it is OFF. The BACnet PTEC will attempt to communicate with other devices as soon as it powers up. The TX LED will start flashing as it attempts to connect and transfer data.

Setting MTR SETUP

MTR SETUP determines which actuators are controlled by the application and whether they are direct or reverse acting. See the *MTR SETUP Values for Standard Configurations* table for standard configurations and the *Motor Enable/Reverse Values for MTR SETUP* table for non-standard configurations.



NOTE:

When MTR SETUP is changed, all enabled actuators will calibrate. Wait until each actuator has completed calibration before continuing.

MTR SETUP Values for Standard Configurations				
Application	Configurations			Value for MTR SETUP
	Motor 1	Motor 2	Motor 3	
6540	damper (normally closed)	spare	spare	1
6541	damper (normally closed)	heating valve 1 (normally open)	heating valve 2 (normally open) (optional)	for one valve: 13 for two valves: 61
6550	heating/cooling valve 1 (normally open)	heating valve 2 (normally open) (optional)	N/A	for one valve: 3 for two valves: 15
6551	cooling valve 1 (normally closed)	heating valve 2 (normally open)	N/A	13
6552	N/A	N/A	N/A	0
6553	N/A	heating valve (normally open)	N/A	12
6554	cooling valve (normally closed)	N/A	N/A	1

Motor Enable/Reverse Values for MTR SETUP									
	Motor 1 Enabled			Motor 1 Enabled and Reversed			Motor 1 Not Used		
	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed	Motor 2 Not Used	Motor 2 Enabled	Motor 2 Enabled and Reversed
Motor 3 Not Used	1	5	13	3	7	15	0	4	12
Motor	17	21	29	19	23	31	16	20	28

Motor Enable/Reverse Values for MTR SETUP									
	Motor 1 Enabled			Motor 1 Enabled and Reversed			Motor 1 Not Used		
3 Enabled									

Setting Motor Timing

The points that determine actuator run times are:

- MTR 1 TIMING
- MTR 2 TIMING
- MTR 3 TIMING

Your application may not have or use all three points.

1. Use the *Damper Actuator Run Time* table and/or the *Valve Actuator Run Time* table to set run time(s) for the actuator(s) used by your application.
2. For damper rotation angles other than 90°, set points to the appropriate value. The names of these points vary. (PTS4 rotation angle is 90°.)

Damper Actuator Run Time		
Damper	Setting (seconds)	
Actuator	50 Hz	60 Hz
GDE131.1	125	90
GLB131.1	150	125
PTS4 electronic-to- pneumatic transducer from ACT	-	90

Valve Actuator Run Time		
Valve	Setting (seconds)	
Actuator	50 Hz	60 Hz
SSB81U, floating control fail in place	180	150
SSC81U, floating control fail in place	150	125
SSC81.5U, floating control fail-safe	125	125
SQS85.53U, floating control spring return	35	30

Verifying Actuator Setup

Verify that all actuators close and remain closed when commanded closed.

If an actuator does not close when commanded, try reversing its action by changing the value of MTR SETUP, see Setting MTR SETUP [→ 5].

If an actuator does not close completely, make sure the motor timing point is set to the right value and that MTR SETUP is set to the right value (see Setting Motor Timing and Setting MTR SETUP), and refer to the actuator installation instructions for proper installation of the actuator.

Setting the Application

Add the TEC to your job database and select one of the following applications.

Application Description	Application Number
VAV Pressure Dependent Cooling or Heating (Unit Conditioner application)	6540
VAV Pressure Dependent with Hot Water Heat (Unit Conditioner application)	6541
Two Pipe Fan Coil Unit Cooling or Heating	6550
Fan Coil Unit Cooling and Heating	6551
Fan Coil Unit 2—Stage Cooling and Electric Heat	6552
Fan Coil Unit 2—Stage Cooling and Hot Water Heat	6553
Fan Coil Unit Cooling and Electric Heat or VAV Pressure Dependent with Electric Heat	6554
Slave Mode	6591

After you set the application, the controller goes through a shut-down/load sequence as it switches from slave mode to the application selected. After the application loads, the calibration cycle begins.

Setting Calibration Interval

Set CAL TIMER to the time interval that will trigger calibration of the damper and/or valve(s). The default is 12 hours.

Setting Room Temperature Setpoints

- Day (or occupied) cooling setpoint
 - Day (or occupied) heating setpoint
 - Night (or unoccupied) cooling setpoint
 - Night (or unoccupied) heating setpoint
1. If the room temperature sensor has a setpoint dial that will be used, set STPT DIAL to YES. Otherwise set STPT DIAL to NO.

2. Set the room temperature setpoints to the desired values.
NOTE: If STPT DIAL is set to YES, do not set the DAY (or OCC) setpoints; the value of RM STPT DIAL will be used for these points.
3. Set RM STPT MIN and RM STPT MAX for the minimum and maximum allowable room temperature setpoint values, respectively. Valid values range from 55° to 95°F (13° to 35°C). Default values are 55°F (13°C) for RM STPT MIN and 90°F (32°C) for RM STPT MAX.

Setting Room Temperature Offset (optional)

When the room has stabilized, take a precision temperature reading over a period of time at the room temperature sensor, record any difference between this reading and the value of ROOM TEMP and set this difference value (to the nearest 0.25°F (0.14°C)) into RMTMP OFFSET.

Example

If the actual room temperature is 72.0°F (22.2°C), and the value of ROOM TEMP is 73.0°F (23.8°C), then the value entered into RMTMP OFFSET is –1.0. In this case, the value of ROOM TEMP would read the raw value 73.0°F (23.8°C), but the value of CTL TEMP would read 72.0°F (22.2°C).

$$\text{CTL TEMP} = \text{ROOM TEMP} + \text{RMTMP OFFSET}$$

Setting STAT SUPV

The point STAT SUPV is used when a digital room unit is used with the PTEC. The value set, allows the temperature, humidity, and CO2 subpoints to read failed when the room unit is not functioning or is disconnected.

If a value is not selected, the points will not fail. If you enable supervision for a feature that is not being used (such as humidity or CO2), that value always displays as failed.

- If a standard room unit (Series 1000 or 2000) is being used, STAT SUPV must be set to a value of 0 (zero).
- If the digital room unit (Series 2200 or 3200) is being used, STAT SUPV must be set to a value greater than 0 (zero).

Configure STAT SUPV using one of the following values:

Value	Description
1	Temperature sensing only
3	Temperature and Relative Humidity (RH) sensing
5	Temperature and CO ₂ sensing ^(a)
7	Temperature and Relative Humidity (RH) and CO ₂ sensing ^(a)

^(a) Currently not available, for future use.

Setting Override Time

If using night/unoccupied override, set OVRD TIME to the number of whole hours that an override should last. If OVRD TIME equals 0 (default), this feature is disabled.

Enabling Wall Switch

If a wall switch is used for day/night (occupied/unoccupied) control, enable it by setting WALL SWITCH to **YES**.

Otherwise, leave WALL SWITCH at its default value of **NO**.

Setting Number of Heat Stages or Valves

Depending on the application, HTG STG CNT or VLV CNT (if present) refers to electric heat stages or valves used (enabled).

- For water or steam valve applications, set VLV CNT to the number of valves used (1 or 2).
- For electric heat applications, check the hardware to verify the number of electric heat stages wired to the controller (1 to 3) and set HTG STG CNT to this value.



⚠ CAUTION

Insufficient airflow across energized electric heating coils can cause equipment damage.

Minimum heating flow or total airflow setpoints must provide adequate airflow across energized electric heating coils.

Setting Cooling Stages

Application 6552 and Application 6553 only: Check the hardware to verify the number of number of cooling stages (1 or 2) used and set CLG STG CNT to this value.

Setting AI4/AI5 OFFSET

AI 5 OFFSET works like RMTMP OFFSET. It can be used to calibrate AI5 aux temp sensor input if necessary. The actual temperature plus AI 5 OFFSET will equal AI5 display temperature.

AI 4 OFFSET works exactly like AI 5 OFFSET.

Setting Controller Address

Set CTLR ADDRESS to the BACnet MS/TP MAC address. (0 through 127 = Master; 128 through 254 = Slave).



NOTE:

Set the controller address and MS/TP network baud rate prior to connecting the controller to the network. See Configuring BACnet Parameters [→ 10].

Configuring BACnet Parameters



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Using WCIS, do the following:

1. From the **Device** menu, select **Device Properties** to configure BACnet parameters.
 - **Object Name** – unique to BACnet network, (12 character limit).
 - **Object ID** – unique to BACnet network (valid values are 0 through 4,194,303).
 - **Description** – description of controller (60 character limit).
 - **Location** – physical location of controller (60 character limit).
 - **MSTP Network Baud Rate** – options; 9600, 19200, 38400 or 76800 (default is 19200).
 2. Configuring the Room Unit port.
 - If using a sensing only Room Unit, the baud rate can be 1200 to 76800. For optimal use with WCIS use 38400.
 - If using a communicating Room Unit, the baud rate must be set to 1200.
 3. Press the **Write** button. The controller accepts the configuration values and then resets.
- ⇒ When the BACnet MS/TP TEC is successfully installed, the RX and TX LEDs flash On/Off rapidly and continuously (indicating proper communication with other devices on the network).

Flashing Controller Firmware

FLT Procedure

Use Commissioning Tool Firmware Loading Tool (FLT) for this procedure.

1. Connect to RTS port of PTEC.
2. Set Communications to **1200 baud** and **ID**.
 - Click the **Identify** button in FLT.



3. Browse for new firmware.
4. Select **Load**.

WCIS Procedure

1. Connect to device.
2. Select **Load TEC Firmware** from Device pull-down menu.
3. Click the **Browse** button in Load TEC Firmware dialog box.
4. Select the firmware.
5. Select **Load**.