SIEMENS

BACnet PTEC Controller

Dual Duct Two Air Velocity Sensors

Start-up Procedures

140-1112
2014-08-22

Building Technologies

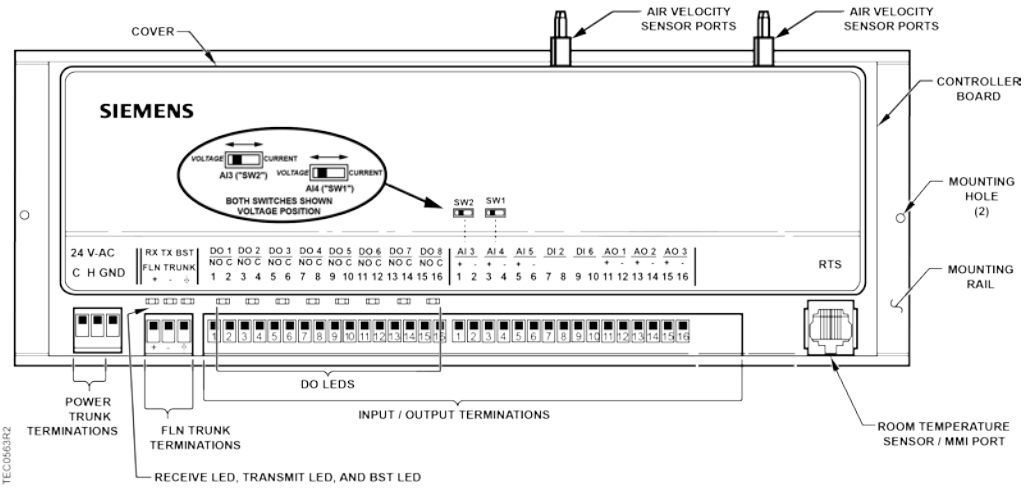
Table of Contents

Before You Begin

NOTE:
For information on applications with Firmware Revision B*x*40 or earlier, see InfoLink and/or Asset Portal for documentation.

NOTE:
WCIS version 4.0 or later must be used to configure and auto-address Siemens BACnet MS/TP Equipment Controllers.

If you need metric units and the controller is communicating through the MS/TP driver in the field panel, uncheck the Metric check box. The conversion must be handled in the field panel.



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

NOTE:
Digital Room Units (Firmware Revision 26 and later) will update their controlled inputs without putting them Out Of Service. However, a command from an external source through the digital room unit will put the associated BACnet Input point Out Of Service.

Communication and DO Indicators

The Siemens BACnet PTEC Dual Duct 2 AVS Controller has LEDs to indicate communication (yellow), DO (digital output) status and BST (yellow).

The RX LED will flash for data packets received by the controller from the MS/TP network. The TX LED will flash for data packets sent by the controller 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 automatically detect the MS/TP baud rate at start up and will communicate with other devices when configured as a master MS/TP device (address

1 through 127). The TX LED will start flashing as it attempts to communicate with other devices.

Room Unit Identification

- For Analog Room Units – The revision number is visually identified by its case.
- For Digital Room Units (Firmware Revision 25 or earlier) – The revision number displays for 5 seconds when the room unit is first powered up. These room units will display `laptop` when a laptop is connected and will no longer update room temperature sensor values.
- For Digital Room Units (Firmware Revision 26 and later) – The revision number displays for 5 seconds when the room unit is first powered up or when a laptop is disconnected. These room units will continue to display and update the room temperature sensor values when a laptop is connected.

Verifying Power to the Controller

Verify that the controller is powered up. Check that the BST LED on the controller is flashing. If the BST LED does not flash ON/OFF once per second, see the *iKnow Troubleshooting Tool* or contact Technical Support for troubleshooting information.

Verifying Slave Mode Application

1. Verify that the APPLICATION is set to 6693.
2. Display the STARTUP report.

Enabling Actuators

⚠ CAUTION

The controller's DOs control only 24 Vac loads.
The maximum rating is 12 VA for each DO.

NOTE:
Check with the box manufacturer's local representative and/or the terminal box submittals to confirm the damper actuator rotation angle.

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 Table *Damper Actuator Run Time* and/or the Table *Valve Actuator Run Time* 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°.)

- If Motor 3 is a valve actuator, use the *Valve Actuator Run Time* to set MTR 3 TIMING.

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		
	Setting (seconds) [1]	
Valve 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

1	Settings given are for Johnson and Honeywell valves with a 3/4" stroke. Stroke may be from 1/2" to 3/4", depending on the model. Consult the manufacturer's valve literature for actual stroke and calculate the setting accordingly.

Specifying Motor Setup

MTR SETUP determines which actuators are controlled by the application and whether they are direct or reverse acting.

Standard Configuration

Set MTR SETUP according to the Table *MTR SETUP Value for Most Common Configurations*.

NOTE:
The assumptions for this table are:
- Dampers are Normally Closed (NC)
- Heating valves are Normally Open (NO)

MTR SETUP Value for Most Common Configurations.				
Applications	Configurations			Value for MTR SETUP
	Motor 1	Motor 2	Motor 3	
all applications with valve	cooling damper (normally closed)	heating damper (normally closed)	heating valve (normally open)	53
all applications without valve	cooling damper (normally closed)	heating damper (normally closed)	spare	5

Non-Standard Configuration

If your application does not use one of the listed actuators in the Table *MTR SETUP Value for Most Common Configurations*, if one of your actuators has a different normal position than that listed in the Table *MTR SETUP Value for Most Common Configurations*, or if you want to use a spare motor, use the Table *Motor Enable/Reverse Value for MTR SETUP* to set MTR SETUP.

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 3 Enabled	17	21	29	19	23	31	16	20	28
Motor 3 Enabled and Reversed	49	53	61	51	55	63	48	52	60

Verifying Actuator Setup

1. Command all actuators closed. Verify that they close and remain closed. If not, adjust the setting for MTR SETUP according to Table *MTR SETUP Values*.
2. If any of the actuators still do not close completely, then the actuators have been installed or set up incorrectly. See the Siemens BACnet PTEC Dual Duct 2 AVS

Controller Installation Instructions (550-139), the iKnow Troubleshooting Tool, or contact Field Support.

Setting the Application

Set the APPLICATION to the appropriate Dual Duct Controller application.

Application Description	Application Number
Constant Volume Two Inlet Sensors with Optional Reheat	6665
Constant Volume One Inlet One Outlet Sensor with Optional Reheat	6666
VAV Two Inlet Sensors with Optional Reheat	6667
VAV One Inlet One Outlet Sensor with Optional Reheat	6668
VAV Two Inlet Sensors with Changeover and Optional Reheat	6669
Slave Mode	6693

Setting Auxiliary Heat Options

1. If not using auxiliary heat (hot water or electric), set AUX HTG USED to **NO** and skip to Setting Hot and Cold Duct Temperatures [→ 9].
2. If using auxiliary heat (hot water or electric), set AUX HTG USED to **YES**.
3. If the auxiliary heat is hot water, then set AUX HTG TYPE to **HW** and skip to Setting Hot and Cold Duct Temperatures [→ 9].
4. If the auxiliary heat is electric, set AUX HTG TYPE to **ELEC**.

Setting Stages of Electric Reheat

Check the hardware to verify the number of stages of electric reheat used. Set STAGE COUNT to this value.

⚠ CAUTION

If using electric reheat, do not set TOT FLOW MIN to 0 cfm (0 lps).

Equipment damage may occur if the electric heat is on while the box is controlling at a total flow minimum of 0 cfm (0 lps).

Enabling Autozero Module

If an Autozero Module is used, enable it by setting CAL MODULE to **YES**.

⚠ CAUTION

If an Autozero Module is used, do not enable MTR3.

NOTE:
For a controller without an Autozero Module, the damper is commanded closed to get a zero airflow reading during calibration. For a controller with an Autozero Module, the damper is closed only for the first calibration after controller initialization or power up.

Selecting Automatic Calibration Option

1. Using the following table, set CAL SETUP to the value that best meets your job requirements.
2. If appropriate, change CAL TIMER from the default of 12 hours. This setting applies only if your choice for CAL SETUP includes Option 4.

NOTE:
The air velocity sensor should be calibrated at least once every 24 hours. Make sure that the sensor has been calibrated before balancing takes place, as this will affect the balancer's results.

CAL SETUP Options.	
CAL SETUP (value)	**Description**
0	Calibration occurs ONLY when the point CAL AIR is set to **YES**.
1	Calibration occurs when the field panel commands a day/night mode changeover. Actual calibration is subject to a time delay of 0, 1, 2, or 3 minutes. This delay is determined by the point CTLR ADDRESS divided by 4. The remainder is the time delay in minutes. **Example:** If CTLR ADDRESS = 11, then the controller will wait 3 minutes (11 ÷ 4 = 2 R3) after it receives the day/night mode changeover command before beginning the calibration routine.
2	Calibration occurs immediately after the override switch is pressed.
4 (factory default value)	Calibration occurs on the time interval set in the point CAL TIMER. **Example:** If CAL TIMER = 12, then the calibration period is 12 hours. Actual calibration is subject to a time delay based on the value of CTLR ADDRESS. See the example in Option 1.

NOTE:
Options can be combined by summing their numbers. For example, to calibrate in Options 1 and 2, set CAL SETUP to **3**.

Setting Hot and Cold Duct Temperatures

Application 6669: If using temperatures for the hot and cold duct temperatures supply other than the default values, set them as follows:

- Set CLG TEMP to the desired value to switch to cooling from both ducts.

- Set HTG TEMP to the desired value to switch back to dual temperature duct control.

Setting Room Temperature Offset (optional)

Enter plus or minus corrections for room temperature sensor in RMTMP OFFSET.

Example

If the actual room temperature is 72.0°F (22.2°C), but the value of ROOM TEMP is showing 73.0°F (23.8°C), then the value to be entered into RMTMP OFFSET (or TEMP OFFSET) would be –1.0 (negative 1 degree). In this case, ROOM TEMP would read the raw value 73.0°F (23.8°C), but CTL TEMP would equal 72.0°F (22.2°C).

CTL TEMP = ROOM TEMP + RMTMP OFFSET (or TEMP OFFSET)

Setting Room Temperature Setpoints (Digital and Analog Room Units)

Set the following basic control temperature setpoints:

- Day (or OCC) cooling setpoint: DAY CLG STPT (default 74°)
- Day (or OCC) heating setpoint: DAY HTG STPT
- Night (or UOC) cooling setpoint: NGT CLG STPT
- Night (or UOC) heating setpoint: NGT HTG STPT

If STPT DIAL is set to NO, CTL STPT will use the above setpoint depending on the HEAT.COOL mode and the day/night mode.

Setting STPT SPAN

Set STPT SPAN = 0 for Room Unit setpoint use as standard (absolute values for example, 74 F). For configurations for warmer/cooler (per *Selecting Options for Room Unit Setpoints*), set STPT SPAN = 1 degree or greater (for example, STPT SPAN = 2 will allow -2 to +2 degrees from the current heating or cooling setpoint).

Selecting Options for Room Unit Setpoints

In addition to the base room temperature setpoints that should be entered above, when STPT DIAL = YES, the following options are provided for room units using Standard/Absolute or Warmer/Cooler temperature setpoints, depending on the room unit provided.

The following sections provide the setup configurations based on desired room unit setpoint option:

- Standard/Absolute Setpoints Mode (Digital Room Units [→ 11])
- Warmer/Cooling Setpoints Mode (Digital Room Units [→ 11])
- Standard/Absolute Setpoints Mode (Analog or Digital Room Units [→ 12])
- Warmer/Cooling Setpoints Mode (Analog Room Units) [→ 13]

NOTE:
For all of these configurations, if a zero shift of setpoint is desired or specified when changing from heating to cooling, set DAY CLG STPT = DAY HTG STPT. This may not be in compliance with various energy and control standards.

Standard/Absolute Setpoint Mode (Digital Room Unit)

Digital Room Unit (2200/2300 Series Firmware Revision 26 and later)

The setpoint value entered on the room unit will be equal to the RM STPT DIAL and will be used for CTL STPT.

1. Set STPT DIAL = **YES**.
2. Set STPT SPAN = **0**.
3. Set SENSOR SEL = **1** (additive value)
   Enables Room Unit Temperature and setpoint options. Other room unit options can then be added as needed. See *Setting SENSOR SEL*.
4. Set RM STPT MIN and RM STPT MAX to a limit range for setpoint adjustment.
5. Set DAY CLG STPT and DAY HTG STPT to the initial values to be used by the room unit and to establish the heating/cooling setpoint and shift.

Configuration values used by the digital room unit are sent from the points configured above in the PTEC and do not need to be individually entered into the room unit. These include, SET PT MIN, SET PT MAX and SEL PT DIS (display option).

Example

DAY CLG STPT = 74, DAY HTG STPT = 70

In cooling mode, the current room setpoint in RM STPT DIAL displays when you press a setpoint UP/DOWN button. You can change the displayed value and the RM STPT DIAL value within the min/max limits.

When you press the UP button to the new cooling setpoint of 78 (an increase from the base cooling setpoint of plus 4 degrees), it will be displayed in RM STPT DIAL. When the controller switches to heating mode, the RM STPT DIAL will display the DAY HTG STPT, also offset by plus 4 degrees (74).

In this Standard/Absolute configuration, the value of RM STPT DIAL will display the actual control setpoint.

Warmer/Cooler Setpoint Mode (Digital Room Unit)

Digital Room Unit (2200/2300 Series Firmware Revision 26 and later)

NOTE:
The revision number displays for 5 seconds when the room unit is first powered up or when a laptop is disconnected.
Digital Room Units (Firmware Revision 26 and later) will continue to display and update the room temperature sensor values when a laptop is connected.

The room unit setpoint shift (warmer/cooler) will be used to set the RM STPT DIAL temperature and will be used for CTL STPT.

1. Set STPT DIAL = **YES**.
2. Set STPT SPAN = **1** (or greater).
3. Set SENSOR SEL = **1** (additive value)
   Enables Room Unit Temperature and setpoint options. Other room unit options can then be added as needed. See *Setting SENSOR SEL*.
4. Set RM STPT MIN and RM STPT MAX to a limit range for setpoint adjustment.
5. Set DAY CLG STPT and DAY HTG STPT to the initial values to be used by the room unit and to establish the initial heating/cooling setpoint shift.

Configuration values used by the digital room unit are sent from the points configured above in the PTEC and do not need to be individually entered into the room unit. These include, SET PT MIN, SET PT MAX and SEL PT DIS (display option).

Example

DAY CLG STPT = 74, DAY HTG STPT = 70; STPT SPAN = 2

In cooling mode, this warmer/cooler configuration, when you press the UP or DOWN button, the graphic display will indicate the current shift, if any. You can change the graphic display two steps UP or DOWN. You press UP (warmer) by two steps (maximum shift allowed with the setup). The RM STPT DIAL will display the new cooling setpoint of 76; (a shift from the base cooling setpoint of 2 degrees). When the controller switches to heating mode, the RM STPT DIAL will display the DAY HTG STPT, also offset by plus 2 degrees (72), while the room unit graphic display will maintain its + 2 shift.

RM STPT DIAL value will be limited to RM STPT MIN and RM STPT MAX values.

In this warmer/cooler configuration, the value of RM STPT DIAL will display the actual control setpoint.

Standard/Absolute Setpoint Mode (Analog or Digital Room Unit)

Analog (1000 Series) or Digital Room Units (Firmware Revision 25 or earlier)

NOTE:
The revision number displays for 5 seconds when the room unit is first powered up.

For the configuration for these devices, the CTL STPT is an offset calculation from the value set on the room unit. This offset is established by the difference between the DAY CLG STPT and the DAY HTG STPT. The value on the RM STPT DIAL, as set by the room unit, is the midpoint of this offset.

1. Set STPT DIAL = **YES**.
2. Set STPT SPAN = **0**.
3. Do one of the following:
   - Digital Room Unit: Set SENSOR SEL = **1** for Digital Room units (additive value)
     Enables Room Unit Temperature and setpoint options. Other room unit options can then be added as needed. See *Setting SENSOR SEL*.

- Analog Room Unit: Set SENSOR SEL = **0** for Analog Room units (additive value)
  Disables Digital Room Unit Temperature and setpoint options. Other sensor select options for type of thermistor used can then be added as needed. See *Setting SENSOR SEL*.

4. Set RM STPT MIN and RM STPT MAX to limit range for setpoint adjustment.
5. Set DAY CLG STPT and DAY HTG STPT to establish the heating/cooling deadband only (actual value are not used to establish CTL STPT).

Example

DAY CLG STPT = 74, DAY HTG STPT = 70

This provides a setpoint deadband of 4 degrees.

In either cooling or heating mode, the RM STPT DIAL will display the value set by the room unit (limited by RM STPT MIN and MAX).

- In cooling mode, CTL STPT will be RM STPT DIAL + 0.5 * setpoint deadband
- In the heating mode, CTL STPT will be RM STPT DIAL – 0.5 * setpoint deadband

Example

When the user selects a setpoint on the room unit of 78 degrees it will be displayed in RM STPT DIAL. However, the control setpoint will be offset from this value. In cooling mode, CTL STPT will be 78 + 2 = 80 degrees, and in heating mode CTL STPT will be 78-2 = 76 degrees.

The displayed temperature setpoint on the room unit and the value of RM STPT DIAL will display MID POINT of the actual control setpoints.

Warmer/Cooler Setpoint Mode (Analog Room Unit Only)

Analog Room Unit (1000 Series)

The room unit setpoint shift (warmer/cooler) will be used to set the RM STPT DIAL temperature and will be used for CTL STPT.

1. Set STPT DIAL = **YES**.
2. Set STPT SPAN = **1** (or greater).
3. Set SENSOR SEL = **0** (additive value)
   Disables Digital Room Unit Temperature and setpoint options. Other sensor select options for type of thermistor used can then be added as needed. See *Setting SENSOR SEL*.
4. In this option, RM STPT MIN and RM STPT MAX are not used to limit setpoint range (this is accomplished by the STPT SPAN adjustment).
5. Set DAY CLG STPT and DAY HTG STPT to the initial values to be used by the room unit and to establish the initial heating/cooling setpoint shift.

The analog room unit setpoint slider is mapped to + and – the STPT SPAN configured.

When the slider is at mid point, there is no shift in cooling or heating setpoint used by CTL STPT and displayed in RM STPT DIAL.

Example

DAY CLG STPT = 74, DAY HTG STPT = 70; STPT SPAN = 4

In cooling mode, In this warmer/cooler configuration, when the user moves the slider half way up to the top (a 2 degree shift), the CTL STPT and RM STPT DIAL will display the new cooling setpoint of 76 (a shift from the base cooling setpoint of 2 degrees). When the controller switches to heating mode, CTL STPT and RM STPT DIAL will display the DAY HTG STPT also offset by plus 2 degrees (72) while the slide remains at the previous position.

In this warmer/cooler configuration, the value of RM STPT DIAL will display the actual control setpoint.

Setting SENSOR SEL

SENSOR SEL Value * (additive)	Description (include values to enable feature)
1	Select Digital Room Unit (for temperature sensing and setpoint dial)
2	Relative Humidity (RH) sensing
4	CO_2 sensing
8	If short board: 100K Ω thermistor on AI 3 (else input is 10K Ω) If long board: 100K Ω thermistor on AI 5 (else input is 10K Ω)
16	Long board only: 100K Ω thermistor on AI 4 (else input is 10K Ω)

SENSOR SEL is a configurable, enumerated point (values are additive). This point tells the controller what type of room unit is being used and how to handle loss of data. It also provides the ability to enable the optional RH and CO2 sensors and which thermistor type is connected.

Room Temperature, Setpoint, RH and CO2

- When the digital room unit (Series 2200/2300) is used, SENSOR SEL selects the source for temperature and setpoint and enables a loss of communications indication:
  - Temperature/Setpoint enable and supervision for fail communications (temperature) with a value of 1.
  - Relative humidity enable and supervision (from the room unit) for fail communications with a value of 2.
  - CO2 enable and supervision (from the room unit) for fail communications with a value of 4.
- When the analog room unit (Series 1000/2000) is used, default temperature sensing (0) from an analog room unit is enabled (relative humidity and CO2 sensing are not available and should not be selected).

Thermistor Inputs

- Default for input is 10K.
- To enable 100K thermistor on input, see the following table for additive values of 8.

Other Inputs (only available on Digital Room Unit)

- Use the following able to select and enable communications supervision of room temperature/setpoint dial, relative humidity and CO2 for additive values of 1, 2 and 4.

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 Fail Mode

Application 6665 and Application 6666: In the event that either air velocity sensor ceases to function, FAIL MODE causes the dampers to either **OPEN** or **CLOSE**. Set FAIL MODE to the fail-safe position desired for the dampers.

Setting Duct Area

If provided, enter the duct area (sq ft or sq m) into DUCT AREA and HTGDUCT AREA and continue to *Setting Flow Coefficient*.

If you do not know the duct area, use the following table:

Area =	Round Duct	Rectangular Duct
Area in Sq. Ft.	$(\pi \times R^2)/144$ (where $\pi = 3.14$ and R = radius of duct in inches)	Width x Height/144 (in inches)
Area in Sq. M	$(\pi \times R^2)/10{,}000$ (where $\pi = 3.14$ and R = radius of duct in centimeters)	Width x Height/10,000 (in centimeters)

NOTE:
When entering the LCTLR point for a Dual Duct Controller—Two Air Velocity Sensors at the field panel, do not enter a duct area. (When asked for the duct shape, choose **N**, for None.) This controller does not send the value of air volume to the field panel in velocity (fpm). Instead, it uses volume (cfm) so a conversion is not necessary.

Setting Flow Coefficient

1. Set CLG FLO COEFF and HTG FLO COEFF (or TOT FLO COEF) to the appropriate value found in *Box Manufacturer Flow Coefficients Table*. This value is a starting point for the air balancer.
2. To fine tune the flow coefficient, use the following formula:

   ⇨ **New Flow Coefficient = (Actual Volume ÷ Controller Volume) × Old Flow Coefficient**
   The actual volume is the value obtained from the balancer's measurements. The controller volume is the value obtained from HTG VOLUME or TOT VOLUME, depending on the application and CLG VOLUME.

3. If the controller volume is not within 5% of the actual volume, repeat this procedure until it is within 5%.

Box Manufacturer Flow Coefficients		
Manufacturer	**Sensor Type**	**Value**
Anemostat	2-pipe without orifice 2-pipe with orifice Spider without orifice Spider with orifice	0.79 0.59 0.73 0.39
Carnes	2-pipe Flow cross	0.66 0.59
Carrier		0.59
E.H. Price/Siemens Industry Terminal Boxes		0.78
Environmental Technologies		0.79
Krueger		0.68
Metal Aire		0.72
Nailor Industries		0.69
Titus		0.60
Trane		0.66

Setting Airflow Setpoints

Applications 6665 and 6666

1. Set CLG FLOW MIN to the desired minimum cooling airflow setpoint in occupied mode.
2. Set OCC FLOW to the setpoint for airflow in occupied mode.
3. Set UNOCC FLOW to the setpoint for airflow in unoccupied mode.
4. Set UNOCC FLOW to 0 cfm or to a value that is 10 percent of the value of OCC FLOW for applications that are always in occupied mode.
5. Set VENT DMD MIN to the desired minimum ventilation airflow setpoint.

NOTE:
The controller will not use a setting for UNOCC FLOW that is greater than the setting for OCC FLOW. If UNOCC FLOW is greater than OCC FLOW, the controller uses the setting OCC FLOW at all times.

NOTE:
It is recommended that UNOCC FLOW be set no greater than 0.3 times OCC FLOW. If UNOCC FLOW is set greater than this value, the flow loop becomes less stable. For example, if the controller must maintain a constant volume of 2500 cfm during occupied mode, the UNOCC FLOW should be set to no more than 750 cfm.

Applications 6667 and 6669

1. Set CLG FLOW MIN to the desired minimum cooling airflow from the cold duct in daytime cooling mode.
2. Set CLG FLOW MAX to the desired maximum cooling airflow from the cold duct in cooling mode.
3. Set TOT FLOW MIN to the desired minimum airflow needed for ventilation from the dual duct box.
4. Set HTG FLOW MAX to the desired maximum heating airflow from the hot duct in heating mode.
5. Set VENT DMD MIN to the desired minimum ventilation airflow setpoint.
6. Set NGT FLOW MIN to the desired value (including zero) to be used in night/unoccupied mode in place of TOT FLOW MIN.

Application 6668

1. Set CLG FLOW MIN to the desired minimum cooling airflow from the cold duct in daytime cooling mode.
2. Set CLG FLOW MAX to the desired maximum cooling airflow from the cold duct.
3. Set TOT FLOW MIN to the desired minimum airflow needed for ventilation from the dual duct box.
4. Set TOT FLOW MAX to the desired maximum airflow from the dual duct box.
5. Set VENT DMD MIN to the desired minimum ventilation airflow setpoint.
6. Set NGT FLOW MIN to the desired value (including zero) to be used in night/unoccupied mode in place of TOT FLOW MIN.

NOTE:
It is recommended that TOT FLOW MIN be set no greater than 0.3 times TOT FLOW MAX. If TOT FLOW MIN is set greater than this value, the flow loop becomes less stable. For example, if the maximum flow is to be 2500 cfm, TOT FLOW MIN should be set to no more than 750 cfm.

Setting Controller Address

1. In WCIS select **View > Edit/View Reports**.
2. Select a report from list and click **Apply**.
3. Set CTLR ADDRESS to the BACnet MS/TP MAC address. (0 through 127 = Master; 128 through 254 = Slave).

NOTE:
See the *WCIS Online Help* for instructions on auto-addressing on the network. Otherwise, set the controller address and MS/TP network baud rate prior to connecting the controller to the network. See Configuring BACnet Parameters [→ 18].

Configuring BACnet Parameters

Using WCIS, do the following:

1. From the **Device** menu, select **Device Properties** to configure BACnet parameters.
2. In the **Object** section, enter information for the following fields:
   - **Name** – unique to BACnet network, (30 character limit in RAD50).
   - **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).
3. In the **BACNet Communication Settings** section:
   - **Set the CIS/MMI Command Priority to the desired value.**
   - Set **Baud Rate** to the MS/TP network baud rate. Options are; 9600, 19200, 38400 or 76800.
4. In the **MSTP Slave** section:
   - Check the box for a slave device (when address range is between 0 - 127).
   - Set the **MAC Master Node** number.
5. In the **Device Settings** section (configuring the Room Unit port), do one of the following:
   – If using a sensing only Room Unit, the baud rate can be 1200 to 38400. For optimal use with WCIS use **38400**.
   – If using a communicating digital Room Unit, the baud rate will use whatever rate the network is using or will set to 19200 after the controller address is configured.
6. 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).

Auto Discover and Auto Addressing

An improved commissioning workflow has been designed for all BACnet PTEC controllers (standard 66xx applications) along with WCIS (Revision 4.0 and later). This provides the option to use the MS/TP network (using the field panel or a router) and the WCIS tool to discover and auto-address each controller. For more information, see the *WCIS Online Help*.

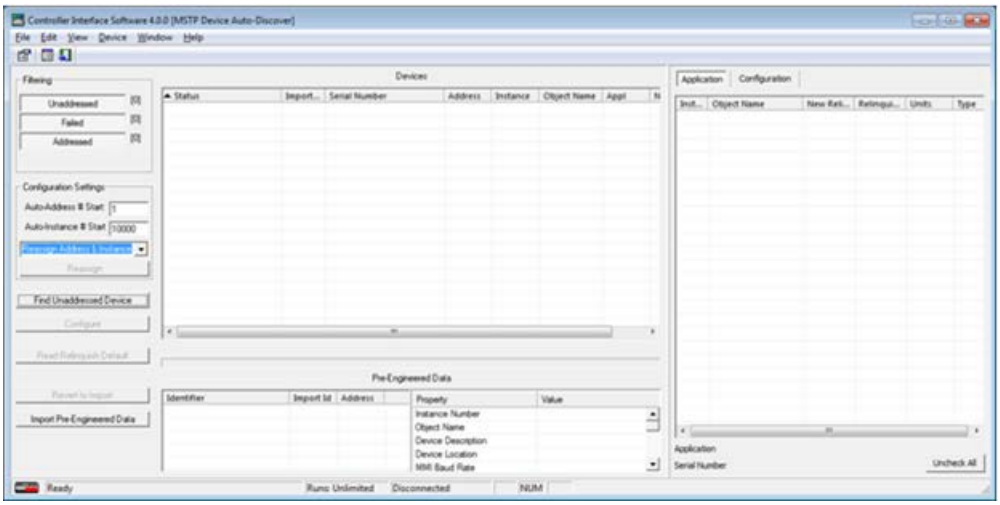
NOTE:
The current workflow will continue to support setting the baud rate and address for each controller using the HMI port or at the room unit.

▷ All BACnet PTEC controllers (standard 66xx applications) will have an internal unique serial number and a two part serial number label.

1. Connect WCIS to the field panel or use a router connected to MS/TP network.
2. Assign one PTEC a valid address (using the serial number). This will establish and set the baud rate for the entire network.

Auto Discovery allows you to automatically discover and identify PTEC controllers on the BACnet MS/TP Network. There are two basic configurations:

- Devices not configured with an address. (Devices are discovered by their unique serial number.)
- Devices configured with an address and available for modification.



Filtering

These buttons allow you to select what you see in the **Auto-discovery** window. All three buttons are selected by default.

- **Unaddressed** - Displays unaddressed devices
- **Failed** - Displays failed devices
- **Addressed** - Displays addressed devices

Configuration Settings

- **Auto Address # Start** - Beginning address number. An address is reserved for each discovered device starting with this number.

- **Auto Instance # Start** - Beginning instance number. An instance number is reserved for each discovered device starting with this number.
- **Reassign Address and Instance** (pull-down menu) - Reassigns the address and instance number of the selected device(s).
- **Reassign Address Only** (pull-down menu) - Reassigns the address of the selected device(s).
- **Reassign Instance Only** (pull-down menu) - Reassigns the instance of the selected device(s).

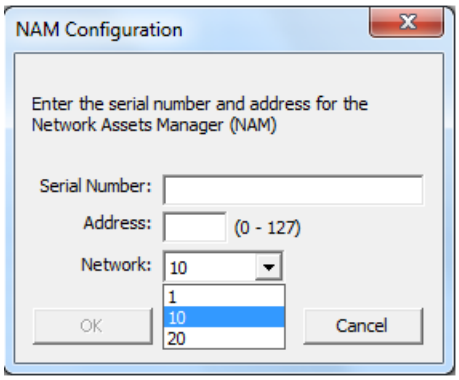
Auto-Discovery

- **Find Unaddressed Device** - Searches the connected network for all devices (addressed and unaddressed).
- **Configure** - Sends modified application data to the controller(s).
- **Read Relinquish Default** - Refreshes relinquish default column of the Application tab with values from the controller.
- **Revert to Import** - Returns to Pre-Engineered Data after changes have been made.
- **Import Pre-Engineered Data** - A .csv file can be used to set initial values in the controller. The file can be taken from Commissioning Tool or exported from Excel. See Commissioning a Controller [→ 22].

Auto-Discovery Procedure

- Click **Find Unaddressed Device**.

  ⇨ If a NAM device is not defined, the **NAM Configuration** window displays. (NAM - Network Asset Manager; All new TECs can be assigned as a NAM.)

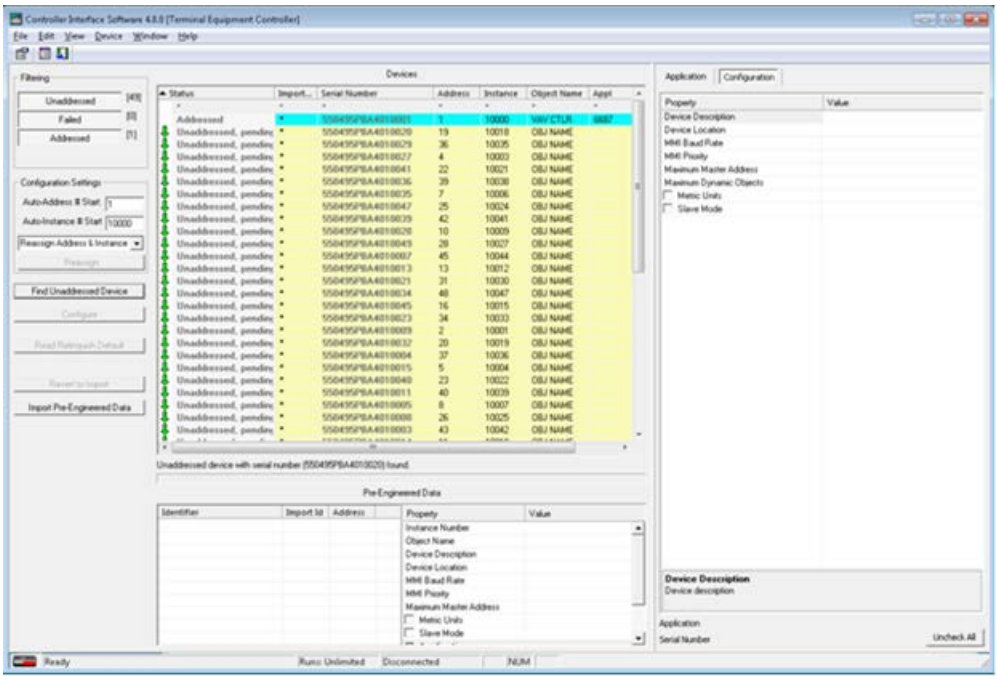


  - Enter the serial number (found on print from electrician).
  - Enter a unique (unused) address (0 - 127).
  - Click **OK**.

⇨ The device will be assigned as the NAM for the network with the address you specified.

⇨ The NAM device will auto-discover all other devices on the network.

⇨ WCIS will display all devices.

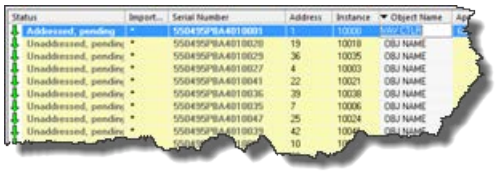


Configuring Discovered Devices

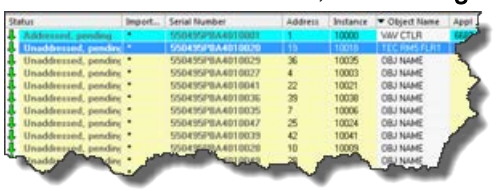
Each device on the network must have unique identifiers in the following fields:

- Address
- Instance
- Object Name - 30 alphanumeric character limit for Siemens field panels.

1. To change any of these fields, click in that field and enter the desired value.

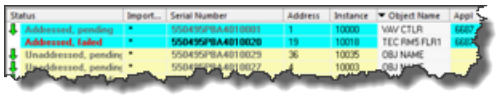


2. When all fields are defined, click **Configure**.



   ⇨ All devices defined properly will display `Addressed`.

   ⇨ If a device has not been defined properly, it will display `Unaddressed` and the problem field displays red text.



3. Correct any issues and click **Configure**.

Commissioning a Controller

Learning the Application Point Team

Once a device has been addressed, select your application.

- Do one of the following:
  - Right-click in the **Application** column and select the desired Application from the menu.
  - Click **Configure** to load the device for your application.
  - Right-click on the controller and select **Learn Point Team Descriptor**.

Import Data

1. Click the **Import Pre-Engineered Data** button.
   ⇨ The **Import Configuration Data** dialog box displays.
2. Browse to the desired .csv file and click **Open**.

⇨ The imported files are listed in the **Pre-Engineered Data** section of the Auto-Discovery window.

Each line in the window is a grouping of data for a controller.

Assigning Import Data to Controller

1. Click in the **Import ID** column of the desired controller in the devices section.
2. Select the appropriate **Import ID number** of the Pre-Engineered Data you want to assign.

⇨ The Application and Configuration tabs will update with the new (Pre-Engineered) data. You can manually change/update any data.

Assigning Import Data to Multiple Controllers

1. Click on the desired **Import Data** from the list in the Pre-Engineered Data section.
2. Select all desired controllers in the Devices window.
3. Right-click the selection in the Devices window and then select **Assign Import Data from Import ID x** in the pop-menu.
4. Click **Configure**.

⇨ The Application will load into each controller selected. The Application and Configuration tabs will update with the new (Pre-Engineered) data.

Commissioning Multiple Controllers

If you're commissioning multiple controllers with the same application all values can be loaded to each controller selected.

You can multi-select by holding either the SHIFT or CTRL key and clicking on multiple controllers listed.

You can configure values for multiple controllers with different applications by first selecting and making changes to one controller and then selecting all controllers and clicking Configure.

NOTE:
Once you select multiple controllers with different applications the Application tab goes blank. However, WCIS retains all changes and send the data for all selected controllers.

Flashing Controller Firmware

FLT Procedure

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

1. Connect to RTS port of PTEC.
2. Set Communications to **1200 baud** and **ID**.
3. Click the **Identify** button in FLT.
4. Browse for new firmware.
5. Select **Load**.

WCIS Procedure

1. Connect to device.
2. From the **Device** menu, select, **Load TEC Firmware**.
   ⇨ The **Load TEC Firmware** dialog box displays.
3. Click the **Browse** button.
4. Select the firmware.
5. Select **Load**.

Issued by
Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Pkwy
Buffalo Grove IL 60089
Tel. +1 847-215-1000

Document ID	140-1112	140-1112(AA)
Edition	2014-08-22	Restricted