

# TEC Series BACnet® MS/TP Network Temperature and Humidity Controllers

## Technical Bulletin

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# TEC Series BACnet® MS/TP Network Temperature and Humidity Controllers Technical Bulletin

## Introduction

This document describes how to configure the various TEC Series Network Temperature and Humidity Controllers for BACnet® Master-Slave/Token-Passing (MS/TP) networked applications, including how to:

- connect to the MS/TP Bus and map a controller into a Network Automation Engine (NAE)
- add a controller
- add point objects
- override via the NAE
- troubleshoot the controller

## Related Documentation

See Table 1 to locate information in related documentation.

**Table 1: TEC Series BACnet MS/TP Network Temperature and Humidity Controllers Related Documentation (Part 1 of 2)**

For Information On	See Document	Document Number
<b>Applications, Features, and Benefits of the TEC Series BACnet MS/TP Network Temperature and Humidity Controllers</b>	<i>TEC26x6(H)-4 and TEC26x6H-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Dehumidification Capability, Fan Control, and Occupancy Sensing Capability Product Bulletin</i>	LIT-12011587
	<i>TEC2645-4 BACnet MS/TP Networked Thermostat Controller with Single Proportional Output and One-Speed Fan Control Product Bulletin</i>	LIT-12011586
	<i>TEC26x7-4 and TEC26x7-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Two Outputs Product Bulletin</i>	LIT-12011584
	<i>TEC260x-4 and TEC260x-4+PIR Series BACnet MS/TP Networked Thermostat Controllers Product Bulletin</i>	LIT-12011585
	<i>TEC2613-4 and TEC2613-4+PIR BACnet MS/TP Network Temperature and Humidity Controllers Product Bulletin</i>	LIT-12011692
	<i>TEC2620 Series Non-Programmable Fan Coil Network Thermostat Controller and Remote I/O Relay Packs Product Bulletin</i>	LIT-12011839
	<i>TEC26x6(H)-4 and TEC26x6H-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Dehumidification Capability, Fan Control, and Occupancy Sensing Capability Catalog Page</i>	LIT-1900620
	<i>TEC2645-4 BACnet MS/TP Networked Thermostat Controllers with Single Proportional Output and One-Speed Fan Control Catalog Page</i>	LIT-1900619
	<i>TEC26x7-4 and TEC26x7-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Two Outputs Catalog Page</i>	LIT-1900617
	<i>TEC260x-4 and TEC260x-4+PIR Series BACnet MS/TP Networked Thermostat Controllers Catalog Page</i>	LIT-1900618
	<i>TEC2613-4 and TEC2613-4+PIR BACnet MS/TP Network Temperature and Humidity Controllers Catalog Page</i>	LIT-1900690
	<i>TEC2620 Series Non-Programmable Fan Coil Network Thermostat Controller and Remote I/O Relay Packs Catalog Page</i>	LIT-1900813

**Table 1: TEC Series BACnet MS/TP Network Temperature and Humidity Controllers Related Documentation (Part 2 of 2)**

<b>For Information On</b>	<b>See Document</b>	<b>Document Number</b>
<b>Locating, Mounting, and Wiring a TEC Series BACnet MS/TP Network Temperature and Humidity Controller</b>	<i>TEC26x6(H)-4 and TEC26x6H-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Dehumidification Capability, Fan Control, and Occupancy Sensing Capability Installation Instructions</i>	Part No. 24-9890-1001
	<i>TEC2645-4 BACnet MS/TP Networked Thermostat Controller with Single Proportional Output and One-Speed Fan Control Installation Instructions</i>	Part No. 24-9890-1028
	<i>TEC26x7-4 and TEC26x7-4+PIR Series BACnet MS/TP Networked Thermostat Controllers with Two Outputs Installation Instructions</i>	Part No. 24-9890-1036
	<i>TEC2601-4 and TEC2601-4+PIR BACnet MS/TP Networked Single-Stage Thermostat Controllers Installation Instructions</i>	Part No. 24-9890-1044
	<i>TEC2602-4 and TEC2602-4+PIR BACnet MS/TP Networked Heat Pump Thermostat Controllers Installation Instructions</i>	Part No. 24-9890-1052
	<i>TEC2603-4 and TEC2603-4+PIR BACnet MS/TP Networked Multi-Stage Thermostat Controllers Installation Instructions</i>	Part No. 24-9890-1060
	<i>TEC2613-4 and TEC2613-4+PIR BACnet MS/TP Network Multi-Stage Temperature and Humidity Controllers Installation Instructions</i>	Part No. 24-9890-1389
	<i>TEC2604-4 and TEC2604-4+PIR BACnet MS/TP Networked Multi-Stage Economizer Thermostat Controllers Installation Instructions</i>	Part No. 24-9890-1079
	<i>TEC2620 Series Fan Coil Network Thermostat and Fan Coil Packs Installation Instructions</i>	Part No. 24-9890-1427
<b>Mounting and Wiring a PIR Occupancy Sensing Accessory Cover</b>	<i>Passive Infrared (PIR) Accessory Covers Installation Instructions</i>	Part No. 24-9890-870
<b>Particular Options Specified in the BACnet Standard and Implemented in the TEC Series BACnet MS/TP Network Temperature and Humidity Controllers</b>	<i>TEC2645-4, TEC26x6-4, TEC26x6H-4(+PIR), TEC26x7-4, and TEC26x7-4+PIR Series Network Thermostat Performance Implementation Conformance Statement Technical Bulletin</i>	LIT-12011589
	<i>TEC260x-4(+PIR) and TEC2613-4(+PIR) Series Network Temperature and Humidity Controllers Performance Implementation Conformance Statement Technical Bulletin</i>	LIT-12011588
<b>PIR Accessory Occupancy Sensing, Operation, and Application</b>	<i>TEC2x45-4, TEC2xx6(H)-4, TEC2xx6H-4+PIR, TEC2xx7-4, and TEC26x7-4+PIR Series Thermostat Controllers Application Note</i>	LIT-12011594

## Product Overview

The technologically advanced TEC Series Temperature and Humidity Controllers feature a Building Automation System (BAS) BACnet MS/TP communication capability that enables remote monitoring and programming for efficient space temperature control.

The TEC Series Temperature and Humidity Controllers feature an intuitive user interface with backlit display that makes setup and operation quick and easy. The controllers also employ a unique, Proportional-Integral (PI) time-proportioning algorithm that virtually eliminates temperature offset associated with traditional, differential-based controllers.

The TEC Series Temperature and Humidity Controllers are BACnet MS/TP networked devices that provide control of:

- rooftop units (with or without economizers)
- heat pumps
- single- and multi-stage heating and cooling equipment
- humidification and dehumidification equipment
- two- or four-pipe fan coils
- cabinet unit heaters
- local hydronic reheat valves
- pressure dependent Variable Air Volume (VAV) equipment with or without local reheat
- other zoning equipment using an on/off, floating, or proportional 0 to 10 VDC control input

## Connecting the MS/TP Bus

To connect the MS/TP Bus:

1. Set the MS/TP address of the TEC Series BACnet MS/TP Network Temperature and Humidity Controller per the engineering drawings and test for bus voltage, polarity, and isolation prior to wiring the MS/TP Bus. See the **Com addr** parameter in the *MS/TP Bus Objects Tables* to set the MS/TP address for the controller.

**Note:** For **TEC26x6, TEC26x7, and TEC2645 models**, Pressing and holding the UP/DOWN arrow keys simultaneously displays the MS/TP address that is assigned. For **TEC260x and TEC2613 models**, pressing and holding the YES/NO keys simultaneously displays the MS/TP address that is assigned.

**Note:** For more details on wiring the MS/TP Communications Bus, refer to the *MS/TP Communications Bus Technical Bulletin (LIT-12011034)*.

2. Observe the polarity when connecting the bus wires to the controller.

3. After the bus wires are connected to the first controller, continue in a daisy-chained fashion to the next controller.

**Note:** The bus wiring must be twisted-pair lines. Do not run the bus wiring in the same conduit as line voltage wiring (30 VAC or above) or other wiring that switches power to highly inductive loads (such as contactors, coils, motors, or generators).

The MS/TP Bus requires proper termination and biasing at each end of a segment (a segment is a physically continuous length of wire). Because controllers are not equipped with end-of-line termination, a Johnson Controls® MS-BACEOL-0 End-of-Line Terminator (ordered separately) or similar device is recommended to provide this end-of-line termination. An end-of-line terminator is required if a supervisory controller is not at the end of the segment. If a supervisory controller is at the end of the segment, then the end-of-line terminator switch on the supervisory controller must be set in the ON position.

**Note:** Refer to the controller product bulletin for end-of-line terminator ordering information.

The controller should be configured for automatic baud rate detection. Do not exceed the maximum number of devices allowed on a field bus. Be sure that the wiring terminations are set correctly and that all communication wiring is daisy-chained with no taps.

A small green light under the controller cover (on the left edge when facing the controller) indicates the communications mode when the controller is operating.

The following blink codes may be seen:

- **Short-Short-Long:** Indicates that the baud rate is known and that communication is active.
- **Short-Short:** Indicates that the controller is scanning for the correct baud rate and that there is no communication.
- **Off:** Indicates that there is no power to the controller or that the MS/TP wiring polarity is reversed.
- **Long:** Indicates that the MS/TP communication daughter board is the wrong type for the main board.

# MS/TP Controller Mapping

## Preparation

Before mapping a TEC Series BACnet MS/TP Network Temperature and Humidity Controller into an NAE:

1. Decide which point objects within the controller need to be mapped. Only map the point objects that need to be viewed on a regular basis because excessive mapping lowers system performance. Suggested point objects for mapping include: Room Temp, Mode, Fan, Occupancy Command, Heating SP, Cooling SP, Setback Heating SP, and Setback Cooling SP. In addition, alarm points may be mapped if they are used, and other point objects may be mapped if required. Use the Engineering view to examine infrequently used point objects.

**Note:** We recommend that all controller configuration parameters be set as desired prior to mapping the objects into the controller. If any controller configuration parameters are altered after the objects are mapped into the controller, it is recommended that all objects be re-mapped. We also recommend caution when mapping configuration parameters, as they should only be mapped if the operator is fully familiar with their use.

2. Verify that a Field Bus is defined in the NAE. BACnet MS/TP devices attach to a Field Bus. Refer to the *BACnet MS/TP Integration with the NAE Technical Bulletin (LIT-12011013)* for instructions on how to define a Field Bus.
3. For Metasys® system software prior to Release 4.0, verify that a BACnet Integration is defined for the Field Bus. The controllers are mapped as BACnet devices under a Field Bus BACnet Integration. Refer to the *BACnet Controller Integration with NAE/NCE Technical Bulletin (LIT-1201531)* for instructions on how to define a BACnet Integration.

**Note:** For Metasys system Release 4.0 or later software, this step is not required.

At this point, the controller (and the required point objects inside the controller) can be mapped.

## Adding a Controller

The controller must be added before its points can be mapped. To do this, select the Field Bus or a folder under it (refresh the tree view, if required, to see a newly added BACnet Integration) and choose Field Device from the Insert menu.

**Note:** For Metasys system software prior to Release 4.0, select the BACnet Integration under the Field Bus (refresh the tree view, if required, to see a newly added BACnet Integration) and choose Field Device from the Insert menu.

Assisted Definition using Auto Discovery is the easiest way to add a new controller online; however, this method requires that the controller to be added is connected and ready to communicate.

**IMPORTANT:** Because some of the objects may not directly correlate to a previous version (TEC26xx-2), you must rediscover all point objects for the TEC26xx-4 version. For detailed information on this mapping, see the *MS/TP Controller Mapping* section of this document.

Device object names used with BACnet Communication must be unique to fully satisfy the requirements of BACnet. The controller automatically selects a device object name for itself using the format **TEC26xx-aaa**, where **aaa** designates the address selected (from 004 to 127) on the MS/TP network. If this name needs to be changed by writing a new one into the controller device object, that name change should be done before any point objects are mapped. Be sure that the name of the new controller being added to the NAE matches that of the controller itself. This name goes into the Name field of the Object section on the Configuration tab of the Configure step in the Insert Field Device Wizard.

Device object IDs used with BACnet communications must be unique to fully satisfy the requirements of BACnet MS/TP network guidelines. The controller automatically selects a device object ID for itself using the format **mmaaa**, where **mm** is 72 for TEC26x7 models, 73 for TEC26x6 and TEC2645 models, and 76 for TEC260x and TEC2613 models; and, **aaa** designates the address selected (from 004 to 127) on the MS/TP network (for example, **73004**, **73005**). If this ID needs to be changed by writing a new one into the controller device object, that ID change should be done before any point objects are mapped. Be sure that the ID of the new controller being added to the NAE matches that of the controller itself. This number goes into the Instance Number field of the Network section on the Hardware tab of the Configure step in the Insert Field Device Wizard.

## ***Adding Point Objects***

The required point objects must be mapped under the controller device. To accomplish this, select the controller device under the BACnet Integration (refresh the tree view if required to see a newly added controller device) and choose Field Point from the Insert menu.

**Note:** For Metasys system Release 4.0 or later software, select a Field Bus or a folder under it.

Assisted Definition using Auto Discovery is the easiest way to add new point objects online; however, this function requires that the controller that is to be mapped is connected and ready to communicate. When mapping point objects, the point type must match the BACnet object type (for example, AV, MV, BI), and the point instance number must match the point BACnet instance number.

# Troubleshooting

**Table 2: Troubleshooting Details<sup>1</sup>**

Symptom	Probable Causes
<b>Multiple Symptoms</b>	Excessive bus errors may be occurring.
	A device may have been added or changed with a duplicate address (may not be the same address as some devices having problems, and may have happened sometime before the problem was noticed).
	Wiring errors or wire problems may exist.
	The baud rate may have been changed on some devices on the network but not all devices.
	Max_Master may have been changed incorrectly (may have happened sometime before the problem was noticed).
	A download may be in progress.
	There may be a fault at a device.
	A repeater may be needed or may be configured incorrectly.
	There may be a duplicate device object name or instance.
<b>Poor Performance</b>	See the probable causes listed previously in the <i>Multiple Symptoms</i> section of this table.
	Excessive bus traffic may exist (bus overload).
	The baud rate may be set too low.
	There may be too many devices on the network.
	There may be unaccounted devices on the network (not mapped to the NAE).
	There may be unusually slow devices on the network or devices that are slow to respond.
<b>Controller Goes Offline</b>	See the probable causes listed previously in the <i>Multiple Symptoms</i> section of this table.
	A power failure or other failure may have occurred at the controller.
	Communication may have been disabled at the controller.
<b>Controller Does Not Come Online</b>	See the probable causes listed previously in the <i>Multiple Symptoms</i> section of this table.
	A controller may be connected to the wrong bus.
	A baud rate may be specified in the new controller that is incompatible with the running network.
	No device on the network is configured to use a specific baud rate (normally the NAE), but all devices are set to use auto baud. At least one device, typically the bus supervisor (NAE), must have an assigned baud rate. Set the baud rate in the bus supervisor and set all other devices to auto baud.

1. For common MS/TP troubleshooting information, refer to the *MS/TP Communications Bus Technical Bulletin (LIT-12011034)*.

## MS/TP Bus Objects Tables

### TEC26x6(H)-4 and TEC26x6H-4+PIR Series Thermostat Controllers

Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 1 of 7)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1, 2</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>3, 4</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Humidity (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	AV 10	5 to 90% RH
Room Humidity Override (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	BV 11	0 = Normal 1 = Override
Supply Temperature <sup>5</sup>	AI 12	-40.0°F/-40.0°C to 122.0°F/50.0°C
Dehumidification Lockout (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	BV 13	0 = Disabled 1 = Enabled
AUX Command <sup>3</sup>	BV 14	0 = Off 1 = On
Sequence of Operation <sup>3</sup>	MSV 15	1 = Cooling Only 2 = Heating Only 3 = Cooling and Reheat 4 = Heating and Reheat 5 = Cool/Heat Four-Pipe 6 = Cool/Heat Four-Pipe and Reheat
System Mode <sup>3</sup>	MSV 16	1 = Off 2 = Auto 3 = Cool 4 = Heat

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 2 of 7)**

Point Name	Thermostat Point (Type/Address)	Range
Fan Mode <sup>3</sup>	MSV 17	<ul style="list-style-type: none"> <li>• If <b>Fan Mode Sequence</b> is set at 1, then: 1 = Low 2 = Med 3 = High</li> <li>• If <b>Fan Mode Sequence</b> is set at 2, then: 1 = Low 2 = High</li> <li>• If <b>Fan Mode Sequence</b> is set at 3, then: 1 = Low 2 = Med 3 = High 4 = Auto</li> <li>• If <b>Fan Mode Sequence</b> is set at 4, then: 1 = Low 2 = High 3 = Auto</li> <li>• If <b>Fan Mode Sequence</b> is set at 5, then: 1 = Auto 2 = On</li> </ul>
Occupancy Command <sup>3</sup>	MSV 18	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
Keypad Lockout <sup>3</sup>	MSV 19	1 = Level 0 2 = Level 1 3 = Level 2 4 = Level 3 5 = Level 4 6 = Level 5
PI Heating Demand <sup>5</sup>	AV 21	0 to 100%
PI Cooling Demand <sup>5</sup>	AV 22	0 to 100%
Dehumidification Status (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	BI 23	0 = Off 1 = On
AUX (BO5) Status <sup>5</sup>	BI 25	0 = Off 1 = On
Heating (BO3 and BO4) Valve Status <sup>5</sup> (TEC2616-4, TEC2616H-4, TEC2616H-4+PIR, TEC2626-4, TEC2626H-4, TEC2626H-4+PIR, TEC2636-4, TEC2636H-4, and TEC2636H-4+PIR)	MSV 26	For On/Off Control: 1 = Closed 2 = Open For Floating Control: 1 = Stopped 2 = Opening 3 = Closing
Cooling (BO1 and BO2) Valve Status <sup>5</sup> (TEC2616-4, TEC2616H-4, TEC2616H-4+PIR, TEC2626-4, TEC2626H-4, TEC2626H-4+PIR, TEC2636-4, TEC2636H-4, and TEC2636H-4+PIR)	MSV 27	For On/Off Control: 1 = Closed 2 = Open For Floating Control: 1 = Stopped 2 = Opening 3 = Closing

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 3 of 7)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Fan Status<sup>2, 5</sup></b>	MSV 28	1 = Off 2 = Low 3 = Med 4 = High
<b>BI1 Status<sup>5</sup></b>	BI 29	0 = Deactivated 1 = Activated
<b>BI2 Status<sup>5, 6</sup></b>	BI 30	0 = Deactivated 1 = Activated
<b>UI3 Status<sup>5, 6</sup></b>	BI 31	0 = Deactivated 1 = Activated
<b>Local Motion<sup>5</sup></b>	BI 32	0 = No Motion 1 = Motion
<b>Effective Occupancy<sup>5</sup></b>	MSV 33	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied 4 = Stand-by
<b>Window Alarm<sup>5</sup></b>	BI 35	0 = Off 1 = On
<b>Filter Alarm<sup>5</sup></b>	BI 36	0 = Off 1 = On
<b>Service Alarm<sup>5</sup></b>	BI 37	0 = Off 1 = On
<b>Occupied Heat Setpoint<sup>3</sup></b>	AV 39	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Occupied Cool Setpoint<sup>3, 7</sup></b>	AV 40	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Stand-by Heat Setpoint<sup>3, 7</sup></b>	AV 41	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Stand-by Cool Setpoint<sup>3, 7</sup></b>	AV 42	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Unoccupied Heat Setpoint<sup>3, 7</sup></b>	AV 43	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Unoccupied Cool Setpoint<sup>3, 7</sup></b>	AV 44	54.0°F/12.0°C to 100.0°F/37.5°C

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 4 of 7)**

Point Name	Thermostat Point (Type/Address)	Range
<b>BI1 Configuration<sup>3</sup></b>	MSV 46	1 = None 2 = Rem NSB 3 = Motion NO 4 = Motion NC 5 = Window
<b>BI2 Configuration<sup>3</sup></b>	MSV 47	1 = None 2 = Door Dry 3 = Override 4 = Filter 5 = Service
<b>UI3 Configuration<sup>3</sup></b>	MSV 48	1 = None 2 = COC/NH 3 = COC/NC 4 = COS 5 = SS
<b>Menu Scroll<sup>3</sup></b>	BV 49	0 = No Scroll 1 = Scroll Active
<b>Auto Mode Enable<sup>3</sup></b>	BV 50	0 = Disabled 1 = Enabled
<b>Temperature Scale<sup>3</sup></b>	BV 51	0 = °C 1 = °F
<b>Pipe Number (BO1 and BO2) Configuration<sup>3</sup></b>	MSV 52	1 = Two-Pipe 2 = Four-Pipe
<b>AUX (BO5) Configuration<sup>3</sup></b>	MSV 54	1 = Not Used 2 = NO with Occ 3 = NC with Occ 4 = NO with Occ and Fan 5 = NC with Occ and Fan 6 = Networked Controlled
<b>Password Value</b>	AV 56	0 to 1,000
<b>Fan Mode Sequence<sup>3</sup></b>	MSV 57	1 = Low-Med-High 2 = Low-High 3 = Low-Med-High-Auto 4 = Low-High-Auto 5 = On-Auto
<b>Heating Setpoint Limit<sup>3</sup></b>	AV 58	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Cooling Setpoint Limit<sup>3</sup></b>	AV 59	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Setpoint Type<sup>3</sup></b>	BV 60	0 = Permanent 1 = Temporary
<b>Setpoint Function</b>	BV 61	0 = Dual Setpoints 1 = Attached Setpoints

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 5 of 7)**

Point Name	Thermostat Point (Type/Address)	Range
Temporary Occupancy Time <sup>3</sup>	MSV 62	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours 14 = 13 Hours 15 = 14 Hours 16 = 15 Hours 17 = 16 Hours 18 = 17 Hours 19 = 18 Hours 20 = 19 Hours 21 = 20 Hours 22 = 21 Hours 23 = 22 Hours 24 = 23 Hours 25 = 24 Hours
Deadband <sup>3</sup>	AV 63	2F°/1C° to 5F°/3C°
Reheat Time Base (BO5) <sup>3</sup>	BV 64	0 = 15 Minutes 1 = 10 Seconds
Proportional Band	MSV 65	1 = 3 (3°F/1.7°C) 2 = 4 (4°F/2.2°C) 3 = 5 (5°F/2.8°C) 4 = 6 (6°F/3.3°C) 5 = 7 (7°F/3.9°C) 6 = 8 (8°F/4.4°C) 7 = 9 (9°F/5.0°C) 8 = 10 (10°F/5.6°C)
Auto Fan	BV 66	0 = Auto Speed 1 = Auto Speed/Auto Demand
Stand-by Time <sup>3</sup>	AV 67	0.5 to 24.0 Hours
Unoccupied Time <sup>3</sup>	AV 68	0.0 to 24.0 Hours
RH Display (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	BV 70	0 = Disabled 1 = Enabled
RH Setpoint (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	AV 71	30 to 100% RH

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 6 of 7)**

Point Name	Thermostat Point (Type/Address)	Range
Dehumidification Hysteresis (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	AV 72	2 to 20% RH
Dehumidification MaxCool (TEC2636-4, TEC2636H-4, TEC2636H-4+PIR, TEC2656-4, TEC2656H-4, and TEC2656H-4+PIR Models)	AV 73	20 to 100% RH
Control Type <sup>3</sup> (TEC2626-4, TEC2626H-4, TEC2626H-4+PIR, TEC2636-4, TEC2636H-4, and TEC2636H-4+PIR Models)	BV 75	0 = On/Off 1 = Floating
Floating Motor Timing <sup>3</sup> (TEC2626-4, TEC2626H-4, TEC2626H-4+PIR, TEC2636-4, TEC2636H-4, and TEC2636H-4+PIR Models)	MSV 76	1 = 0.5 Minutes 2 = 1.0 Minute 3 = 1.5 Minutes 4 = 2.0 Minutes 5 = 2.5 Minutes 6 = 3.0 Minutes 7 = 3.5 Minutes 8 = 4.0 Minutes 9 = 4.5 Minutes 10 = 5.0 Minutes 11 = 5.5 Minutes 12 = 6.0 Minutes 13 = 6.5 Minutes 14 = 7.0 Minutes 15 = 7.5 Minutes 16 = 8.0 Minutes 17 = 8.5 Minutes 18 = 9.0 Minutes
On/Off Control CPH <sup>3</sup> (TEC2616-4, TEC2616H-4, TEC2616H-4+PIR, TEC2626-4, TEC2626H-4, TEC2626H-4+PIR, TEC2636-4, TEC2636H-4, and TEC2636H-4+PIR)	MSV 77	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH

**Table 3: TEC26x6(H)-4 and TEC26x6H-4+PIR Series MS/TP Bus Objects  
(Part 7 of 7)**

Point Name	Thermostat Point (Type/Address)	Range
<b>Direct/Reverse Acting<sup>3</sup></b> (TEC2646-4, TEC2646H-4, TEC2646H-4+PIR, TEC2656-4, TEC2656H-4, TEC2656-4+PIR, and TEC2656H-4+PIR Models)	BV 78	0 = Direct Acting 1 = Reverse Acting
<b>TEC26x6-aaa<sup>7, 8</sup></b>	Device 73aaa	N/A

1. This MS/TP Bus object is readable and only writable if the corresponding override object is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
3. This MS/TP Bus object is readable and writable.
4. This MS/TP Bus object is valid only if it is written via the network.
5. This MS/TP Bus object is readable only.
6. The BI object type status is available even if the configuration is set to **None**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, Occupied Heat Setpoint and Occupied Cool Setpoint) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat to maintain the minimum deadband between the two setpoints.
8. Max\_Master is writable.

## TEC2645-4 Thermostat Controller

Table 4: TEC2645-4 MS/TP Bus Objects (Part 1 of 4)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1, 2</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>3, 4</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Supply Temperature <sup>5</sup>	AI 12	-40.0°F/-40.0°C to 122.0°F/50.0°C
AUX Command <sup>3</sup>	BV 14	0 = Off 1 = On
Sequence of Operation <sup>3</sup>	MSV 15	0 = Cooling Only 1 = Heating Only 2 = Cooling and Reheat 3 = Heating and Reheat
System Mode <sup>3</sup>	MSV 16	1 = Off 2 = Auto 3 = Cool 4 = Heat
Fan Mode <sup>3</sup>	MSV 17	1 = On 2 = Auto
Occupancy Command <sup>3</sup>	MSV 18	1 = Resume Schedule 2 = Occupied 3 = Unoccupied 4 = Temporary Occupied
Keypad Lockout <sup>3</sup>	MSV 19	1 = Level 0 2 = Level 1 3 = Level 2 4 = Level 3 5 = Level 4 6 = Level 5
PI Heating Demand <sup>5</sup>	AV 21	0 to 100%
PI Cooling Demand <sup>5</sup>	AV 22	0 to 100%
AUX (BO5) Status <sup>5</sup>	BI 25	0 = Off 1 = On
Fan Status <sup>2, 5</sup>	MSV 28	1 = Off 4 = High
BI1 Status <sup>5, 6</sup>	BI 29	0 = Deactivated 1 = Activated
BI2 Status <sup>5, 6</sup>	BI 30	0 = Deactivated 1 = Activated
UI3 Status <sup>5, 6</sup>	BI 31	0 = Deactivated 1 = Activated
Local Motion <sup>5</sup>	BI 32	0 = Deactivated 1 = Activated
Effective Occupancy <sup>5</sup>	MSV 33	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied 4 = Stand-by
Window Alarm <sup>5</sup>	BI 35	0 = Off 1 = On

**Table 4: TEC2645-4 MS/TP Bus Objects (Part 2 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Filter Alarm<sup>5</sup></b>	BI 36	0 = Off 1 = On
<b>Service Alarm<sup>5</sup></b>	BI 37	0 = Off 1 = On
<b>Occupied Heat Setpoint<sup>3, 7</sup></b>	AV 39	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Occupied Cool Setpoint<sup>3, 7</sup></b>	AV 40	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Stand-by Heat Setpoint<sup>3, 7</sup></b>	AV 41	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Stand-by Cool Setpoint<sup>3, 7</sup></b>	AV 42	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Unoccupied Heat Setpoint<sup>3, 7</sup></b>	AV 43	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Unoccupied Cool Setpoint<sup>3, 7</sup></b>	AV 44	54.0°F/12.0°C to 100.0°F/37.5°C
<b>BI1 Configuration<sup>3</sup></b>	MSV 46	1 = None 2 = Rem NSB 3 = Motion NO 4 = Motion NC 5 = Window
<b>BI2 Configuration<sup>3</sup></b>	MSV 47	1 = None 2 = Door Dry 3 = Override 4 = Filter 5 = Service
<b>UI3 Configuration<sup>3</sup></b>	MSV 48	1 = None 2 = COC/NH 3 = COC/NC 4 = COS 5 = SS
<b>Menu Scroll<sup>3</sup></b>	BV 49	0 = No Scroll 1 = Scroll Active
<b>Auto Mode Enable<sup>3</sup></b>	BV 50	0 = Disabled 1 = Enabled
<b>Temperature Scale<sup>3</sup></b>	BV 51	0 = °C 1 = °F
<b>AUX (BO5) Configuration<sup>3</sup></b>	MSV 54	1 = Not Used 2 = NO with Occ 3 = NC with Occ 4 = NO with Occ and Fan 5 = NC with Occ and Fan 6 = Network Controlled
<b>Password Value</b>	AV 56	0 to 1,000
<b>Heating Setpoint Limit<sup>3</sup></b>	AV 58	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Cooling Setpoint Limit<sup>3</sup></b>	AV 59	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Setpoint Type<sup>3</sup></b>	BV 60	0 = Permanent 1 = Temporary
<b>Setpoint Function</b>	BV 61	0 = Dual Setpoints 1 = Attached Setpoints

**Table 4: TEC2645-4 MS/TP Bus Objects (Part 3 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Temporary Occupancy Time <sup>3</sup>	MSV 62	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours 14 = 13 Hours 15 = 14 Hours 16 = 15 Hours 17 = 16 Hours 18 = 17 Hours 19 = 18 Hours 20 = 19 Hours 21 = 20 Hours 22 = 21 Hours 23 = 22 Hours 24 = 23 Hours 25 = 24 Hours
Deadband <sup>3</sup>	AV 63	2F°/1C° to 5F°/3C°
Reheat Time Base (BO5) <sup>3</sup>	BV 64	0 = 15 Minutes 1 = 10 Seconds
Proportional Band	MSV 65	1 = 3 (3°F/1.7°C) 2 = 4 (4°F/2.2°C) 3 = 5 (5°F/2.8°C) 4 = 6 (6°F/3.3°C) 5 = 7 (7°F/3.9°C) 6 = 8 (8°F/4.4°C) 7 = 9 (9°F/5.0°C) 8 = 10 (10°F/5.6°C)
Stand-by Time <sup>3</sup>	AV 67	0.5 Hours to 24.0 Hours
Unoccupied Time <sup>3</sup>	AV 68	0.0 Hours to 24.0 Hours
Direct/Reverse Acting <sup>3</sup>	BV 78	0 = Direct Acting 1 = Reverse Acting

**Table 4: TEC2645-4 MS/TP Bus Objects (Part 4 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>TEC2645-aaa<sup>8, 9</sup></b>	Device 73aaa	N/A
<b>Digital Outputs</b>	BV 70 to BV 77	N/A (Future Use)

1. This MS/TP Bus object is readable and only writable if the corresponding override object is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
3. This MS/TP Bus object is readable and writable.
4. This MS/TP Bus object is valid only if it is written via the network.
5. This MS/TP Bus object is readable only.
6. The BI object type status is available even if the configuration is set to **None**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The designation aaa is the address of the device (from 004 to 127) on the MS/TP network.
9. Max\_Master is writable.

## TEC26x7-4 and TEC26x7-4+PIR Series Thermostat Controllers

Table 5: TEC26x7-4 and TEC26x7-4+PIR Series MS/TP Bus Objects (Part 1 of 4)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1, 2</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°F
Room Temp Override <sup>3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>3, 4</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°F
Supply Temperature <sup>5</sup>	AI 12	-40.0°F/-40.0°C to 122.0°F/50.0°F
AUX Command <sup>3</sup>	BV 14	0 = Off 1 = On
Sequence of Operation <sup>3</sup>	MSV 15	1 = Cooling Only 2 = Heating Only 3 = Cooling and Reheat 4 = Heating and Reheat 5 = Cool/Heat Four-Pipe 6 = Cool/Heat Four-Pipe and Reheat
System Mode <sup>3</sup>	MSV 16	1 = Off 2 = Cool 3 = Heat 4 = Auto
Occupancy Command <sup>3</sup>	MSV 18	1 = Resume Schedule 2 = Occupied 3 = Unoccupied 4 = Temporary Occupied
Keypad Lockout <sup>3</sup>	MSV 19	1 = Level 0 2 = Level 1 3 = Level 2 4 = Level 3 5 = Level 4 6 = Level 5
PI Heating Demand <sup>5</sup>	AV 21	0 to 100%
PI Cooling Demand <sup>5</sup>	AV 22	0 to 100%
AUX (BO5) Status <sup>5</sup>	BI 25	0 = Off 1 = On
Heating (BO3 and BO4) Valve Status (TEC2627-4 Model) <sup>5</sup>	MSV 26	For On/Off Control: 1 = Open 2 = Closed For Floating Control: 1 = Stopped 2 = Opening 3 = Closing
Cooling (BO1 and BO2) Valve Status (TEC2627-4 Model) <sup>5</sup>	MSV 27	For On/Off Control: 1 = Open 2 = Closed For Floating Control: 1 = Stopped 2 = Opening 3 = Closing
BI1 Status <sup>5, 6</sup>	BI 29	0 = Deactivated 1 = Activated

**Table 5: TEC26x7-4 and TEC26x7-4+PIR Series MS/TP Bus Objects (Part 2 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>BI2 Status<sup>5, 6</sup></b>	BI 30	0 = Deactivated 1 = Activated
<b>UI3 Status<sup>5, 6</sup></b>	BI 31	0 = Deactivated 1 = Activated
<b>Local Motion<sup>5</sup></b>	BI 32	0 = Deactivated 1 = Activated
<b>Effective Occupancy<sup>5</sup></b>	MSV 33	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied 4 = Stand-by
<b>Window Alarm<sup>5</sup></b>	BI 35	0 = Off 1 = On
<b>Filter Alarm<sup>5</sup></b>	BI 36	0 = Off 1 = On
<b>Service Alarm<sup>5</sup></b>	BI 37	0 = Off 1 = On
<b>Occupied Heat Setpoint<sup>3, 7</sup></b>	AV 39	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Occupied Cool Setpoint<sup>3, 7</sup></b>	AV 40	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Stand-by Heat Setpoint<sup>3, 7</sup></b>	AV 41	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Stand-by Cool Setpoint<sup>3, 7</sup></b>	AV 42	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Unoccupied Heat Setpoint<sup>3, 7</sup></b>	AV 43	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Unoccupied Cool Setpoint<sup>3, 7</sup></b>	AV 44	54.0°F/12.0°C to 100.0°F/37.5°C
<b>BI1 Configuration<sup>3</sup></b>	MSV 46	1 = None 2 = Rem NSB 3 = Motion NO 4 = Motion NC 5 = Window
<b>BI2 Configuration<sup>3</sup></b>	MSV 47	1 = None 2 = Door Dry 3 = Override 4 = Filter 5 = Service
<b>UI3 Configuration<sup>3</sup></b>	MSV 48	1 = None 2 = COC/NH 3 = COC/NC 4 = COS 5 = SS
<b>Menu Scroll<sup>3</sup></b>	BV 49	0 = No Scroll 1 = Scroll Active
<b>Temperature Scale<sup>3</sup></b>	BV 51	0 = °C 1 = °F
<b>Out 1 (BO1 and BO2) Configuration<sup>3</sup></b>	MSV 53	1 = False 2 = True

**Table 5: TEC26x7-4 and TEC26x7-4+PIR Series MS/TP Bus Objects (Part 3 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
AUX (BO5) Configuration <sup>3</sup>	MSV 54	1 = Not Used 2 = NO with Occ 3 = NC with Occ 6 = Network Controlled
Password Value	AV 56	0 to 1,000
Heating Setpoint Limit <sup>3</sup>	AV 58	40.0°F/4.5°C to 90.0°F/32.0°C
Cooling Setpoint Limit <sup>3</sup>	AV 59	54.0°F/12.0°C to 100.0°F/37.5°C
Setpoint Type <sup>3</sup>	BV 60	0 = Permanent 1 = Temporary
Temporary Occupancy Time <sup>3</sup>	MSV 62	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours 14 = 13 Hours 15 = 14 Hours 16 = 15 Hours 17 = 16 Hours 18 = 17 Hours 19 = 18 Hours 20 = 19 Hours 21 = 20 Hours 22 = 21 Hours 23 = 22 Hours 24 = 23 Hours 25 = 24 Hours
Deadband <sup>3</sup>	AV 63	2F°/1C° to 5F°/2.5C°
Reheat Time Base (BO5) <sup>3</sup>	BV 64	0 = 15 Minutes 1 = 10 Seconds
Proportional Band	MSV 65	1 = 3 (3°F/1.7°C) 2 = 4 (4°F/2.2°C) 3 = 5 (5°F/2.8°C) 4 = 6 (6°F/3.3°C) 5 = 7 (7°F/3.9°C) 6 = 8 (8°F/4.4°C) 7 = 9 (9°F/5.0°C) 8 = 10 (10°F/5.6°C)
Stand-by Time <sup>3</sup>	AV 67	0.5 Hours to 24.0 Hours
Unoccupied Time <sup>3</sup>	AV 68	0.0 Hours to 24.0 Hours
Control Type (TEC2627-4 Model) <sup>3</sup>	BV 75	0 = On/Off 1 = Floating

**Table 5: TEC26x7-4 and TEC26x7-4+PIR Series MS/TP Bus Objects (Part 4 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
<b>Floating Motor Timing (TEC2627-4 Model)<sup>3</sup></b>	MSV 76	1 = 0.5 Minutes 2 = 1.0 Minute 3 = 1.5 Minutes 4 = 2.0 Minutes 5 = 2.5 Minutes 6 = 3.0 Minutes 7 = 3.5 Minutes 8 = 4.0 Minutes 9 = 4.5 Minutes 10 = 5.0 Minutes 11 = 5.5 Minutes 12 = 6.0 Minutes 13 = 6.5 Minutes 14 = 7.0 Minutes 15 = 7.5 Minutes 16 = 8.0 Minutes 17 = 8.5 Minutes 18 = 9.0 Minutes
<b>On/Off Control CPH (TEC2627-4 Model)<sup>3</sup></b>	MSV 77	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
<b>Direct/Reverse Acting (TEC2647-2 Model)<sup>3</sup></b>	BV 78	0 = Direct Acting 1 = Reverse Acting
<b>TEC26x7-aaa<sup>8, 9</sup></b>	Device 72aaa	N/A

1. This MS/TP Bus object is readable and only writable if the corresponding override object is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
3. This MS/TP Bus object is readable and writable.
4. This MS/TP Bus object is valid only if it is written via the network.
5. This MS/TP Bus object is readable only.
6. The BI object type status is available even if the configuration is set to **None**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.
9. Max\_Master is writable.

## TEC2601-4 and TEC2601-4+PIR Thermostat Controllers

Table 6: TEC2601-4 and TEC2601-4+PIR MS/TP Bus Objects (Part 1 of 3)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>2, 3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>1</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Outdoor Temp Override <sup>2, 3</sup>	BV 10	0 = Normal 1 = Override
Occupancy <sup>2</sup>	MV 12	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
System Mode RTU <sup>2</sup>	MV 14	1 = Off 2 = Auto 3 = Cool 4 = Heat
Fan Mode <sup>2</sup>	MV 15	1 = On 2 = Auto 3 = Smart
Supply Temperature <sup>4</sup>	AI 16	-40.0°F/-40.0°C to 122.0°F/50.0°C
Keypad Lockout <sup>2</sup>	MV 18	1 = Level 0 2 = Level 1 3 = Level 2
PI Heating Demand	AV 20	0 to 100%
PI Cooling Demand	AV 21	0 to 100%
Aux	BI 24	0 = Off 1 = On
G Fan <sup>4</sup>	BI 25	0 = Off 1 = On
Y1 Cool <sup>4</sup>	BI 26	0 = Off 1 = On
W1 Heat <sup>4</sup>	BI 28	0 = Off 1 = On
DI1 Status <sup>4, 5</sup>	BI 31	0 = Not Activated 1 = Activated
DI2 Status <sup>4, 5</sup>	BI 32	0 = Not Activated 1 = Activated
Local Motion <sup>4</sup>	BI 33	0 = No Motion 1 = Motion
Effective Occupancy <sup>4</sup>	MV 34	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied
Frost Alarm <sup>3, 4, 6</sup>	BI 36	0 = Off 1 = On
Filter Alarm <sup>4</sup>	BI 38	0 = Off 1 = On
Service Alarm <sup>4</sup>	BI 39	0 = Off 1 = On

**Table 6: TEC2601-4 and TEC2601-4+PIR MS/TP Bus Objects (Part 2 of 3)**

Point Name	Thermostat Point (Type/Address)	Range
Fan Lock Alarm <sup>4</sup>	BI 40	0 = Off 1 = On
Occupied Heat Setpoint <sup>2, 7</sup>	AV 42	40.0°F/4.5°C to 90.0°F/32.0°C
Occupied Cool Setpoint <sup>2, 7</sup>	AV 43	54.0°F/12.0°C to 100.0°F/37.5°C
Unoccupied Heat Setpoint <sup>2, 7</sup>	AV 44	40.0°F/4.5°C to 90.0°F/32.0°C
Unoccupied Cool Setpoint <sup>2, 7</sup>	AV 45	54.0°F/12.0°C to 100.0°F/37.5°C
Temperature Scale <sup>2</sup>	BV 47	0 = °C 1 = °F
Heating Setpoint Limit <sup>2</sup>	AV 48	40.0°F/4.5°C to 90.0°F/32.0°C
Cooling Setpoint Limit <sup>2</sup>	AV 49	54.0°F/12.0°C to 100.0°F/37.5°C
Heating Lockout Temperature <sup>2</sup>	AV 50	-15.0°F/-26.0°C to 120.0°F/49.0°C
Cooling Lockout Temperature <sup>2</sup>	AV 51	-40.0°F/-40.0°C to 95.0°F/35.0°C
Deadband <sup>2</sup>	AV 52	2.0F°/1.0C° to 4.0F°/2.0C°
Heating CPH <sup>2</sup>	MV 53	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
Cooling CPH <sup>2</sup>	MV 54	1 = 3 CPH 2 = 4 CPH
Frost Protection <sup>2</sup>	BV 55	0 = Off 1 = On
Aux Contact <sup>2</sup>	BV 56	0 = Normally Open (N.O.) 1 = Normally Closed (N.C.)
Menu Scroll <sup>2</sup>	BV 57	0 = No Scroll 1 = Scroll Active
Password Value	AV 59	0 to 1,000
Power Up Delay <sup>2</sup>	AV 60	10 to 120 Seconds
Temporary Occupancy Time <sup>2</sup>	MV 61	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours

**Table 6: TEC2601-4 and TEC2601-4+PIR MS/TP Bus Objects (Part 3 of 3)**

Point Name	Thermostat Point (Type/Address)	Range
Fan Control <sup>2</sup>	BV 62	0 = Off 1 = On
Anticycle <sup>2</sup>	MV 63	1 = 0 Minutes 2 = 1 Minute 3 = 2 Minutes 4 = 3 Minutes 5 = 4 Minutes 6 = 5 Minutes
Fan Purge Delay <sup>2</sup>	BV 64	0 = Off 1 = On
DI1 Configuration <sup>2</sup>	MV 65	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
DI2 Configuration <sup>2</sup>	MV 66	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
Proportional Band	MSV 67	1 = 2 (2°F/1.1°C) 2 = 3 (3°F/1.7°C) 3 = 4 (4°F/2.2°C) 4 = 5 (5°F/2.8°C) 5 = 6 (6°F/3.3°C) 6 = 7 (7°F/3.9°C) 7 = 8 (8°F/4.4°C)
Unoccupied Time <sup>4</sup>	AV 68	0.5 Hours to 24.0 Hours
TEC2601-address <sup>8</sup>	Device 76aaa <sup>9</sup>	TEC2601-4 to TEC2601-127

1. This MS/TP Bus object is readable and only writable if the corresponding override is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object is readable and writable.
3. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
4. This MS/TP Bus object is readable and only writable when out of service.
5. This BI object type status is available even if the configuration is set to **None**.
6. This MS/TP Bus object requires that **Frost Protection** be set to **1 = On**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The address range actually displays from **0** to **254**. Only choose an address within the **4** to **127** range.
9. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.

## TEC2602-4 and TEC2602-4+PIR Thermostat Controllers

Table 7: TEC2602-4 and TEC2602-4+PIR MS/TP Bus Objects (Part 1 of 4)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>2, 3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>1</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Outdoor Temp Override <sup>2, 3</sup>	BV 10	0 = Normal 1 = Override
Occupancy <sup>2</sup>	MV 12	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
System Mode HPU <sup>2</sup>	MV 13	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency
Fan Mode <sup>2</sup>	MV 15	1 = On 2 = Auto 3 = Smart
Supply Temperature <sup>4</sup>	AI 16	-40.0°F/-40.0°C to 122.0°F/50.0°C
Keypad Lockout <sup>2</sup>	MV 18	1 = Level 0 2 = Level 1 3 = Level 2
PI Heating Demand	AV 20	0 to 100%
PI Cooling Demand	AV 21	0 to 100%
Aux	BI 24	0 = Off 1 = On
G Fan <sup>4</sup>	BI 25	0 = Off 1 = On
Y1 Cool <sup>4</sup>	BI 26	0 = Off 1 = On
Y2 Cool <sup>4</sup>	BI 27	0 = Off 1 = On
W1 Heat <sup>4</sup>	BI 28	0 = Off 1 = On
Reversing Valve <sup>4</sup>	BI 30	0 = Off 1 = On
DI1 Status <sup>4, 5</sup>	BI 31	0 = Not Activated 1 = Activated
DI2 Status <sup>4, 5</sup>	BI 32	0 = Not Activated 1 = Activated
Local Motion <sup>4</sup>	BI 33	0 = No Motion 1 = Motion
Effective Occupancy <sup>4</sup>	MV 34	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied
Frost Alarm <sup>3, 4, 6</sup>	BI 36	0 = Off 1 = On

**Table 7: TEC2602-4 and TEC2602-4+PIR MS/TP Bus Objects (Part 2 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Filter Alarm<sup>4</sup></b>	BI 38	0 = Off 1 = On
<b>Service Alarm<sup>4</sup></b>	BI 39	0 = Off 1 = On
<b>Fan Lock Alarm<sup>4</sup></b>	BI 40	0 = Off 1 = On
<b>Occupied Heat Setpoint<sup>2, 7</sup></b>	AV 42	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Occupied Cool Setpoint<sup>2, 7</sup></b>	AV 43	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Unoccupied Heat Setpoint<sup>2, 7</sup></b>	AV 44	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Unoccupied Cool Setpoint<sup>2, 7</sup></b>	AV 45	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Temperature Scale<sup>2</sup></b>	BV 47	0 = °C 1 = °F
<b>Heating Setpoint Limit<sup>2</sup></b>	AV 48	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Cooling Setpoint Limit<sup>2</sup></b>	AV 49	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Heating Lockout Temperature<sup>2</sup></b>	AV 50	-15.0°F/-26.0°C to 120.0°F/49.0°C
<b>Cooling Lockout Temperature<sup>2</sup></b>	AV 51	-40.0°F/-40.0°C to 95.0°F/35.0°C
<b>Deadband<sup>2</sup></b>	AV 52	2.0F°/1.0C° to 4.0F°/2.0C°
<b>Heating CPH<sup>2</sup></b>	MV 53	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
<b>Cooling CPH<sup>2</sup></b>	MV 54	1 = 3 CPH 2 = 4 CPH
<b>Frost Protection<sup>2</sup></b>	BV 55	0 = Off 1 = On
<b>Aux Contact<sup>2</sup></b>	BV 56	0 = Normally Open (N.O.) 1 = Normally Closed (N.C.)
<b>Menu Scroll<sup>2</sup></b>	BV 57	0 = No Scroll 1 = Scroll Active
<b>Password Value</b>	AV 59	0 to 1,000
<b>Power Up Delay<sup>2</sup></b>	AV 60	10 to 120 Seconds

**Table 7: TEC2602-4 and TEC2602-4+PIR MS/TP Bus Objects (Part 3 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Temporary Occupancy Time<sup>2</sup></b>	MV 61	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours
<b>Fan Control<sup>2</sup></b>	BV 62	0 = Off 1 = On
<b>Anticycle<sup>2</sup></b>	MV 63	1 = 0 Minutes 2 = 1 Minute 3 = 2 Minutes 4 = 3 Minutes 5 = 4 Minutes 6 = 5 Minutes
<b>Fan Purge Delay<sup>2</sup></b>	BV 64	0 = Off 1 = On
<b>DI1 Configuration<sup>2</sup></b>	MV 65	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
<b>DI2 Configuration<sup>2</sup></b>	MV 66	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
<b>Proportional Band</b>	MSV 67	1 = 2 (2°F/1.1°C) 2 = 3 (3°F/1.7°C) 3 = 4 (4°F/2.2°C) 4 = 5 (5°F/2.8°C) 5 = 6 (6°F/3.3°C) 6 = 7 (7°F/3.9°C) 7 = 8 (8°F/4.4°C)
<b>Unoccupied Time<sup>3</sup></b>	AV 68	0.5 Hours to 24.0 Hours
<b>Heat Pump Stages<sup>2</sup></b>	MV 75	1 = One Stage 2 = Two Stages
<b>High Balance Point</b>	AV 82	34.0°F/1.0°C to 90.0°F/32.0°C
<b>Low Balance Point</b>	AV 83	-40.0°F/-40.0°C to 30.0°F/-1.0°C
<b>Comfort Mode<sup>2</sup></b>	BV 84	0 = Comfort 1 = Economy
<b>Reversing Valve Configuration<sup>2</sup></b>	BV 85	0 = Normally Heat 1 = Normally Cool

**Table 7: TEC2602-4 and TEC2602-4+PIR MS/TP Bus Objects (Part 4 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Compressor Interlock <sup>2</sup>	BV 86	0 = Off 1 = On
TEC2602-address <sup>8</sup>	Device 76aaa <sup>9</sup>	TEC2602-4 to TEC2602-127

1. This MS/TP Bus object is readable and only writable if the corresponding override is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object is readable and writable.
3. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
4. This MS/TP Bus object is readable and only writable when out of service.
5. This BI object type status is available even if the configuration is set to **None**.
6. This MS/TP Bus object requires that **Frost Protection** be set to **1 = On**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The address range actually displays from **0** to **254**. Only choose an address within the **4** to **127** range.
9. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.

## TEC2603-4 and TEC2603-4+PIR Thermostat Controllers

Table 8: TEC2603-4 and TEC2603-4+PIR MS/TP Bus Objects (Part 1 of 4)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>2, 3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>1</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Outdoor Temp Override <sup>2, 3</sup>	BV 10	0 = Normal 1 = Override
Occupancy <sup>2</sup>	MV 12	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
System Mode RTU <sup>2</sup>	MV 14	1 = Off 2 = Auto 3 = Cool 4 = Heat
Fan Mode <sup>2</sup>	MV 15	1 = On 2 = Auto 3 = Smart
Supply Temperature <sup>4</sup>	AI 16	-40.0°F/-40.0°C to 122.0°F/50.0°C
Keypad Lockout <sup>2</sup>	MV 18	1 = Level 0 2 = Level 1 3 = Level 2
PI Heating Demand	AV 20	0 to 100%
PI Cooling Demand	AV 21	0 to 100%
Aux	BI 24	0 = Off 1 = On
G Fan <sup>4</sup>	BI 25	0 = Off 1 = On
Y1 Cool <sup>4</sup>	BI 26	0 = Off 1 = On
Y2 Cool <sup>4</sup>	BI 27	0 = Off 1 = On
W1 Heat <sup>4</sup>	BI 28	0 = Off 1 = On
W2 Heat <sup>4</sup>	BI 29	0 = Off 1 = On
DI1 Status <sup>4, 5</sup>	BI 31	0 = Not Activated 1 = Activated
DI2 Status <sup>4, 5</sup>	BI 32	0 = Not Activated 1 = Activated
Local Motion <sup>4</sup>	BI 33	0 = No Motion 1 = Motion
Effective Occupancy <sup>4</sup>	MV 34	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied
Frost Alarm <sup>3, 4, 6</sup>	BI 36	0 = Off 1 = On

**Table 8: TEC2603-4 and TEC2603-4+PIR MS/TP Bus Objects (Part 2 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Filter Alarm <sup>4</sup>	BI 38	0 = Off 1 = On
Service Alarm <sup>4</sup>	BI 39	0 = Off 1 = On
Fan Lock Alarm <sup>4</sup>	BI 40	0 = Off 1 = On
Occupied Heat Setpoint <sup>2, 7</sup>	AV 42	40.0°F/4.5°C to 90.0°F/32.0°C
Occupied Cool Setpoint <sup>2, 7</sup>	AV 43	54.0°F/12.0°C to 100.0°F/37.5°C
Unoccupied Heat Setpoint <sup>2, 7</sup>	AV 44	40.0°F/4.5°C to 90.0°F/32.0°C
Unoccupied Cool Setpoint <sup>2, 7</sup>	AV 45	54.0°F/12.0°C to 100.0°F/37.5°C
Temperature Scale <sup>2</sup>	BV 47	0 = °C 1 = °F
Heating Setpoint Limit <sup>2</sup>	AV 48	40.0°F/4.5°C to 90.0°F/32.0°C
Cooling Setpoint Limit <sup>2</sup>	AV 49	54.0°F/12.0°C to 100.0°F/37.5°C
Heating Lockout Temperature <sup>2</sup>	AV 50	-15.0°F/-26.0°C to 120.0°F/49.0°C
Cooling Lockout Temperature <sup>2</sup>	AV 51	-40.0°F/-40.0°C to 95.0°F/35.0°C
Deadband <sup>2</sup>	AV 52	2.0F°/1.0C° to 4.0F°/2.0C°
Heating CPH <sup>2</sup>	MV 53	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
Cooling CPH <sup>2</sup>	MV 54	1 = 3 CPH 2 = 4 CPH
Frost Protection <sup>2</sup>	BV 55	0 = Off 1 = On
Aux Contact <sup>2</sup>	BV 56	0 = Normally Open (N.O.) 1 = Normally Closed (N.C.)
Menu Scroll <sup>2</sup>	BV 57	0 = No Scroll 1 = Scroll Active
Password Value	AV 59	0 to 1,000
Power Up Delay <sup>2</sup>	AV 60	10 to 120 Seconds

**Table 8: TEC2603-4 and TEC2603-4+PIR MS/TP Bus Objects (Part 3 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Temporary Occupancy Time <sup>2</sup>	MV 61	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours
Fan Control <sup>2</sup>	BV 62	0 = Off 1 = On
Anticycle <sup>2</sup>	MV 63	1 = 0 Minutes 2 = 1 Minute 3 = 2 Minutes 4 = 3 Minutes 5 = 4 Minutes 6 = 5 Minutes
Fan Purge Delay <sup>2</sup>	BV 64	0 = Off 1 = On
DI1 Configuration <sup>2</sup>	MV 65	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
DI2 Configuration <sup>2</sup>	MV 66	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
Proportional Band	MSV 67	1 = 2 (2°F/1.1°C) 2 = 3 (3°F/1.7°C) 3 = 4 (4°F/2.2°C) 4 = 5 (5°F/2.8°C) 5 = 6 (6°F/3.3°C) 6 = 7 (7°F/3.9°C) 7 = 8 (8°F/4.4°C)

**Table 8: TEC2603-4 and TEC2603-4+PIR MS/TP Bus Objects (Part 4 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Unoccupied Time <sup>4</sup>	AV 68	0.5 Hours to 24.0 Hours
Heating Stages <sup>2</sup>	MV 73	1 = One Stage 2 = Two Stages
Cooling Stages <sup>2</sup>	MV 74	1 = One Stage 2 = Two Stages
TEC2603-address <sup>8</sup>	Device 76aaa <sup>9</sup>	TEC2603-4 to TEC2603-127

1. This MS/TP Bus object is readable and only writable if the corresponding override is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object is readable and writable.
3. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
4. This MS/TP Bus object is readable and only writable when out of service.
5. This BI object type status is available even if the configuration is set to **None**.
6. This MS/TP Bus object requires that **Frost Protection** be set to **1 = On**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The address range actually displays from **0** to **254**. Only choose an address within the **4** to **127** range.
9. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.

## TEC2613-4 and TEC2613-4+PIR Temperature and Humidity Controllers

Table 9: TEC2613-4 and TEC2613-4+PIR MS/TP Bus Objects (Part 1 of 4)

Point Name	Controller Point (Type/Address)	Range
Room Temp <sup>1</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>2, 3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>1</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Outdoor Temp Override <sup>2, 3</sup>	BV 10	0 = Normal 1 = Override
Room Humidity	AV 11	0 to 100%
Occupancy <sup>2</sup>	MV 12	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
System Mode RTU <sup>2</sup>	MV 14	1 = Off 2 = Auto 3 = Cool 4 = Heat
Fan Mode <sup>2</sup>	MV 15	1 = On 2 = Auto 3 = Smart
Supply RH	AI 17	0 to 100%
Keypad Lockout <sup>2</sup>	MV 18	1 = Level 0 2 = Level 1 3 = Level 2
PI Heating Demand	AV 20	0 to 100%
PI Cooling Demand	AV 21	0 to 100%
Aux	BI 24	0 = Off 1 = On
G Fan <sup>4</sup>	BI 25	0 = Off 1 = On
Y1 Cool <sup>4</sup>	BI 26	0 = Off 1 = On
Y2 Cool <sup>4</sup>	BI 27	0 = Off 1 = On
W1 Heat <sup>4</sup>	BI 28	0 = Off 1 = On
W2 Heat <sup>4</sup>	BI 29	0 = Off 1 = On
DI Status <sup>4, 5</sup>	BI 31	0 = Not Activated 1 = Activated
Local Motion <sup>4</sup>	BI 33	0 = No Motion 1 = Motion
Effective Occupancy <sup>4</sup>	MV 34	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied
Frost Alarm <sup>3, 4, 6</sup>	BI 36	0 = Off 1 = On

**Table 9: TEC2613-4 and TEC2613-4+PIR MS/TP Bus Objects (Part 2 of 4)**

Point Name	Controller Point (Type/Address)	Range
Filter Alarm <sup>4</sup>	BI 38	0 = Off 1 = On
Service Alarm <sup>4</sup>	BI 39	0 = Off 1 = On
Fan Lock Alarm <sup>4</sup>	BI 40	0 = Off 1 = On
Occupied Heat Setpoint <sup>2, 7</sup>	AV 42	40.0°F/4.5°C to 90.0°F/32.0°C
Occupied Cool Setpoint <sup>2, 7</sup>	AV 43	54.0°F/12.0°C to 100.0°F/37.5°C
Unoccupied Heat Setpoint <sup>2, 7</sup>	AV 44	40.0°F/4.5°C to 90.0°F/32.0°C
Unoccupied Cool Setpoint <sup>2, 7</sup>	AV 45	54.0°F/12.0°C to 100.0°F/37.5°C
Temperature Scale <sup>2</sup>	BV 47	0 = °C 1 = °F
Heating Setpoint Limit <sup>2</sup>	AV 48	40.0°F/4.5°C to 90.0°F/32.0°C
Cooling Setpoint Limit <sup>2</sup>	AV 49	54.0°F/12.0°C to 100.0°F/37.5°C
Heating Lockout Temperature <sup>2</sup>	AV 50	-15.0°F/-26.0°C to 120.0°F/49.0°C
Cooling Lockout Temperature <sup>2</sup>	AV 51	-40.0°F/-40.0°C to 95.0°F/35.0°C
Deadband <sup>2</sup>	AV 52	2.0F°/1.0C° to 4.0F°/2.0C°
Heating CPH <sup>2</sup>	MV 53	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
Cooling CPH <sup>2</sup>	MV 54	1 = 3 CPH 2 = 4 CPH
Frost Protection <sup>2</sup>	BV 55	0 = Off 1 = On
Aux Contact <sup>2</sup>	BV 56	0 = Normally Open (N.O.) 1 = Normally Closed (N.C.)
Menu Scroll <sup>2</sup>	BV 57	0 = No Scroll 1 = Scroll Active
Password Value	AV 59	0 to 1,000
Power Up Delay <sup>2</sup>	AV 60	10 to 120 Seconds

**Table 9: TEC2613-4 and TEC2613-4+PIR MS/TP Bus Objects (Part 3 of 4)**

<b>Point Name</b>	<b>Controller Point (Type/Address)</b>	<b>Range</b>
<b>Temporary Occupancy Time<sup>2</sup></b>	MV 61	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours
<b>Fan Control<sup>2</sup></b>	BV 62	0 = Off 1 = On
<b>Anticycle<sup>2</sup></b>	MV 63	1 = 0 Minutes 2 = 1 Minute 3 = 2 Minutes 4 = 3 Minutes 5 = 4 Minutes 6 = 5 Minutes
<b>Fan Purge Delay<sup>2</sup></b>	BV 64	0 = Off 1 = On
<b>DI Configuration<sup>2</sup></b>	MV 65	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
<b>Proportional Band</b>	MSV 67	1 = 2 (2°F/1.1°C) 2 = 3 (3°F/1.7°C) 3 = 4 (4°F/2.2°C) 4 = 5 (5°F/2.8°C) 5 = 6 (6°F/3.3°C) 6 = 7 (7°F/3.9°C) 7 = 8 (8°F/4.4°C)
<b>Unoccupied Time<sup>4</sup></b>	AV 68	0.5 Hours to 24.0 Hours
<b>Heating Stages<sup>2</sup></b>	MV 73	1 = One Stage 2 = Two Stages
<b>Cooling Stages<sup>2</sup></b>	MV 74	1 = One Stage 2 = Two Stages
<b>RH Display<sup>2</sup></b>	BV 88	0 = Not Activated 1 = Activated
<b>Dehumidification RH Setpoint<sup>2</sup></b>	AV 89	15 to 95%
<b>Dehumidification Hysteresis</b>	AV 90	2 to 20%
<b>Dehumidification Low OA Lockout</b>	AV 91	-40.0°F/-40.0°C to 122.0°F/50.0°C
<b>Dehumidification Lockout Functions<sup>2</sup></b>	BV 92	0 = Not Activated 1 = Activated
<b>Dehumidification Output Status<sup>4</sup></b>	BI 93	0 = Off 1 = On
<b>Humidification RH Setpoint<sup>2</sup></b>	AV 95	10 to 90%

**Table 9: TEC2613-4 and TEC2613-4+PIR MS/TP Bus Objects (Part 4 of 4)**

Point Name	Controller Point (Type/Address)	Range
Eff Reset Humidification RH Spt	AV 96	0 to 100%
Humidification High Limit Spt <sup>2</sup>	AV 97	50 to 90%
Low RH Setpoint <sup>2</sup>	AV 98	10 to 90%
Low Temp Reset RH Setpoint <sup>2</sup>	AV 99	-40.0°F/-40.0°C to 15.0°F/-9.5°C
High Temp Reset RH Setpoint <sup>2</sup>	AV 100	20.0°F/-6.5°C to 55.0°F/13.0°C
Humidifier Output	AV 101	0 to 100%
TEC2613-address <sup>8</sup>	Device 76aaa <sup>9</sup>	TEC2613-4 to TEC2613-127

1. This MS/TP Bus object is readable and only writable if the corresponding override is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object is readable and writable.
3. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
4. This MS/TP Bus object is readable and only writable when out of service.
5. This BI object type status is available even if the configuration is set to **None**.
6. This MS/TP Bus object requires that **Frost Protection** be set to **1 = On**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the controller to maintain the minimum deadband between the two setpoints.
8. The address range actually displays from **0** to **254**. Only choose an address within the **4** to **127** range.
9. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.

## TEC2604-4 and TEC2604-4+PIR Thermostat Controllers

Table 10: TEC2604-4 and TEC2604-4+PIR MS/TP Bus Objects (Part 1 of 4)

Point Name	Thermostat Point (Type/Address)	Range
Room Temp <sup>1</sup>	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override <sup>2, 3</sup>	BV 8	0 = Normal 1 = Override
Outdoor Temperature <sup>1</sup>	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Outdoor Temp Override <sup>2, 3</sup>	BV 10	0 = Normal 1 = Override
Occupancy <sup>2</sup>	MV 12	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
System Mode RTU <sup>2</sup>	MV 14	1 = Off 2 = Auto 3 = Cool 4 = Heat
Fan Mode <sup>2</sup>	MV 15	1 = On 2 = Auto 3 = Smart
Supply Temperature <sup>4</sup>	AI 16	-40.0°F/-40.0°C to 122.0°F/50.0°C
Keypad Lockout <sup>2</sup>	MV 18	1 = Level 0 2 = Level 1 3 = Level 2
PI Heating Demand	AV 20	0 to 100%
PI Cooling Demand	AV 21	0 to 100%
Economizer Output	AV 22	0 to 100%
Aux	BI 24	0 = Off 1 = On
G Fan <sup>4</sup>	BI 25	0 = Off 1 = On
Y1 Cool <sup>4</sup>	BI 26	0 = Off 1 = On
Y2 Cool <sup>4</sup>	BI 27	0 = Off 1 = On
W1 Heat <sup>4</sup>	BI 28	0 = Off 1 = On
W2 Heat <sup>4</sup>	BI 29	0 = Off 1 = On
DI1 Status <sup>4, 5</sup>	BI 31	0 = Not Activated 1 = Activated
DI2 Status <sup>4, 5</sup>	BI 32	0 = Not Activated 1 = Activated
Local Motion <sup>4</sup>	BI 33	0 = No Motion 1 = Motion
Effective Occupancy <sup>4</sup>	MV 34	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied
Frost Alarm <sup>3, 4, 6</sup>	BI 36	0 = Off 1 = On

**Table 10: TEC2604-4 and TEC2604-4+PIR MS/TP Bus Objects (Part 2 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Filter Alarm <sup>4</sup>	BI 38	0 = Off 1 = On
Service Alarm <sup>4</sup>	BI 39	0 = Off 1 = On
Fan Lock Alarm <sup>4</sup>	BI 40	0 = Off 1 = On
Occupied Heat Setpoint <sup>2, 7</sup>	AV 42	40.0°F/4.5°C to 90.0°F/32.0°C
Occupied Cool Setpoint <sup>2, 7</sup>	AV 43	54.0°F/12.0°C to 100.0°F/37.5°C
Unoccupied Heat Setpoint <sup>2, 7</sup>	AV 44	40.0°F/4.5°C to 90.0°F/32.0°C
Unoccupied Cool Setpoint <sup>2, 7</sup>	AV 45	54.0°F/12.0°C to 100.0°F/37.5°C
Temperature Scale <sup>2</sup>	BV 47	0 = °C 1 = °F
Heating Setpoint Limit <sup>2</sup>	AV 48	40.0°F/4.5°C to 90.0°F/32.0°C
Cooling Setpoint Limit <sup>2</sup>	AV 49	54.0°F/12.0°C to 100.0°F/37.5°C
Heating Lockout Temperature <sup>2</sup>	AV 50	-15.0°F/-26.0°C to 120.0°F/49.0°C
Cooling Lockout Temperature <sup>2</sup>	AV 51	-40.0°F/-40.0°C to 95.0°F/35.0°C
Deadband <sup>2</sup>	AV 52	2.0F°/1.0C° to 4.0F°/2.0C°
Heating CPH <sup>2</sup>	MV 53	1 = 3 CPH 2 = 4 CPH 3 = 5 CPH 4 = 6 CPH 5 = 7 CPH 6 = 8 CPH
Cooling CPH <sup>2</sup>	MV 54	1 = 3 CPH 2 = 4 CPH
Frost Protection <sup>2</sup>	BV 55	0 = Off 1 = On
Aux Contact <sup>2</sup>	BV 56	0 = Normally Open (N.O.) 1 = Normally Closed (N.C.)
Menu Scroll <sup>2</sup>	BV 57	0 = No Scroll 1 = Scroll Active
Password Value	AV 59	0 to 1,000
Power Up Delay <sup>2</sup>	AV 60	10 to 120 Seconds

**Table 10: TEC2604-4 and TEC2604-4+PIR MS/TP Bus Objects (Part 3 of 4)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Temporary Occupancy Time<sup>2</sup></b>	MV 61	1 = 0 Hours 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours
<b>Fan Control<sup>2</sup></b>	BV 62	0 = Off 1 = On
<b>Anticycle<sup>2</sup></b>	MV 63	1 = 0 Minutes 2 = 1 Minute 3 = 2 Minutes 4 = 3 Minutes 5 = 4 Minutes 6 = 5 Minutes
<b>Fan Purge Delay<sup>2</sup></b>	BV 64	0 = Off 1 = On
<b>DI1 Configuration<sup>2</sup></b>	MV 65	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
<b>DI2 Configuration<sup>2</sup></b>	MV 66	1 = None 2 = Rem NSB 3 = RemOVR 4 = Filter 5 = Service 6 = Fan Lock
<b>Proportional Band</b>	MSV 67	1 = 2 (2°F/1.1°C) 2 = 3 (3°F/1.7°C) 3 = 4 (4°F/2.2°C) 4 = 5 (5°F/2.8°C) 5 = 6 (6°F/3.3°C) 6 = 7 (7°F/3.9°C) 7 = 8 (8°F/4.4°C)
<b>Unoccupied Time<sup>4</sup></b>	AV 68	0.5 Hours to 24.0 Hours
<b>Heating Stages<sup>2</sup></b>	MV 73	1 = One Stage 2 = Two Stages
<b>Cooling Stages<sup>2</sup></b>	MV 74	1 = One Stage 2 = Two Stages
<b>Economizer Changeover Setpoint<sup>2</sup></b>	AV 77	14.0°F/-10.0°C to 70.0°F/21.0°C
<b>Economizer Minimum Position<sup>2</sup></b>	AV 78	0 to 100%
<b>Mechanical Cooling<sup>2</sup></b>	BV 79	0 = Off 1 = On

**Table 10: TEC2604-4 and TEC2604-4+PIR MS/TP Bus Objects (Part 4 of 4)**

Point Name	Thermostat Point (Type/Address)	Range
Mixed Air Setpoint <sup>2</sup>	AV 80	50.0°F/10.0°C to 90.0°F/32.0°C
TEC2604-address <sup>8</sup>	Device 76aaa <sup>9</sup>	TEC2604-4 to TEC2604-127

1. This MS/TP Bus object is readable and only writable if the corresponding override is set. (For example, **Room Temp** has a corresponding override object of **Room Temp Override**. This corresponding override object needs to be set to **1 = Override** to be able to write **Room Temp** to a different value.)
2. This MS/TP Bus object is readable and writable.
3. This MS/TP Bus object may automatically release after 10 minutes with no BACnet traffic.
4. This MS/TP Bus object is readable and only writable when out of service.
5. This BI object type status is available even if the configuration is set to **None**.
6. This MS/TP Bus object requires that **Frost Protection** be set to **1 = On**.
7. If one setpoint of a pair of heating and cooling setpoints (for example, **Occupied Heat Setpoint** and **Occupied Cool Setpoint**) is overridden, the other setpoint of the pair may be automatically adjusted by the thermostat controller to maintain the minimum deadband between the two setpoints.
8. The address range actually displays from **0** to **254**. Only choose an address within the **4** to **127** range.
9. The designation **aaa** is the address of the device (from **004** to **127**) on the MS/TP network.

### **TEC26xx-0+PIR Thermostat Controllers**

**Table 11: TEC26xx-0+PIR (Part 1 of 5)**

Point Name	Thermostat Point (Type/Address)	Range
Room Temp	AV 7	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Temp Override	BV 8	0 = Normal 1 = Override
Outdoor Temperature	AV 9	-40.0°F/-40.0°C to 122.0°F/50.0°C
Room Humidity	AV 10	5 to 90%
Room Humidity Override	BV 11	0 = Normal 1 = Override
Supply Temperature	AI 12	-40.0°F/-40.0°C to 122.0°F/50.0°C
Dehumidification Lockout	BV 13	0 = Disabled 1 = Enabled
Sequence of Operation	MSV 15	1 = Cooling Only 2 = Heating Only 3 = Cooling/Reheat 4 = Heating/Reheat 5 = Cooling/Heat4P 6 = Cool/Heat4P/Reheat
System Mode	MSV 16	1 = Off 2 = Auto 3 = Cool 4 = Heat

**Table 11: TEC26xx-0+PIR (Part 2 of 5)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Fan Mode</b>	MSV 17	Available state text and default value depends on Fan Mode Sequence (MV58) value upon device discovery. MSV17 Index function - MSV58 Text Index: 1 = 1 Low - 2 Medium - 3 High 2 = 1 Low - 2 High 3 = 1 Low - 2 Medium - 3 High - 4 Auto 4 = 1 Low - 2 High - 3 Auto 5 = 1 Auto - 2 On
<b>Occupancy Command</b>	MSV 18	1 = Local Occupancy 2 = Occupied 3 = Unoccupied
<b>Keypad Lockout</b>	MSV 19	1 = Level 0 2 = Level 1 3 = Level 2 4 = Level 3 5 = Level 4 6 = Level 5
<b>PI Heating Demand</b>	AV 21	0 to 100%
<b>PI Cooling Demand</b>	AV 22	0 to 100%
<b>Dehumidification Status</b>	BI 23	0 = Off 1 = On
<b>Fan Status</b>	MSV 28	1 = Off 2 = Low 3 = Medium 4 = High
<b>BI 1 Status</b>	BI 29	0 = Deactivated 1 = Activated
<b>BI 2 Status</b>	BI 30	0 = Deactivated 1 = Activated
<b>Local Motion</b>	BI 32	
<b>Effective Occupancy</b>	MSV 33	1 = Occupied 2 = Unoccupied 3 = Temporary Occupied 4 = Stand-by
<b>Window Alarm</b>	BI 35	0 = Off 1 = On
<b>Filter Alarm</b>	BI 36	0 = Off 1 = On
<b>Service Alarm</b>	BI 37	0 = Off 1 = On
<b>Occupied Heat Setpoint</b>	AV 39	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Occupied Cool Setpoint</b>	AV 40	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Stand-by Heat Setpoint</b>	AV 41	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Stand-by Cool Setpoint</b>	AV 42	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Unoccupied Heat Setpoint</b>	AV 43	40.0°F/4.5°C to 90.0°F/32.0°C

**Table 11: TEC26xx-0+PIR (Part 3 of 5)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Unoccupied Cool Setpoint</b>	AV 44	54.0°F/12.0°C to 100.0°F/37.5°C
<b>BI 1 Configuration</b>	MSV 46	1 = None 2 = Rem NSB 3 = Motion N.O. 4 = Motion N.C. 5 = Window
<b>BI 2 Configuration</b>	MSV 47	1 = None 2 = Door Dry 3 = Override 4 = Filter 5 = Service
<b>Menu Scroll</b>	BV 49	0 = No Scroll 1 = Scroll Enabled
<b>Auto Mode Enable</b>	BV 50	0 = Disabled 1 = Enabled
<b>Temperature Scale</b>	BV 51	0 = °C 1 = °F
<b>Pipe Number</b>	MSV 52	1 = 2-Pipe 2 = 4-Pipe
<b>Password Value</b>	AV 56	0 to 1000
<b>Fan Mode Sequence</b>	MSV 57	1 = Low - Medium - High 2 = Low - High 3 = Low - Medium - High - Auto 4 = Low - High - Auto 5 = On - Auto
<b>Heating Setpoint Limit</b>	AV 58	40.0°F/4.5°C to 90.0°F/32.0°C
<b>Cooling Setpoint Limit</b>	AV 59	54.0°F/12.0°C to 100.0°F/37.5°C
<b>Setpoint Type</b>	BV 60	0 = Permanent 1 = Temporary
<b>Setpoint Function</b>	BV 61	0 = Dual Setpoints 1 = Attached Setpoints

**Table 11: TEC26xx-0+PIR (Part 4 of 5)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
<b>Temporary Occupancy Time</b>	MSV 62	1 = 0 Hour 2 = 1 Hour 3 = 2 Hours 4 = 3 Hours 5 = 4 Hours 6 = 5 Hours 7 = 6 Hours 8 = 7 Hours 9 = 8 Hours 10 = 9 Hours 11 = 10 Hours 12 = 11 Hours 13 = 12 Hours 14 = 13 Hours 15 = 14 Hours 16 = 15 Hours 17 = 16 Hours 18 = 17 Hours 19 = 18 Hours 20 = 19 Hours 21 = 20 Hours 22 = 21 Hours 23 = 22 Hours 24 = 23 Hours 25 = 24 Hours
<b>Deadband</b>	AV 63	2°F/1°C to 5°F/2.5°C
<b>Proportional Band</b>	MSV 65	1 = 3 (3°F/1.2°C) 2 = 4 (4°F/1.7°C) 3 = 5 (5°F/2.2°C) 4 = 6 (6°F/2.8°C) 5 = 7 (7°F/3.3°C) 6 = 8 (8°F/3.9°C) 7 = 9 (9°F/5.0°C) 8 = 10 (10°F/5.6°C)
<b>Auto Fan</b>	BV 66	0 = Auto Speed 1 = Auto Speed / Auto Demand
<b>Stand-by Time</b>	AV 67	0.5 Hours to 24 Hours
<b>Unoccupied Time</b>	AV 68	0.0 Hours to 24 Hours
<b>Relative Humidity (RH) Display</b>	BV 70	0 = Disabled 1 = Enabled
<b>RH Setpoint</b>	AV 71	30 to 95%
<b>Dehumidification Hysteresis</b>	AV 72	2 to 20%
<b>Dehumidification Max Cooling</b>	AV 73	20 to 100%
<b>RUI 1 Configuration</b>	MSV 82	0 = None 1 = Filter 2 = Service 3 = COC/NH 4 = COC/NC 5 = COS
<b>RBI 2 Configuration</b>	MSV 83	0 = None 1 = Filter 2 = Service

**Table 11: TEC26xx-0+PIR (Part 5 of 5)**

<b>Point Name</b>	<b>Thermostat Point (Type/Address)</b>	<b>Range</b>
Heat CPH	MSV 84	3 = 3 CPH 4 = 4 CPH 5 = 5 CPH 6 = 6 CPH 7 = 7 CPH 8 = 8 CPH
Cool CPH	MSV 85	3 = 3 CPH 4 = 4 CPH 5 = 5 CPH 6 = 6 CPH 7 = 7 CPH 8 = 8 CPH
Heat NO NC	BV 86	0 = Normally Open 1 = Normally Closed
Cool No NC	BV 87	0 = Normally Open 1 = Normally Closed
Heat Demand Limit	AV 88	0 to 100%
Cool Demand Limit	AV 89	0 to 100%
Pulsed Heat	MSV 90	0 = Off 1 = On 2 = Occupancy Output
RUI 1 Status	BI 91	0 = Deactivated 1 = Activated
RBI 2 Status	BI 92	0 = Deactivated 1 = Activated
Cooling Valve Status	BI 93	0 = Off 1 = On
Heating Valve Status	BI 94	0 = Off 1 = On
Fan Control	MSV 95	0 = On 1 = Off - Auto 2 = Off - All



**Building Efficiency**

507 E. Michigan Street, Milwaukee, WI 53202

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