TEC3000 Color Series Field-Selectable BACnet MS/TP or N2 Networked and Wireless Thermostats Technical Bulletin

Johnson Controls

Contents

Introduction

This document describes how to configure the various wireless and wired TEC3000 Series Thermostats for BACnet MS/TP or N2 networked applications, including how to:

- Connect to the MS/TP or N2 bus and map a thermostat into a network engine
- Add a thermostat
- Add points
- Command and configure from a network engine
- Troubleshoot the thermostat

Product overview

The technologically-advanced TEC3000 Series Thermostats feature a Building Automation System (BAS) BACnet MS/TP or N2 connectivity that enables remote monitoring and programming for efficient space temperature control. The TEC3000 Series Thermostats feature an intuitive user interface with backlit color display that makes setup and operation quick and easy. The programming memory of all TEC3000 Series Thermostats is non-volatile.

In addition, the configuration can be backed up to a USB drive and restored to like models to help expedite the commissioning process. Refer to the *TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide (LIT-12013161)*, *TEC3000 Series Proportional Fan Coil Thermostats Installation Guide (LIT-12013162)*, or *TEC3000 Series Thermostats for Packaged Rooftop and Heat Pump with Economizer Installation Guide (LIT-12013163)* for information on using the USB drive.

The TEC3000 Series Thermostats are BACnet MS/TP, N2, or ZFR Wireless networked devices that provide control of:

- Rooftop units (with or without economizers, dehumidification, or hot gas bypass)
- 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
- Other individual zone equipment using an on/off, floating, or proportional 0 VDC to 10 VDC control input

Proportional Fan Coil and Individual Zone Thermostats

The TEC3000 Series Proportional Fan Coil and Individual Zone Thermostats are field-selectable BACnet MS/TP, N2, or ZFR Wireless networked devices that provide control of:

- Local hydronic reheat valves
- pressure-dependent VAV equipment with or without local reheat
- Two- or four-pipe fan coils
- Cabinet unit heaters
- Other individual zone equipment using a proportional 0 VDC to 10 VDC control input

The networked models feature a BAS BACnet MS/TP, N2, or ZFR Wireless communication capability that enables remote monitoring and programming for efficient space temperature control.

Some models have occupancy-sensing capability built into the device. These thermostats maximize up to 30% energy savings in high-energy usage, light commercial buildings, such as schools and hotels. Savings occur during occupied times by using additional standby setpoints when occupants are not in the room.

All models feature an intuitive UI with backlit display that makes setup and operation quick and easy. Multiple fan configurations are supported for all equipment types.

- Single-speed
- Multi-speed (two or three discrete speeds)
- Variable-speed/EC motors (0 VDC to 10 VDC control)

All models contain a built-in humidity sensor to support dehumidification on two-pipe fan coil units with reheat and four-pipe fan coil units with individual coils or single coil with heating and cooling valves installed. When no heating is required, the thermostats monitors space humidity and activates dehumidification control as necessary. Heat, reheat, or both are used as required to prevent over-cooling while achieving humidity setpoint and maintain the space temperature. For optimal dehumidification performance, use a fan coil unit that has a multi-speed or variable-speed fan.

On/Off or Floating Fan Coil and Individual Zone Thermostats

The TEC3000 Series On/Off or Floating Fan Coil and Individual Zone Thermostats are field-selectable BACnet MS/TP, N2, or ZFR Wireless networked devices that provide control of:

- Local hydronic reheat valves
- Pressure-dependent VAV equipment with or without local reheat
- Two- or four-pipe fan coils
- Cabinet unit heaters
- Other individual zone equipment using an on/off or floating control input

The networked models feature a BAS BACnet MS/TP, N2, or ZFR Wireless communication capability that enables remote monitoring and programming for efficient space temperature control.

Some models have occupancy sensing capability built into the device. These thermostats maximize up to 30% energy savings in high-energy usage, light commercial buildings, such as schools and hotels. Savings occur during occupied times by using additional standby setpoints.

All models feature a UI with backlit color display that makes setup and operation quick and easy. Multiple fan configurations are supported for all equipment types.

- Single-speed
- Multi-speed (two or three discrete speeds)
- Variable-speed/EC motors (0 VDC to 10 VDC control)

All models contain a built-in humidity sensor to support dehumidification on two-pipe fan coil units with reheat and four-pipe fan coil units with individual coils or single coil with heating and cooling valves installed. When no heating is required, the thermostat monitors space humidity and activates dehumidification control as necessary. Heat, reheat, or both are used as required to prevent over-cooling while achieving humidity setpoint and maintain the space temperature. For optimal dehumidification performance, use a fan coil unit with a multi-speed or variable-speed fan.

Packaged Rooftop and Heat Pump with Economizer Thermostats

The TEC3000 Series Packaged Rooftop and Heat Pump with Economizer Thermostats are field-selectable BACnet MS/TP, N2, or ZFR Wireless networked devices that provide control of the following unitary devices:

- Rooftop units (RTUs)
- RTUs with economizers
- RTUs with heat pumps
- RTUs with economizers and heat pumps
- RTUs with hot gas reheat
- RTUs with hot gas reheat and economizers
- RTUs with simple dehumidifier

The networked models feature a BAS BACnet MS/TP, N2, or ZFR Wireless communication capability that enables remote monitoring and programming for efficient space temperature control.

Some models have occupancy sensing capability built into the device. These thermostats maximize up to 30% energy savings in high-energy usage, light commercial buildings, such as schools and hotels. Savings occur during occupied times by using additional standby setpoints.

All models feature an intuitive UI with backlit color display that makes setup and operation quick and easy. Only the single-speed fan configuration is supported for RTU equipment types.

All models contain a build-in humidity sensor to support dehumidification on RTUs with hot gas reheat and RTUs with auxiliary dehumidifier installed. When no heating is required, the thermostat monitors the space humidity and activates dehumidification control as necessary. The thermostat uses heat, reheat, or both as required to prevent over-cooling while it achieves the humidity setpoint and maintains the space temperature.

Model names and code numbers

Table 1: TEC3000 model names and code numbers

Name	Code number	Name	Code number
TEC3012-13	30	TEC3313-14	05
TEC3012-14	31	TEC3322-13	08
TEC3012-16	33	TEC3322-14	09
TEC3013-14	35	TEC3322-16	0B
TEC3022-13	38	TEC3323-14	0D
TEC3022-14	39	TEC3330-13	10
TEC3022-16	3B	TEC3330-14	11
TEC3023-14	3D	TEC3330-16	13
TEC3030-13	40	TEC3331-14	15
TEC3030-14	41	TEC3612-13	18
TEC3030-16	43	TEC3612-14	19
TEC3031-14	45	TEC3612-16	1B
TEC3112-14	49	TEC3613-14	1D
TEC3113-14	4D	TEC3622-13	20
TEC3122-14	51	TEC3622-14	21
TEC3123-14	55	TEC3622-16	23
TEC3130-14	59	TEC3623-14	25
TEC3131-14	5D	TEC3630-13	28
TEC3312-13	00	TEC3630-14	29
TEC3312-14	01	TEC3630-16	2B
TEC3312-16	03	TEC3631-14	2D

Determining correct pairing of CPU board and base board

➤ **Important:** Make sure you attach the cover that corresponds to its correct base. The CPU board number needs to match the Base board number. Otherwise you encounter an operation error after you reattach a cover and base that do not belong together, see Figure 1.

Figure 1: Error code indicating mismatched boards

ⓘ **Note:** The example shown in Figure 1 indicates a TEC3612-16 CPU board that is mounted on the base of a TEC3312-16.

Wireless TEC3000 networks

The TEC3000 includes an embedded wireless router and can only be used on a ZFR182x or ZFR183x Pro Series Wireless Network.

The WRG1830/ZFR183x Pro Series Wireless Field Bus System is similar to the WNC1820/ZFR182x Series wireless system in many ways. But there are several important differences.

- The wireless networks (PANs) formed by the ZFR183x and ZFR182x systems are not compatible.
- The ZFR182x Series Routers and TEC3000 are not field upgradeable to be compatible with the ZFR1830 Series System.

➤ **Important:** ZFR182x Pro Series Wireless System compatible TEC30xx-1x-000 models and ZFR183x Pro Series Wireless System compatible TEC31xx-1x-000 models are not compatible with each other and cannot be used under the same PAN ID (network address).

Table 2: ZFR183x Pro Series indoor transmission ranges

Range type	Transmission distance		
	ZFR to ZFR	TEC to ZFR TEC to TEC	WRZ to ZFR
Recommended	250 ft (75 m)	250 ft (75 m)	50 ft (15.2 m)
Maximum, Line of Sight	1000 ft (304.8 m)	1000 ft (304.8 m)	100 ft (30 m)

In ZFR182x Pro Series networks, place every wireless TEC3000 within 50 ft (15 m) of at least two other TEC3000 or ZFR182x wireless devices.

In ZFR183x Pro Series networks, place every wireless TEC3000 within 250 ft (76.2 m) of at least two other ZFR183x Pro Series wireless TEC3000.

If any wireless TEC3000 is not within 50 ft (15 m) of a ZFR182x Pro Series, or 250 ft (76.2) of a ZFR183x Pro Series system with other compatible wireless TEC, use compatible ZFR182x or ZFR183x Routers as repeaters with applicable accessories to provide multiple wireless data pathways.

ⓘ **Note:** Change the address of the wireless TEC. The address on the wireless TEC is invalid from the factory so it must be changed when installed.

A wireless network requires a network coordinator/gateway. See the *WNC1800/ZFR182x Pro Series Wireless Field Bus System Technical Bulletin (LIT-12012356)* and *WRG1830/ZFR183x Pro Series Wireless Field Bus System Technical Bulletin (LIT-12013553)* for more information about the layout of a ZFR182x or ZFR183x Pro Series Network.

Configuring a wired TEC3000 for MS/TP or N2 bus

The TEC3000 supports network connectivity to a BAS using a BACnet MS/TP or N2 bus. You select BACnet MS/TP or N2 communication through the software.

Wiring the network

N2 and BACnet MS/TP protocols use the same physical connections for an RS-485 connection, that requires three conductors:

- NET +
- NET -
- NET COM

Connect the TEC3000 in line with other devices on the network.

End-of-Line termination

When the TEC3000 is the last device on the bus, make sure the end-of-line (EOL) switch on the I/O board is in the On position.

ⓘ **Note:** If the EOL switch is not on the I/O board, the thermostat is a stand-alone model.

Figure 2: EOL switch positions
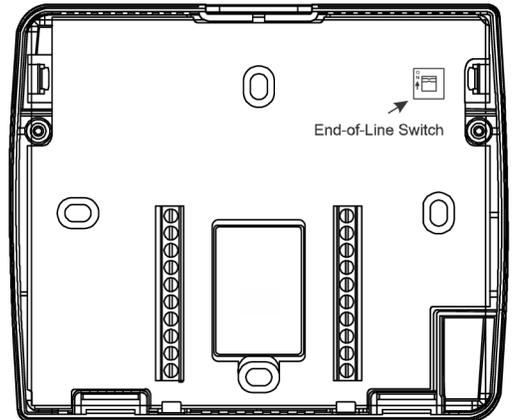
Setting the network parameters

All network configuration is done through the software. On the home screen, click the menu icon. Scroll down to Network Setup for the network settings. Out of the box, the thermostat is configured in BACnet MS/TP mode. To change to the N2 mode, select FC Comm Mode and change to N2. This change restarts the device when you click the save icon.

Table 3: Setup menus

Menu parameter	Description
BACnet Instance ID	This is the instance ID of the device on the BACnet MS/TP bus. BACnet MS/TP systems use the instance ID for identification of the device. It can be set from 1 to 4,194,302 and is unique to that site. The default is 1.
BACnet Device Address	This is the physical MAC address of the BACnet MS/TP device on the bus. It can be set from 4 to 127. Two devices on the same bus cannot have the same BACnet MS/TP device address. The default is 4.
MSTP Baud Rate	This is the baud rate that the TEC communicates on the network. The default value is Auto, which allows the device to automatically detect the baud rate of the BACnet MS/TP bus and operate at that speed. An incorrect value causes the device to not communicate on the network, and can potentially cause the network to fail. Options for this setting are Auto, 1,200, 9,600, 19,200, 38,400, and 76,800 Baud.

Table 3: Setup menus

Menu parameter	Description
BACnet Encoding Type	This is the method of data encoding and is used by the BACnet MS/TP bus. The default value, ISO 10646 (UCS-2), is the encoding used by the Metasys® platform. When operating on a third-party BAS, refer to the documentation provided with the BAS for the correct encoding type.
N2 Device Address	This is the physical MAC address of the N2 device on the bus and can be set from 1 to 255. Two devices on the same bus cannot have the same N2 device address.

Connecting the MS/TP or N2 bus

About this task:
To connect the MS/TP or N2 bus, complete the following steps:

1. Set the MS/TP or N2 address of the TEC3000 Series BACnet MS/TP or N2 Network Temperature and Humidity Thermostat according to the engineering drawings.

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

    ⓘ **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).

Result
Configure the thermostat for automatic baud rate detection. Do not exceed the maximum number of devices allowed on a field bus. Ensure that the wiring terminations are set correctly and that all communication wiring is daisy-chained with no T taps.

MS/TP or N2 thermostat mapping

Preparation

About this task:
Before you map a TEC3000 Series field-selectable BACnet MS/TP or N2 Network Thermostat into a network engine:

1. Decide which points within the thermostat need to be mapped. Only map the points that need to be viewed or commanded on a regular basis. Excessive point mapping lowers system performance. Suggested points for mapping include Zone Temp, System Mode, Fan Mode, Manual Occupancy Mode, Occupied Heating Setpoint, Occupied Cooling Setpoint, Unoccupied Heating Setpoint, and Unoccupied Cooling Setpoint. In addition, alarm points can be mapped if they are used, and other points can be mapped if required. Use the Engineering view of the MS/TP trunk on the network engine to examine infrequently used points.

ⓘ   **Note:** Set all thermostat configuration parameters as required before you map the points into the network engine. If you alter any thermostat configuration parameters after you mapped the points into the thermostat, re-map all points individually, because some exposed points might have been added or removed. Be careful when you map configuration parameters, because they should only be mapped if the operator is fully familiar with their use.

2.   Verify that a Field bus is defined in the network engine. BACnet MS/TP or N2 devices attach to a Field bus. Refer to the *Metasys N2 Communication Bus Technical Bulletin (LIT-636018)* for instructions on how to define a Field bus.

3.   For Metasys system software earlier than Release 4.0, verify that a BACnet Integration is defined for the Field bus. The thermostats are mapped as BACnet MS/TP devices under a Field bus BACnet Integration. Refer to the *BACnet Controller Integration with NAE/NCE Technical Bulletin (LIT-1201531)* or the *Metasys N2 Communication Bus Technical Bulletin (LIT-636018)* for instructions on how to define a BACnet Integration.

ⓘ   **Note:** Metasys system Release 7.0.7 or later software is required for correct support of text strings on all network points.

Result
You can now map the thermostat and the required points inside the thermostat.

Adding a thermostat

You must add the thermostat before you can map its points. To add the thermostat, select either the Field or N2 bus, depending on the selected configuration, and choose Field Device from the Insert menu.

Assisted Definition using Auto Discovery is the easiest way to add a new thermostat online; however, this method requires that the thermostat that you want to add is connected and ready to communicate. Device addresses must be unique from 4 to 127 for the BACnet MS/TP and 1 to 255 for the N2 network.

ⓘ   **Note:** Do not use the MAP-ALL functionality when you add the thermostat to a Supervisory device, because this adds all TEC3000 Trend Objects which cannot be viewed in the Supervisory device. These trends update every 15 min which could cause issues in the Supervisory device.

Adding BACnet MS/TP points

You must map the required points under the thermostat device. To map the points, select the thermostat device under the BACnet Integration (if required, refresh the tree view to see a newly added thermostat device) and choose Field Point from the Insert menu.

Assisted Definition using Auto Discovery is the easiest way to add new points online; however, this function requires that the thermostat that you want to map is connected and ready to communicate. When mapping points offline, 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.

Adding N2 points

You must map the required points under the thermostat device. To map the points, select the thermostat device under the N2 Integration (if required, refresh the tree view to see a newly added thermostat device) and choose Field Point from the Insert menu.

Then you need to add the appropriate PRN file based on the TEC model in use as an extension to the device. Multi-state points are defined as ADI points in the PRN file. You must map these using either MI or MO network engine object types. Following the field point addition, you may need

to adjust object units units and enum set values. See Table 4, Table 5 or Table 6 for the enum set values.

MS/TP or N2 bus points tables

The bold items in the unit (IP), enum set/range columns of Table 4, Table 5, and Table 6 indicate the default values. A default is not applicable where no default value is provided.

Thermostats

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Control Mode	SYSTEM-MODE	MV	29500	MI, ADI	1	TEC3000 Unit Control Mode 1. **Auto** 2. Cooling 3. Heating
Unit Enable	UNITEN-MODE	MV	29501	MI, ADI	2	Shutdown/Enable 1. **Shutdown** 2. Enable
Occupied Cooling Setpoint	CLGOCC-SP	AV	29502	AO, ADF	1	60°F to 100°F (15.05°C to 37.78°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Occupied Heating Setpoint	HTGOCC-SP	AV	29503	AO, ADF	2	45°F to 85°F (7.22°C to 29.44°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Unoccupied Cooling Setpoint	CLGUNOCC-SP	AV	29504	AO, ADF	3	60°F to 100°F (15°C to 38°C) Default: 80°F (26.6°C)
Unoccupied Heating Setpoint	HTGUNOCC-SP	AV	29505	AO, ADF	4	45°F to 85°F (7°C to 30°C) Default: 65°F (18.3°C)
Standby Cooling Setpoint	CLGSTBY-SP	AV	29506	AO, ADF	5	60°F to 100°F (15°C to 38°C) Default: 74°F (23.3°C)
Standby Heating Setpoint	HTGSTBY-SP	AV	29507	AO, ADF	6	45°F to 85°F (7°C to 30°C) Default: 66°F (18.8°C)
Setpoint Offset	WC-ADJ	AV	29508	AO, ADF	7	(Negative) Max Setpoint Offset. *When Occ Setpoint Select = Setpoint Offset. Otherwise, see Table 11 for constraints Default: 0
Hold/Run	HOLDRUN-MODE	MV	29509	MI, ADI	3	Hold/Run 1. Hold 2. **Run**
Humidity Setpoint	ZNH-SP	AV	29510	AO, ADF	8	20% RH to 80% RH Default: 50% RH
Network Override Outdoor Air Temperature	NET-OAT	AV	29513	AO, ADF	11	-50°F to 125°F (-46°C to 52°C)
Network Override Outdoor Air Humidity	NET-OAH	AV	29514	AO, ADF	12	0% RH to 100% RH

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Network Override Supply Air Temperature	NET-SAT	AV	29515	AO, ADF	13	0°F to 150°F (-18°C to 65°C)
Network Override Zone Humidity	NET-ZNH	AV	29516	AO, ADF	14	0% RH to 100% RH
Reset PID Tuning	TUNING-RESET	MV	29517	MI, ADI	4	No/Yes 1. **No** 2. Yes
Manual Occupancy Mode	OCCOVRD-MODE	MV	29518	MI, ADI	5	UI Occ Override 1. **No Override** 2. Occupied 3. Unoccupied
Supervisor Occupancy	NET-OCC	MV	29519	MI, ADI	6	Occ Schedule 1. Occupied 2. **Unoccupied** 3. Standby 4. Not set
Occupancy Schedule Source	OCC-CONFIG	MV	29520	MI, ADI	7	SE Occupancy Mode 1. **Schedule** 2. External
Changeover Mode	CGOVR-MODE	MV	29523	MI, ADI	8	TEC3000 Unit Control Mode 1. **Auto** 2. Cooling 3. Heating
Passcode	PASSCODE[1]	AV	29522	AO, ADF	15	00000 to 99999
Fan Mode	FAN-MODE	MV	29524	MI, ADI	9	TEC3000 Fan Mode 1. On 2. **Auto** 3. Smart *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed
Fan Override	FANOVRD-MODE	MV	29525	MI, ADI	10	UI Fan Override 1. On 2. **Auto** 3. Quiet *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Aux Mode	AUX-MODE	MV	29527	MI, ADI	11	TEC3000 Aux Mode 1. **Not Used** 2. Occupied NO 3. Occupied NC 4. Occupied Fan NO 5. Occupied FAN NC 6. On 7. Off
Units	TEMP-UNITS	MV	29528	MI, ADI	12	Unit Set 1. **IP** 2. SI
Max Setpoint Offset	MAXSP-OFFSET	AV	29529	AO, ADF	29	0 to 20 delta °F (0 to 11 delta °C) Default: 5 delta °F (2.8 delta °C)
Changeover Setpoint	CGOVR-SP	AV	29530	n/a	n/a	40°F to 200°F (4°C to 93°C) *This point only shows when Supply Temp Type = Analog Sensor Default: 55°F (12.7°C)
Unit Status	UNIT-S	MV	29700	MI, ADI	13	TEC3000 Detailed Control Status2 1. System Fault 2. Airflow Fault 3. Open Window 4. **Control Off** 5. Unreliable Temperature 6. Dehumidification 7. Idle 8. Cooling 9. Heating 10. Cooling Unavailable 11. Heating Unavailable 12. Cooling Unavailable due to Changeover 13. Cooling Unavailable due to OA Temp 14. Cooling Unavailable due to Control Mode 15. Heating Unavailable due to Changeover 16. Heating Unavailable due to OA Temp 17. Heating Unavailable due to Control Mode 18. Load Shed Active 19. Dehumidifying – Reheat 20. Dehumidifying – Fan Only 21. Dehum Unavail By Dew Point
Operational Space Temperature	EFF-ZNT	AV	29701	AO, ADF	16	n/a
Zone Humidity	EFF-ZNH	AV	29702	AO, ADF	17	n/a

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Supply Air Temperature	EFF-SAT	AV	29703	AO, ADF	18	n/a
Operational Outdoor Air Temperature	EFF-OAT	AV	29704	AO, ADF	19	n/a
Active Setpoint	EFF-SETPOINT	AV	29705	AO, ADF	20	n/a
CV Operating Cooling Setpoint	EFFCLG-SP	AV	29706	AO, ADF	21	n/a
CV Operating Heating Setpoint	EFFHTG-SP	AV	29707	AO, ADF	22	n/a
Occupancy Status	EFF-OCC	MV	29708	MI, ADI	14	TEC3000 Occupancy Status 1. Occupied 2. Temp Occupancy 3. Unoccupied 4. Standby 5. Occupied-Override 6. Unoccupied-Override
Occupancy Input Source	OCCSOURCE-S	MV	29709	MI, ADI	15	TEC3000 Occupancy Source 1. Occupancy BI 2. Temp Occ BI 3. Temp Occ 4. Occ Override 5. **Local Schedule** 6. BAS Schedule 7. Occupancy Sensor
Changeover State	CGOVR-S	MV	29572	MA, ADI	16	TEC3000 Changeover Status 1. Changeover Disabled 2. Cooling Mode 3. Heating Mode 4. Supply Temperature Unreliable *This point only shows if Unit Type = 2-pipe or VAV.
Fan % Command	FANSPD-%	AV	29711	AO, ADF	23	0% to 100%
Fan Speed	FANSPD-S	MV	29712	MI, ADI	18	Supply Fan Status 1. Off 2. On 3. Low 4. Medium 5. High
Cool/Dehum PID Cmd	CLGPID-%	AV	29714	AO, ADF	25	0% to 100%
Heat PID Cmd	HTGPID-%	AV	29717	AO, ADF	26	0% to 100%
Reheat PID Cmd	RHPID-%	AV	29720	AO, ADF	27	0% to 100% *This point only shows when Reheat Installed = Yes
Load Shed Active	LOADSHED-EN	MV	29728	MI, ADI	19	No/Yes 1. No 2. Yes

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Load Shed Rate Limit	LOADSHED-RL	AV	29725	AO, ADF	30	0°F to 1°F/min (0°C to 0.5°C/min) Default: 0.1°F (0.56°C)
Load Shed Adjust	LOADSHED-ADJ	AV	29726	AO, ADF	31	0 to 8 delta °F (0 to 5 delta °C) Default: 4 delta °F (2.2 delta °C)
Occupancy Override Duration	TEMPOCC-LEN	AV	29727	AO, ADF	32	0 min to 300 min Default: 120 min
Lockout Level	LOCK-LVL	MV	29531	MI-ADI	20	States (0-2) 1. **State 0** 2. State 1 3. State 2
Unoccupied Off Delay	UNOCC-OFF-DLY	AV	29532	AO, ADF	33	0 min to 10 min Default: 10 min
Heat Prop Band	HTG-PROP-BAND	AV	29535	AO, ADF	34	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Heat Integral Time	HTG-INT-TIME	AV	29536	AO, ADF	35	300 seconds to 1600 seconds Default: 300 seconds
Heat Process Range	HTG-PROC-RANGE	AV	29537	AO, ADF	36	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Heat Saturation Time	HTG-SAT-TIME	AV	29538	AO, ADF	37	60 seconds to 900 seconds Default: 300 seconds
Heat Time Constant	HTG-TIME-CONST	AV	29539	AO, ADF	38	360 seconds to 1440 seconds Default: 360 seconds
Heat Process Dead Time	HTG-DEAD-TIME	AV	29540	AO, ADF	39	20 seconds to 120 seconds Default: 20 seconds
Heat Period	HTG-PERIOD	AV	29541	AO, ADF	40	30 seconds to 120 seconds Default: 60 seconds
Cool Prop Band	CLG-PROP-BAND	AV	29542	AO, ADF	41	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Cool Integral Time	CLG-INT-TIME	AV	29543	AO, ADF	42	300 seconds to 1600 seconds Default: 300 seconds
Cool Process Range	CLG-PROC-RANGE	AV	29544	AO, ADF	43	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Cool Saturation Time	CLG-SAT-TIME	AV	29545	AO, ADF	44	60 seconds to 900 seconds Default: 300 seconds
Cool Time Constant	CLG-TIME-CONST	AV	29546	AO, ADF	45	360 seconds to 1440 seconds Default: 360 seconds
Cool Process Dead Time	CLG-DEAD-TIME	AV	29547	AO, ADF	46	20 seconds to 120 seconds Default: 20 seconds
Cool Period	CLG-PERIOD	AV	29548	AO, ADF	47	30 seconds to 120 seconds Default: 60 seconds
Deadband	DEADBAND	AV	29556	AO, ADF	55	1.4 to 3 delta °F (0.78 to 1.66 delta °C) Default: 2 delta °F (1.12 delta °C)

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Min Heating Setpoint	MINHTG-SP	AV	29559	AO, ADF	56	45°F (7.22°C) to Max Heating Setpoint Present Value[2] *This point only shows when Occ Setpoint Select = Min and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 60°F (15.5°C)
Max Heating Setpoint	MAXHTG-SP	AV	29560	AO, ADF	57	Present value of Min Heating Setpoint (MINHTG-SP) to present value of Min Cooling Setpoint (MINCLG-SP)minus 1[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Min Cooling Setpoint	MINCLG-SP	AV	29561	AO, ADF	58	Present value of Max Heating Setpoint (MAXHTG-SP) plus 1 to present value of Max Cooling Setpoint (MAXCLG-SP)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Max Cooling Setpoint	MAXCLG-SP	AV	29562	AO, ADF	59	Min Cooling Setpoint present to 100°F (37.78°C)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 80°F (26.6°C)
Occ Setpoint Select	OCCSP-SEL	MV	29563	AO, ADF	60	Occ Setpoint Select 1. **Setpoint Offset** 2. Min and Max Setpoint
Min Setpoint	MIN-SP	AV	29564	AO, ADF	61	45°F to 85°F (7°C to 30°C)[3] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 45°F (7°C)
Max Setpoint	MAX-SP	AV	29565	AO, ADF	62	60°F to 100°F (16°C to 38°C)[3] *This point only shows when Occ Setpoint Select = Min and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 85°F (29.4°C)
Heat Cool Setpoint Mode	HTGCLGSP-MODE	MV	29566	MI, ADI	24	Heat Cool Setpoint Mode 1. Common Setpoint 2. **Individual Setpoints**

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Common Setpoint	COMMON-SP	AV	29567	AO, ADF	62	55°F to 90°F (12.77°C to 32.22°C) Default: 72°F (22.2°C)
Fan Mode 2	FAN-MODE2	MV	29568	MI, ADI	27	TEC3000 Fan Mode 2 1. **Auto** 2. Smart 3. Low 4. Medium 5. High *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is multispeed
Fan Override 2	FAN-OVRD2	MV	29569	MI, ADI	28	UI Fan Override 2 1. **Auto** 2. Quiet 3. Low 4. Medium 5. High *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is multispeed
Temp Control Setup	TEMPCTRL-SETUP	MV	29533	MI, ADI	21	TEMP_CONTROL_SETUP 1. **Automatic PID Tuning** 2. Deadband Override 3. Manual PID Tuning 4. On Off Control (available on units with single-speed fan and On/Off actuators configured)
Control State	TEMPCTRL-SETUP2	MV	29570	MI, ADI	26	TEMP_CONTROL_SETUP_SUBSET 1. **Automatic PID Tuning** 2. Deadband Override 3. Manual PID Tuning (available on units with a multi-speed, variable speed fan, or floating actuators configured)
Network Override Zone Temperature	NET-ZNT	AV	29571	AO, ADF	63	-50°F to 120°F (-45°C to 49°C)
Signal Strength	Signal Strength	MV	29724	n/a	n/a	Wireless Signal Strength 1. None 2. Weak 3. Average 4. Strong
PAO1 Output / Cooling Valve % Command	CLG-O	AO	86914	AO, AO	1	0% to 100%
PAO2 Output / Heating Valve % Command	HTG-O	AO	86915	AO, AO	2	0% to 100%

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
AO1 Output / Fan Speed Percent Command	VSF-O	AO	86905	AO, AO	3	0% to 100%
BO1 Command / BO1 Cool NO/ Open[4]	CLGO-C	BO	86908	BO, BO	1	Inactive/Active 1. Inactive 2. Active
BO2 Command / BO2 Fan Low Command	FANL-C	BO	86909	BO, BO	2	Inactive/Active 1. Inactive 2. Active
BO3 Command / BO3 Fan Medium Command	FANM-C	BO	86910	BO, BO	3	Inactive/Active 1. Inactive 2. Active
BO4 Command / BO4 Fan High Command	FANH-C	BO	86911	BO, BO	4	Inactive/Active 1. Inactive 2. Active
BO5 Command / BO5 Heat NO/ Open[4]	HTGO-C	BO	86912	BO, BO	5	Inactive/Active 1. Inactive 2. Active
BO6 Command / BO6 Cool NC/Close[5]	CLGC-C	BO	87101	BO, BO	6	Inactive/Active 1. Inactive 2. Active
BO7 Command / BO7 Heat NC/ Close[5]	HTGC-C	BO	87102	BO, BO	7	Inactive/Active 1. Inactive 2. Active
AUX Command / BO8 AUX	AUX	BO	86913	BO, BO	8	Inactive/Active 1. Inactive 2. Active
BI1 Sensor / Binary Input 1	BI1-S	BI	30827	BI, BI	1	Inactive/Active 1. Inactive 2. Active
BI2 Sensor / Binary Input 2	BI2-S	BI	30828	BI, BI	2	Inactive/Active 1. Inactive 2. Active
Schedule	Schedule	Schedule	10133	n/a	n/a	n/a
Local Occupancy	LOCAL-OCC	MV	6	n/a	n/a	Occ Schedule 1. Occupied 2. Unoccupied 3. Standby 4. **Not Set**
Calendar	Calendar	Calendar	10019	n/a	n/a	n/a
Dehumidification Enable	DEHUM-ENABLE	MV	29736	MI, ADI	36	No/Yes 1. **No** 2. Yes *This point only shows if the unit type is 2-pipe or 4-pipe or TEC controls the RTU

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Unocc Dehum Enable	UNOCC-DEHUM-ENABLE	MV	29737	MI, ADI	37	No/Yes 1. **No** 2. Yes *This point only shows if Dehumidification Enable = Yes
Chilled Water Supply Temperature	EFF-CHWST	AV	29734	AO, ADF	69	n/a
Chilled Water Supply Temperature Setpoint	CHWST-SP	AV	29735	AO, ADF	70	0°F to 250°F (-17°C to 121°C) *This point only shows if there is neither a CHWST sensor wired to TEC nor a Network override value setup and Dehum Enable is set to Enable Default: 44°F (6.6°C)
Network Override Chilled Water Supply Temperature	NET-CHWST	AV	29736	AO, ADF	71	0°F to 250°F (-17°C to 121°C)
Outdoor Air Humidity	EFF-OAH	AV	29737	AO, ADF	72	n/a
Cooling Valve Minimum Position	CLGVLV-MIN-POS	AV	29738	AO, ADF	73	50% to 75% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils or 2-pipe with reheat and Dehum Enable is set to Enable Default: 75%
Cooling Valve Starting Position	CLGVLV-START-POS	AV	29739	AO, ADF	74	50% to 100% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils or 2-pipe with reheat and Dehum Enable is set to Enable Default: 100%
Heating Valve Starting Position	HTGVLV-START-POS	AV	29740	AO, ADF	75	50% to 100% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils and Dehum Enable is set to Enable Default: 50%
Coil Tempering Time	COIL-TPR-TIME	AV	29741	AO, ADF	76	3 min to 10 min *This point only shows if Dehumidification Sequence Mode is setup as Single Coil and Dehum Enable is set to Enable Default: 5 min

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Dehumidification Overcool Limit	DEHUM-OVRCLG-LIM	AV	29742	AO, ADF	77	1 to 5 delta °F (xx delta °C) *This point only shows if Dehumidification Sequence Mode is setup as Single Coil and Dehum Enable is set to Enable Default: 2 delta °F (1.12 delta °C)
Dehumidification Sequence Mode	4PIPE-DEHUM-SEQ-MODE	MV	29729	MI, ADI	29	TEC3000 FCU Dehum Seq Mode 1. **Individual Coils** 2. Single Coil *This point only shows if Unit Type is 4-pipe and Dehum Enable is set to Enable
Dehumidification Sequence Mode	2PIPE-DEHUM-SEQ-MODE	MV	29730	MI, ADI	30	TEC3000 Dehum Sequence 1. Individual Coils 2. Single Coil 3. **2-Pipe With Reheat** *This point only shows if Unit Type is 2-pipe and Dehum Enable is set to Enable
Scheduled Circulation Enable	SCH-CIR-EN	MV	29731	MI, ADI	31	Disable/Enable 1. **Disable** 2. Enable
Scheduled Circulation Only When Occupied	SCH-CIR-ONLY-OCC	MV	29732	MI, ADI	32	Disable/Enable 1. **Disable** 2. Enable *This point shows Unreliable if Scheduled Circulation Enable is set to Disable
Minimum Hourly Fan Runtime	MIN-HR-FAN	AV	29743	AO, ADF	78	5 min to 30 min *This point shows Unreliable if Scheduled Circulation Enable is set to Disable Default: 5 min
Variable Speed Fan Circulation Setpoint	VAR-FAN-CIR-SP	AV	29744	AO, ADF	79	0% to 100% *This point only shows if Fan Type is Variable Speed and Scheduled Circulation Enable is True Default: 25%
Multi-Speed Fan Circulation Setpoint	MULTI-FAN-CIR-SP	MV	29733	MI, ADI	33	Sensitivity 1. **Low** 2. Medium 3. High *This point only shows if Supply Fan Type is Multi Speed and Scheduled Circulation Enable is True

Table 4: Points for on/off or floating fan coil models TEC3612-1x-000, TEC3613-1x-000, TEC3012-1x-000, TEC3013-1x-000, TEC3112-14-000, and TEC3113-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Medium Fan On Diff Sp	MED-FAN-ON-SP	AV	29900	AO, ADF	80	1 to 2 delta °F (0.55 to 1.1 delta °C) *This point only shows when Fan Type is Multi Speed and Temp Control Setup is On Off Control Default: 1.5 delta °F (0.84 delta °C)
Medium Fan Off Diff Sp	MED-FAN-OFF-SP	AV	29901	AO, ADF	81	0 to 1 delta °F (0 to 0.55 delta °C) *This point only shows when Fan Type is Multi Speed and Temp Control Setup is On Off Control Default: 0.5 delta °F (0.28 delta °C)
High Fan On Diff Sp	HIGH-FAN-ON-SP	AV	29902	AO, ADF	82	1 to 3 delta °F (0.55 to 1.67 delta °C) *This point only shows when Fan Type is Multi Speed and Temp Control Setup is On Off Control Default: 2 delta °F (1.12 delta °C)
High Fan Off Diff Sp	HIGH-FAN-OFF-SP	AV	29903	AO, ADF	83	0.5 to 2 delta °F (0.28 to 1.1 delta °C) *This point only shows when Fan Type is Multi Speed and Temp Control Setup is On Off Control Default: 1 delta °F (0.56 delta °C)

1   The passcode cannot be changed from BAS. The passcode can only be defined by the local display or through Mobile Access Portal (MAP) version 4.0 or later.
2   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Individual Setpoint.
3   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Common Setpoint.
4   This is the output used when wired to the Normally Open (N.O.) terminal.
5   This is the output used when wired to the Normally Closed (N.C.) terminal.

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Control Mode	SYSTEM-MODE	MV	29500	MI, ADI	1	TEC3000 Unit Control Mode 1. **Auto** 2. Cooling 3. Heating
Unit Enable	UNITEN-MODE	MV	29501	MI, ADI	2	Shutdown/Enable 1. **Shutdown** 2. Enable
Occupied Cooling Setpoint	CLGOCC-SP	AV	29502	AO, ADF	1	60°F to 100°F (15.05°C to 37.78°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Occupied Heating Setpoint	HTGOCC-SP	AV	29503	AO, ADF	2	45°F to 85°F (7.22°C to 29.44°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Unoccupied Cooling Setpoint	CLGUNOCC-SP	AV	29504	AO, ADF	3	60°F to 100°F (15°C to 38°C) Default: 80°F (26.6°C)
Unoccupied Heating Setpoint	HTGUNOCC-SP	AV	29505	AO, ADF	4	45°F to 85°F (7°C to 30°C) Default: 65°F (18.3°C)

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Standby Cooling Setpoint	CLGSTBY-SP	AV	29506	AO, ADF	5	60°F to 100°F (15°C to 38°C) Default: 74°F (23.3°C)
Standby Heating Setpoint	HTGSTBY-SP	AV	29507	AO, ADF	6	45°F to 85°F (7°C to 30°C) Default: 66°F (18.8°C)
Setpoint Offset	WC-ADJ	AV	29508	AO, ADF	7	(Negative) Max Setpoint Offset. *When Occ Setpoint Select = Setpoint Offset. Otherwise, see Table 11 for constraints Default: 0
Hold/Run	HOLDRUN-MODE	MV	29509	MI, ADI	3	Hold/Run 1. Hold 2. **Run**
Dehumidification	ZNH-SP	AV	29510	AO, ADF	8	20% RH to 80% RH Default: 50%
Network Override Outdoor Air Temperature	NET-OAT	AV	29513	AO, ADF	11	-50°F to 125 °F (-46°C to 52 °C)
Network Override Outdoor Air Humidity	NET-OAH	AV	29514	AO, ADF	12	0% RH to 100% RH
Network Override Supply Air Temperature	NET-SAT	AV	29515	AO, ADF	13	0°F to 150°F (-18°C to 65°C)
Network Override Zone Humidity	NET-ZNH	AV	29516	AO, ADF	14	0% RH to 100% RH
Reset PID Tuning	TUNING-RESET	MV	29517	MI, ADI	4	No/Yes 1. **No** 2. Yes
Manual Occupancy Mode	OCCOVRD-MODE	MV	29518	MI, ADI	5	UI Occ Override 1. **No Override** 2. Occupied 3. Unoccupied
Supervisory Occupancy	NET-OCC	MV	29519	MI, ADI	6	Occ Schedule 1. Occupied 2. **Unoccupied** 3. Standby 4. Not set
Occupancy Schedule Source	OCC-CONFIG	MV	29520	MI, ADI	7	SE Occupancy Mode 1. **Schedule** 2. External
Changeover Mode	CGOVR-MODE	MV	29523	MI, ADI	8	TEC3000 Unit Control Mode 1. **Auto** 2. Cooling 3. Heating
Passcode	PASSCODE[1]	AV	29522	AO, ADF	15	00000 to 99999

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Fan Mode	FAN-MODE	MV	29524	MI, ADI	9	TEC3000 Fan Mode 1. On 2. **Auto** 3. Smart *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed
Fan Override	FANOVRD-MODE	MV	29525	MI, ADI	10	UI Fan Override 1. On 2. **Auto** 3. Quiet *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed
Aux Mode	AUX-MODE	MV	29527	MI, ADI	11	TEC3000 Aux Mode 1. **Not Used** 2. Occupied NO 3. Occupied NC 4. Occupied Fan NO 5. Occupied Fan NC 6. On 7. Off
Units	TEMP-UNITS	MV	29528	MI, ADI	12	Unit Set 1. **IP** 2. 2 -SI
Max Setpoint Offset	MAXSP-OFFSET	AV	29529	AO, ADF	29	0 to 20 delta °F (0 to 11 delta °C) Default: 5 delta °F (2.8 delta °C)
Changeover Setpoint	CGOVR-SP	AV	29530	n/a	n/a	40°F to 200°F (4°C to 93°C) *This point only shows when Supply Temp Type = Analog Sensor Default: 55°F (12.7°C)

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Unit Status	UNIT-S	MV	29700	MI, ADI	13	TEC3000 Detailed Control Status2 1. System Fault 2. Airflow Fault 3. Open Window 4. **Control Off** 5. Unreliable Temperature 6. Dehumidification 7. Idle 8. Cooling 9. Heating 10. Cooling Unavailable 11. Heating Unavailable 12. Cooling Unavailable due to Changeover 13. Cooling Unavailable due to OA Temp 14. Cooling Unavailable due to Control Mode 15. Heating Unavailable due to Changeover 16. Heating Unavailable due to OA Temp 17. Heating Unavailable due to Control Mode 18. Load Shed Active 19. Dehumidifying – Reheat 20. Dehumidifying – Fan Only 21. Dehum Unavail By Dew Point
Operational Space Temperature	EFF-ZNT	AV	29701	AO, ADF	16	n/a
Zone Humidity	EFF-ZNH	AV	29702	AO, ADF	17	n/a
Supply Air Temperature	EFF-SAT	AV	29703	AO, ADF	18	n/a
Operational Outdoor Air Temperature	EFF-OAT	AV	29704	AO, ADF	19	n/a
Active Setpoint	EFF-SETPOINT	AV	29705	AO, ADF	20	n/a
CV Operating Cooling Setpoint	EFFCLG-SP	AV	29706	AO, ADF	21	n/a
CV Operating Heating Setpoint	EFFHTG-SP	AV	29707	AO, ADF	22	n/a
Occupancy Status	EFF-OCC	MV	29708	MI, ADI	14	TEC3000 Occupancy Status 1. Occupied 2. Temp Occupancy 3. Unoccupied 4. Standby 5. Occupied-Override 6. Unoccupied-Override

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Occupancy Input Source	OCCSOURCE-S	MV	29709	MI, ADI	15	TEC3000 Occupancy Source 1. Occupancy BI 2. Temp Occ BI 3. Temp Occ 4. Occ Override 5. **Local Schedule** 6. BAS Schedule 7. Occupancy Sensor
Fan % Command	FANSPD-%	AV	29711	AO, ADF	23	0% to 100%
Fan Speed	FANSPD-S	MV	29712	MI, ADI	18	Supply Fan Status 1. Off 2. On 3. Low 4. Medium 5. High
Cool/Dehum PID Cmd	CLGPID-%	AV	29714	AO, ADF	25	0% to 100%
Heat PID Cmd	HTGPID-%	AV	29717	AO, ADF	26	0% to 100%
Reheat PID Cmd	RHPID-%	AV	29720	AO, ADF	27	0% to 100% *This point only shows when Reheat Installed = Yes
Load Shed Active	LOADSHED-EN	MV	29728	MI, ADI	19	No/Yes 1. **No** 2. Yes
Load Shed Rate Limit	LOADSHED-RL	AV	29725	AO, ADF	30	0°F to 1°F/min (0°C to 0.5°C/min) Default: 0.1°F (0.56°C)
Load Shed Adjust	LOADSHED-ADJ	AV	29726	AO, ADF	31	0 to 8 delta °F (0 to 5 delta °C) Default: 4 delta °F (2.2 delta °C)
Occupancy Override Duration	TEMPOCC-LEN	AV	29727	AO, ADF	32	0 min to 300 min Default: 120 min
Lockout Level	LOCK-LVL	MV	29531	MI, ADI	20	States (0 to 2) 1. **State 0** 2. State 1 3. State 2
Unoccupied Off Delay	UNOCC-OFF-DLY	AV	29532	AO, ADF	33	0 min to 10 min Default: 10 min
Heat Prop Band	HTG-PROP-BAND	AV	29535	AO, ADF	34	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Heat Integral Time	HTG-INT-TIME	AV	29536	AO, ADF	35	300 seconds to 1,600 seconds Default: 300 seconds
Heat Process Range	HTG-PROC-RANGE	AV	29537	AO, ADF	36	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Heat Saturation Time	HTG-SAT-TIME	AV	29538	AO, ADF	37	60 seconds to 900 seconds Default: 300 seconds
Heat Time Constant	HTG-TIME-CONST	AV	29539	AO, ADF	38	360 seconds to 1,440 seconds Default: 360 seconds
Heat Process Dead Time	HTG-DEAD-TIME	AV	29540	AO, ADF	39	20 seconds to 120 seconds Default: 20 seconds

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Heat Period	HTG-PERIOD	AV	29541	AO, ADF	40	30 seconds to 120 seconds Default: 60 seconds
Cool Prop Band	CLG-PROP-BAND	AV	29542	AO, ADF	41	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Cool Integral Time	CLG-INT-TIME	AV	29543	AO, ADF	42	300 seconds to 1,600 seconds 300 seconds
Cool Process Range	CLG-PROC-RANGE	AV	29544	AO, ADF	43	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Cool Saturation Time	CLG-SAT-TIME	AV	29545	AO, ADF	44	60 seconds to 900 seconds Default: 300 seconds
Cool Time Constant	CLG-TIME-CONST	AV	29546	AO, ADF	45	360 seconds to 1,440 seconds Default: 360 seconds
Cool Process Dead Time	CLG-DEAD-TIME	AV	29547	AO, ADF	46	20 seconds to 120 seconds Default: 20 seconds
Cool Period	CLG-PERIOD	AV	29548	AO, ADF	47	30 seconds to 120 seconds Default: 60 seconds
Deadband	DEADBAND	AV	29556	AO, ADF	55	1.4 to 3 delta °F (0.78 to 1.66 delta °C) Default: 2 delta °F (1.12 delta °C)
Min Heating Setpoint	MINHTG-SP	AV	29559	AO, ADF	56	45°F (7.22°C) to Max Heating Setpoint Value[2] *This point only shows when Occ Setpoint Select = Min and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 60°F (15.5°C)
Max Heating Setpoint	MAXHTG-SP	AV	29560	AO, ADF	57	Present value of Min Heating Setpoint (MINHTG-SP) to present value of Min Cooling Setpoint (MINCLG-SP)minus 1[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Min Cooling Setpoint	MINCLG-SP	AV	29561	AO, ADF	58	Present value of Max Heating Setpoint (MAXHTG-SP) plus 1 to present value of Max Cooling Setpoint (MAXCLG-SP)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Max Cooling Setpoint	MAXCLG-SP	AV	29562	AO, ADF	59	Min Cooling Setpoint present to 100°F (37.78°C)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 80°F (26.6°C)

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Occ Setpoint Select	OCCSP-SEL	MV	29563	AO, ADF	60	Occ Setpoint select 1. **Setpoint Offset** 2. Min and Max Setpoint
Min Setpoint	MIN-SP	AV	29564	AO, ADF	61	45°F to 85°F (7°C to 30°C)[3] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 45°F (7.2°C)
Max Setpoint	MAX-SP	AV	29565	AO, ADF	62	60°F to 100°F (16°C to 38°C)[3] *This point only shows when Occ Setpoint Select = Min and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 85°F (29.4°C)
Heat Cool Setpoint Mode	HTGCLGSP-MODE	MV	29566	MI, ADI	24	Heat Cool Setpoint Mode 1. Common Setpoint 2. **Individual Setpoints**
Common Setpoint	COMMON-SP	AV	29567	AO, ADF	62	55°F to 90°F (12.77°C to 32.22°C) Default: 72°F (22.2°C)
Fan Mode 2	FAN-MODE2	MV	29568	MI, ADI	27	TEC3000 Fan Mode 2 1. **Auto** 2. Smart 3. Low 4. Medium 5. High *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is multispeed
Fan Override 2	FAN-OVRD2	MV	29569	MI, ADI	28	UI Fan Override 2 1. **Auto** 2. Quiet 3. Low 4. Medium 5. High *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is multispeed
Control State	TEMPCTRL-SETUP2	MV	29570	MI, ADI	26	TEMP_CONTROL_SETUP_SUBSET 1. **Automatic PID Tuning** 2. Deadband Override 3. Manual PID Tuning
Network Override Zone Temperature	NET-ZNT	AV	29571	AO, ADF	63	-50°F to 120°F (-45°C to 49°C)

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Signal Strength	Signal Strength	MV	29724	n/a	n/a	Wireless Signal Strength 1. None 2. Weak 3. Average 4. Strong
Cooling Valve % Command	CLG-O	AO	86907	AO, AO	5	0% to 100%
Heating Valve % Command	HTG-O	AO	86906	AO, AO	4	0% to 100%
AO1 Output / Fan Speed Percent Command	VSF-O	AO	86905	AO, AO	3	0% to 100%
BO2 Command / BO2 Fan Low Command	FANL-C	BO	86909	BO, BO	2	Inactive/Active 1. Inactive 2. Active
BO3 Command / BO3 Fan Medium Command	FANM-C	BO	86910	BO, BO	3	Inactive/Active 1. Inactive 2. Active
BO4 Command / BO4 Fan High Command	FANH-C	BO	86911	BO, BO	4	Inactive/Active 1. Inactive 2. Active
AUX Command / BO8 AUX	AUX	BO	86913	BO, BO	8	Inactive/Active 1. Inactive 2. Active
BI1 Sensor / Binary Input 1	BI1-S	BI	30827	BI, BI	1	Inactive/Active 1. Inactive 2. Active
BI2 Sensor / Binary Input 2	BI2-S	BI	30828	BI, BI	2	Inactive/Active 1. Inactive 2. Active
Schedule	Schedule	Schedule	10133	n/a	n/a	n/a
Local Occupancy	LOCAL-OCC	MV	6	n/a	n/a	Occ Schedule 1. Occupied 2. **Unoccupied** 3. Standby 4. Not Set
Calendar	Calendar	Calendar	10019	n/a	n/a	n/a
Dehumidification Enable	DEHUM-ENABLE	MV	29736	MI, ADI	36	No/Yes 1. **No** 2. Yes *This point only shows if the unit type is 2-pipe or 4-pipe or TEC controls the RTU

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Unocc Dehum Enable	UNOCC-DEHUM-ENABLE	MV	29737	MI, ADI	37	No/Yes 1. **No** 2. Yes *This point only shows if Dehumidification Enable = Yes
Chilled Water Supply Temperature	EFF-CHWST	AV	29734	AO, ADF	69	n/a
Chilled Water Supply Temperature Setpoint	CHWST-SP	AV	29735	AO, ADF	70	0°F to 250°F (-17°C to 121°C) *This point only shows if there is neither a CHWST sensor wired to TEC nor a Network override value setup and Dehum Enable is set to Enable Default: 44°F (6.6°C)
Network Override Chilled Water Supply Temperature	NET-CHWST	AV	29736	AO, ADF	71	0°F to 250°F (-17°C to 121°C)
Outdoor Air Humidity	EFF-OAH	AV	29737	AO, ADF	72	n/a
Cooling Valve Minimum Position	CLGVLV-MIN-POS	AV	29738	AO, ADF	73	50% to 75% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils or 2-pipe with Reheat and Dehum Enable is set to Enable Default: 75%
Cooling Valve Starting Position	CLGVLV-START-POS	AV	29739	AO, ADF	74	50% to 100% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils or 2-pipe with Reheat and Dehum Enable is set to Enable Default: 100%
Heating Valve Starting Position	HTGVLV-START-POS	AV	29740	AO, ADF	75	0% to 100% *This point only shows if Dehumidification Sequence Mode is setup as Individual Coils and Dehum Enable is set to Enable Default: 50%
Coil Tempering Time	COIL-TPR-TIME	AV	29741	AO, ADF	76	3 min to 10 min *This point only shows if Dehumidification Sequence Mode is setup as Single Coil and Dehum Enable is set to Enable Default: 5 min

Table 5: Points for proportional fan coil models TEC3622-1x-000, TEC3623-1x-000, TEC3022-1x-000, TEC3023-1x-000, TEC3122-14-000, and TEC3123-14-000

Point description	Point name	Object type	Instance ID	N2 Point type	N2 Point address	Unit (IP), enum set/range
Dehumidification Overcool Limit	DEHUM-OVRCLG-LIM	AV	29742	AO, ADF	77	1 to 5 delta °F, delta °C *This point only shows if Dehumidification Sequence Mode is setup as Single Coil and Dehum Enable is set to Enable Default: 2 delta °F (1.12 delta °C)
Dehumidification Sequence Mode	4PIPE-DEHUM-SEQ-MODE	MV	29729	MI, ADI	29	TEC3000 FCU Dehum Seq Mode 1. **Individual Coils** 2. Single Coil *This point only shows if Unit Type is 4-pipe and Dehum Enable is set to Enable
Dehumidification Sequence Mode	2PIPE-DEHUM-SEQ-MODE	MV	29730	MI, ADI	30	TEC3000 Dehum Sequence 1. Individual Coils 2. Single Coil 3. **2-Pipe With Reheat** *This point only shows if Unit Type is 2-pipe and Dehum Enable is set to Enable
Scheduled Circulation Enable	SCH-CIR-EN	MV	29731	MI, ADI	31	Disable/Enable 1. **Disable** 2. Enable
Scheduled Circulation Only When Occupied	SCH-CIR-ONLY-OCC	MV	29732	MI, ADI	32	Disable/Enable 1. **Disable** 2. Enable *This point shows Unreliable if Scheduled Circulation Enable is set to Disable
Minimum Hourly Fan Runtime	MIN-HR-FAN	AV	29743	AO, ADF	78	5 min to 30 min *This point shows Unreliable if Scheduled Circulation Enable is set to Disable Default: 5 min
Variable Speed Fan Circulation Setpoint	VAR-FAN-CIR-SP	AV	29744	AO, ADF	79	0% to 100% *This point only shows if Fan Type is Variable speed and Scheduled Circulation Enable is True Default: 25%
Multi Speed Fan Circulation Setpoint	MULTI-FAN-CIR-SP	MV	29733	MI, ADI	3	Sensitivity 1. **Low** 2. Medium 3. High *This point only shows if Fan Type is Multi Speed and Scheduled Circulation Enable is True

1   The passcode cannot be changed from BAS. The passcode can only be defined by the local display or through MAP version 4.0 or later.
2   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Individual Setpoint.
3   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Common Setpoint.

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Unit Status	UNIT-S	MV	29700	MI, ADI	13	TEC3000 Detailed Control Status 2 1. System Fault 2. Airflow Fault 3. Open Window 4. **Control Off** 5. Unreliable Temperature 6. Dehumidification 7. Idle 8. Cooling 9. Heating 10. Cooling Unavailable 11. Heating Unavailable 12. Cooling Unavailable due to Changeover 13. Cooling Unavailable due to OA Temp 14. Cooling Unavailable due to Control Mode 15. Heating Unavailable due to Changeover 16. Heating Unavailable due to OA Temp 17. Heating Unavailable due to Control Mode 18. Load Shed Active 19. Dehumidifying – Reheat 20. Dehumidifying – Fan Only 21. Dehum Unavail By Dew Point
Operational Space Temperature	EFF-ZNT	AV	29701	AO, ADF	16	n/a
Operational Outdoor Air Temperature	EFF-OAT	AV	29704	AO, ADF	19	n/a
Active Setpoint	EFF-SETPOINT	AV	29705	AO, ADF	20	n/a
CV Operating Cooling Setpoint	EFFCLG-SP	AV	29706	AO, ADF	21	n/a
CV Operating Heating Setpoint	EFFHTG-SP	AV	29707	AO, ADF	22	n/a
Occupancy Status	EFF-OCC	MV	29708	MI, ADI	14	TEC3000 Occupancy Status 1. Occupied 2. Temp Occupancy 3. Unoccupied 4. Standby 5. Occupied-Override 6. Unoccupied-Override

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Occupancy Input Source	OCCSOURCE-S	MV	29709	MI, ADI	15	TEC3000 Occupancy Source 1. Occupancy B1 2. Temp Occ B1 3. Temp Occ 4. Occ Override 5. **Local Schedule** 6. BAS Schedule 7. Occupancy Sensor
Econ Command	OAD-O	AV	86905	AO, AO	3	n/a
Cool Cmd	CLGPID-%	AV	29714	AO, ADF	25	0% to 100%
Cool Stage 1	Y1-C	BO	86911	BO, BO	4	Inactive/Active 1. Inactive 2. Active
Cool Stage 2	Y2-C	BO	86910	BO, BO	3	Inactive/Active 1. Inactive 2. Active
Heat Cmd	HTGPID-%	AV	29717	AO, ADF	26	0% to 100%
Heat Stg 1	W1OB-C	BO	86912	BO, BO	7	Inactive/Active 1. Inactive 2. Active
Heat Stg 2	W2SUP-C	BO	86908	BO, BO	6	Inactive/Active 1. Inactive 2. Active
Manual Occupancy Override	OCCOVRD-MODE	MV	29518	MI, ADI	5	UI Occ Override 1. **No Override** 2. Occupied 3. Unoccupied
Supervisory Occupancy	NET-OCC	MV	29519	MI, ADI	6	Occ Schedule 1. Occupied 2. Unoccupied 3. Standby 4. **Not Set**
Occupancy Schedule Source	OCC-CONFIG	MV	29520	MI, ADI	7	SE Occupancy Mode 1. **Schedule** 2. External
Passcode	PASSCODE[1]	AV	29522	AO, ADF	15	0000 to 9999
Fan Mode	FAN-MODE	MV	29524	MI, ADI	9	TEC3000 Fan Mode 1. On 2. **Auto** 3. Smart *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Fan Override	FANOVRD-MODE	MV	29525	MI, ADI	10	UI Fan Override 1. On 2. **Auto** 3. Quiet *This point only shows if the unit type is 2-pipe or 4-pipe and the fan type is single- or variable-speed
Aux Mode	AUX-MODE	MV	29527	MI, ADI	11	TEC3000 Aux Mode 1. **Not Used** 2. Occupied NO 3. Occupied NC 4. Occupied Fan NO 5. Occupied Fan NC 6. On 7. Off
Temperature Units	TEMP-UNITS	MV	29528	MI, ADI	12	Unit Set 1. **IP** 2. SI
Max Setpoint Offset	MAXSP-OFFSET	AV	29529	AO, ADF	29	0°F to 20°F (0°C to -11°C)
B1 Sensor	BI1-S	BI	30827	BI, BI	1	Inactive/Active 1. Inactive 2. Active
B2 Sensor	BI2-S	BI	30828	BI, BI	2	Inactive/Active 1. Inactive 2. Active
BO2 Command	FAN-C	BO	86909	BO, BO	2	Inactive/Active 1. Inactive 2. Active
Load Shed Active	LOADSHED-EN	MV	29728	MI, ADI	19	No/Yes 1. **No** 2. Yes
Load Shed Rate limit	LOADSHED-RL	AV	29725	AO, ADF	30	0°F to 1°F/min (0°C to 0.5°C/min) Default: 0.1°F (0.56°C)
Load Shed Adjust	LOADSHED-ADJ	AV	29726	AO, ADF	31	0°F to 8°F (-17.78°C to -13.33°C) Default: 4 delta °F (2.2 delta °C)
Fan Speed Status	FANSPD-S	MV	29712	MI, ADI	18	Supply Fan Status 1. Off 2. On 3. Low 4. Medium 5. High

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Local Occupancy	LOCAL-OCC	MV	6	n/a	n/a	Occ Schedule 1. Occupied 2. **Unoccupied** 3. Standby 4. Not Set
Control Mode	SYSTEM-MODE	MV	29500	MI, ADI	1	TEC3000 Unit Control Mode 1. **Auto** 2. Cooling 3. Heating
Unit Enable	UNITEN-MODE	MV	29501	MI, ADI	2	Shutdown/Enable 1. **Shutdown** 2. Enable
Common Setpoint	COMMON-SP	AV	29567	AO, ADF	62	55°F to 90°F (12.77°C to 32.22°C) Default: 72°F (22.2°C)
Occupied Cooling Setpoint	CLGOCC-SP	AV	29502	AO, ADF	1	60°F to 100°F (15.05°C to 37.78°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Occupied Heating Setpoint	HTGOCC-SP	AV	29503	AO, ADF	2	45°F to 85°F (7.22°C to 29.44°C) *This point only shows when Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Unoccupied Cooling Setpoint	CLGUNOCC-SP	AV	29504	AO, ADF	3	60°F to 100°F (15.05°C to 37.78°C) Default: 80°F (26.6°C)
Unoccupied Heating Setpoint	HTGUNOCC-SP	AV	29505	AO, ADF	4	45°F to 85°F (7.22°C to 29.44°C) Default: 65°F (18.3°C)
Standby Cooling Setpoint	CLGSTBY-SP	AV	29506	AO, ADF	5	60°F to 100°F (15.05°C to 37.78°C) Default: 74°F (23.3°C)
Standby Heating Setpoint	HTGSTBY-SP	AV	29507	AO, ADF	6	45°F to 85°F (7.22°C to 29.44°C) Default: 66°F (18.8°C)
Setpoint Offset	WC-ADJ	AV	29508	AO, ADF	7	(Negative) Max Setpoint Offset *When Occ Setpoint Select = Setpoint Offset Otherwise, see Table 11 for constraints Default: 0
Hold/Run	HOLDRUN-MODE	MV	29509	MI, ADI	3	Hold/Run 1. Hold 2. **Run**
Reset PID Tuning	TUNING-RESET	MV	29517	MI, ADI	4	No/Yes 1. **No** 2. Yes
Network Override Outdoor Air Temperature	NET-OAT	AV	29513	AO, ADF	11	-50°F to 125°F (-45.55°C to 51.66°C)
Network Override Outdoor Air Humidity	NET-OAH	AV	29514	AO, ADF	12	0% RH to 100% RH
Network Override Zone Humidity	NET-ZNH	AV	29516	AO, ADF	14	0% RH to 100% RH

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Network Override Supply Air Temperature	NET-SAT	AV	29515	AIO, ADF	13	0°F to 150°F (-17.78°C to 65.56°C)
Supplemental % Command	SUPHTGPID-%	AV	29723	AO, ADF	28	0% to 100%
Economizer PID Cmd	OADPID-%	AV	29713	AO, ADF	24	0% to 100%
Schedule	Schedule	Schedule	10133	n/a	n/a	n/a
Calendar	Calendar	Calendar	10019	n/a	n/a	n/a
Occupancy Override Duration	TEMPOCC-LEN	AV	29727	AO, ADF	32	0 min to 300 min Default: 120 min
Unoccupied Off Delay	UNOCC-OFF-DLY	AV	29532	AO, ADF	33	0 min to 10 min Default: 10 min
Occ Setpoint Select	OCCSP-SEL	MV	29563	MI, ADI	23	Occ Setpoint Select 1. **Setpoint Offset** 2. Min and Max Setpoint
Heat Cool Setpoint Mode	HTGCLGSP-MODE	MV	29566	MI, ADI	24	Heat Cool Setpoint Mode 1. Common Setpoint 2. **Individual Setpoint**
Max Heating Setpoint	MAXHTG-SP	AV	29560	AO, ADF	57	Present value of Min Heating Setpoint (MINHTG-SP) to present value of Min Cooling Setpoint (MINCLG-SP) minus 1[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 68°F (20°C)
Min Heating Setpoint	MINHTG-SP	AV	29559	AO, ADF	56	45°F (7.22°C) to Max Heating Setpoint Present Value[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 60°F (15.5°C)
Max Cooling Setpoint	MAXCLG-SP	AV	29562	AO, ADF	59	Min Cooling Setpoint Present Value to 100°F (37.78°C)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 80°F (26.6°C)
Min Cooling Setpoint	MINCLG-SP	AV	29561	AO, ADF	58	Present value of Max Heating Setpoint (MAXHTG-SP) plus 1 to present value of Max Clg Setpoint (MAXCLG-SP)[2] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Individual Setpoints Default: 72°F (22.2°C)
Max Setpoint	MAX-SP	AV	29565	AO, ADF	61	60°F to 100°F (15.05°C to 37.78°C)[3] *This point only shows when Occ Setpoint Select = Min and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 85°F (29.4°C)

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Min Setpoint	MIN-SP	AV	29564	AO, ADF	60	45°F to 85°F (7.22°C to 29.44°C)[3] *This point only shows when Occ Setpoint Select = Min, and Max Setpoint and Heat Cool Setpoint Mode = Common Setpoints Default: 45°F (7°C)
Aux On/Off Command	AUX-C	BO	86913	BO, BO	8	Inactive/Active 1. Inactive 2. Active
Temp Control Setup	TEMPCTRL-SETUP	MV	29533	MI, ADI	21	TEMP_CONTROL_SETUP 1. **Automatic PID Tuning** 2. Deadband Override 3. Manual PID Tuning 4. On/Off Control (available on units without economizer damper)
Control State	TEMPCTRL-SETUP2	MV	29570	MI, ADI	26	TEMP_CONTROL_SETUP_SUBSET 1. **Automatic PID Tuning** 2. Deadband Override 3. Manual PID Tuning (available on units with economizer damper)
Auto Economizer Tuning	AUTO-ECON-EN	MV	29557	MI, ADI	22	Disable/Enable 1. **Disable** 2. Enable
Deadband	DEADBAND	AV	29556	AO, ADF	55	1.4 to 3 delta °F (0.78 to 1.66 delta °C) Default: 2 delta °F (1.12 delta °C)
Heat Prop band	HTG-PROP-BAND	AV	29535	AO, ADF	34	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Heat Integral Time	HTG-INT-TIME	AV	29536	AO, ADF	35	300 seconds to 1,600 seconds Default: 300 seconds
Heat Process Range	HTG-PROC-RANGE	AV	29537	AO, ADF	36	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Heat Saturation Time	HTG-SAT-TIME	AV	29538	AO, ADF	37	60 seconds to 900 seconds Default: 300 seconds
Heat Time Constant	HTG-TIME-CONST	AV	29539	AO, ADF	38	360 seconds to 1,440 seconds Default: 360 seconds
Heat Process Dead Time	HTG-DEAD-TIME	AV	29540	AO, ADF	39	20 seconds to 120 seconds Default: 20 seconds
Heat Period	HTG-PERIOD	AV	29541	AO, ADF	40	30 seconds to 120 seconds Default: 60 seconds
Cool Prop Band	CLG-PROP-BAND	AV	29542	AO, ADF	41	5 to 30 delta °F (2.8 to 16.7 delta °C) Default: 5 delta °F (2.8 delta °C)
Cool Integral Time	CLG-INT-TIME	AV	29543	AO, ADF	42	300 seconds to 1,600 seconds Default: 300 seconds
Cool Process Range	CLG-PROC-RANGE	AV	29544	AO, ADF	43	10 to 100 delta °F (5.6 to 56 delta °C) Default: 10 delta °F (5.6 delta °C)
Cool Saturation Time	CLG-SAT-TIME	AV	29545	AO, ADF	44	60 seconds to 900 seconds Default: 300 seconds
Cool Time Constant	CLG-TIME-CONST	AV	29546	AO, ADF	45	360 seconds to 1,440 seconds Default: 360 seconds

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Cool Process Dead Time	CLG-DEAD-TIME	AV	29547	AO, ADF	46	20 seconds to 120 seconds Default: 20 seconds
Cool Period	CLG-PERIOD	AV	29548	AO, ADF	47	30 seconds to 120 seconds Default: 60 seconds
Econ Prop Band	ECON-PROP-BAND	AV	29549	AO, ADF	48	5 to 30 delta °F (2.8 to 16.7 delta °C)
Econ Integral Time	ECON-INT-TIME	AV	29550	AO, ADF	49	300 seconds to 1,600 seconds
Econ Process Range	ECON-PROC-RANGE	AV	29551	AO, ADF	50	10 to 100 delta °F (5.6 to 56 delta °C)
Econ Saturation Time	ECON-SAT-TIME	AV	29552	AO, ADF	51	60 seconds to 900 seconds
Econ Time Constant	ECON-TIME-CONST	AV	29553	AO, ADF	52	360 seconds to 1,440 seconds
Econ Process Dead Time	ECON-DEAD-TIME	AV	29554	AO, ADF	53	20 seconds to 120 seconds
Econ Period	ECON-PERIOD	AV	29555	AO, ADF	54	30 seconds to 120 seconds
Lockout Level	LOCK-LVL	MV	29531	MI, ADI	20	States (0-2) 1. **State 0** 2. State 1 3. State 2
Dehumidification Enable	DEHUM-ENABLE	MV	29736	MI, ADI	36	No/Yes 1. **No** 2. Yes *This point only shows if the unit type is 2-pipe or 4-pipe or TEC controls the RTU
Unocc Dehum Enable	UNOCC-DEHUM-ENABLE	MV	29737	MI, ADI	37	No/Yes 1. **No** 2. Yes *This point only shows if Dehumidification Enable = Yes
Outdoor Air Humidity	EFF-OAH	AV	29737	AO, ADF	72	n/a
Indoor Air Quality	EFF-ZN-CO2	AV	29728	AO, ADF	64	n/a
Damper Feedback	EFF-DPR	AV	29729	AO, ADF	65	n/a
Network Override Indoor Air Quality	NET-ZN-CO2	AV	29730	AO, ADF	66	0 ppm to 2000 ppm
Network Override Damper Feedback	NET-DPR	AV	29731	AO, ADF	67	0% to 100%
Economizer Minimum Position Setpoint	ECONMINPOS-SP	AV	29732	AO, ADF	68	0% to 100% *This point only shows when Economizer Installed = Yes
Dehumidification Sequence Mode	DEHUM-SEQ-MODE	MV	29734	MI, ADI	34	TEC3000 RTU Dehum Sequence 1. **Simple Dehum** 2. Hot Gas Reheat Dehum 3. None *This point only shows if Dehum Enable is set to Enable

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Aux Out	DEHUM-AUX-MODE	MV	29735	MI, ADI	35	TEC3000 RTU Aux Mode 1. **Dehumidifier** 2. Hot Gas Reheat *This point only shows if Dehum Enable is set to Enable, Aux Mode is set to Not Used, and Dehumidification Sequence Mode is not set to None
Scheduled Circulation Enable	SCH-CIR-EN	MV	29731	MI, ADI	31	Disable/Enable 1. **Disable** 2. Enable
Scheduled Circulation Only When Occupied	SCH-CIR-ONLY-OCC	MV	29732	MI, ADI	32	Disable/Enable 1. **Disable** 2. Enable *This point shows Unreliable if Scheduled Circulation Enable is set to Disable
Minimum Hourly Fan Runtime	MIN-HR-FAN	AV	29743	AO, ADF	78	5 min to 30 min *This point shows Unreliable if Scheduled Circulation Enable is set to Disable Default: 5 min
Network Override Zone Temperature	NET-ZNT	AV	29571	AO, ADF	63	-50°F to 120°F (-45°C to 49°C)
Low OA Damper Position	LOW-OA-DPR-POS	AV	29907	AO, ADF	87	0% to 100% *This point only shows when Economizer Installed = Yes, and DCV or OCV or ECV = Enabled Default: 0%
Damper Pos Error	DPR-POS-ERR	AV	29904	AO, ADF	98	2% to 10% *This point only shows when Economizer Installed = Yes, and DCV or OCV or ECV = Enabled Default: 8%
Demand Control Ventilation Enable	DCV-ENABLE	MV	29738	MI, ADI	43	Disable/Enable 1. **Disable** 2. Enable *This point only shows when Economizer Installed = Yes, or Unit Type = VAV and CO_2 input source is reliable and Damper Pos input source is reliable and Occupancy Sensor is not active.
Occupant Sensor Ventilation Enable	OCV-ENABLE	MV	29745	MI, ADI	45	Disable/Enable 1. **Disable** 2. Enable *This point only shows when Economizer Installed = Yes, or Unit Type = VAV and CO_2 input source is reliable and Damper Pos input source is reliable and Occupancy Sensor is active

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Pre Occupancy Purge Time	PRE-OCC-PURGE-TIME	AV	29905	AO, ADF	85	0 min to 600 min *This point only shows when DCV Enable = Enable or OCV Enable = Enable Default: 60 min
Allow Min Ventilation During Occ	ALLOW-MIN-VENT-AT-OCC	MV	29744	MI, ADI	44	Disable/Enable 1. **Disable** 2. Enable *This point only shows when DCV Enable = Enable or OCV Enable = Enable
Epidemic Control Ventilation Enable	EPIDEMIC-VENTILATION-EN	MV	29746	MI, ADI	46	Disable/Enable 1. **Disable** 2. Enable
Enable Minimum Ventilation When Unocc	UNOCC-MIN-VENTILATION-EN	MV	29747	MI, ADI	47	Disable/Enable 1. **Disable** 2. Enable *This point only shows when Epidemic Control Ventilation Enable = Enable
Unoccupied Damper Minimum Position	UNOCC-DPR-MIN-POS	AV	29906	AO, ADF	86	0% to 100% *This point only shows when Epidemic Control Ventilation Enable = Enable Default: 20%
Inc Ventilation Pre Occ Purge Time	INC-VENT-PRE-OCC-PURGE-TIME	AV	29915	AO, ADF	95	0 min to 600 min *This point only shows when Epidemic Control Ventilation is Enable = Enable Default: 240 min
Inc Ventilation Post Occ Purge Time	INC-VENT-POST-OCC-PURGE-TIME	AV	29920	AO, ADF	100	0 min to 240 min * This point only shows when Epidemic Control Ventilation is Enable = Enable. Default: 120 min
Enable Humidity Alarm	ENABLE-HUM-ALM	MV	27948	MI, ADI	48	Disable/Enable 1. **Disable** 2. Enable *This point only shows when Epidemic Control Ventilation Enable = Enable
Zone CO_2 Setpoint	ZN-CO2-SP	AV	29914	AO, ADF	94	400 ppm to 2000 ppm *This point only shows when DCV Enable = Enable or OCV Enable = Enable or Epidemic Control Ventilation Enable = Enable Default: 800 ppm
Low OA Temperature Setpoint	LOW-OA-TEMP-SP	AV	29909	AO, ADF	89	0°F to 60°F (-17°C to 15°C) *This point only shows when TEC controls the RTU Default: 45°F (7.5°C)
Supply Air Temperature Low Limit	SAT-LOW-LIM	AV	29910	AO, ADF	90	40°F to 65°F (4°C to 18°C) *This point only shows when TEC controls the RTU Default: 55°F (12.8°C)

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Supply Air Temperature High Limit	SAT-HIGH-LIM	AV	29911	AO, ADF	91	40°F to 65°F (4°C to 18°C) *This point only shows when TEC controls the RTU Default: 65°F (18.3°C)
Zone Dew Point Temperature	ZN-DPT-TEMP	AV	29912	AO, ADF	92	
Free Cooling Available	FREE-CLG-AVAIL	MV	29739	MI, ADI	38	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Mixed Air Low Limit Cycle	MAT-LLT-ACTIVE	MV	29743	MI, ADI	42	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Not Economizing When Should	NOT-ECON-FLT	MV	27949	MI, ADI	49	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Economizing When Should Not	ECON-WHEN-SHOULD-NOT-FLT	MV	27950	MI, ADI	50	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Damper Not Modulating	ECON-DAMP-FLT	MV	27951	MI, ADI	51	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Excess Outdoor Air	EXCESS-OUT-AIR-FLT	MV	27952	MI, ADI	52	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Air Temperature Sensor Failure	AIR-TEMP-SEN-FAIL	MV	27953	MI, ADI	53	No/Yes 1. No 2. Yes *This point only shows when Economizer Installed = Yes
Economizer Enabled for Operation	ECON-EN	MV	29740	MI, ADI	39	No/Yes 1. No 2. Yes

Table 6: Points for RTU and HP models TEC3630-1x-000, TEC3631-1x-000, TEC3030-1x-000, TEC3031-1x-000, TEC3130-14-000, and TEC3131-14-000

Point description	Point name	Object type	Instance ID	N2 point type	N2 Point address	Enum Set/Range
Compressor Enable	COMPRESSOR-EN	MV	29741	MI, ADI	40	No/Yes 1. No 2. Yes
Heating Enable	HTG-EN	MV	29742	MI, ADI	41	No/Yes 1. No 2. Yes
Economizer Fault Detection Enabled	ECON-FAULT-EN	MV	29748	BD	1	No/Yes 1. No 2. Yes

1   The passcode cannot be changed from BAS. The passcode can only be defined by the local display or through MAP version 4.0 or later.
2   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Individual Setpoint.
3   The Occ Setpoint Select is set to the Min and Max Setpoint and Heat Cool Setpoint Mode is set to the Common Setpoint.

Table 7: Multi-State event points for TEC361x-1x-000, TEC362x-1x-000, TEC363x-1x-000, TEC301x-1x-000, TEC302x-1x-000, and TEC303x-1x-000 (BACnet MS/TP only)

Point name	Thermostat point (type/instance ID)	Supported events
MV Critical Active Event Critical Active Event NTF MV Critical Inactive Event Critical Inactive Event NTF	MV30000 Notification 10 MV29999 Notification 11	• Board Mismatch • Controller Fault • Display Failure • Zone Temp Unreliable • Open Window • Fan Lock • Zone Temperature Too Cold • Zone Temperature Too Hot • Supply Fan Fault • Zone CO_2 Too High
MV Service Priority Active Event Service Priority Active Event NTF MV Service Priority Inactive Event Service Priority Inactive Event NTF	MV29998 Notification 12 MV29997 Notification 13	• Heating Ineffective • Cooling Ineffective • Supply Fan Runtime Exceeded • Firmware Mismatch
MV Service Active Event Service Active Event NTF MV Service Inactive Event Service Inactive Event NTF	MV29996 Notification 14 MV29995 Notification 15	• Calibration Corrupt • USB Malfunction • Remote Zone Temp Fail • Supply Temp Fail • Outdoor Temp Fail • Internal Sensor Fail • OA Lockouts Disabled • Econ Unavailable • Dehum Unavailable • Service • Dirty Filter • Changeover Fail • Humidity Unreliable • USB Malfunction • Zone Humidity Too High • Zone Humidity Too Low • Not Economizing When Should • Economizing When Should Not • Damper Not Modulating • Excess Outdoor Air • Air Temperature Sensor Failure • Pre-Occupancy Ventilation Disabled

Event reporting of the Fault Status for each of the above Multistate Value Objects is configured through its corresponding Notification object (for example, MV Critical Active Event corresponds to Critical Active Event NTF). The Active MV objects are set up to send Off Normal events while the Inactive MV objects are set up to send Normal events. These events and their routing by the Notification object are pre-configured to go to the FC bus supervisor. The Ack Required setting should be checked when pop-up alarms are required on the network engine. For additional details on this object, refer to the *Notification Class/BACnet Notification Class* chapter of the *Metasys® Common Object (LIT-694020)*.

Scheduling

The TEC3000 Series Thermostat can operate as a stand-alone unit with an internal schedule or configured to operate from an external schedule. The OCC-CONFIG object sets the method that is used for scheduling.

If the OCC-CONFIG is set to External, the NET-OCC object is used to control the unit externally.

If the OCC-CONFIG is set to Schedule, the internal schedule commands the LOCAL-OCC object, which sets the Occupancy Schedule command.

ⓘ **Note:** If you do not have a schedule in the Schedule object and you have the OCC-CONFIG set to Schedule, you can control the unit with the LOCAL-OCC object externally; however, we do not recommend this method. See Table 8 for scheduling information.

Once the Occupancy Schedule command is set the effective occupancy is determined by settings shown in the Occupancy Determination table. See Table 9.

Table 8: BAS objects for scheduling

BAS objects for scheduling			
OCC-CONFIG	**LOCAL-OCC (commanded by internal schedule)**	**NET-OCC**	**Occupancy schedule command[1]**
External	Any State (External Schedule in Control)	Occupied	Occupied
		Unoccupied	Unoccupied
		Standby	Standby
		Not Set	Not Set
Schedule	Occupied	Any State (Internal Schedule in Control)	Occupied
	Unoccupied		Unoccupied
	Standby		Standby
	Not Set		Not Set

1   The effective occupancy can be affected by other factors listed in Table 9.

Table 9: Occupancy determination

Sequence of operation (highest to lowest priority)					Resulting status value	
Manual occupancy mode (OCCOVRD-MODE)	Occupancy BI (BI1-S, BI2-S)[1]	Temporary occupancy[2,3]	Occupancy schedule (external or schedule) (OCC-CONFIG, NET-OCC)	Motion sensor[4]	Effective occupancy (EFF-OCC)	Occupancy source (OCCSOURCE-S)
Occupied	–	–	–	–	Occupied-Override	Occ Override
Unoccupied					Unoccupied-Override	
No Override	Closed[1]				Occupied	Occupancy BI
	Open[1]				Unoccupied	
	Not Configured[1]	True[2]	NOT Occupied		Temp Occupancy	Temp Occ
		True[3]	NOT Occupied		Temp Occupancy	Temp Occ BI
		False	Occupied	True	Occupied	Occupancy Sensor
				False	Standby	
				Disabled	Occupied	Occupancy Schedule
			Unoccupied	–	Unoccupied	
			Standby		Standby	
			Not Set[5]	True	Occupied	Occupancy Sensor
				False	Unoccupied	
				Disabled	Occupied	Occupancy Schedule

1   Not Configured means that neither BI1 Config nor BI2 Config is set to Occupancy BI. Open and Closed refer to the current state of the BI when configured as Occupancy.
2   True is triggered by interacting with the screen during a scheduled unoccupied period. A value of True can only occur when the schedule is not Occupied.
3   When triggered by a BI configured for Temp Occ, the input is ignored when the schedule is Occupied, the Manual Occupancy Mode is NOT No Override, or an Occupancy BI is configured.
4   Built-in occupancy sensing (PIR) or BI configured for Motion NO or Motion NC.
5   Not Set occurs when no events are scheduled through the local scheduler, or the schedule source is set to Schedule and the Schedule is writing Not Set as the schedule.

Commanding objects from a supervisory controller

From a network engine, use the Change Default command to command analog and multistate value objects. The last command that is received by the controller, is executed. Use the default to implement commands to these value objects in other features. Commands to TEC hardware output objects support overrides and priority.

User lockout

You can create three different levels of access at the local display to manage functionality through the supervisory controller. This lockout is independent of any display settings or passcode settings. This feature does not affect the existing temporary occupancy capability. User lockout hides the icons that are not operable. The lockout levels are described in Table 10.

Table 10: User lockout levels

Lockout level	Capability
State 0	Allows full access to Home Screen Display Adjustments and icons (default).
State 1	Hides the **Menu** icon.
State 2	Only allows the screen to trigger temporary occupancy. Menu, Unit Power, the Up and Down arrows, and Run/Hold are hidden.

Menu and submenu descriptions

The following sections describe the menu and submenus for the TEC3000 Series Thermostat. Refer to the *TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide (LIT-12013161)*, *TEC3000 Series Proportional Fan Coil Thermostats Installation Guide (LIT-12013162)*, or *TEC3000 Series Thermostats for Rooftop Package and Heat Pump with Economizer Installation Guide (LIT-12013163)* for more information based on your thermostat model.

Setpoints

When the TEC is in Min/Max mode (Setpoints/Occ Setpoint Select are equal to Min and Max Setpoint), the TEC rejects any attempts to change the present value outside of the valid range. If the present value is outside of the valid range (for example, if the Occ Setpoint Select is switched from Setpoint Offset to Min and Max Setpoint), the present value is reset to be in the center of the valid range.

The four modes of setpoint operation are described in Table 11.

Table 11: Setpoint operation

Mode of setpoint operation	Details
Occ Setpoint Select = Setpoint Offset and Heat Cool Setpoint Mode = Individual Setpoints	This is the default mode and the original mode of operation that the TEC was released with, while the next three modes are new. In this mode, the TEC has a heating setpoint and a cooling setpoint. A common Setpoint Offset (warmer/cooler adjust) is applied to each setpoint simultaneously. The range of setpoint adjustment is two-fold: • large constant ranges bounding the individual heating and cooling setpoints. • smaller configurable range limit set to the Setpoint Offset point. **Control Setup** > **General** > **Max Setpoint Offset**.
Occ Setpoint Select = Min and Max Setpoints and Heat Cool Setpoint Mode = Individual Setpoints	In this mode, the TEC has a heating setpoint and a cooling setpoint. Each setpoint has a configurable range.**Setpoints** > **Temperature** > **Min Cooling Setpoint**, **Max Cooling Setpoint**, **Min Heating Setpoint**, and **Max Heating Setpoint**. The configurable range values are bounded by the larger constant bounds used in Setpoint Offset mode and are constrained in the following manner: Min must be below Max and Heating must be below Cooling, so in order from least to greatest, the values are: Min Heating Setpoint, Max Heating Setpoint, Min Cooling Setpoint, and Max Cooling Setpoint.
Occ Setpoint Select = Setpoint Offset and Heat Cool Setpoint Mode = Common Setpoint	In this mode, the TEC has one setpoint, Common Setpoint, for heating and cooling. There is also a common Setpoint Offset (warmer/cooler adjust) that is only applied to Common Setpoint. Otherwise, this setting works the same as when Occ Setpoint Select = Setpoint Offset and Heat Cool Setpoint Mode = Individual Setpoints.
Occ Setpoint Select = Min and Max Setpoints and Heat Cool Setpoint Mode = Common Setpoint	In this mode, the TEC has one setpoint, Common Setpoint, for heating and cooling. There is a configurable range for Common Setpoint, Min Setpoint, and Max Setpoint.

A fixed differential of 2°F exists between heating and cooling setpoints for occupied, unoccupied, and standby modes. If a setpoint is set within 2 degrees of the corresponding setpoint, the controller automatically adjusts the corresponding setpoint to be 2 degrees away from the manually adjusted setpoint.

Dehumidification

Dehumidification - the thermostat operates dehumidification control to maintain the setpoint when the zone humidity rises above the setpoint. This option is available only when Dehum Enable is set to Enable under Control Setup menu.

Cooling Valve Minimum Position - user configurable value for the minimum position the cooling valve can go to during active dehumidification, defaulted to 30%. The valve closes beyond this value upon overcooling of the zone as determined by the dehumidification algorithm. This option is available only when the unit type is 4-pipe or 2-pipe with reheat installed and Dehumidification Sequence Mode is set to individual coils or 2-pipe with reheat.

Cooling Valve Starting Position - user configurable value for the position to which the cooling valve can open at the start of dehumidification, defaulted to 100%. This option is available only

when the unit type is 4-pipe or 2-pipe with reheat installed and Dehumidification Sequence Mode is set to individual coils or 2-pipe with reheat.

Heating Valve Starting Position - user configurable value for the position to which the heating valve can open at the start of dehumidification in order to maintain the zone temperature when dehumidification is active, defaulted to 50%. This option is available only when the unit type is 4-pipe and Dehumidification Sequence Mode is set to individual coils.

Coil Tempering Time - user configurable value for the length of time to wait before the transition from opening the cooling or heating valve to opening the heating or cooling valve in the case of fan coils with single coil setup, that is a single sheet of fins for both heating coil and cooling coil. This option is available only when the unit type is 4-pipe and Dehumidification Sequence Mode is set to single coil.

Dehumidification Overcool Limit - user configurable value to set the overcool limit for active dehumidification, applicable in the case of fan coils with single coil setup, that is a single sheet of fins for both heating coil and cooling coil. Active dehumidification of the zone stops if the zone temperature drops below the overcool limit. This option is available only when the unit type is 4-pipe and Dehumidification Sequence Mode is set to single coil.

Chilled Water Supply Temperature Setpoint - this is the CHWST setpoint of the chilled water supply to the fan coil. This option is available only if there is no chilled water supply temperature sensor connected to the TEC or there is no value registered at NET-CHWST, that is when EFF-CHWST is Unreliable.

Temperature

Occupied Cooling - setpoint that the thermostat holds the zone at when cooling is needed in the Occupied state, present when Heat Cool Setpoint Mode = Individual Setpoints.

Occupied Heating - setpoint that the thermostat holds the zone at when heating is needed in the Occupied state, present when Heat Cool Setpoint Mode = Individual Setpoints.

Common Setpoint - setpoint that the thermostat holds the zone at when heating or cooling is needed in the Occupied state, present when Heat Cool Setpoint Mode = Common setpoint.

Auto Changeover - differential that is used to limit switching between heating and cooling, present when Heat Cool Setpoint Mode = Common Setpoint.

Unoccupied Cooling - setpoint that the thermostat holds the zone at when cooling is needed in the Unoccupied state

Unoccupied Heating - setpoint that the thermostat holds the zone at when heating is needed in the Unoccupied state

Occ Setpoint Select - option of using the setpoint offset method to limit setpoint adjustment or using a discrete Min and Max setpoint to limit setpoint adjustment

Heat Cool Setpoint Mode - allows for a configuration by using discrete heating and cooling setpoints or a common setpoint

Maximum Cooling Setpoint - maximum value for the cooling setpoint, present when Heat Cool Setpoint Mode = Individual Setpoints and Occ Setpoint Select = Min and Max Setpoint.

Maximum Heating Setpoint - maximum value for heating setpoint, present when Heat Cool Setpoint Mode = Individual Setpoints and Occ Setpoint Select = Min and Max Setpoint.

Minimum Cooling Setpoint - minimum value for the cooling setpoint, present when Heat Cool Setpoint Mode = Individual Setpoints and Occ Setpoint Select = Min and Max Setpoint.

Minimum Heating Setpoint - minimum value for the heating setpoint, present when Heat Cool Setpoint Mode = Individual Setpoints and Occ Setpoint Select = Min and Max Setpoint.

Max Setpoint - maximum value for the common setpoint, present when Heat Cool Setpoint Mode = Common Setpoint and Occ Setpoint Select = Min and Max Setpoint.

Min setpoint - minimum value for the common setpoint, present when Heat Cool Setpoint Mode = Common Setpoint and Occ Setpoint Select = Min and Max Setpoint.

Standby Cooling - setpoint that the thermostat holds the zone at when cooling is needed in the Standby state

Standby Heating - setpoint that the thermostat holds the zone at when heating is needed in the Standby state

Warmer Cooler Adjustment (Setpoint Offset) - degree amount that is added to the current Setpoint that results in the Effective Setpoint

Maximum Setpoint Offset - maximum value for the Warmer Cooler Adjustment

Ventilation setpoints

Zone CO_2 Setpoint - this is a user configurable setpoint for the Zone CO_2 value. This option is available only when a carbon dioxide sensor is installed and either Demand Control Ventilation Enable, Occupant Sensor Ventilation Enable or Epidemic Control Ventilation Enable is set to Enabled.

Low OA Temperature Setpoint - this is a user configurable setpoint for Low Outdoor Air temperature, below which the economizer damper does not bring in outdoor air. This option is available only when Equipment Type is RTU.

Supply Air Temperature Low Limit - this is a user configurable value for the lower limit of supply air temperature below which SAT tempering activates. This option is available only when Equipment Type is RTU.

Supply Air Temperature High Limit - this is a user configurable value for the higher limit of supply air temperature above which SAT tempering activates. This option is available only when Equipment Type is RTU.

Schedule options

Optimal Start Enable - this enables or disables the Optimal Start algorithm to automatically start the equipment before the scheduled occupancy period in order to reach the occupied setpoint at the same time the schedule transitions from Unoccupied to Occupied. Setting this option to Yes only has an effect when the local schedule is used.

The Optimal Start feature provides preconditioning of a zone ahead of a scheduled change to its occupancy mode. The feature uses schedule times of the Local Occupancy object to determine when it is the correct time to command equipment based on the next occupancy mode changes. The most energy savings is derived by operating on the earliest change to occupancy and the latest change to unoccupied.

Temp Occ Duration - this is the length for which the thermostat remains in a temporary occupancy period when triggered during an unoccupied period. Interact with the touch screen while unoccupied to trigger temporary occupancy, or activate a binary input configured for temporary occupancy. Set the value to 0 min to disable temporary occupancy.

Motion Sensor Timeout - this sets how long the thermostat waits to return to Standby mode after the last detection of motion while in a scheduled Occupied period. Setting the timeout to 0 min disables the motion sensor and standby mode.

Manual Occupancy Mode - with this mode you can override all schedules and other sources of occupancy and put the controller indefinitely into an Occupied or Unoccupied state.

Schedule Source - this sets the source of the occupancy schedule on the TEC. Setting to Schedule (Local) uses the internal 7-day programmable schedule, and setting to External (BAS) uses the command from a building automation system if the BAS is online. If the BAS is offline, the schedule reverts to the onboard schedule.

Display settings

Passcode Enabled - enable a 4-digit passcode to enter the configuration menu when you set this to True. The TEC prompts you for the passcode upon saving this setting to True. Passcodes can only be defined on the local display.

Change Passcode - provides a means of changing the passcode. Requires you to enter the current passcode before you can change the password.

Brightness Setting - sets the brightness of the display when you interact with the display

Enable Backlight Timeout - sets whether the backlight should timeout and go to low brightness after 3 min

Enable Display Timeout - sets whether the display times out and goes blank after 3 min

Units - sets Imperial (IP) or Metric (M) units on the display and exposed to a BAS

Time - sets the time on the thermostat

Time Zone - sets the time zone where you install the thermostat

Set Time Format - sets the display time format on the thermostat

Date - sets the date on the controller

Set Date Format - sets the display date format on the thermostat

Change Color Theme - sets the current theme used for the home screen

Show Fan Button On Home - this sets whether the user fan override option is available on the home screen. With this option you select the following fan mode overrides from the home screen for single- and variable-speed fans:

- **On** - this turns and keeps the fan on. This option overrides shutdown requests, with the exception of Airflow Fault shutdowns.
- **Auto** - follows the Fan Mode set under the General Settings menu
- **Quiet** - this follows the Fan Mode set under the General Settings menu, but keeps variable-speed fans at their lowest speeds. this option is no different from Auto for single-speed fans.

For multi-speed fans, the following fan mode overrides are available from the home screen:

- **Low** - the fan is continuously on low.
- **Medium** - the fan is continuously on medium.
- **High** - the fan is continuously on high.
- **Auto** - this follows the behavior set as Fan Mode.
- **Quiet** - this follows the behavior set as Fan Mode but prevents the fan from going above the minimum speed.

Show Temp On Home - sets whether the current zone temperature displays on the home screen

Show Humidity On Home - sets whether the current zone humidity displays on the home screen

Show Off Button On Home - sets whether the master control On/Off icon displays on the home screen

Show Hold Button - sets whether the Hold/Run icon displays on the home screen

Show Setpoint On Home - sets whether the current zone temperature setpoint displays on the home screen

Show Alarms On Home - sets whether the current alarm symbol displays on the home screen when warnings or alarms are active

Show Occ Status - sets whether the current occupancy status shows on the home screen

Show Unit Status - sets whether the operational status of the thermostat shows on the home screen

Show Date/Time - sets whether the date and time show on the home screen

Show Control Mode - sets whether the control mode shows on the home screen

Show Damper Pos on Home - this is a user configurable value to either show or hide the Damper position Feedback icon and value on the TEC home screen. This option is available only when damper feedback sensor is installed.

Show CO$_2$ on Home - this is a user configurable value to either show or hide the Carbon Dioxide icon and value on the TEC home screen. This option is available only when a CO$_2$ sensor is installed.

Setup

General

Control Mode - sets the thermostat to operate only in Cooling or Heating modes, or to automatically switch between cooling and heating based on the zone temperature.

Unit Enable - this enables or disables the control. This option is linked to the Off/On icon on the home screen. The home screen fan override can still turn the fan on when Unit Enable = False.

Fan Mode - this sets the operational mode of the fan. For single- and variable-speed fans the options include:

- **On** - the fan runs continuously unless control is disabled.
- **Auto** - the fan switches between On and Low, Med, and High based on Fan Mode and Fan Mode 2 criteria. The fan cycles with heating or cooling demand in the zone on fan coil equipment, or with the equipment stages on rooftop or heat pump equipment.
- **Smart** - the fan operates continuously while occupied, and follows the Auto behavior when unoccupied.

ⓘ **Note:** The Fan Mode can be overridden by the fan button on the Home screen. Refer to the *TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide (LIT-12013161)*, *TEC3000 Series Proportional Fan Coil Thermostats Installation Guide (LIT-12013162)*, or *TEC3000 Series Thermostats for Rooftop Package and Heat Pump with Economizer Installation Guide (LIT-12013163)* for more information on the Fan mode.

For multi-speed fans the options include:

- **Low** - the fan is continuously on low.
- **Medium** - the fan is continuously on medium.
- **High** - the fan is continuously on high.
- **Auto** - the fan cycles on demand with the thermostat entering cooling, heating, or dehumidification modes.
- **Smart** - the fan cycles on demand with the thermostat entering cooling or heating modes.

Max Setpoint Offset - sets the maximum deviation above or below the active programmed setpoint that the user can set from the home screen.

Fan On Delay - sets how long the fan waits to turn on after turning on a stage of heating or cooling.

Fan Off Delay - sets how long the fan waits to turn off after turning off the last stage of heating or cooling.

Frost Protection - turns on heating when the zone temperature drops below 42 degrees Fahrenheit, regardless of whether the control is enabled.

Dehum Enable - enables dehumidification control when the zone humidity rises above the humidity setpoint.

Dehumidification Sequence Mode - runs the dehumidification sequence based on the type of equipment available. For models TEC3x1x and TEC3x2x with unit type set to 2-pipe or 4-pipe fan coil, the options include:

- **Individual Coils** - select when the fan coil type is 4-pipe with separate heating and cooling coils and both heating and cooling valves installed.
- **Single Coil** - select when the fan coil type is 4-pipe with a single sheet of fins for both the heating and cooling coils and both heating and cooling valves installed.
- **2-pipe with Reheat** - select when the fan coil type is 2-pipe with reheat installed and changeover setup as cooling.

For models TEC3x3x with unit type set to RTU, the options include:

- **Simple Dehum** - select when an auxiliary dehumidifier is installed.
- **Hot Gas Reheat Dehum** - select when the equipment type is unitary RTU with hot gas reheat installed.
- **None** - select when no dehumidification equipment present.

Aux Mode - this sets the mode that the Auxiliary output runs in. The auxiliary port is reserved for Reheat control on Fan Coil and VAV units with reheat enabled. The options include:

- **Not Used** - opens the contact.
- **Occupied NO** - closes the contact when the thermostat is occupied.
- **Occupied NC** - opens the contact when the thermostat is occupied.
- **Occupied Fan NO** - closes the contact when the thermostat is occupied and the fan is running.
- **Occupied Fan NC** - opens the contact when the thermostat is occupied and the fan is running.
- **Off** - opens the contact.
- **On** - closes the contact.

Dehumidification Aux Mode - this feature is available only on TEC3x3x models when Dehum Enable is set to Enable, Aux Mode is set to Not Used, and Dehumidification Sequence Mode is set to either Simple Dehum or Hot Gas Reheat Dehum. This feaure sets the mode that the auxiliary output runs in based on the connected equipment. The options include:

- **Dehumidifier** - select when an external or auxiliary dehumidifier is connected to Aux BO.
- **Hot Gas Reheat** - select when HGR valve is connected to Aux BO.

Load Shed Rate Limit - sets that rate at which the operating setpoint increases when cooling or decreases when heating after a load shed command is issued.

Load Shed Adjust - limit at when the operating setpoint increases when cooling or decreases when heating after a load shed command is issued.

Fan Alarm Delay - amount of time that the Fan Status Input has to verify that the fan is on. If the fan operation is not verified in the specified timeframe, the TEC3000 issues an alarm. You must also define BI1 or BI2 as a Supply Fan Status using the BI1 or BI2 Config setting.

Fan Alarm Action - this sets the thermostats reaction to the fan alarm. Shutdown turns the unit off until the fan alarm reset is triggered. Enable keeps the unit operating.

Fan Alarm Reset - turns the unit on if it was turned off by a fan alarm.

Supply Air Temperature Alarm Delay - when the Supply Air Temperature Alarm Delay > 0, the supply air temperature alarm diagnostics are enabled. An alarm is issued when the supply air temperature does not drop a set number of degrees in a set number of min after a cooling

command is issued. An alarm is issued when the supply air temperature does not rise a set number of degrees within a set number of min after a heating command is issued.

Supply Air Temperature Alarm Offset - the supply air temperature alarm triggers if the supply air temperature has not changed by the offset value within the supply air temperature alarm delay time.

Fan Runtime Limit - when the fan runtime limit > 0, fan runtime monitoring is enabled. When the fan runtime > fan runtime limit, an alarm is generated.

Fan Runtime Reset - resets the current fan runtime statistics.

Unocc Low Speed Fan - runs fan at low speed in Unoccupied mode. This feature can be enabled or disabled.

Schedule Circulation Enable - schedule to run the fan for a minimum duration per hour in order to maintain circulation.

Scheduled Circulation Only when Occupied - schedule to run the fan for a minimum duration per hour when the zone is occupied in order to maintain circulation.

Minimum Hourly Fan Runtime - user configurable value to set the minimum fan runtime per hour in min.

Variable Speed Fan Circulation Setpoint - user configurable value to set the speed at which a variable speed fan runs to satisfy the scheduled minimum hourly runtime. This option is available only if the fan type is set to variable speed.

Multi-Speed Fan Circulation Setpoint - user configurable value to set the speed at low, medium, or high at which a multi-speed fan runs to satisfy the scheduled minimum hourly runtime. This option is available only if the fan type is set to multi speed fan.

Economizer Fault Detection Enable- user configurable value to enable or disable Title-24 economizer faults.

Input

BI1 Config - sets the mode that the first binary input operates in.

BI2 Config - sets the mode that the first binary input operates in.

AI1 Input Selection - sets the input process for AI1.

- Relative Humidity - 0 VDC to 10 VDC
- Remote Zone Temperature - resistive or 0 VDC to 10 VDC, adjust AI1 Setup In to configure
- Carbon Dioxide - 0 VDC to 10 VDC
- Damper Feedback - 2 VDC to 10 VDC
- Outdoor Air Temperature - resistive or 0 VDC to 10 VDC, adjust AI1 Setup In to configure

AI1 Offset - sets the offset for the AI1 input, the range varies based on the process configured for AI1 Input Selection.

- Temperature processes - -5 to 5 delta °F (-2.8 to 2.8 delta °C)
- Damper Feedback and Humidity Processes – -15% to 15%
- Carbon Dioxide - -200 ppm to 200 ppm

AI2 Input Selection - sets the input process for AI2.

- Relative Humidity - 0 VDC to 10 VDC
- Remote Zone Temperature - resistive or 0 VDC to 10 VDC, adjust AI2 Setup In to configure
- Carbon Dioxide - 0 VDC to 10 VDC
- Damper Feedback - 2 VDC to 10 VDC

- Outdoor Air Temperature - resistive or 0 VDC to 10 VDC, adjust AI2 Setup In to configure

AI2 Offset - sets the offset for the AI2 input, the range varies based on the process configured for AI2 Input Selection.

- Temperature processes - -5 to 5 delta °F (-2.8 to 2.8 delta °C)
- Damper Feedback and Humidity Processes - -15% to 15%
- Carbon Dioxide - -200 ppm to 200 ppm

AI3 Input Selection - sets the input process for AI3 (only available on TEC3x3x-1x-000 models).

- Relative Humidity - 0 VDC to 10 VDC
- Remote Zone Temperature - resistive or 0 VDC to 10 VDC, adjust AI3 Setup In to configure
- Carbon Dioxide - 0 VDC to 10 VDC
- Damper Feedback - 2 VDC to 10 VDC
- Outdoor Air Temperature - resistive or 0 VDC to 10 VDC, adjust AI3 Setup In to configure

AI3 Offset - sets the offset for the AI3 input, the range varies based on the process configured for AI3 Input Selection.

- Temperature processes - -5 to 5 delta °F (-2.8 to 2.8 delta °C)
- Damper Feedback and Humidity Processes - -15% to 15%
- Carbon Dioxide - -200 ppm to 200 ppm

Humidity Offset - sets the offset applied to the onboard zone humidity sensor.

Zone Temp Offset - sets the offset applied to the onboard zone temperature sensor.

Reset Sensors - resets the sensor inputs back to factory state. This clears any alarms for sensors which were connected at one point and are no longer connected.

Zone Temp Alarm Enabled - enables high and low temperature alarms.

Zone Temp Low Limit - sets the low alarm limit.

Zone Temp High limit - sets the high alarm limit.

Tuning

Temp Control Setup - sets Automatic PID Tuning, Manual PID Tuning, Deadband Override, or On/Off Control (On/Off Control is available for units with staged control outputs only).

- Automatic PID Tuning - uses PRAC+ (all units) and PMAC (staged units only) to satisfy zone demand. Works best with proportional equipment. Also works with staged equipment in large zones (500 sq ft or greater) with a single piece of equipment operating that space.
- Manual PID Tuning - uses manual tuning parameters to satisfy zone demand, similar to Automatic PID Tuning, but parameters need to be manually adjusted per zone.
- Deadband Override - uses PRAC+ (all units) and PMAC (staged units only) to satisfy zone demand. You can specify the Deadband parameter that PRAC+ and PMAC use.
- On/Off Control - uses a simple deadband and timer to satisfy zone demand (staged equipment only).

Reset PID Tuning - when Reset Tuning is True, causes the PID to reset the Effective Proportional Band and the Effective Integral Time to the values in Proportional Band and Integral Time.

Deadband - sets the Effective Deadband.

Auto Economizer Tuning - determines if the adaptive tuning is allowed to operate for the OA damper.

Heat Prop Band - sets the initial Effective Proportional Band.

Heat Integral Time - sets the initial Effective Integral Time.

Heat Process Range - indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.

Heat Saturation Time - sets the Effective Saturation Time.

Heat Time Constant - indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.

Heat Process Dead Time - indicates the time required for the process to begin to reflect the results of a step change.

Heat Period - sets the Effective Period.

Cool Prop Band - sets the initial Effective Proportional Band.

Cool Integral Time - sets the initial Effective Integral Time.

Cool Process Range - indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.

Cool Saturation Time - sets the Effective Saturation Time.

Cool Time Constant - indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.

Cool Process Dead Time - indicates the time required for the process to begin to reflect the results of a step change.

Cool Period - sets the Effective Period.

Econ Prop Band - sets the initial Effective Proportional Band.

Econ Integral Time - sets the initial Effective Integral Time.

Econ Process Range - indicates the magnitude of the range that the process variable traverses as the Present Value of the PID varies between its minimum and maximum values.

Econ Saturation Time - sets the Effective Saturation Time.

Econ Time Constant - indicates the time required for a system to reach 63% of its final magnitude given a 100% step change.

Econ Process Dead Time - indicates the time required for the process to begin to reflect the results of a step change.

Econ Period - sets the Effective Period.

Equipment Size - sets the internal zone temperature response, which can be Normal (slower) or Oversized (faster).

Ventilation

Demand Control Ventilation Enable - this is a user configurable value to enable or disable the Demand Control Ventilation feature. This option is available only when an economizer, damper feedback and CO_2 sensor are installed. This option is not available on units with a built-in occupancy sensor.

Occupant Sensor Ventilation Enable - this is a user configurable value to enable or disable the Occupant Sensor Ventilation feature. This option is available only when an economizer, damper feedback and CO_2 sensor are installed and on units that have a built-in occupancy sensor.

Pre Occupancy Purge Time - this is a user configurable value of purge time. Pre Occupancy Purge occurs only once a day before the first occupied period on the local schedule. The purge opens the damper to 100%. This option is available only when either Demand Control Ventilation Enable or Occupant Sensor Ventilation Enable is enabled.

Allow Min Ventilation During Occ - this is a user configurable value to setup minimum ventilation behavior during occupancy periods. Enable forces a minimum ventilation during Occ with the RTU opening the damper further for either free cooling or CO_2 reduction. Disable forces the damper shut during Occ with the RTU opening the damper only for free cooling or CO_2 reduction. This option is available only when either Demand Control Ventilation Enable or Occupant Sensor Ventilation Enable is Enabled.

Epidemic Control Ventilation Enable - this is a user configurable value to enable or disable the Epidemic Control Ventilation feature. This option is available only when an economizer is installed, damper feedback and CO_2 sensor are installed.

Enable Minimum Ventilation When Unocc - this is a user configurable value to enable or disable the minimum ventilation operation when a zone is unoccupied. This option keeps the outdoor air damper open to a user configured minimum value, even when a zone is unoccupied. This option is available only when Epidemic Control Ventilation Enable is Enabled.

Unoccupied Damper Minimum Position - this is a user configurable value of outdoor air damper minimum position to be maintained when Enable Minimum Ventilation when Unocc is enabled. This option is available only when Epidemic Control Ventilation Enable is Enabled.

Inc Ventilation Pre Occ Purge Time - this is a user configurable value of purge time. Increased Ventilation Pre Occupancy Purge occurs once a day only before the first occupied period on the local schedule. The purge opens the damper to 100% for the set purge time. This option is available only when Epidemic Control Ventilation is Enabled.

Enable Humidity Alarm - this is a user configurable value to enable or disable the low and high humidity alarms for the zone when purging is done. This option is available only when Epidemic Control Ventilation Enable is Enabled.

Network Setup (present in TEC30xx-1x-000, TEC36xx-1x-000, and TEC31xx-14-000 models)

FC Comm Mode - sets BACnet MS/TP or N2 communications mode (TEC36xx-1x-000 models) or displays Wireless Field Bus (TEC30xx-1x-000 and TEC31xx-1x-000 models).

Device OID - sets the instance ID of the thermostat when on a BACnet MS/TP network.

N2 Address - sets the physical network address on an N2 network (present in TEC36xx-1x-000 models only).

BACnet Address - sets the physical network address on a BACnet MS/TP network.

MS/TP Baud Rate - sets the baud rate of the BACnet MS/TP network (present in TEC36xx-1x-000 models only).

BACnet Encoding Type - sets the encoding type to use on the BACnet MS/TP network.

PAN ID - is the value used for the ZFR182x and ZFR183x Pro Series Wireless Personal Area Network. This value needs to be the same as the value set in the associated ZFR182x or ZFR183x Coordinator Radio. (present in TEC30xx-1x-000 and TEC31xx-14-000 models only).

Equipment Setup

General (Equipment Setup)

Unit Type - sets the type of fan coil or VAV system being controlled.

Htg/Clg Device Type - sets the output type to Floating (Incremental) or On-Off (2-position).

Actuator Stroke Time - sets the stroke time for a floating (Incremental) actuator to open or close.

Number of Compressors - sets the number of compressors in a rooftop unit or heat pump.

Runtime Equalization - when enabled, the thermostat alternates between Y1 and Y2 calls when cycling 2-stage compressors to ensure both compressors are equally used.

Number of Heating Stages - this sets the number of heat stages in a rooftop unit. This option does not exist on heat pumps. Heat Pumps support a single stage of supplemental heating on top of compressor heating.

Compressor Min On Time - sets the minimum time that a compressor runs under normal control conditions.

Compressor Min Off Time - sets the minimum time that a compressor must be off for before turning on again.

Cooling Min On Time - sets the minimum time that the cooling valve is open under normal control conditions.

Cooling Min Off Time - sets the minimum time that the cooling valve is closed before opening again.

Heating Min On Time - sets the minimum time that the heating valve/stage is open under normal conditions.

Heating Min Off Time - sets the minimum time that the heating valve/stage is closed before opening again.

Unoccupied Off Delay - sets the heating/cooling setpoint on time following the setpoint being reached.

Reheat Min On Time - sets the minimum time that the reheat device runs under normal conditions.

Reheat Min Off Time - sets the minimum time that the reheat device is off before starting again.

Supp Min On Time - sets the minimum time that the supplemental heating runs under normal conditions.

Supp Min Off Time - sets the minimum time that the supplemental heating is off before starting again.

Cooling Lockout Temp - sets the outdoor temperature below which cooling does not run regardless of zone temperature.

Heating Lockout Temp - sets the outdoor temperature above which heating does not run regardless of zone temperature (note: Frost Protection overrides this lockout).

Valve Open Voltage - sets the voltage at which the heating/cooling valve is fully opened.

Valve Closed Voltage - sets the voltage at which the heating/cooling valve is fully closed.

Unoccupied Off Delay- sets the off delay time that the unit will continue to heat or cool after demand has been met when in Unoccupied mode.

Supply fan

Supply Fan Type - sets the type of fan to Single-, Multi-, or Variable-Speed.

Start Voltage - sets the voltage at which the variable speed fan starts running.

Full Speed Voltage - sets the voltage at which the variable speed fan reaches its full speed.

Minimum Command - sets the minimum command (in units of percent of full speed) at which the variable speed fan runs when the thermostat runs the fan.

Medium Speed On Cmd - sets the load percentage at which the multi-speed fan switches to medium speed. Recommended settings are 33 for three-speed fans and 50 for two-speed fans.

High Speed On Cmd - this sets the load percentage at which the multi-speed fan switches to high speed. Recommended settings are 66 for three-speed fans and 100 for two-speed fans. Setting to 100% disables the third speed.

Medium Fan On Diff Sp - this sets the deltaT from active setpoint at which the multi-speed fan speed starts to run on medium speed. Available only when the supply fan type is set to multi-speed.

Medium Fan Off Diff Sp - this sets the deltaT from active setpoint at which the multi-speed fan speed stops to run on medium speed. Available only when the supply fan type is set to multi-speed.

High Fan On Diff Sp - this sets the deltaT from active setpoint at which the multi-speed fan speed starts to run on high speed. Available only when the supply fan type is set to multi-speed.

High Fan Off Diff Sp - this sets the deltaT from active setpoint at which the multi-speed fan speed stops to run on high speed. Available only when the supply fan type is set to multi-speed.

Reheat

Reheat Installed - sets if a staged reheat device is installed on the unit.

Reheat Min Damper Pos - this sets the minimum VAV damper position when reheat is active. This is used to ensure airflow across a box-mounted reheat device.

Reheat Fan Required - this sets whether the fan must be running whenever reheat is active. This would be True for box-mounted reheat devices and False for baseboard reheat devices.

Economizer

Economizer Installed - sets if economizer damper control is required on the rooftop or heat pump unit.

Minimum Position - sets the minimum economizer position when the fan is running.

Closed Voltage - sets the voltage corresponding to the damper being fully shut.

Opened Voltage - sets the voltage corresponding to the damper being fully opened.

Dry Bulb Setpoint - sets the outdoor air temperature above which economizer cooling does not operate when in dry bulb mode (present when the TEC only has a reliable outdoor temperature).

Outdoor Enthalpy Setpoint - sets the outdoor air enthalpy above which economizer cooling does not operate when in single enthalpy mode (present when the TEC has a reliable outdoor temperature and a reliable outdoor humidity).

Damper Minimum Position - user configurable value to set the outdoor air damper minimum position.

Damper Maximum Position - user configurable value to set the outdoor air damper maximum position.

Low OA Damper Position - user configurable value to setup the damper position with outdoor air temperature below threshold.

Damper Pos Error - user configurable value of tolerable damper position error.

Test Outdoor Air Damper - user configurable value to enable or disable the function to test outdoor air damper response and feedback status. Enabling this parameter exposes the Economizer Damper % Command and Outdoor Air damper test status points for damper test and feedback status monitoring.

Economizer Damper % Command - user configurable damper percent command test value.

Outdoor Air Damper Test Status - outdoor air damper test results status displayed as pass or fail. Test status is pass when Damper Feedback = Economizer Damper % Command +/- Damper Pos Error and Test status is fail otherwise.

Heat pump

Heat Pump Supported - this is set if the W1 output should be used to control a reversing valve (O/B) and if Y1/Y2 should control compressors for both cooling and heating. Supp Heating Installed – Sets if a stage of supplemental heating is connected to the W2 output. Many heat pumps with integrated control units use traditional thermostat wiring (Y, W, and G inputs). Only set this option to **Yes** on the heat pump units where the thermostat controls an O/B input on the equipment.

Supp Heating Installed - sets if supplemental heating is installed on the unit.

Comp Low Lockout Temp - sets the temperature below which compressor heating does not run.

Supp High OA Lockout Temp - sets the temperature above which supplemental heating does not run.

Reversing Valve Polarity - sets if the reversing valve is cooling when the output is active (Active Cooling) or heating (Active Heating).

Changeover

Changeover Mode - this sets the changeover mode of the unit to Heating, Cooling or Auto. Automatic changeover requires a supply temperature sensor/switch to be installed. When set to Heating or Cooling, the COS input defaults to the analog sensor mode, and is set to be used as an optional temperature monitoring point. Changeover is available only when the unit type is two-pipe or VAV.

Supply Temp Type - this sets the type of supply temperature detection being used for changeover. The options include:

- **Analog Sensor** - a temperature sensor connected to the COS input.
- **Heating Closed Switch** - a switch which closes above a certain temperature is connected to the COS input.
- **Cooling Closed Switch** - a switch which opens above a certain temperature is connected to the COS input.

Supply Temp Sensor - sets the type of analog supply temperature sensor connected to the thermostat.

Changeover Setpoint - this sets the temperature at which the TEC switches from cooling to heating mode. The TEC enters cooling below this setpoint, and once in cooling mode, does not switch back to heating mode until the temperature rises more than 10 degrees above the setpoint.

AI2 Setup In - sets the type of analog supply temperature sensor connected to the thermostat.

AI2 Offset - sets the offset applied to the supply/discharge temperature reading.

Commissioning

Commissioning - this starts the commissioning mode. Commissioning mode is used to verify hardware inputs and outputs.

Trend

Effective Zone Temperature - data sample taken every 15 min (100 samples stored).

Active Setpoint - data sample taken every 15 min (100 samples stored).

Return Air Humidity - data sample taken every 15 min (100 samples stored).

BI1 Status - data sample taken after each use (25 samples stored).

BI2 Status - data sample taken after each use (25 samples stored).

Operational Outdoor Air Temperature (if active) - data sample taken every 15 min (100 samples stored).

Supply Air Temperature (if active) - data sample taken every 15 min (100 samples stored).

Fan Command - data sample stored after each change (25 samples stored).

Cool Stage 1 On - data sample stored after each change (25 samples stored).

Cool Stage 2 On - data sample stored after each change (25 samples stored).

Heat Stage 1 On - data sample stored after each change (25 samples stored) Heat Stage 2 On - data sample stored after each change (25 samples stored).

Economizer PID CMD - this is the Economizer output % command. The data sample is taken every 15 min (100 samples stored).

Heat PID CMD - this is the Heating Loop % command. The data sample is taken every 15 min (100 samples stored).

Cool/Dehumid PID CMD - this is the Cooling and Dehumidification % command. The data sample is taken every 15 min (100 samples stored).

Status

System status

Occupancy Source - displays the current source of the TEC thermostat's occupancy.

Unit Status - displays if the thermostat is cooling, heating, idle, disabled, or the reason why cooling and heating is unavailable.

Outdoor Air Temperature - displays the outdoor air temperature value in the thermostat.

Supply Air Temperature - displays the supply temperature value in the thermostat.

Economizer Available - displays the status if the outdoor conditions are suitable for economizer cooling.

Cooling OAT Lockout - displays if cooling is being locked out due to low outdoor air temperature.

Heating OAT Lockout - displays if heating is being locked out due to high outdoor air temperature.

Comp Low OAT Lockout - displays if compressor heating is locked out due to low outdoor air temperature.

Supp High Lockout Temp - displays if supplemental heating is locked out due to high outdoor air temperature.

Changeover State - displays the current state of changeover detection.

Zone Temp Source - displays the source of the zone temperature reading in the TEC thermostat.

Fan Accumulated Runtime - displays the current runtime value of the supply fan.

BI1 Status - displays the current status of BI1.

BI2 Status - displays the current status of BI2.

Zone Dew Point Temperature - status point that displays the calculated Zone dew Point temperature.

Free Cooling Available - status point that indicates if free cooling is available based on internal calculations from configured humidity and temperature sensors.

Control status

Cooling % Command - displays the current PID controller percent command.

Heating % Command - displays the current PID controller percent command.

Reheat % Command - displays the current PID controller percent command.

Supplemental % Command - displays the current PID controller percent command.

Economizer % Command - displays the current PID controller percent command.

Cool Stage 1 - displays if the first stage of cooling is on.

Cool Stage 2 - displays if the second stage of cooling is on.

Heat Stage 1 - displays if the first stage of heating is on.

Heat Stage 2 - displays if the second stage of heating is on.

Reheat - displays if the reheat stage is on.

Supplemental Heat - displays if the supplemental heat stage is on.

Fan % Command - displays the current fan percent command.

Fan - displays the current fan status/speed.

Dehumidifier Command - displays the current status of the dehumidifier output. This option is available only on TEC3x3x models if Dehumidification Sequence Mode is set to Simple Dehum and Dehumidification Aux Mode is set to Dehumidifier.

Hot Gas Reheat Command - displays the current status of the hot gas reheat output. This option is available only on TEC3x3x models if Dehumidification Sequence Mode is set to Hot Gas Reheat Dehum and Dehumidification Aux Mode is set to Hot Gas Reheat.

Mixed Air Low Limit Cycle - indicates whether the supply air low limit tempering is active or not.

Thermostat info

Model Name - displays the TEC factory model name.

Software Version - displays the currently installed software version.

Unit Name - displays the TEC unit name.

Description - this is the description of the device. The description displays in the Device List for the mobile access portal (MAP), the device list for the wireless network coordinator.

Device Name - this is the description of the device. The description displays in the Device List for the MAP, the device list for the wireless network coordinator.

Comms status (wireless TECs only)

Radio Code Version - displays the current version of the radio code software.

PAN ID - displays the current PAN ID.

Active Channel - displays the active wireless network channel.

Signal Strength - displays the current wireless signal strength.

Connection Status - displays the current wireless connection status.

Network State - displays the current network state.

Supervisor Status - displays the current supervisor status.

IEEE Address - displays the wireless MAC address.

Short Address - displays the short address.

DCV status

Not Economizing When Should - Title 24 economizer fault condition that indicates Economizer Damper percentage command is less than minimum outdoor air damper position and damper position error (damper position tolerance).

Economizing When Should Not - Title 24 economizer fault condition that indicates Economizer Damper percentage command is greater than minimum outdoor air damper position and damper position error (damper position tolerance).

Damper Not Modulating - Title 24 economizer fault condition that indicates the damper is stuck, Economizer damper % command minus economizer damper position is less than the damper position error or tolerance.

Excess Outdoor Air - Title 24 economizer fault condition that indicates excess outdoor air being let in (Economizer damper percentage command is less than minimum OA position and damper minimum position tolerance and Ramp minimum OA) OR (economizer damper percentage command is less than damper minimum position tolerance and ramp closed).

Air Temperature Sensor Failure - outdoor air temperature sensor value is unreliable.

Economizer Enabled for Operation - status point that indicates if economizer damper is enabled.

Compressor Enable - status point that indicates if compressor is enabled and turned on.

Heating Enable - status point that indicates if any of the heating stage is enabled and turned on.

Update

View Version - displays the currently installed software version.

Load Firmware - you can upgrade the TEC firmware if there is a USB drive with an update connected to the TEC. The control is off following the TEC thermostat restart after the upgrade.

The configuration can be backed up to the USB drive and restored to like models in order to expedite the commissioning process.

> **Important:** The control mode is set to Control Off following the TEC thermostat restart after a firmware update.

Restore - restores the configuration from either the internal memory or a USB drive.

Backup - backs up the current configuration to internal memory and a USB drive (when connected).

BAS only points

Effective Zone Temperature - zone temperature used for control after determining if it is the onboard or remote zone temperature sensor being used.

Effective Setpoint - setpoint used for control that results from the combination of the occupancy and control mode parameters.

Effective Cooling Setpoint - cooling setpoint that results from the combination of the occupancy and control mode parameters.

Effective Heating Setpoint - heating setpoint that results from the combination of the occupancy and control mode parameters.

Network Supply Air Temperature - supply air temperature provided by the bus supervisory controller.

Effective Supply Air Temperature - supply air temperature that results from a combination of the local SAT sensor and the NET-SAT value.

Network Outdoor Air Temperature - outdoor air temperature provided by the bus supervisory controller.

Effective Outdoor Air Temperature - outdoor air temperature that results from a combination of the local OAT sensor and the NET-OAT value.

Network Outdoor Air Humidity - outdoor air humidity provided by the bus supervisory controller.

Network Zone Humidity - zone humidity provided by the bus supervisory controller.

Effective Zone Humidity - zone humidity used for control operation to determine which input is used, either the onboard sensor, the remote zone temperature sensor, or network input.

Supervisor Occupancy - occupancy status provided by the bus supervisory controller.

Effective Occupancy - occupancy status that results from a combination of the local occupancy sensor and the NET-OCC value.

Lockout Level - lockouts that the bus supervisory controller can apply to the unit.

Calendar Object - the schedule and calendar object work together to determine the type of schedule that is in effect. It is recommended that you only use weekly schedules for the TEC.

Effective Outdoor Air Humidity - outdoor air humidity used for control operation after determining which input is used, either the remote outdoor air humidity sensor or network input.

Effective Air Quality - zone CO_2 used for control operation after determining which input is used, either the remote Zone CO_2 sensor or network input.

Network Air Quality - zone CO_2 network input provided by the bus supervisory controller.

Effective Damper Feedback - outdoor air damper feedback used for control operation after determining which input is used, either the remote outdoor air damper feedback sensor or network input.

Network Damper Feedback - outdoor air damper feedback network input provided by the bus supervisory controller.

Troubleshooting

Table 12: Fault list

Faults	Probable causes	Solutions
Remote Zone Temp Fail	The External Zone Temperature sensor has been disconnected or has failed.	1. Check the wiring of the sensor. 2. If intentionally disconnected, reset the sensors through the Inputs menu under Control Setup. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Supply Temp Fail	The External Supply Temperature sensor has been disconnected or has failed.	1. Check the wiring of the sensor. 2. If intentionally disconnected, reset sensors through the menu. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Outdoor Temp Fail	The External Outdoor Air Temperature sensor has been disconnected or has failed.	1. Check the wiring of sensor. 2. If intentionally disconnected, reset sensors through the menu. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Internal Sensor Fail	An internal sensor has failed on the TEC.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.

Table 12: Fault list

Faults	Probable causes	Solutions
OA Lockouts Disabled	The Local Outdoor Air Temperature sensor has become disconnected or failed or a network Outdoor Air Temperature sensor has timed out, and the TEC is no longer shutting down equipment based on the OA lockout setpoints.	1. If the source of outdoor air temperature was a locally connected sensor, follow the steps for the Outdoor Temp Fail alarm. 2. If the source of outdoor air temperature was a BAS, check the BAS to ensure that it is still online and providing the TEC with the temperature reading. If removal of the BAS mapping was intentional, reset sensors through the menu.
Econ Unavailable	The Outdoor Air Temperature sensor is not installed, has failed, or has been disconnected and the TEC can no longer control the economizer.	1. Check the wiring of sensor. 2. If intentionally disconnected, reset sensors through the menu. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Dehum Unavailable	Dehumidification is unavailable because the zone humidity sensor has failed.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Service	Equipment connected to the BI configured for a Service alarm is triggering the alarm.	Service the equipment per the manufacturer's recommendation.
Dirty Filter	Equipment connected to the BI configured for a Dirty Filter alarm is triggering the alarm.	Replace the filter in the equipment per the manufacturer's instructions.
Calibration Corrupt	Factory calibration data is lost or is not installed.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Changeover Fail	The Supply Temperature Sensor is not installed, has failed, or has been disconnected and the TEC can no longer detect changeover mode to cool or heat.	1. Check the wiring of the sensor. 2. If intentionally disconnected, reset sensors through the menu. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Zone Temp Unreliable	All sources of zone temperature are unreliable, including the onboard sensor.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Open Window	The switch connected to the BI configured for Open Window is sensing that the window is opened, and control has shut down.	1. Close the window to resume control. 2. Check sensor functionality with an ohmmeter, and verify the wiring to the TEC. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Fan Lock	The switch connected to the BI configured for Fan Lock did not sense airflow within 10 seconds of starting the fan, and control has been shut down.	1. Inspect equipment to ensure fan functions. 2. Check sensor functionality with an ohmmeter, and verify wiring to the TEC. 3. Reset fault by entering the menu, selecting Fault Status, and selecting the Fan Lock. 4. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.

Table 12: Fault list

Faults	Probable causes	Solutions
Humidity Unreliable	The zone humidity reading was reliable and has now failed.	1. If the source of zone humidity was the onboard sensor, order replacement units and return the affected devices to Johnson Controls under the RMA program. 2. If the source of zone humidity was a BAS, check the BAS to ensure that it is still online and providing the TEC with the humidity reading. If removal of the BAS mapping was intentional, reset sensors through the menu.
Controller Fault	The thermostat has detected an internal fault that it cannot recover.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
	An unknown error has prevented the thermostat from turning on.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Touchscreen Unavailable	The touch screen components have failed to initialize.	1. Restart the thermostat. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Board Mismatch	The baseboard and CPU board are paired incorrectly. An error message appears on the TEC that indicates the model number of the baseboard and CPU board.	Match the baseboard to its corresponding CPU board. See Model names and code numbers for information to ensure you have the CPU board and baseboard paired correctly.
Firmware Mismatch	The previous upgrade has not completed.	1. Upgrade the TEC3000 to the latest released version. 2. Upgrade the TEC3000 to the current version again.
	The previous downgrade has not completed because the previous version is no longer supported.	Restart the TEC3000 to clear the fault.
USB Malfunction	A USB drive has malfunctioned and drawn more than the maximum allowed current.	1. Attempt to insert and use the USB drive again. 2. Try a new USB drive. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Zone Temperature Too Cold	The unit is not performing correctly.	1. Check the heating on the unit. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Zone Temperature Too Hot	The unit is not performing correctly.	1. Check the cooling on the unit. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Supply Fan Fault	The fan status is not matching the fan command.	1. Check the supply fan on the unit. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Heating Ineffective	The supply air temperature is not rising when the unit is calling for heat.	1. Check the unit. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.

Table 12: Fault list

Faults	Probable causes	Solutions
Cooling Ineffective	The supply air temperature does not fall when the unit calls for cold.	1. Check the unit. 2. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Supply Fan Runtime Limit	The fan has run to the limit set in the Control Setup menu.	1. Perform routine maintenance on the unit. 2. Reset the runtime using the Fan Runtime Reset object under Control Setup. The runtime is reset and an alarm is issued after the limit is reached again. 3. If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
Not Economizing When Should Economizing When Should Not Damper Not Modulating Excess Outdoor Air	Damper actuator failure, physical blockage of the outdoor air damper, or feedback mismatch.	Verify outdoor air damper functionality and verify the command and feedback signals

Table 13: Troubleshooting details

Symptom	Probable causes	Solutions
The thermostat displays **Idle** with a **Unit Status of Cooling Unavailable due to Changeover** despite being above cooling setpoint, or with a status of **Heating Unavailable due to Changeover** despite being below the setpoint. (TEC3612-1x-000, TEC3613-1x-000, TEC3622-1x-000, TEC3623-1x-000 models only.)	The two-pipe fan coil/VAV system does not have a changeover sensor and switch connected, or the sensor/switch has failed.	1. Check the wiring of the supply temperature sensor/switch. 2. Verify that the changeover is set up correctly for the type of sensor attached (sensor/switch).
	The changeover temperature is sensing a hot supply but the thermostat is requesting cooling.	1. Verify that the supply is not in heating mode. If it is, nothing can be done from the TEC. 2. Check the wiring of the supply temperature sensor/switch. 3. Check the placement of the supply temperature sensor/switch. 4. Verify that the changeover is set up correctly for the type of sensor attached (sensor/switch).
	Changeover temperature is sensing a cold supply but the thermostat is requesting heating.	1. Verify that the supply is not in cooling mode. If it is, nothing can be done from the TEC. 2. Check the wiring of the supply temperature sensor/switch. 3. Check the placement of supply temperature sensor/switch. 4. Verify that the changeover is set up correctly for the type of sensor attached (sensor/switch).
The thermostat displays **Idle** with a **Unit Status of Cooling Unavailable due to OA Temp** despite being above cooling setpoint, or with a status of **Heating Unavailable due to OA Temp** despite being below the setpoint. (TEC3630-1x-000, TEC3631-1x-000 models only.)	The outdoor air temperature is too warm for heating or too cold for cooling.	1. If Cooling and Heating Lockout Setpoints are inadequate, adjust the setpoints. 2. Wait for the outdoor conditions to be favorable for heating or cooling.

Table 13: Troubleshooting details

Symptom	Probable causes	Solutions
The thermostat displays **Idle** with a **Unit Status of Cooling Unavailable due to Control Mode** despite being above cooling setpoint, or with a status of **Heating Unavailable due to Control Mode** despite being below the setpoint. (All models.)	The Control Mode is set to Cooling Mode but the thermostat is requesting heating.	Change the Control Mode to Auto or Heating.
	The Control Mode is set to Heating Mode but the thermostat is requesting cooling.	Change the Control Mode to Auto or Cooling.
The thermostat displays **Idle** with a **Unit Status of Cooling Unavailable** despite being above cooling setpoint, or with a status of **Heating Unavailable** despite being below the setpoint. (TEC3630-1x-000,TEC3631-1x-00 models only.)	The Number of Compressors set to Not Used and the thermostat is requesting cooling, or Number of Heating Stages is set to Not Used.	Adjust the number of compressors and number of heating stages to match the configuration of the unit.
The heat pump does not sequence correctly. (TEC3630-1x-000,TEC3631-1x-00 models only.)	The heat pump requires traditional wiring (Y1, Y2, W1, W2, and G) and handles the reversing valve internally, but Heat Pump Supported is set to Yes.	Consult the equipment documentation to verify wiring configuration, then set Heat Pump Supported to No.
	The heat pump requires thermostat to control the reversing valve (Y1, Y2,O/B, and G) but the Heat Pump Supported is set to No.	Consult the equipment documentation to verify wiring configuration, then set Heat Pump Supported to Yes.
The heat pump heats when it should be cooling, and cools when it should heat. (TEC3630-1x-000,TEC3631-1x-00 models only.)	Reversing Valve polarity is incorrectly set.	Consult the equipment documentation to verify reversing valve polarity, then adjust the Reversing Valve Polarity menu option accordingly.
The staged equipment shuts off above the cooling setpoint or below the heating setpoint when the PID is running on the TEC. If the unit is in On/Off Control mode, this does not apply (TEC3612-1x-000, TEC3613-1x-000, TEC3630-1x-000, TEC3631-1x-00 models only.)	The PID control algorithm minimizes overshoot and energy usage for the particular equipment and zone, and may cycle the equipment before reaching setpoint.	Expected behavior.
The staged equipment cycles too rapidly or too slowly when the PID is running on the TEC (TEC3612-1x-000, TEC3613-1x-000, TEC3630-1x-000, TEC3631-1x-00 models only.)	The control band around the setpoint is determined by the minimum on/off times and is set incorrectly for the equipment, zone, or user preference. A tradeoff exists between reduced control band size and increased energy usage and equipment wear from increased cycling.	1. Verify that equipment minimum on/off times are set correctly. 2. If the default deadband around the setpoint does not provide the required temperature control, set Temp Control Setup to Deadband Override and set the Deadband parameter to the preferred value.
The thermostat provides an error when trying to upgrade firmware. (All models.)	The firmware on the USB drive is below the minimum required version. Error code 1025.	For wired TEC3000s, use firmware version 3.0.2.xxxx or higher. A restart is required to clear the Firmware Mismatch fault that occurs.
		For wireless TEC3000s, use firmware version 2.0.2.xxxx or higher. A restart is required to clear the Firmware Mismatch fault that occurs.
The TEC3000 zone temperature does not change fast enough compared to the measured zone temperature from a verification device (a calibrated sensor).	The TEC3000 is configured by default for larger spaces with normal-sized equipment when a proportional device is active.	Select **Control Setup** >**Tuning** > **Equipment Size** > **Oversized**.
The thermostat provides an error when trying to back up settings. (All models.)	The USB drive is defective.	Try a different USB drive.

Table 13: Troubleshooting details

Symptom	Probable causes	Solutions
The thermostat provides an error when trying to restore settings from a backup. (All models.)	The USB drive is defective.	Try a different USB drive.
	The Restore file is corrupt.	Try restoring a different backup file.
	The Restore file is from an incompatible model TEC.	Ensure that the backup file being restored was from the same model TEC.
The thermostat is unable to access a USB drive. (All models.)	The drive is formatted as NTFS or another unsupported format. The TEC supports FAT and FAT32 formats only.	Reformat the USB drive, or try a different USB drive with a supported format.
	The USB drive is defective.	Try a different USB drive.
The thermostat displays Board Mismatch. (All models.)	The I/O board that the display board is currently attached to does not match the one that initially shipped with the display board.	Attach the display board to the correctI/O board.
	A hardware failure is causing the two boards to incorrectly identify themselves.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
The thermostat displays Controller Fault. (All models.)	An internal fault was detected and the thermostat was unable to recover.	If problems persist, order replacement units and return the affected devices to Johnson Controls under the RMA program.
The Bell icon is displayed on the TEC home page. (All models.)	The fault has been detected on the TEC.	See Table 12 for TEC fault causes and resolution.
Partial Restore Complete is displayed when trying to restore settings from a backup file. (All models.)	Not all of the items in the backup file have been restored. This error can be caused by a value being out of the minimum or maximum range in the backup file. It may also occur if there are inconsistencies in the reliability of a setting in the backup file and on the TEC device.	1. Create a backup file on a USB drive for the TEC that is showing the issue. 2. Edit the backup file created in step 1 on a computer to reflect the preferred settings. 3. Verify that the modified values are within minimum and maximum range in the backup file. 4. Restore the settings from the newly edited backup file on the TEC.
The network engine field point mapping process ends unexpectedly.	Selecting Map All to map the field points.	Select the displayed field points individually through the Point Mapping Utility. There are 60 field points available.
Some icons are hidden.	Lockout levels are used or the icons are hidden due to the display settings.	See Table 10 for lockout levels and access details.

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

Related documentation

See Table 14 to locate information in related documentation.

Table 14: TEC3000 Series Field-Selectable BACnet MS/TP or N2 Networked and Wireless Thermostats related documentation

For information about	See document	Document number
Applications, Features, and Benefits of the TEC3000 Series BACnet MS/TP or N2 Network Temperature and Humidity Thermostat	*TEC3000 Color Series Thermostats Product Bulletin*	*LIT-12013193*
	TEC3000 Color Series Thermostats Catalog Page	*LIT-1901109*
Locating, Mounting, and Wiring a TEC3000 Series BACnet MS/TP or N2 Network Temperature and Humidity Thermostat	*TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide*	*LIT-12013161*
	TEC3000 Series Proportional Fan Coil Thermostats Installation Guide	*LIT-12013162*
	TEC3000 Series Thermostat for Rooftop Package and Heat Pump with Economizer Installation Guide	*LIT-12013163*
Installing, Wiring, and Setting up a TEC3000 Series BACnet MS/TP or N2 Network Temperature and Humidity Thermostat	*TEC3000 Series On/Off or Floating Fan Coil Thermostats Quick Start Guide*	*Part No. 24-11353-000 01*
	TEC3000 Series Proportional Fan Coil Thermostats Quick Start Guide	*Part No. 24-11353-000 28*
	TEC3000 Series Thermostat for Rooftop Package and Heat Pump with Economizer Quick Start Guide	*Part No. 24-11353-000 36*
Wireless TEC Networks	*WNC1800/ZFR182x Pro Series Wireless Field Bus System Technical Bulletin*	*LIT-12012356*
Wireless TEC Networks	*WRG1830/ZFR183x Pro Series Wireless Field Bus System Technical Bulletin*	*LIT-12013553*

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: https://jcipat.com

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