Honeywell

TC300 Thermostats

BACnet Integration Guide

31-00646-05 | Rev. 11-25

TABLE OF CONTENT

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Waste Electrical and Electronic Equipment (WEEE)

WEEE: Waste Electrical and Electronic Equipment Directive	
	• At the end of the product life, dispose of the packaging and product in an appropriate recycling center. • Do not dispose of the device with the usual domestic refuse. • Do not burn the device.

FCC Part 15 compliant

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Regulation (EC) No 1907/2006

According to Article 33 of Reach Regulation, be informed that the substances listed below may be contained in these products above the threshold level of 0.1% by weight of the listed article.

Product/Part Code	Substance Name	CAS Number
Only TC300 Thermostats main board PCBA	Lead	7439-92-1
	Lead oxide	1317-36-8

Important Safety Information and Installation Precautions

Read all instructions.

Failure to follow all instructions may result in equipment damage or a hazardous condition. Read all instructions carefully before installing equipment.

When performing any work (installation, mounting, start-up), all manufacturer instructions and in particular the TC300 Commercial Thermostats Mounting Instructions (31-00642) are to be observed.

- TC300 Thermostats may be installed and mounted only by authorized and trained personnel.
- It is recommended that devices be kept at room temperature for at least 24 hours before applying power. This is to allow any condensation resulting from low shipping/storage temperatures to evaporate.
- Do not open TC300 Thermostats, as they contains no user-serviceable parts inside!
- Investigated according to United States Standard UL- 60730-1, and UL60730-2-9.
- Investigated according to Canadian National Standard(s) C22.2, No. 205-M1983 (CNL-listed).
- CE declarations according to LVD Directive 2014/35/EU and EMC Directive 2014/30/EU.
- Product standards are EN 60730-1 and EN 60730-2-9.
- TC300 Thermostats are Class B digital apparatus and complies with Canadian ICES-003.

Local codes and practices

Always install equipment in accordance with the National Electric Code and in a manner acceptable to the local authority that have jurisdiction.

Electrostatic sensitivity

This product and its components may be susceptible to electrostatic discharge (ESD). Use appropriate ESD grounding techniques while handling the product. When possible, always handle the product by its non-electrical components.

High voltage safety test

Experienced electricians, at first contact, always assume that hazardous voltages may exist in any wiring system. A safety check using a known, reliable voltage measurement or detection device should be made immediately before starting work and when work resumes.

Lightning and high-voltage danger

Most electrical injuries involving low-voltage wiring result from sudden, unexpected high voltages on normally low voltage wiring. Low voltage wiring can carry hazardous high voltages under unsafe conditions. Never install or connect wiring or equipment during electrical storms. Improperly protected wiring can carry a fatal lightning surge for many miles. All outdoor wiring must be equipped with properly grounded and listed signal circuit protectors, which must be installed in compliance with local, applicable codes. Never install wiring or equipment while standing in water.

Wiring and equipment separations

All wiring and controllers must be installed to minimize the possibility of accidental contact with other potentially hazardous and disruptive power and lighting wiring. Never place 24 VAC or communications wiring near other bare power wires, lightning rods, antennas, transformers, or steam or hot water pipes. Never place wire in any conduit, box, channel, duct, or other enclosure containing power or lighting circuits of any type. Always provide adequate separation of communications wiring and other electrical wiring according to code. Keep wiring and controllers at least six feet from large inductive loads (power distribution panels, lighting ballasts, motors, etc.). Failure to follow these guidelines can introduce electrical interference and cause the system to operate erratically.

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Safety Information as per EN60730-1

TC300 Thermostats are intended for commercial and residential environments.

TC300 Thermostats are an independently mounted electronic control system with fixed wiring.

TC300 Thermostats are used for the purpose of building HVAC control and is suitable for use only in non-safety controls for installation on or in appliances.

CHAPTER

1 INTRODUCTION

Topics covered

Scope of the document

The BACnet Integration document contains information related to BACnet Objects and the properties of the TC300 thermostats that help engineers to integrate and configure the settings via a BACnet tool.

Reference documents

- TC300 Commercial Thermostats User Guide (31-00644)
- TC300 Commercial Thermostats Datasheet (31-00645)
- TC300 Commercial Thermostats Mounting Instructions (31-00642)
- TC300 Commercial Thermostats Pocket Guide(31-00648)
- TC300 Deco Plate Pocket Guide (31-00657)
- TC300 Safety Sheet (31-00643)
- TC300 Thermostats BACnet Integration Guide (31-00646)

Terms, Acronyms, and Abbreviations

Table 1 Terms, Acronyms, and Abbreviations

Term, Acronym, Abbreviation	Definition
UI	Universal Input
UIO	Universal Input/Output
DO	Digital Output
Cfg	Configuration
BAS	Building Automation System
ni	Network Input
no	Network Output
NC	Network Configuration

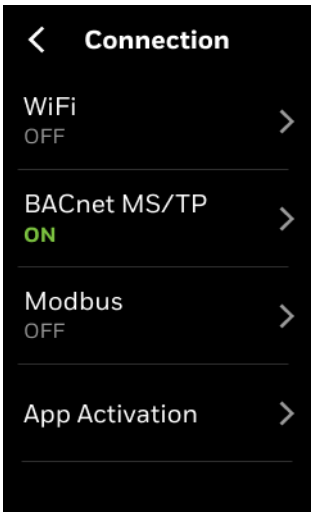
Setting up BACnet MS/TP

The BACnet MS/TP network can be configured while setting up the thermostat. Refer to the TC300 Commercial Thermostats User Guide - 31-00644 or follow the steps below.

To connect thermostat via BACnet MS/TP

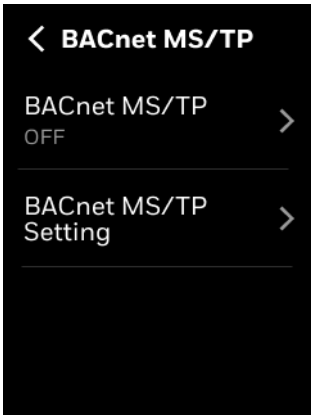
1. Swipe left from the Home page.
2. On the Quick access page, tap > **Connection**.
   The Connection page appears.

Fig 1. BACnet MS/TP connection



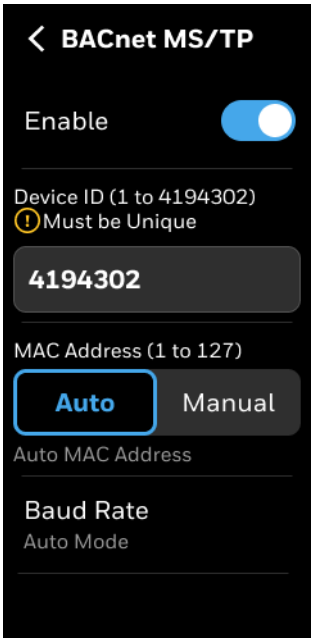
3. Tap the BACnet MS/TP.
   The BACnet MS/TP page appears.

Fig 2. BACnet MS/TP



4. Tap **BACnet MS/TP** and enable it.
   The BACnet MS/TP configuration page appears.

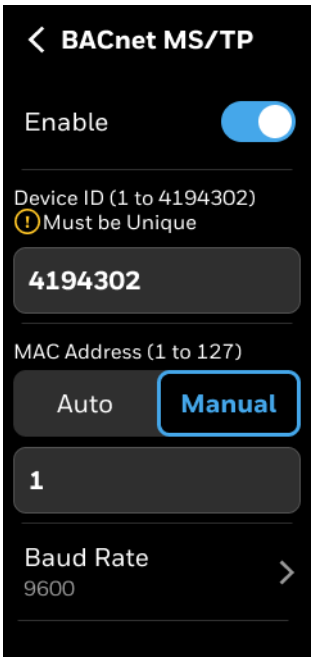
Fig 3. BACnet MS/TP



5. The device automatically adapts to the baud rate of the MS/TP network. You can also manually select the baud rate.
6. Enter a unique Device ID for the thermostat. It should be different from other TC300 thermostats.
7. Auto MAC addressing is enabled by default. The installer can also manually set a unique MAC address for the TC300 thermostats.
8. To do manual configuration, tap **Manual**.

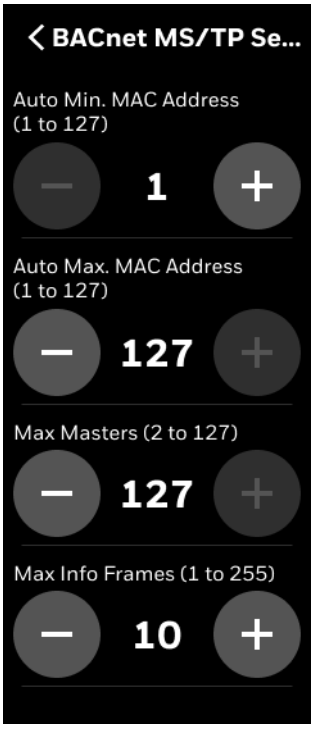
   A text box appears below to enter the MAC address.
9. Tap **Baud Rate,** to select a desired baud rate from the list.

Fig 4. Baud Rate



10. Tap the back arrow button to navigate back to BACnet MS/TP setting page.
11. Tap **BACnet MS/TP Setting.**
    The BACnet MS/TP setting page appears.

Fig 5. BACnet MS/TP Setting



12. Set the desired parameters and tap the back arrow button to navigate back to the connection page.

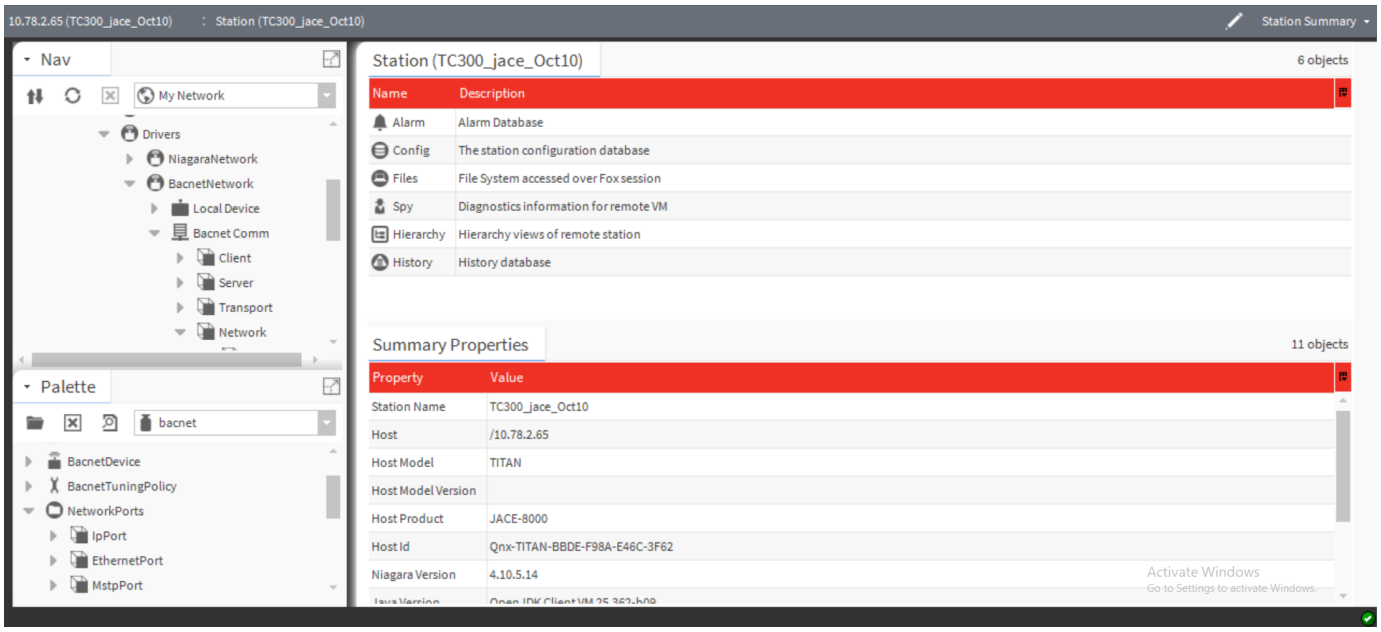
Note: *The TC300 thermostats will attempt to adapt to the baud rate of the MS/TP network in the first four minutes after startup or when MS/TP is enabled. If the baud rate could not be determined, for example, there is a single device on the network, then the TC300 thermostats will choose the default baud rate of 76,800 Kbps. The installer can manually change the baud rate to another value if desired.*

Adding a thermostat to the BACnet network

The following procedure explains adding the TC300 thermostats to a Bacnet network using the Niagara 4 workbench.

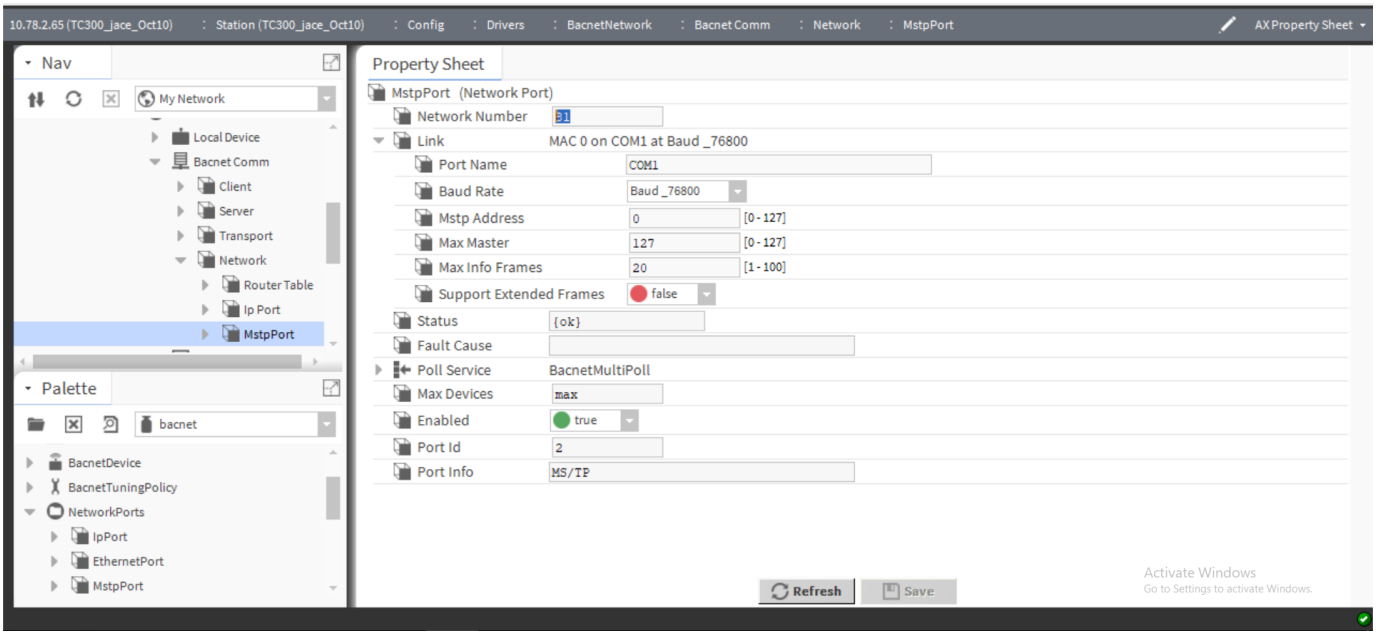
1. In the Niagara 4 workbench, create a new Station.
2. To configure the BACnet device, click **Station** > **Config** > **Drivers** > **BacnetNetwork** > **Local Device** in the Nav view.
   The property sheet of the local BACnet device appears in the right view.

Fig 6. Local Device Property Sheet



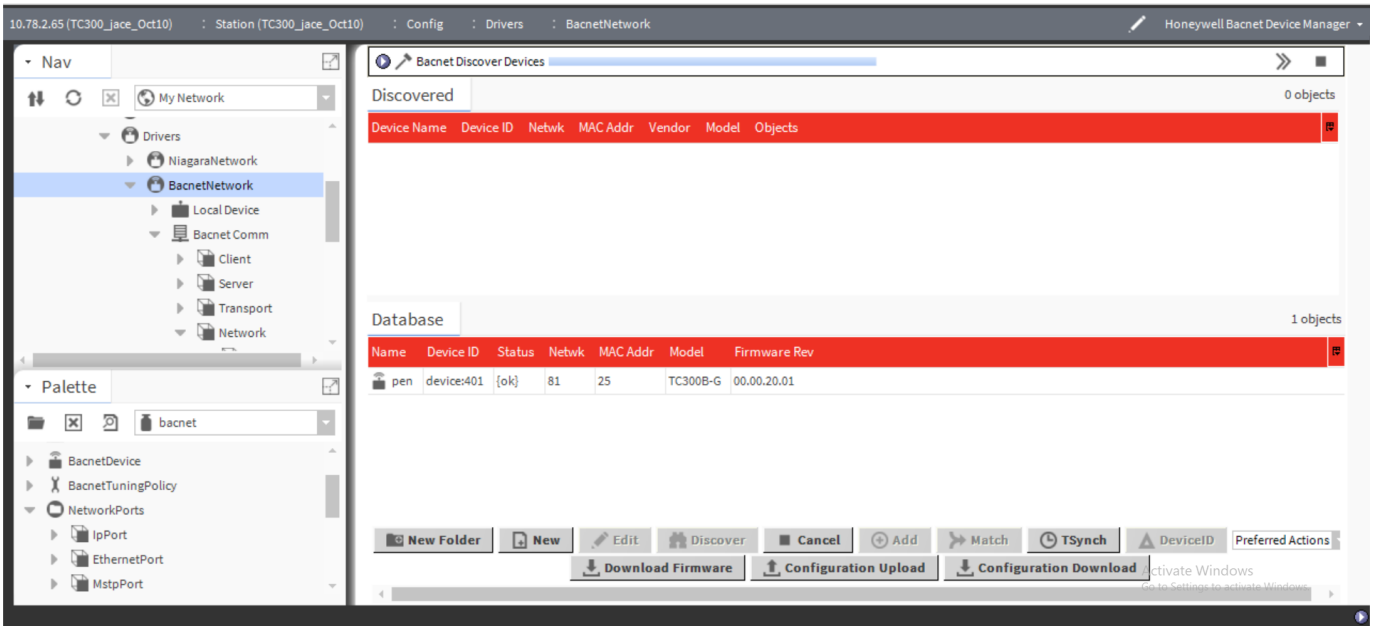
3. On the property sheet, change the **Object Id** to any other number instead of **-1** and click **Save**.
4. In the Nav view seen on the left, click **BACnet Comm** > **Network** > **MstpPort** > **Link.**
   The property sheet of the MSTP port page appears.

Fig 7. Selecting the Adapter Type



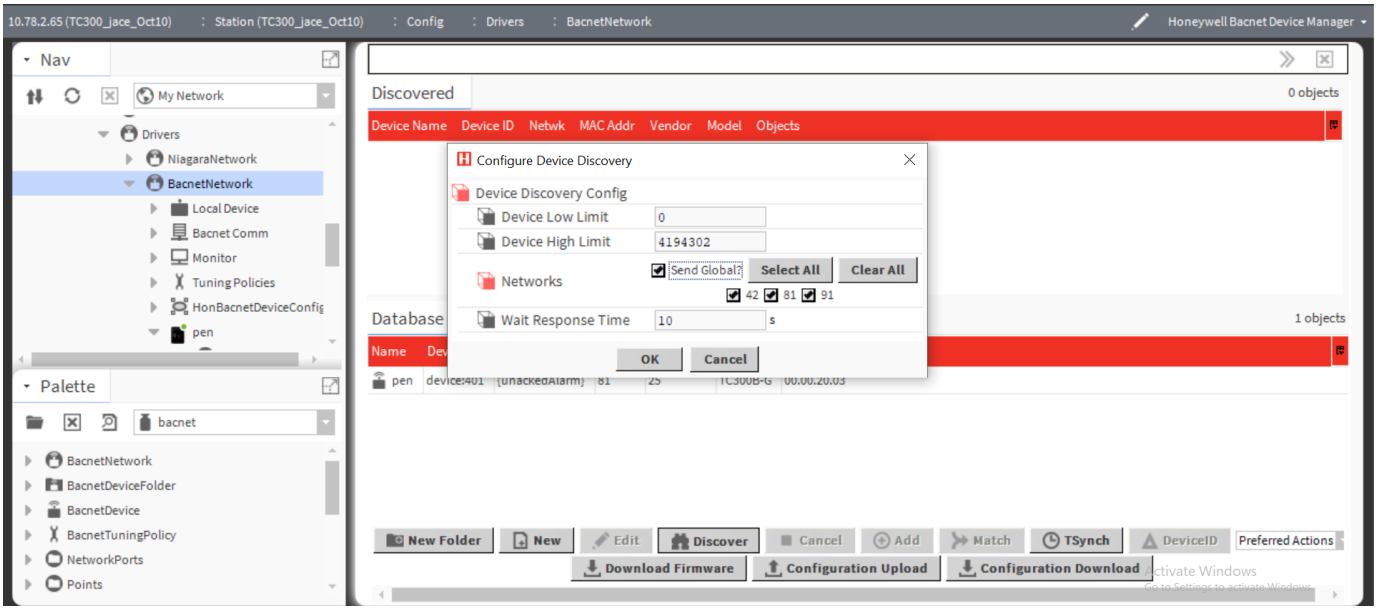
5. Select **Network Number**.
6. Select the **Baud rate** from the drop-down list.
7. Select the **Enabled** field to **True**.
8. Click **Save**.
9. In the Nav view, double click the **BacnetNetwork**.
   The BacnetNetwork discovery page appears.

Fig 8. Device Discovery Page



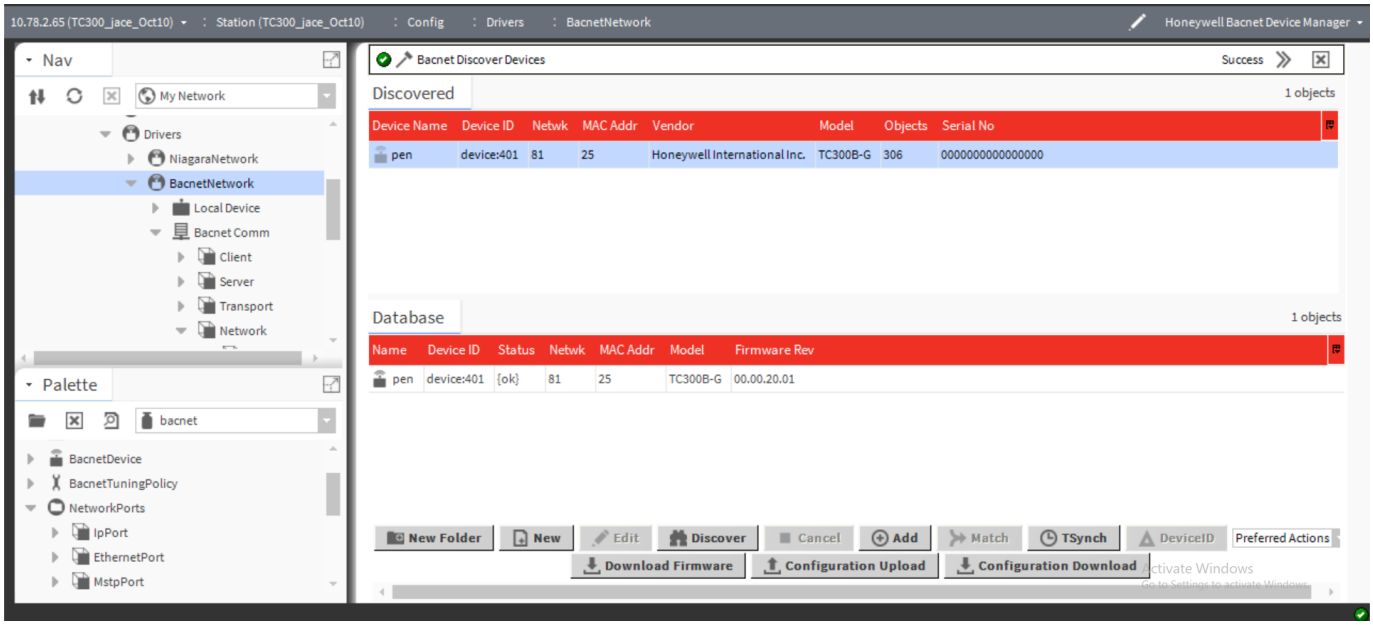
10. Click **Discover.**
    The Configure Device Discovery page appears.

Fig 9. Configure Device Discovery



11. Select the **Send Global** checkbox and click **OK**.
    The thermostat appears on the Discovered view page.

Fig 10. Adding the Discovered Device

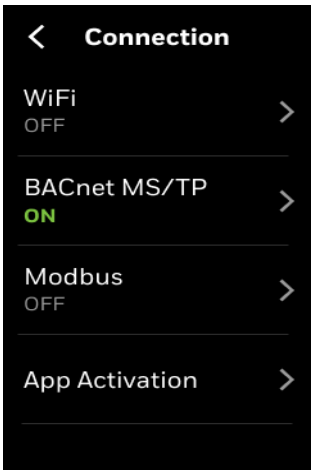


12. Select the thermostat > click **Add** > then select the **Type** as **BACnet Device** from the drop-down list.
    The added thermostat appears on the Nav view under BacnetNetwork.

Setting up BACnet IP

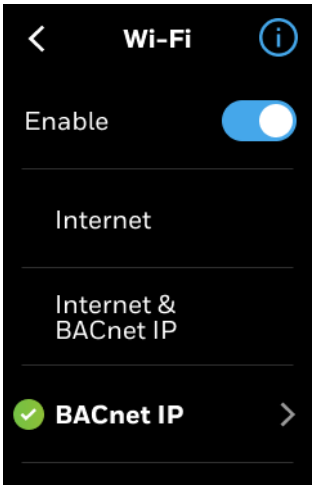
1. Swipe left from the Home screen.
2. On the Quick access screen, tap  > **Connection**.
   The Connection screen appears.

Figure 11 BACnet MS/TP connection



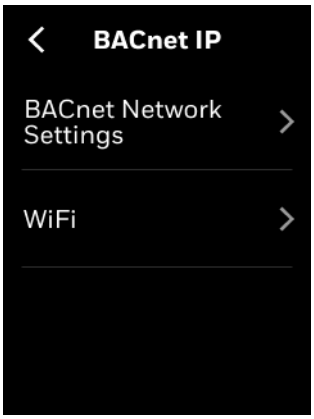
3. Tap the **WiFi**.
4. Enable WiFi.
   The Wi-Fi page appears.

Figure 12 Wi-Fi-BACnet IP



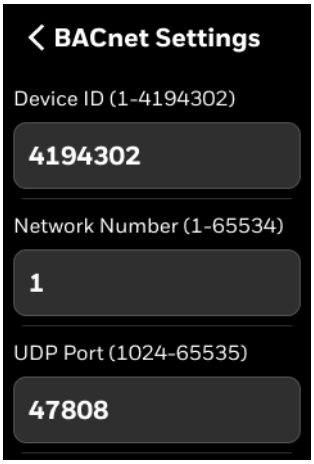
5. Select the region that is your country name.
6. Tap **BACnet IP**, to connect to BACnet IP.
   The BACnet IP page appears.

Figure 13 BACnet IP



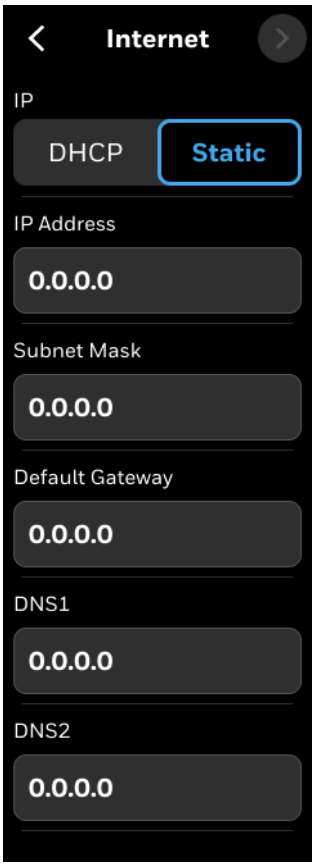
7. Tap **BACnet Network Settings**.

Figure 14 BACnet IP network settings



8. **Device ID** is a unique identifier for a BACnet device on a network. Enter a number within the given range.
9. **Network Number** is a numeric identifier for a BACnet network that allows devices to communicate across different subnets or media types.Enter a number between 1 to 65534 to assign as a unique network identifier for routing and addressing purposes
10. **UDP Port** number is a numeric identifier for a UDP communication endpoint. Enter a number to assign as a UDP port number to use for UDP protocol communication.
11. Navigate back to the BACnet settings page.
12. Tap **WiFi**.

Figure 15 Internet configuration



13. Either select **DHCP** or **Static**.
14. If Static is selected, then set up the given network parameters of the thermostat. This will be used to connect with the WiFi network.
15. After required parameters are set, tap the right arrow button on the top of the page.

    The WiFi scans the network followed by displaying a list of available WiFi in your premises.

CHAPTER 2

TERMINAL INPUT/OUTPUT AND I/O CONFIGURATION

Topics covered

I/O Status

I/O Functional assignment

Sensor status

Control operating status

IO Configuration

Equipment

Table 2 Equipment

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Equip_EquipType	Multistate Value	7	1	FanCoil = **1** Conventional = **2*** HeatPump = **3***	Equipment type.
Cfg_HeatPmp_CngOvrRelayType	Binary Value	13*	1	EnergizeOnHeat = **0** EnergizeOnCool = **1**	Heat pump reversing valve type.
Cfg_WaterFlowValveConfig	Multistate Value	2038*	1	None = **1** NormallyClosed = **2** NormallyOpen = **3**	Water flow valve type.
Cfg_HeatPumpType	Multistate Value	2039*	1	AirSource = **1** WaterSource = **2**	Heat pump source type.
Cfg_ConventionalMode	Multistate Value	2040*	1	1StageHeat&1StageCool = **1** 1StageHeatOnly = **2** 1StageCoolOnly = **3** 2StageHeatOnly = **4** 2StageCoolOnly = **5**	Conventional mode.
Cfg_Mod_StgHt1En	Binary Value	35	0	Disable = **0** Enable = **1**	Modulating heat stage mode.
Cfg_Heat_ModHtEnMinOut	Analog Value	96	20	0 to 100%	Modulating heat minimum output when enabled.
Cfg_FanCoilFourPipeSingleCoilType	Multistate Value	87	1	Regulating&ChangeOver=**1** 6-WayValve = **2**	Four pipe single coil valve type.
Cfg_ChangeoverSwitchPolarityType	Multistate Value	2033	0	Closedwithheat = **1** Closedwithcool = **2**	Changeover switch polarity type.
Cfg_2PipeSingleCoilHeat&CoolSysModChangeoverType	Multistate Value	2034	1	PipeSensor = **1** NetworkInput = **2** ChangeoverSwitch = **3** ManualChangeover = **4**	2 pipe single coil heat & cool system mode changeover method.
Cfg_Mod_StgCl1En	Binary Value	377	0	Disable = **0** Enable = **1**	Modulating cool use stage 1 as enabled.

Table 2 Equipment (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Cool_ModClEnMinOut	Analog Value	1461	20	0 to 100 %	Modulating cool minimum output when enabled.
Cfg_FanCoilType	Multistate Value	575	1	4PipeDualCoil = **1** 4PipesingleCoil = **2** 2PipeSingleCoil = **3**	Fan coil type
Cfg_FanCoilHtgType	Multistate Value	576	2	None = **1** OnOff = **2** Floating = **3*** Modulating = **4**	4-pipe dual coil heating valve type, 4-pipe single coil and 2-pipe single coil valve types.
Cfg_FanCoilClgType	Multistate Value	577	2	None = **1** OnOff = **2** Floating = **3*** Modulating = **4**	The 4-pipe dual coil cooling valve models.
Cfg_FanCoilHtgDriveTime	Analog Value	1721*	90	0 to 240 seconds	4 pipe dual coil floating heating drive time, and 4 pipe single coil/2 pipe single coil valve drive time.
Cfg_FanCoilClgDriveTime	Analog Value	1722*	90	0 to 240 seconds	4 pipe dual coil floating cooling drive time.
Cfg_FanCoilTwoPipeSingleCoilType	Multistate Value	580	1	Heat&Cool = **1** HeatingOnly = **2** CoolingOnly = **3**	2 pipe single coil type.
Cfg_FanCoilHtgDriveType	Multistate Value	578*	1	Direct = **1** Reverse = **2**	4 pipe dual coil floating heating drive type, 4 pipe single coil/2 pipe single coil floating valve drive type.

Table 2 Equipment (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_FanCoilClgDriveType	Multistate Value	579*	1	Direct = **1** Reverse = **2**	4 pipe dual coil floating cooling drive time.
Cfg_FanCoilHtgFloatingSyncEn	Binary Value	453*	1	Disable = **0** Enable = **1**	4 pipe dual coil floating heating sync enable, 4 pipe single coil/2 pipe single coil floating valve sync enable.
Cfg_FanCoilClgFloatingSyncEn	Binary Value	462*	1	Disable = **0** Enable = **1**	4 pipe dual coil floating cooling sync enable.
Cfg_FanCoilOnOffClgVlvChar	Binary Value	459	0	NormallyClosed = **0** NormallyOpen = **1**	4 pipe dual coil on/off cooling valve characteristic
Cfg_FanCoilonOffHtgVlvChar	Binary Value	458	0	NormallyClosed = **0** NormallyOpen = **1**	4 pipe dual coil on/off heating valve characteristic , 4 pipe single coil/2 pipe single coil on/off valve characteristic
Cfg_Cool_valvefloatEnMinOut	Analog Value	2007*	5	0 to 100 %	4 pipe dual coil floating Cooling valve minimum output when enabled.
Cfg_Heat_valvefloatEnMinOut	Analog Value	2008*	5	0 to 100 %	4 pipe dual coil floating heating valve minimum output when enabled, 4 pipe single coil/2 pipe single coil floating valve minimum output when enabled.

Table 2 Equipment (Continued)

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_ChangeOverValveType	Binary Value	2036	0	EnergizeOnHeat = **0** EnergizeOnCool = **1**	4 pipe single coil changeover valve type
Cfg_SixwayValveOutput	Binary Value	2037	1	0-10V = **0** 2-10V = **1**	6-way valve type
Cfg_SixwayValveDriveType	Binary Value	2038	0	Direct = **0** Reverse = **1**	Six way valve direct/reverse enable flag
Cfg_SixwayValveHeatingMinOutput	Analog Value	2066	2	0 to 10 V	6-way valve heat min output
Cfg_SixwayValveHeatingMaxOutput	Analog Value	2067	5.7	0 to 10 V	6-way valve heat max output
Cfg_SixwayValveCoolingMinOutput	Analog Value	2068	6.3	0 to 10 V	6-way valve cool min output
Cfg_SixwayValveCoolingMaxOutput	Analog Value	2069	10	0 to 10 V	6-way valve cool max output
Cfg_ADR_Enable	Binary Value	2079	0	Off=0, On=1	User can configure to enable ADR function
Cfg_ADR_Offset	Analog Value	2496	4	1 ~ 10Δ°F	User can set the offset value of the ADR.

Note: *To avoid issues, do not use both HMI and BACnet to configure equipment under the Equipment menu at the same time. The equipment will function based on the most recent configuration.*

I/O Status

Table 3 I/O Status

Name	BACnet Object Type	BACnet Object Instance	Range	Description
no_UIO3	Analog Output	2006	-40 to 260	Universal Output shared to network.
no_UIO1	Analog Output	64	-40 to 260	Universal Output shared to network.
no_UIO2	Analog Output	63	-40 to 260	Universal Output shared to network.
no_DO1	Binary Output	74	Off = **0** On = **1**	Digital Output shared to network.
no_DO2	Binary Output	75	Off = **0** On = **1**	Digital Output shared to network.
no_DO3	Binary Output	76	Off = **0** On = **1**	Digital Output shared to network.
no_DIO1	Binary Output	77	Off = **0** On = **1**	Digital Output shared to network.TC300B-G/TC320B-G is DIO1, and TC300C-G/TC320C-G is DO4.
no_DIO2	Binary Output	78	Off = **0** On = **1**	Digital Output shared to network. TC300B-G/TC320B-G is DIO2, and TC300C-G/TC320C-G is DO5.

I/O Functional assignment

Table 4 I/O Functional assignment

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_UIO1	Multistate Value	26	1	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}
Cfg_UIO2	Multistate Value	27	1	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}

Table 4 I/O Functional assignment (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_UIO3	Multistate Value	2004	1	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}	enum { None =1, 6-WayValve = 2, ModulatingCool =3 , ModulatingHeat =4 ,ModulatingValve =5, VariableSpeedFan =6, DischargeAirSensor =7, DrainPanSensor =8, OccupancySensor=9, ProofOfAirflow = 10, PipeSensor=11, SpaceTempSensor=12, ChangeoverSwitch = 13, ProofOfWaterFlow=14*, OutDoorAirSensor=15, ShutdownSensor=16, Customized1=17, Customized2=18, Customized3=19, FreezeSwitch=20, EntryDoorSwitch=21, Balcony/Window=22, CO2Output=31}
Cfg_DO1	Multistate Value	28	2	enum {None =1, HeatingOn/Off =2, HeatingFloatingOpen =3*, CoolingFloatingOpen =4*, ValveOn/Off =5, ValveFloatingOpen=6*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, HeatStage1 =30, CoolStage1=31*, ValveStage1=32, Dehumidifier=35*, Humidifier=36, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}}	enum {None =1, HeatingOn/Off =2, HeatingFloatingOpen =3*, CoolingFloatingOpen =4*, ValveOn/Off =5, ValveFloatingOpen=6*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, HeatStage1 =30, CoolStage1=31*, ValveStage1=32, Dehumidifier=35*, Humidifier=36, CO2Output=52, *LightingControlOutput=53**, OccupancyOutput=54}}

Table 4 I/O Functional assignment (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_DO2	Multistate Value	29	9	enum {None =1, HeatingFloatingClose =7*, CoolingFloatingClose =8*, CoolingOn/Off=9, ValveFloatingClose =10*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, CoolStage1 =31, ReversingValve=34*, Dehumidifier=35*, Humidifier=36, HeatStage2=50*, CoolStage2=51*, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}	enum {None =1, HeatingFloatingClose =7*, CoolingFloatingClose =8*, CoolingOn/Off=9, ValveFloatingClose =10*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, CoolStage1 =31, ReversingValve=34*, Dehumidifier=35*, Humidifier=36, HeatStage2=50*, CoolStage2=51*, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}
Cfg_DO3	Multistate Value	30	1	enum{ None =1, CoolingFloatingOpen =4*, CoolingOn/Off=9, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, HeatStage1 =30, CoolStage1 =31, WaterFlowValve=33*, Dehumidifier=35*, Humidifier=36, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}	enum{ None =1, CoolingFloatingOpen =4*, CoolingOn/Off=9, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, HeatStage1 =30, CoolStage1 =31, WaterFlowValve=33*, Dehumidifier=35*, Humidifier=36, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}

Table 4 I/O Functional assignment (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_DIO1_DO4	Multistate Value	31	1	enum {None =1, CoolingFloatingClose =8*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14, LowSpeedFan=15*, AuxiliaryHeat=16, DischargeAirSensor=18*, DrainPanSensor=19,* OccupancySensor=20*, ProofOfAirflow=21*, PipeSensor=22*, SpaceTempSensor=23*, ChangeoverSwitch=24*, ProofOfWaterFlow=25*, OutdoorAirSensor=26*, ShutdownSensor=27*, Dehumidifier=35*, Humidifier=36, Customized1=37*, Customized2=38*, Customized3=39*, FreezeSwitch=40*, EntryDoorSwitch=41*, Balcony/Window=42* CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}	enum {None =1, CoolingFloatingClose =8*, ChangeoverValve=11, FanCommand=12*, HighSpeedFan=13*, MediumSpeedFan=14, LowSpeedFan=15*, AuxiliaryHeat=16, DischargeAirSensor=18*, DrainPanSensor=19,* OccupancySensor=20*, ProofOfAirflow=21*, PipeSensor=22*, SpaceTempSensor=23*, ChangeoverSwitch=24*, ProofOfWaterFlow=25*, OutdoorAirSensor=26*, ShutdownSensor=27*, Dehumidifier=35*, Humidifier=36, Customized1=37*, Customized2=38*, Customized3=39*, FreezeSwitch=40*, EntryDoorSwitch=41*, Balcony/Window=42* CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}

Table 4 I/O Functional assignment (Continued)

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_DIO2_DO5	Multistate Value	32	12	enum {None =1, ChangeoverValve=11, FanCommand=12, HighSpeedFan=13, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, DischargeAirSensor=18*, DrainPanSensor=19*, OccupancySensor=20*, ProofOfAirflow=21*, PipeSensor=22*, SpaceTempSensor=23*, ChangeoverSwitch=24*, ProofOfWaterFlow=25*, OutdoorAirSensor=26*, ShutdownSensor=27* ,Dehumidifier=35,* Humidifier=36, Customized1=37*, Customized2=38*, Customized3=39*, FreezeSwitch=40*, EntryDoorSwitch=41*, Balcony/Window=42*, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}	enum {None =1, ChangeoverValve=11, FanCommand=12, HighSpeedFan=13, MediumSpeedFan=14*, LowSpeedFan=15*, AuxiliaryHeat=16, DischargeAirSensor=18*, DrainPanSensor=19*, OccupancySensor=20*, ProofOfAirflow=21*, PipeSensor=22*, SpaceTempSensor=23*, ChangeoverSwitch=24*, ProofOfWaterFlow=25*, OutdoorAirSensor=26*, ShutdownSensor=27* Dehumidifier=35*, Humidifier=36, Customized1=37*, Customized2=38*, Customized3=39*, FreezeSwitch=40*, EntryDoorSwitch=41*, Balcony/Window=42*, CO2Output=52, LightingControlOutput=53**, OccupancyOutput=54}

Note: *If a terminal output or a network output point shows the value 65535 on the thermostat indicates that no value has been written to the terminal output or a network output point.*

Note: ******** *The lighting output provides 24VAC or Line Voltage signal to activate separate dry contact relay. This relay will interface with digital input on appropriate DDC lighting controller. Consult user guide or data sheet for maximum relay coil current rating.*

Sensor status

Table 5 Sensor status

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
phy_ChangeOverSwitch	Binary Input	1	Close = **0** Open = **1**	0	Changeover switch status
phy_DatSensor	Analog Input	1	-40 to 200 °F (-40 to 93 °C)		Discharge air sensor output value
phy_DrainpanSensor	Binary Input	2	Off = **0** On = **1**	0	Drain pan sensor status
phy_OccupancySensor	Binary Input	3	Standby = **0** Unoccupied = **1**	0	Occupancy sensor status
phy_ProofOfAirFlowSensor	Binary Input	4	Off = **0** On = **1**	0	Proof of air flow sensor status
phy_PipeSensor	Analog Input	2	-40 to 260 °F (-40 to 126 °C)		Pipe sensor output value
phy_ShutdownSensor	Binary Input	6	Off = **0** On = **1**		Shutdown sensor status
phy_SpaceTempSensor	Analog Input	3	-40 to 150 °F (-40 to 65 °C)		Space temperature sensor output value
phy_ProofofWaterflow	Binary Input	5*	Off = **0** On = **1**	0	Proof of waterflow status.
phy_OutdoorAirSensor	Analog Input	4	-40 to 200 °F (-40 to 93 °C)		Outdoor air sensor value
phy_FreezeSwitch	Binary Input	7	Close= **0**, Open=**1**	0	Freeze switch status.
phy_EntryDoorSwitch	Binary Input	8	Close= **0**, Open=**1**	0	Entry door switch status.
phy_BalconcyWindowSwitch	Binary Input	9	Close= **0**, Open=**1**	0	Balconcy/window switch status.

Control operating status

Table 6 Control operating status

*Note: Supported only in TC3XXB models.				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_SixWay_Valve_Cooling	Analog Output	2001	0 to 100 %	Six-way valve cooling control output
no_SixWay_Valve_Heating	Analog Output	2002	0 to 100 %	Six-way valve Heating control output

Table 6 Control operating status (Continued)

***Note: Supported only in TC3XXB models.**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_Modulating_Cool	Analog Output	2003	0 to 100 %	Modulating cool control output
no_Modulating_Heat	Analog Output	2004	0 to 100 %	Modulating heat control output
no_VariableFan	Analog Output	2005	0 to 100 %	Variable Fan control output
no_Auxiliary_Heat	Binary Output	2001	Off = **0** On = **1**	Auxiliary heat control output
no_ChangeOverValve	Binary Output	2002	Off = **0** On = **1**	Changeover valve control output
no_Cooling_Valve(On/Off)	Binary Output	2004	Off = **0** On = **1**	Cooling on/off valve output status
no_Heating_Valve(On/Off)	Binary Output	2005	Off = **0** On = **1**	Heating on/off valve output status
no_Cooling_Floating_Open	Binary Output	2006*	Off = **0** On = **1**	Cooling floating valve open control output.
no_Cooling_Floating_Close	Binary Output	2007*	Off = **0** On = **1**	Cooling floating valve close control output.
no_Heating_Floating_Open	Binary Output	2008*	Off = **0** On = **1**	Heating floating valve open control output.
no_Heating_Floating_Close	Binary Output	2009*	Off = **0** On = **1**	Heating floating valve close control output.
no_High_Single_Speed_Fan	Binary Output	2010	Off = **0** On = **1**	High speed fan on/off status
no_Low_Speed_Fan	Binary Output	2011	Off = **0** On = **1**	Low speed fan on/off status
no_Medium_Speed_Fan	Binary Output	2012	Off = **0** On = **1**	Medium speed fan on/off status
no_Modulating_Cooling_stage_1	Binary Output	2014	Off = **0** On = **1**	Modulating cool stage1 on/off status
no_Modulating_Heating_stage_1	Binary Output	2015	Off = **0** On = **1**	Modulating heat stage1 on/off status
no_WaterFlowValve	Binary Output	2016*	Off = **0** On = **1**	Water flow valve control output.
no_ReversingValve	Binary Output	2017*	Off = **0** On = **1**	Revering valve control output.
no_HumActive	Binary Output	9*	Off = **0** On = **1**	Humidifier control output.
no_Conventional_Cooling_stage_2	Binary Output	2070*	Off = **0** On = **1**	Conventional cool stage2 on/off status.
no_Conventional_Heating_stage_2	Binary Output	2071*	Off = **0** On = **1**	Convention heat stage2 on/off status.

Table 6 Control operating status (Continued)

*Note: Supported only in TC3XXB models.				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_CO2_Binary_Value	Binary Output	2075	Off= **0**, On= **1**	CO2 Output Binary Logical Value
no_CO2_Analog_Value	Analog Output	2007	0~100	CO2 Output Analog Logical Value
no_Light_Control_Output	Binary Output	2076	Off= **0**, On= **1**	Lighting Control Output
no_Occupancy_Output	Binary Output	2077	Off= **0**, On= **1**	Occupancy Output

IO Configuration

Table 7 IO Configuration

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_OccSensChar	Binary Value	31	0	NormallyOpen = **0** NormallyClosed = **1**	Occupancy sensor input characteristics selection
Cfg_AirFlwStsChar	Binary Value	33	0	NormallyOpen = **0** NormallyClosed = **1**	Airflow status input characteristics selection
Cfg_UISensCalOffset_DATemp	Analog Value	185	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	Universal input discharge air temperature calibration offset
Cfg_UISensCalOffset_OATemp	Analog Value	186	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	Outdoor air temperature calibration offset
Cfg_WaterFlwStsChar	Binary Value	383*	0	NormallyOpen = **0** NormallyClosed = **1**	Waterflow sensor input characteristics selection.
Cfg_SpcSensChar	Multistate Value	372	3	NTC10KTypeII = **1** NTC10KTypeIII = **2** NTC20K = **3**	Space temperature Sensor characteristic selection
Cfg_UISensCalOffset_SpcTemp	Analog Value	1464	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	Space temperature calibration offset

Table 7 IO Configuration (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Control_OnboardOccupancySensorEn	Binary Value	2092	1	Off=0, On=1	Users can enable or disable the control of the onboard occupancy sensor
Cfg_ModHeatMin_Output	Analog Value	1475	2	0 to 9 V	Minimum output voltage when modulating heating is enabled
Cfg_ModHeatAction	Binary Value	380	0	Direct = **0** Reverse = **1**	Modulating heat polarity selection
Cfg_ModCoolMin_Output	Analog Value	1476	2	0 to 9 V	Minimum output voltage when modulating cooling is enabled
Cfg_ModCoolAction	Binary Value	381	0	Direct = **0** Reverse = **1**	Modulating cool polarity selection
Cfg_VarSpeedFanType	Multistate Value	373	2	0-10V = **1** 2-10V = **2**	Variable fan speed type characteristic selection
Cfg_ModHeatMax_Output	Analog Value	1477	10	1 to 10 V	Maximum voltage on heating output
Cfg_ModCoolMax_Output	Analog Value	1478	10	1 to 10 V	Maximum voltage on cooling output
Cfg_PipeSensChar	Multistate Value	2005	3	NTC10KTypeII = **1** NTC10KTypeIII = **2** NTC20K = **3**	Pipe sensor type
Cfg_OASensChar1	Multistate Value	502	3	NTC10K Type II = **1** NTC10K Type III = **2** NTC20K = **3**	Outdoor air sensor type.
Cfg_DASensChar1	Multistate Value	503	3	NTC10KTypeII = **1** NTC10KTypeIII = **2** NTC20K = **3**	Discharge air sensor type
Cfg_LeakDetectorSensorChar	Binary Value	455	1	NormallyOpen = **0** NormallyClosed = **1**	Leak detector/ Drain pan sensor characteristics
Cfg_ShutdownChar	Binary Value	34	0	NormallyOpen = **0** NormallyClosed = **1**	Shutdown sensor type
Cfg_Customized1SensorType	Multistate Value	2046	1	DigitalInput = **1** VoltageInput = **2** TemperatureSensor = **3**	Customized1 input type of the sensor
Cfg_Customized1DigitalInputType	Binary Value	2061	0	NormallyOpen = **0** NormallyClosed = **1**	Customized1 digital input type of the sensor

Table 7 IO Configuration (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Customized1VoltageInputControlAction	Binary Value	2062	0	Direct = **0** Reverse = **1**	Customized1 sensor the polarity of the voltage input
Cfg_Customized1VoltageMinInput	Analog Value	2443	2	0 to 9 V	Customized1 minimum voltage input for the sensor
Cfg_Customized1VoltageMaxInput	Analog Value	2444	10	1 to 10 V	Customized1 maximum voltage input for the sensor
Cfg_Customized1TempSensorType	Multistate Value	2047	3	NTC10K Type II = **1** NTC10K Type III = **2** NTC20K = **3**	Customized1 temperature sensor input type
Cfg_Customized2SensorType	Multistate Value	2048	1	DigitalInput = **1** VoltageInput = **2** TemperatureSensor = **3**	Customized2 input type of the sensor
Cfg_Customized2DigitalInputType	Binary Value	2063	0	NormallyOpen = **0** NormallyClosed = **1**	Customized2 digital input type of the sensor
Cfg_Customized2VoltageInputControlAction	Binary Value	2064	0	Direct = **0** Reverse = **1**	Customized2 sensor the polarity of the voltage input
Cfg_Customized2VoltageMinInput	Analog Value	2445	2	0 to 9 V	Customized2 minimum voltage input for the sensor
Cfg_Customized2VoltageMaxInput	Analog Value	2446	10	1 to10 V	Customized2 maximum voltage input for the sensor
Cfg_Customized2TempSensorType	Multistate Value	2049	3	NTC10K Type II = **1** NTC10K Type III = **2** NTC20K = **3**	Customized2 temperature sensor input type
Cfg_Customized3SensorType	Multistate Value	2050	1	DigitalInput = **1** VoltageInput = **2** TemperatureSensor = **3**	Customized3 input type of the sensor
Cfg_Customized3DigitalInputType	Binary Value	2065	0	NormallyOpen = **0** NormallyClosed = **1**	Customized3 digital input type of the sensor
Cfg_Customized3VoltageInputControlAction	Binary Value	2066	0	Direct = **0** Reverse = **1**	Customized3 sensor the polarity of the voltage input

Table 7 IO Configuration (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Customized3VoltageMinInput	Analog Value	2447	2	0 to 9 V	Customized3 minimum voltage input for the sensor
Cfg_Customized3VoltageMaxInput	Analog Value	2448	10	1 to 10 V	Customized3 maximum voltage input for the sensor
Cfg_Customized3TempSensorType	Multistate Value	2051	3	NTC10K Type II = **1** NTC10K Type III = **2** NTC20K = **3**	Customized3 temperature sensor input type
Cfg_CO2_OutputEnable	Binary Value	2075	0	Off=0, On=1	Enable CO2 output.
Cfg_CO2_DeviceType	Multistate Value	2065	1	enum {Analog=1, Binary=2}	The user selects the CO2 device type.
Cfg_CO2_AnalogType	Multistate Value	2066	2	enum {0-10V=1, 2-10V=2}	The user selects the CO2 analog type.
Cfg_CO2_BinaryType	Binary Value	2076	0	NormallyOpen= **0**, NormallyClosed= **1**	The user selects the CO2 binary type.
Cfg_CO2_ThresholdLimit	Analog Value	2485	800	500~2000	The user set the trigger threshold for the CO2 binary type.
Cfg_CO2_ThresholdDeadband	Analog Value	2486	-100	-300~ -100	The user can set the CO2 threshold deadband.
Cfg_EntryDoor_ActionDelayTime	Analog Value	2487	120	30 ~ 300	The user can set the delay time for the Entry door switch sensor to trigger the action
Cfg_EntryDoor_OpenAction	Multistate Value	2067	1	enum {NoAction=1, DisableHVACSystem=2 ,SwitchToUnoccupied Mode=3, AlarmOnly=4}	The user can set the action to open the Entry door switch sensor.
Cfg_Balcony_Window_ActionDelayTime	Analog Value	2488	120	30 ~ 300	The user can set the delay time for the balcony/ window sensor to trigger the action

Table 7 IO Configuration (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Balcony_Window_OpenAction	Multistate Value	2068	1	enum {DisableHVACSystem=1, SwitchToUnoccupiedMode=2, AlarmOnly=3}	The user can set the action to open the balcony/ window sensor.
Cfg_Light_OutputType	Binary Value	2077	0	NormallyOpen= **0**, NormallyClosed= **1**	The user can set the type of lighting control output.
Cfg_Light_OFFDelayTime	Analog Value	2489	2	0~255	The user set the time delay for turning off the lighting.
Cfg_Light_OutputEnable	Binary Value	2085	0	Off= **0**, On= **1**	Enable Lingting Control Output.
Cfg_Occupancy_SensorDelayTime	Analog Value	2490	30	0~120	The user set the time delay for occupancy sensor.
Cfg_Occupancy_OutputType	Binary Value	2078	0	NormallyOpen=0, NormallyClosed=1	The user set the occupancy type.
Cfg_Occupancy_OutputEnable	Binary Value	2086	0	Off= **0**, On= **1**	Enable Occupancy Output.
Cfg_FreezeSwitchChar	Binary Value	2071	1	NormallyOpen= **0**, NormallyClosed=**1**	Freeze switch sensor input characteristics selection.
Cfg_EntryDoorSensorType	Binary Value	2080	0	NormallyOpen= **0**, NormallyClosed=**1**	Entry door sensor input characteristics selection.
Cfg_BalconcyWindowSensorType	Binary Value	2081	0	NormallyOpen= **0**, NormallyClosed= **1**	Balcony/Window sensor input characteristics selection.
Cfg_CustomizeSensor1Name	Binary Value	2			User can set the name of the custem sensor 1 via the web.
Cfg_CustomizeSensor2Name	Binary Value	3			User can set the name of the custem sensor 2 via the web.
Cfg_CustomizeSensor3Name	Binary Value	4			User can set the name of the custem sensor 3 via the web.

CHAPTER

3 ALERT

Topics covered

Alerts

Alert configuration

Alerts

Table 8 Alerts

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
AlarmPriority_ProofofAirFlow	Binary Value	2002	Inactive = **0** Active = **1**	Supply fan status mismatch alarm & priority.
AlarmPriority_SpaceFreezeProtect	Binary Value	2049	Inactive = **0** Active = **1**	If space temperature has dropped below 43 **°F** and after 120 seconds of delay, high priority alarm is created.
AlarmPriority_WaterFlwPrf	Binary Value	2057*	Inactive = **0** Active = **1**	Proof of water flow alarm & priority.
AlarmPriority_UnknownTime	Binary Value	2050	Inactive = **0** Active = **1**	Time lost alarm
AlarmPriority_TempSens	Analog Value	2081	**BIT0**=INACTIVE(1) **BIT1**=HIGH **BIT2**=MEDIUMN_ONBOARD **BIT3**=MEDIUMN_REMOTE **BIT4** = MEDIUMN_SYLK	**High Priority:** 1. Only local sensor configured & even if any one of the on-board temperature sensors is in alarm 2. Only Remote sensor configured & TR40 sensor connected to Sylk address 2 is giving null value. 3. Configured as multi sensor & both the remote sensor & on-board configured sensor has failed. **Medium priority:** 1. Configured as Multi sensor & only the on-board sensor has failed. but getting reliable value from the Sylk sensors. 2. Configured as multi sensor & only one of the Sylk sensor has failed with values available from other Sylk sensors (If configured) or on-board sensor. When a valid network temperature is available, then the high priority alarms will be considered as medium priority alarm.

Table 8 Alerts (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
AlarmPriority_HumSens	Analog Value	2082	**BIT0**=INACTIVE(1) **BIT1**=HIGH **BIT2**=MEDIUMN_ONBOARD **BIT4** = MEDIUMN_SYLK	**High Priority:** 1. Only local sensor configured & on-board humidity sensor is in alarm 2. Only Remote sensor configured & TR40 sensor connected to Sylk address 2 is giving null value and digital output is configured for Humidification and Dehumidification. 3. Configured as multi sensor & both the remote sensor & on-board configured sensor has failed. **Medium priority:** 1. Configured as Multi sensor & only the on-board sensor has failed. but getting reliable value from the sylk sensors. 2. Configured as multi sensor & only the sylk sensor has failed with values available from on-board sensor. When a valid network humidity is available, then the high priority alarms will be considered as medium priority alarm.
Alarm_SylkCommFailure	Multistate Value	2036	Normal = **1** SylkAddr2Fail = **2** SylkAddr3Fail = **3** SylkAddr4Fail = **4** SylkAddr5Fail = **5** SylkAddr8Fail = **8** SylkAddr10Fail = **10** ManySylkFail = **16**	Sylk communication failure alarm. If more than one Sylk sensor has failed, then 'ManySylkFail' alarm would be generated & installer has to check the BACnet points related to all Sylk sensors to understand which sensor has failed.

Table 8 Alerts (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
AlarmPriority_SpcTempHl_Lolimit	Analog Value	2084	**BIT0** = INACTIVE(1) **BIT1** = HIGH **BIT2**=MEDIUMN_ONBOARD **BIT3** = MEDIUMN_REMOTE **BIT4** = MEDIUMN_SYLK **BIT5** = MEDIUMN_NETWORKINPUTOUTOFRANGE	**High priority**: All space temperatures are out of range. No other resource can be used. **Medium priority**: Some of the space temperatures are out of range, other resource can be used for controlling.
AlarmPriority_DATempAlarm_Fault	Multistate Value	2029	Inactive = **1** Medium = **2** High = **3**	**High priority**: Discharge air sensor failure. **Medium priority**: Discharge air sensor out of range.
AlarmPriority_OATempAlarm_Fault	Multistate Value	2042	Inactive = **1** Medium = **2** High = **3**	**High priority**: Outdoor air sensor failure. **Medium priority**: Outdoor air sensor out of range.
AlarmPriority_ShutdownFault	Binary Value	2011	Inactive = **0** Active = **1**	The system activates the shutdown alarm when it receives a shutdown signal from either the network input or terminal.
Alarm_PipeSensorFailure	Multistate Value	2030	Inactive = **1** Active = **3**	Pipe sensor failure occurs.
Alarm_PipeSensorTempHeatOrCoolThreshold	Analog Value	2085	**BIT0** = Inactive **BIT1** = Heating Threshold **BIT2** = Cooling Threshold	For 2 pipe single coil heat & cool: water temperature is not suitable for heating/cooling.
Alarm_RoomTempTrendFailure	Binary Value	2051	Inactive = **0** Active = **1**	Room temperature changing trend is reversed with system operating mode.
Alarm_CHWDrainPanSensor	Binary Value	2052*	Inactive = **0** Active = **1**	This network input determines the status of the WS heat pump. When this BACnet point is valid and its value is 1, it will trigger a new alarm called "water source heat pump system enable alarm". The compressor will be disabled, but the PID will continue running.
Alarm_PipeSensorOutofRange	Multistate Value	2031	Inactive = **1** Active = **3**	Pipe sensor temperature out of range.

Table 8 Alerts (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
Alarm_WSHPSystemEnableState	Multistate Value	2052	Inactive=**1** Active=**3**	When the BACnet point is valid and its value is 1, it will trigger a new alarm called 'Water Source Heat Pump System Enable Alarm'. This will disable the compressor, but the PID will continue to run. This is how the network input determines the WS heat pump status.
AlarmPriority_OccuSen_Fault	Multistate Value	2074	enum {Inactive=**1**, Active=**3**}	Occupancy sensor alarm & priority.
AlarmPriority_LightSen_Fault	Multistate Value	2075	enum {Inactive=**1**, Active=**3**}	Light sensor alarm & priority.
AlarmPriority_BalWinSen_Fault	Multistate Value	2076	enum {Inactive=**1**, Active=**3**}	Balcony/Window sensor alarm & priority.
AlarmPriority_EnDoorOpSen_Fault	Multistate Value	2077	enum {Inactive=**1**, Active=**3**}	Entry door open sensor alarm & priority.
AlarmPriority_CO2LvlAlarm_Fault	Multistate Value	2078	enum {Inactive=**1**, Medium=**2**, High=**3**}	when the CO2 sensor has hardware fault, high alarm is reported
AlarmPriority_Co2lvlHighlimit	Binary Value	2008	Inactive=**0**, Active=**1**	When the value of CO2 sensor exceeds the threshold, alarm is reported.
AlarmPriority_CoilFreezeProtAlm	Binary Value	2010	Inactive=**0**, Active=**1**	When the space freeze protection alarm is not triggered, the Freeze switch signal is activated and the corresponding valve is opened according to the alarm configuration. Only applicable to fan coil system

Alert configuration

Table 9 Alert configuration

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
Cfg_ProofofAirFlowAlarm	Analog Value	2088	**BIT0**=Primary heating and cooling On Off **BIT1**=PopUpOnHomeScreen **BIT2**=Acknowledged **BIT3** = AuxiliaryHeatOnOff	Bit 0 False - Heat/Cool Outputs remain active when the alarm is triggered. Bit 0 True - Heat/Cool Outputs turn off when the alarm is triggered. Bit 3 False - Auxiliary heat Outputs remain active when the alarm is triggered. Bit 3 True - Auxiliary heat Outputs turn off when the alarm is triggered.
Cfg_Alarm_WaterFlowAlarmConfig	Analog Value	193*	**BIT0**=Primary heating and cooling On Off **BIT1**=PopUpOnHomeScreen **BIT2**=Acknowledged **BIT3**=Auxiliary heat On Off	Bit0 False - Keep compressor outputs active. Bit0 True - Deactivate compressor outputs. Bit3 False - Maintain auxiliary heat operation. Bit3 True - Deactivate auxiliary heat.
Cfg_SpaceTempFaultyAlarm	Analog Value	2441	**BIT0** = Reserved **BIT1**=PopUpOnHomeScreen **BIT2** = Acknowledged **BIT3** = SuspendsAllEquipmentFunctions **BIT4** = RevertToLocalSensor	Bit3 False: Suspend all equipment functions if the remote space temperature sensor reads invalid. Bit3 True: Do not suspend equipment functions if the reading is invalid. Bit4 False: Switch to the local sensor if the remote sensor reads invalid. Bit4 True: Do not switch to the local sensor if the reading is invalid.
Cfg_RoomTempTrendFailure	Analog Value	2098	**BIT0** = ShutdownalldigitaloutputsOnoff **BIT1** = PopUpOnHomeScreen **BIT2** = Acknowledged	BIT 0 False - Don't shut down all digital outputs, BIT 0 True - Shut down all digital outputs.

Table 9 Alert configuration

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
Cfg_DrainPanSensorAlarm	Analog Value	2100	**BIT0** = ShutdownCooling **BIT1** = PopUpOnHomeScreen **BIT2** = Acknowledged **BIT3** = ShutdownHeat **BIT4** = ShutdownFanWhenInVentilationMode	Bit0 False - Don't shut down Cooling when alarm occurs, Bit0 True - Shut down cooling when alarm occurs, Bit3 False - Don't shut down Heating when alarm occurs. Bit3 True - Shut down Heating when alarm occurs, Bit4 False - Fan will run in ventilation mode when alarm occurs, Bit4 True - Fan will not run in ventilation mode when alarm occurs.
Cfg_CoilFreezeProtectionAlarm	Analog Value	2475	{**BIT0** = PrimaryHeatOnOff, **BIT1**=PopUpOnHomeScreen, **BIT2**=Acknowledged, **BIT3**=PrimaryCoolOnOff}	"Bit0 False – Will not turn on cool outputs when alarm is triggered, Bit0 True – Turn on cool outputs when alarm is triggered. Bit3 False – Will not turn on heat outputs when alarm is triggered. Bit3 True – Turn on heat outputs when alarm is triggered."
Cfg_CO2Alarm_LvlHighLim	Analog Value	291	400~2000	When the CO2 value reaches the alarm high limit setting, an alarm report will be generated.

CHAPTER

4 OPERATING STATE, SCHEDULE, SYLK SENSOR

Topics covered

Operating states

Schedule

Sylk sensor

Operating states

Table 10 Operating states

*Note: Supported only in TC3XXB models				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_Customized1DigitalOutput	Binary Value	2067	Off = **0** On = **1**	Customized1 sensor digital output
no_Customized1VoltageOutput	Analog Value	2449	0 to 100 %	Customized1 sensor voltage output percentage
no_Customized1TempOutput	Analog Value	2450	-40 to 260 °F (-40 to 126 °C)	Customized1 sensor temperature output
no_Customized2DigitalOutput	Binary Value	2068	Off = **0** On = **1**	Customized2 sensor digital output
no_Customized2VoltageOutput	Analog Value	2451	0 to 100 %	Customized2 sensor voltage output percentage
no_Customized2TempOutput	Analog Value	2452	-40 to 260 °F (-40 to 126 °C)	Customized2 sensor temperature output
no_Customized3DigitalOutput	Binary Value	2069	Off = **0** On = **1**	Customized3 sensor digital output
no_Customized3VoltageOutput	Analog Value	2453	0 to 100 %	Customized3 sensor voltage output percentage
no_Customized3TempOutput	Analog Value	2454	-40 to 260 °F (-40 to 126 °C)	Customized3 sensor temperature output
no_HeatOATLockOut	Multistate Value	2044*	None = **1** HeatLockout = **2** CompressorLockout = **3** AuxiliaryHeatLockout = **4**	Outdoor air temperature heat lockout flag.
no_CoolOATLockOut	Binary Value	2059*	Off = **0** On = **1**	Outdoor air temperature Cool lockout flag.
no_CoolCtrl_RunTimeAccumulate	Analog Value	2026	0 to 270737 hours	Outputs the actual run time of cooling control
no_LocalOccSensState	Multistate Value	2013	Occupied = **1** Unoccupied = **2** Unused = **3**	Local occupancy sensor state.
no_AuxHeatTermLdOut	Analog Value	2027	-200 to 0%. Default is 0%	Terminal load for auxiliary heat

Table 10 Operating states (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_EffOccState	Multistate Value	2014	**Commercial** Occupied = **1** Unoccupied = **2** Bypass = **3** Standby = **4** NoOverride = **5**	Effective occupancy state
			Residential Wake = **1** Away = **2** Return = **3** Sleep = **4** NoOverride = **5** Custom = **6** Vacation = **7**	
			Hospitality Occupied = **1** Unoccupied = **2** Unrented = **8**	
no_CoolStg1_RunTimeAccumulate	Analog Value	2028	0 to 270737 hours	Outputs the actual run time of cooling stage 1
no_HeatCtrl_RunTimeAccumulate	Analog Value	2029	0 to 270737 hours	Outputs the actual run time of heating control
no_HeatStg1_RunTimeAccumulate	Analog Value	2030	0 to 270737 hours	Outputs the actual run time of heating stage 1
no_Fan_RunTimeAccumulate	Analog Value	2031	0 to 270737 hours	Outputs the actual run time of Fan.
no_OccupancyState	Binary Value	2015	Unoccupied = **0** Occupied = **1**	System is in occupied/ unoccupied state.
no_HeatDatLockout	Binary Value	2016	Off = **0** On = **1**	Discharge Air High Limit output: DAT heating lockout flag
no_IsAuxHeatDisable	Binary Value	2017	Off=**0** On=**1**	Auxiliary heating enabled/ disabled.
no_IsHeatDisable	Binary Value	2018	Off = **0** On = **1**	Heating enabled/ disabled.
no_IsFanOnly	Binary Value	2019	Off = **0** On = **1**	Fan only mode enabled/ disabled.
no_EffSp	Analog Value	2032	40 to 120 °F (5 to 48 °C)	Effective setpoint
no_EffTempMode	Multistate Value	2015	CoolMode = **1** ReheatMode = **2** HeatMode = **3** EmergencyHeat = **4*** Off = **5** Ventilation = **6**	Effective temperature mode

Table 10 Operating states (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_EffAuxHeatSetpoint	Analog Value	2033	40 to 120 °F (5 to 48 °C)	Effective auxiliary heat setpoint.
no_SystemDisable	Binary Value	2020	Off = **0** On = **1**	System disable.
no_DehumActive	Binary Value	2021	Inactive = **0** Active = **1**	Dehumidification active/ inactive.
no_BypassState	Binary Value	2022	NoBypass = **0** Bypass = **1**	Bypass state output
no_ManualOverride	Multistate Value	2016	Occupied = **1** Unoccupied = **2** Bypass = **3** Standby = **4** Null = **5**	Manual override
no_EffOccSensState	Multistate Value	2017	Occupied = **1** UnOccupied = **2** Unused = **3**	Effective occupancy sensor state
no_CoolDatLockout	Binary Value	2023	Off = **0** On = **1**	Discharge air high limit output: DAT cooling lockout flag
no_CoolTermLdOut	Analog Value	2036	0 to 200%	Terminal load for cooling
no_IsCoolDisable	Binary Value	2025	Enable = **0** Disable = **1**	Cooling enabled/ disabled.
no_HeatTermLdOut	Analog Value	2038	-200 to 0%	Terminal load for heating
no_FanStart	Binary Value	2026	Off = **0** On = **1**	Fan start command
no_DaTemp	Analog Value	2040	-40 to 200 °F (-40 to 93 °C)	Discharge air temperature
no_PipeTemp	Analog Value	2041	-40 to 260 °F (-40 to 126 °C)	Pipe sensor temperature
no_EffSchCurrentState	Multistate Value	2018	enum Occupied_Wake = **1** Unoccupied_Away = **2** Bypass_Return = **3** Standby_Sleep = **4** NoOverride = **5** None_Custom = **6** None_Vacation = **7** None_Unrented = **8**	Current schedule state to network.

Table 10 Operating states (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_EffSchNextState	Multistate Value	2019	enum Occupied_Wake = **1** Unoccupied_Away = **2** Bypass_Return = **3** Standby_Sleep = **4** NoOverride = **5** None_Custom = **6** None_Vacation = **7** None_Unrented = **8**	Next schedule state to network.
no_EffTUNCOS	Analog Value	2042	0 to 11520 minutes	TUNCOS is the difference between the future change in event & current event in minutes to the network.
no_OverrideRemTime	Analog Value	2043	0 to 1080 minutes	This point gives out the exact remaining time for the bypass to reset once the system is in override condition.
no_CtrlSpaceTemp	Analog Value	2044	-40 to 150 °F (-40 to 65 °C)	Control space temperature output (Only for testing purpose)
no_RecoveryStatus	Binary Value	2030	Normal = **0** Recovery = **1**	This point gives out when the system is in recovery mode.
no_TermLdOut	Analog Value	2045	-200 to 200%	Common terminal load output for heating and cooling. This is an output showing the terminal load, which is a percentage between -200% and +200% based on the control output level. Negative values indicate heating load and positive values indicate cooling load.
no_EffDATSp	Analog Value	2046	40 to 150 °F (5 to 65 °C)	Effective discharge air control setpoint
no_SpaceTemp	Analog Value	2001	-40 to 150 °F (-40 to 65 °C)	Space Temperature
no_SpaceHumidity	Analog Value	2002	0 to 100%RH	Space Humidity
no_EffHeatSp	Analog Value	2003	40 to 120 °F (5 to 48 °C)	Effective Heating Setpoint
no_EffCoolSp	Analog Value	2004	40 to 120 °F (5 to 48 °C)	Effective Cooling Setpoint

Table 10 Operating states (Continued)

***Note: Supported only in TC3XXB models**				
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_SetpointSts	Multistate Value	2001	Occupied_Wake = **1** Unoccupied_Away = **2** Temporary = **3** Standby_Return = **4** Permanent = **5** Fixedsetpoint = **6** Sleep = **7** Custom = **8** Vacation = **9** Unrented = **10**	When the setpoint is adjusted by user, no_setpoints shifts to 'Temporary'. When the setpoint is not adjusted it will represent the current system state.
no_OaTemp	Analog Value	2439	-40 to 200 °F (-40 to 93 °C)	Outdoor air temperature.
no_OaHumidity	Analog Value	2440	0 to 100%RH	Outdoor air Humidity.
no_SpaceCO2	Analog Value	2442		Space CO2
no_GenericAlarm	Binary Value	2035	Inactive = **0** Active = **1**	General alarm flag
no_CoolStg2_RunTimeAccumulate	Analog Value	2470*	0 to 270737 hours	Outputs the actual run time of cooling stage 2.
no_HeatStg2_RunTimeAccumulate	Analog Value	2471*	0 to 270737 hours	Outputs the actual run time of heating stage 2.
no_LightSensorOutput	Analog Value	2506	0~1000	Light sensor output.
no_DateAndTime	Character String	1		Users can check the time of the device through the network

Schedule

Table 11 Schedule

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
no_ScheduleTimeToNext	Analog Value	2021		1 to 11520 minutes	Time to next schedule state
no_ScheduleHospitalityPointsValue	Analog Value	2513	0	0~10000	Hospitality status points value
no_ScheduleActive	Multistate Value	2079	1	enum {None=**1**, Weekly=**2**, Holiday=**3**, SpecialEvent=**4**, Vacation=**5**}	Schedule activation status.
Cfg_ScheduleType	Multistate Value	2054	1	enum {Commercial=**1**, Residential=**2**, FixedSetpoint=**3**, Hospitality=**4**}	Users can choose commercial, residential, fixed setpoint schedule or hospitality schedule.
no_ScheduleCurrentState	Multistate Value	2027		enum {Occupied_Wake=**1**, Unoccupied_Away=**2**, Temporary_Return=**3**, Standby_Sleep=**4**, None_Custom=**5**, None_Vacation=**6**, None_Unrented=**7**}	Current schedule state.
no_ScheduleNextState	Multistate Value	2028		enum {Occupied_Wake=**1**, Unoccupied_Away=**2**, Temporary_Return=**3**, Standby_Sleep=**4**, None_Custom=**5**, None_Vacation=**6**, None_Unrented=**7**}	Next schedule state.

Sylk sensor

Table 12 Sylk sensor

Name	BACnet Object Type	BACnet Object Instance	Range	Description
no_SylkAddr2Temp	Analog Value	223	-40 to 150 °F (-40 to 65 °C)	TR40-H-CO2: Temperature (May also use models TR40, TR40-H, TR40-CO2, TR40-H-CO2)
no_SylkAddr2Hum	Analog Value	224	0 to 100% RH	TR40-H-CO2: Humidity (May also use models TR40, TR40-H, TR40-CO2, TR40-H-CO2)

Table 12 Sylk sensor (Continued)

Name	BACnet Object Type	BACnet Object Instance	Range	Description
no_SylkAddr2CO2	Analog Value	225	0 to 2000 ppm	TR40-H-CO2: CO2. (May also use models TR40-CO2, TR40-H-CO2)
no_SylkAddr3Temp	Analog Value	226	-40 to 150 °F (-40 to 65 °C)	Address 3 TR40: Temperature
no_SylkAddr4Temp	Analog Value	227	-40 to 150 °F (-40 to 65 °C)	Address 4 TR40: Temperature
no_SylkAddr5Temp	Analog Value	228	-40 to 150 °F (-40 to 65 °C)	Address 5 TR40: Temperature
no_SylkAddr8Temp	Analog Value	231	-40 to 200 °F (-40 to 93 °C)	Address 8 C7400S: Temperature.
no_SylkAddr8Hum	Analog Value	232	0 to 100% RH	Address 8 C7400S: Humidity.
no_SylkAddr10Temp	Analog Value	235	-40 to 200 °F (-40 to 93 °C)	Address 10 C7400S: Temperature
no_SylkAddr10Hum	Analog Value	236	0 to 100% RH	Address 10 C7400S: Humidity
no_SylkAddr6Temp	Analog Value	2505	-40~150 °F, -40~65 °C	TR100 Em TR75: Temperature.
no_SylkAddr6Hum	Analog Value	230	0 to 100% RH	TR100 Em TR75: Humidity.

CHAPTER

5 FAN AND SPECIAL SETTINGS

Topics covered

Auxiliary heat configuration

Table 13: Auxiliary heat configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_AuxiliaryHeatEnable	Binary Value	2039	0	Off = **0** On = **1**	Auxiliary heat enable
Cfg_HeatPmp_AuxMode	Multistate Value	2003	1	Peripheral = **1** Supplemental = **2**	Auxiliary heat type
Cfg_AuxiliaryHeatPeriperalDroop	Analog Value	2018	0 **Δ°F** (0 **Δ°C**)	0 to 10 **Δ°F** (0 to 5 **Δ°C**)	Peripheral aux heat droop
Cfg_AuxiliaryHeatSupplementalDroop	Analog Value	2019	2 **Δ°F** (0 **Δ°C**)	0 to 10 **Δ°F** (0 to 5 **Δ°C**)	Supplemental aux heat droop
Cfg_AuxHeat_FanOnOff	Binary Value	2001	1	Off = **0** On = **1**	Fan run on/Off when aux heat on
Cfg_HeatPmp_AuxHeatLockoutSp	Analog Value	50	65 °F (18.3°C)	30 to 120 °F (-1 to 48 °C)	Outdoor air temperature auxiliary heat lockout.
Cfg_HeatPmp_UpStgTmr	Analog Value	215	30	30 to 960 minutes	Up stage timer value
Cfg_HeatPmp_UpStgTmrEn	Binary Value	2055	0	Off = **0** On = **1**	Up stage timer enable
Cfg_HeatPmp_AuxHeatRampFactor	Analog Value	53	2	0 to 100	Auxiliary heat recovery ramp factor
Cfg_AuxiliaryHeat_EnableOATLockout	Binary Value	466*	1	Disable = **0** Enable = **1**	Enable auxiliary heat outdoor air temperature lockout.

Compressor

Table 14 Compressor

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_CompressorDelay	Analog Value	2110*	90	15 to 120 seconds	Compressor delay time setting.
Cfg_HeatPmp_CompLockoutSp	Analog Value	51*	30 °F (-1.1 °C)	0 to 70 °F (-18 to 21 °C)	Outdoor air temperature compressor lockout.

Table 14 Compressor

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Compressor_EnableOATLockout	Binary Value	465*	1	Disable = **0** Enable = **1**	Enable compressor outdoor air temperature lockout.

Cooling configuration

Table 15 Cooling configuration

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Cool_Tr	Analog Value	41	4 Δ°F (2.2 Δ°C)	0 to 30 Δ°F (0 to 16Δ°C)	Cooling throttling range
Cfg_Cool_It	Analog Value	42	2500	0 to 5000 seconds	Cooling integral time 0 = disable (i.e., proportional only)
Cfg_Cool_CPH	Analog Value	44*	3	2 to 20 cycles/ hour	Cooling system response.
Cfg_Cool_MinOnTime	Analog Value	45*	120	0 to 300 seconds	Cooling stage minimum on time.
Cfg_Cool_MinOffTime	Analog Value	82*	60	0 to 300 seconds	Cooling stage minimum off time.
Cfg_Cool_CoolLockoutSp	Analog Value	46*	35 °F (1.7 °C)	-40 to 120 °F (-40 to 48 °C)	Outdoor air temperature cool lockout.
Cfg_Cool_DischLoLimSp	Analog Value	47	45 °F (7.2 °C)	-40 to 60 °F (-40 to 15°C)	Discharge air temperature low limit setpoint
Cfg_Cool_EnableOATLockout	Binary Value	467*	1	Disable = **0** Enable = **1**	Enable cool outdoor air temperature lockout.

Deadband

Table 16 Deadband

Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Thermostat_Deadband	Analog Value	101	3 Δ°F (1.7 Δ°C)	2 to 9 Δ°F 2 to 5 Δ°C	Temperature differential between heat and cool setpoint

Dehumidification Configuration

Table 17 Dehumidification configuration

Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_DehumEnable	Binary Value	2040	0	Off = **0** On = **1**	Enable/disable dehumidification

Table 17 Dehumidification configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Dehum_SpaceRHHighLimit	Analog Value	48	65	30 to 100%RH	Space relative humidity (RH) high limit setpoint
Cfg_Dehum_OverCool_Offset	Analog Value	2022	-2 Δ°F (-1.1 Δ°C)	-5 to -1 Δ°F (-2 to 0 Δ°C)	Dehumidification over cool offset
Cfg_Dehum_StageReHeatOpEn	Binary Value	133	0	Disable = **0** Enable = **1**	Staged reheat operation enable
Cfg_DehumAuxHeatForReheat	Binary Value	2041	0	Disable = **0** Enable = **1**	Aux heat reheat enable
Cfg_Dehum_OverCool_Offset	Analog Value	2022	-2	-5~0 Δ°F, -2~0 Δ°C	Dehumidification overcool offset.

Fan configuration

Table 18 Fan configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_FanType	Multistate Value	12	1	SingleSpeed = **1** TwoSpeed = **2** ThreeSpeed = **3** VariableSpeed = **4**	Fan can be configured as single speed, two speed or as a variable speed fan.
Cfg_FanDefaultMode	Multistate Value	89		Auto = **1** Circulate = **2** Continuous = **3**	Fan Mode of operation config by user & supervisor.
Cfg_FanRunOffDelayCool	Analog Value	39	0	0 to 180 seconds	Fan run on time after all cooling terminal turns off.
Cfg_FanRunOnDelayHeat	Analog Value	40	30	0 to 30 seconds	Fan run on delay time after heating terminal turns on.
Cfg_FanRunOffDelayHeat	Analog Value	2017	120	0 to 180 seconds	Fan run on time after all heating terminal turns off.
Cfg_FanConfig	Analog Value	2087	15	**BIT0** = Auto **BIT1** = Manual **BIT2** = Circulate	Fan configuration. BIT0 Auto must be set as 1, manual and circulate can be set as 1 or 0.
Cfg_FanManualVariableSpeed	Analog Value	2472	20 %	0 to 100 %	The user can manually set the speed of the variable fan.
Cfg_FanVariableSwitchType	Multistate Value	2063	1	ThreeSpeed = **1** VariableSpeed = **2**	Users can select variable fan speed switch type.
Cfg_FanResSpeedSetting	Multistate Value	2062	1	Fixed = **1** AutoControl = **2**	Users can select the fan speed setting to the residential schedule.
Cfg_FanCoilManualSpeedSel	Multistate Value	583	1	Auto = **1** Low = **2** Medium = **3** High = **4** Off = **5** Circulate = **6** Variable = **7**	Fan speed
Cfg_FanResWakeMode	Multistate Value	2055	1	Auto = **1** Circulate = **2** Continuous = **3**	Users can set the fan mode to the residential schedule wake status.
Cfg_FanResAwayMode	Multistate Value	2056	1	Auto = **1** Circulate = **2** Continuous = **3**	Users can set the fan mode to the residential schedule away status.
Cfg_FanResReturnMode	Multistate Value	2057	1	Auto = **1** Circulate = **2** Continuous = **3**	Users can set the fan mode to the residential schedule return status.
Cfg_FanResSleepMode	Multistate Value	2058	1	Auto = **1** Circulate = **2** Continuous = **3**	Users can set the fan mode to the residential schedule sleep status.

Table 18 Fan configuration (Continued)

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_FanResCustomMode	Multistate Value	2059	1	Auto = **1** Circulate = **2** Continuous = **3**	Users can set the fan mode to the residential schedule custom status.
Cfg_FanResVacationMode	Multistate Value	2060	1	Auto = **1** Circulate = **2**	Users can set the fan mode to the residential schedule vacation status.
Cfg_FanOnHeat	Binary Value	10	1	Off=0, On=1	Disable:Supply fan controllered by external duct thermostat during heat mode. Enable:Supply fan controller by digital output during heat mode.
Cfg_FanCoilManualSpeedSel	Multistate Value	583	1	enum { Auto = **1**, Low = **2**, Medium = **3**, High = **4**, NA= **5**, Circulate = **6**, Variable=**7**}	Fan speed.
Cfg_AuxiliaryHeat_DisableCompressor	Binary Value	2074	0	Off=**0**, On=**1**	In the heat pump system, configure auxiliary heat to turn on and disable the compressor stage.Only TC300B-G/TC320B-G Support.

Fan speed

Table 19 Fan speed

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_TwoSpeedVentMode	Multistate Value	585	1	Low = **1** High = **2**	Fan speed for ventilation mode
Cfg_FanCoilThreeSpeedVentMode	Multistate Value	586	1	Low = **1** Medium = **2** High = **3**	Fan speed for ventilation mode
Cfg_FanCoilTwoSpeedType	Multistate Value	581*	2	MultipleOutputsAtATime=**1** OneOutputAtATime = **2**	Two speed fan output type.
Cfg_FanCoilThreeSpeedType	Multistate Value	582*	2	MultipleOutputsAtATime=**1** OneOutputAtATime = **2**	Three speed fan output type.
Cfg_VarSpeedFan_VentSpeed	Analog Value	1470	20	0 to 100%	Variable speed fan speed for ventilation mode
Cfg_FanSpeed_CmprCoolSingle	Multistate Value	15*	2	Low = **1** High = **2** Auto = **3**	Heat pump two speed compressor single mode.
Cfg_FanSpeed_CoolSingleMode	Multistate Value	2041*	2	Low = **1** High = **2** Auto = **3**	Conventional two speed cool single mode.
Cfg_FanSpeed_HeatSingle	Multistate Value	17*	2	Low = **1** High = **2** Auto = **3**	Conventional two speed heat single mode.
Cfg_FanSpeed_AuxHeatMode	Multistate Value	2043*	2	Low = **1** High = **2** Auto = **3**	Heat pump two speed auxiliary heat single mode.
Cfg_VarSpeedFan_CoolMinSpeed	Analog Value	1468	20	0 to 100%	Variable speed fan min speed for cool
Cfg_VarSpeedFan_CoolMaxSpeed	Analog Value	1469	100	0 to 100%	Variable speed fan max speed for cool
Cfg_VarSpeedFan_HeatMinSpeed	Analog Value	1473	10	0 to 100%	Variable speed fan min speed for heat
Cfg_VarSpeedFan_HeatMaxSpeed	Analog Value	1474	50	0 to 100%	Variable speed fan max speed for heat

Table 19 Fan speed

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_FanSpeed_HeatMulti	Multistate Value	18*	2	Low = **1** High = **2** Auto = **3**	Conventional two speed heat multi mode.
Cfg_FanSpeed_CoolMulti	Multistate Value	2061*	2	Low = **1** High = **2** Auto = **3**	Conventional two speed cool multi mode.
Cfg_VarSpeedFan_AdjustLowSpeed	Analog Value	2473	20	20 to100 %	Variable speed fan low speed for adjustable mode.
Cfg_VarSpeedFan_AdjustHighSpeed	Analog Value	2474	100	20 to100 %	Variable speed fan high speed for adjustable mode.

Heating configuration

Table 20 Heating configuration

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Heat_Tr	Analog Value	54	4 Δ°F (2.2 Δ°C)	0 to 30 **Δ°F** (0 to 16 Δ°C)	Heating throttling range
Cfg_Heat_It	Analog Value	55	2500	0 to 5000 seconds	Heating integral time 0 = disable (i.e., proportional only)
Cfg_Heat_CPH	Analog Value	57	6	2 to 20 cycles/ hour	Heating system response
Cfg_Heat_MinOnTime	Analog Value	58*	120	0 to 300 seconds	Heating stage minimum on time.
Cfg_Heat_MinOffTime	Analog Value	59*	60	0 to 300 seconds	Heating stage minimum off time.
Cfg_Heat_HeatLockoutSp	Analog Value	60*	70 °F (21.1 °C)	40 to 120 °F (5 to 48 °C)	Outdoor air temperature heat lockout.
Cfg_Heat_DischHiLimSp	Analog Value	61	150 °F (65.6 °C)	60 to 200 °F (16 to 93 °C)	Discharge air temperature high limit setpoint
Cfg_Heat_FuelType	Multistate Value	2045*	1	Gas/Oil = **1** Electric = **2**	Fuel type selection. Based on the fuel type the default CPH will vary.

Table 20 Heating configuration

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Heat_EnableOATLockout	Binary Value	464*	1	Disable = **0** Enable = **1**	Enable heat outdoor air temperature lockout.

CHAPTER

6 COMMON CONFIGURATION

Topics covered

Control Sensor

Table 21 Control Sensor

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Control_MainSensor	Multistate Value	9	1	LocalSensor = **1** RemoteSensor =**2** Multi-Sensor = **3**	Temperature sensor selection
Cfg_Control_PowerupDelay	Analog Value	14	10	0 to 300 seconds	Initial delay to start control after power cycle.
Cfg_Control_CO2Sensor	Multistate Value	2069	1	enum {LocalSensor=**1**, RemoteSensor=**2**, MultiSensors=**3**}	CO2 sensor selection
Cfg_Control_HumiditySensor	Multistate Value	2070	1	enum {LocalSensor=**1**, RemoteSensor=**2**, MultiSensors=**3**}	Humidity sensor selection
Cfg_ZoneReSens_HumSenAction	Multistate Value	2071	1	enum {SuspendHumidityOutput=**1**, RevertToOnboard=**2**}	When the humidity sensor is used and the sensor value is invalid, the user can choose revert to local sensor or Suspends All Equipment Functions
Cfg_ZoneReSens_CO2SenAction	Multistate Value	2072	1	enum {SuspendCO2Output=**1**, RevertToOnboard=**2**}	When the remote CO2 sensor is used and the sensor value is invalid, the user can choose revert to local sensor or Suspends All Equipment Functions

General

Table 22 General

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Thermostat_TstUnitSel	Binary Value	136	0	Fahrenheit = **0** Celsius = **1**	Thermostat unit definition (Imperial/ Metric)
Cfg_Thermostat_CommUnitSel	Binary Value	2060	0	Fahrenheit = **0** Celsius = **1**	Thermostat communication unit definition (Imperial/ Metric)
Cfg_BrandType	Multistate Value	505	1	Honeywell = **1** Alerton = **2** None = **3** Custom = **4**	Vendor ID and Vendor name will be changed when modify brand type.
Cfg_Thermostat_LanguageType	Multistate Value	2053	1	English = **1** Spanish = **2** French = **3** Italian = **4** German = **5**	Users can change the HMI language.

Note: *The TC300 thermostat supports temperature unit conversion. It can be configured using the BACnet object* ***Cfg_Thermostat_CommUnitSel****.*

Home

Table 23 Home

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_StdbyConfig	Binary Value	2034	0	StandbyAsUnoccupied = **0** StandbyAsOccupied = **1**	Standby action
Cfg_Thermostat_ClAdjStPt	Analog Value	256		-45 to 45 °F (-25 to 25 **Δ**°C)	Temporary cool setpoint adjustment from User or from the supervisor.
Cfg_Thermostat_HtAdjStPt	Analog Value	257		-45 to 45 °F (-25 to 25 **Δ**°C)	Temporary heat setpoint adjustment from user or from the supervisor.
no_SetpointSts	Multistate Value	2001		enum {Occupied_Wake=**1**, Unoccupied_Away=**2**, Temporary=**3**, Standby_Return=**4**, Permanent=**5**, Fixedsetpoint=**6**, Sleep=**7**, Custom=**8**, Vacation=**9**, Unrented=**10**}	When the setpoint is adjusted by user, no_setpointsts shifts to 'Temporary'. When the setpoint is not adjusted it will represent the current system state.
no_ADR_Status	Binary Value	2088		Disable=**0**, Enable=**1**	The user check the status of ADR.

Humidification configuration

Table 24 Humidification configuration

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_HumidificationEnable	Binary Value	2056*	0	Off = **0** On = **1**	Humidification enable.
Cfg_Hum_SpaceRHLowLimit	Analog Value	62*	35	0 to 100%	Space relative humidity (RH) low limit setpoint.

Indoor temperature limits

Table 25 Indoor temperature limits

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_SpcAlarm_TempHighLim	Analog Value	254	90 °F (32.2 °C)	90 to 150 °F (33 to 65 °C)	Space temperature alarm high limit
Cfg_SpcAlarm_TempLowLim	Analog Value	255	45 °F (7.2 °C)	0 to 60 °F (-17 to 15 °C)	Space temperature alarm low limit
Cfg_DaTAlarm_TempHighLim	Analog Value	332	140 °F (60 °C)	70 to 180 °F (22 to 82 °C)	Discharge air temperature alarm high limit
Cfg_DATAlarmTempLowLim	Analog Value	333	45 °F (7.2 °C)	35 to 65 °F (2 to 18 °C)	Discharge air temperature alarm low limit
Cfg_PipeTempHeatThreshold	Analog Value	2070	80 °F (26.7 °C)	70 to 90 °F (22 to 32 °C)	Pipe sensor threshold for heating
Cfg_PipeTempCoolThreshold	Analog Value	2071	60 °F (15.6 °C)	45 to 65 °F (8 to 18 °C)	Pipe sensor threshold for cooling
Cfg_PipeTempHighLimit	Analog Value	2072	180 °F (82.2 °C)	70 to 220 °F (22 to 104 °C)	Pipe temperature alarm high limit
Cfg_PipeTempLowLimit	Analog Value	2073	40 °F (4.4 °C)	30 to 60 °F (-1 to 15 °C)	Pipe temperature alarm low limit
Cfg_PipeSpaceHeatTempOffset	Analog Value	2074	5 Δ°F (2.8 Δ°C)	5 to 10 Δ°F (3 to 5 Δ°C)	2 pipe single coil hybrid control space temperature offset for heating
Cfg_PipeSpaceCoolTempOffset	Analog Value	2075	-5 Δ°F (-2.8 Δ°C)	-10 to -5 Δ°F (-5 to -2 Δ°C)	2 pipe single coil hybrid control space temperature offset for cooling
Cfg_OutdoorAirTempHighLimit	Analog Value	2437	150 °F (65.5 °C)	70 to 150 °F (22 to 65 °C)	Outdoor air temperature alarm high limit
Cfg_OutdoorAirTempLowLimit	Analog Value	2438	-40 °F (-40 °C)	-40 to 60 °F (-40 to 15 °C)	Outdoor air temperature alarm low limit

Multi sensor weighting

Table 26 Multi sensor weighting

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_ZoneMultiSens_Control	Multistate Value	130	1	Average = **1** Min = **2** Max = **3** Smart = **4**	Main control sensor configuration
Cfg_ZoneMultiSens_Sens1_Wt	Analog Value	33	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 1 is the local onboard temperature sensor.
Cfg_ZoneMultiSens_Sens2_Wt	Analog Value	34	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 2 is the remote TR40 Sylk temperature sensor with Addr 2.
Cfg_ZoneMultiSens_Sens3_Wt	Analog Value	35	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 3 is the remote TR40 Sylk temperature sensor with Addr 3.
Cfg_ZoneMultiSens_Sens4_Wt	Analog Value	36	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 4 is the remote TR40 Sylk temperature sensor with Addr 4.
Cfg_ZoneMultiSens_Sens5_Wt	Analog Value	37	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 5 is the remote TR40 Sylk temperature sensor with Addr 5.
Cfg_ZoneMultiHumSens_Control	Multistate Value	77	1	Average = **1** Min = **2** Max = **3** Smart = **4**	Humidity sensor configuration

Table 26 Multi sensor weighting (Continued)

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_ZoneMultiSens_HumSens1_Wt	Analog Value	181	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 1 is the local onboard Humidity sensor
Cfg_ZoneMultiSens_HumSens2_Wt	Analog Value	180	10	0 to 10	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 2 is the remote TR40 Sylk humidity sensor with Addr 2.
Cfg_ZoneMultiSens_Sens7_Wt	Analog Value	2519	10	0~10	A weighted average allows individual sensors to have more influence on the average calculation. Analog space temperature.
Cfg_ZoneMultiSens_CO2Sens2_Wt	Analog Value	2491	10	0~10	A weighted average allows individual sensors to have more influence on the average calculation. Sylk2 CO2 sensor.
Cfg_ZoneMultiSens_CO2Sens1_Wt	Analog Value	2492	10	0~10	A weighted average allows individual sensors to have more influence on the average calculation. Local CO2 sensor.
Cfg_ZoneMultiCO2Sens_Control	Multistate Value	2073	1	enum {Average=**1**, Min=**2**, Max=**3**}	CO2 sensor configuration.

Table 26 Multi sensor weighting (Continued)

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_ZoneMultiSens_TempSel	Analog Value	2493	0xFFFF	{BIT0=LocalTempSensor, BIT1=SylkSensorAdd2, BIT2=SylkSensorAdd3, BIT3=SylkSensorAdd4, BIT4=SylkSensorAdd5, BIT5=SylkSensorAdd6, BIT6=AnalogSpaceTempSensor}	The user is able to choose which temperature sensors to participate in the calculation
Cfg_ZoneMultiSens_HumSel	Analog Value	2494	0xFFFF	{BIT0=LocalHumiditySensor, BIT1=SylkSensorAdd2, BIT2=SylkSensorAdd6}	The user is able to choose which humidity sensors to participate in the calculation
Cfg_ZoneMultiSens_CO2Sel	Analog Value	2495	0xFFFF	{BIT0=LocalCO2Sensor, BIT1=SylkSensorAdd2	The user is able to choose which CO2 sensors to participate in the calculation
Cfg_ZoneMultiSens_HumSens6_Wt	Analog Value	218	10	0~10	A weighted average allows individual sensors to have more influence on the average calculation. Sylk 6 is TR100 as TR75 humidity.
Cfg_ZoneMultiSens_Sens6_Wt	Analog Value	219	10	0~10	A weighted average allows individual sensors to have more influence on the average calculation.Sylk 6 is TR100 as TR75 temperature.

Occupancy setpoints

Table 27 Occupancy setpoints

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Setpoints_OccHeatSp	Analog Value	7	68 °F (20 °C)	40~105°F, 5~40°C	Occupied Heat Setpoint
Cfg_Setpoints_OccCoolSp	Analog Value	4	76°F (24°C)	50~115°F, 10~46°C	Occupied Cool Setpoint
Cfg_Setpoints_StbyHeatSp	Analog Value	8	65 °F (18.3 °C)	40~105°F, 5~40°C	Standby Heat Setpoint
Cfg_Setpoints_StbyCoolSp	Analog Value	5	80 °F (26.7 °C)	50~115°F, 10~46°C	Standby Cool Setpoint
Cfg_Setpoints_UnOccHeatSp	Analog Value	9	55 °F (12.8 °C)	40~105°F, 5~40°C	Unoccupied Heat Setpoint
Cfg_Setpoints_UnOccCoolSp	Analog Value	6	85 °F (29.4 °C)	50~115°F, 10~46°C	Unoccupied Cool Setpoint
Cfg_Setpoints_FixedSpCoolSp	Analog Value	2457	76°F (24°C)	50~115°F, 10~46°C	FixedSetpoint cooling setpoint.
Cfg_Setpoints_FixedSpHeatSp	Analog Value	2456	68°F (20°C)	40 to 105°F (5 to 40°C)	FixedSetpoint heating setpoint

Residential schedule setpoints

Table 28 Residential schedule setpoints

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Setpoints_ResWakeHeatSp	Analog Value	2458	68°F (20°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResWakeCoolSp	Analog Value	2459	76°F (24°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.
Cfg_Setpoints_ResAwayHeatSp	Analog Value	2460	55°F (13°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResAwayCoolSp	Analog Value	2461	85°F (29°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.

Table 28 Residential schedule setpoints

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Setpoints_ResReturnHeatSp	Analog Value	2462	68°F (20°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResReturnCoolSp	Analog Value	2463	76°F (24°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.
Cfg_Setpoints_ResSleepHeatSp	Analog Value	2464	62°F (17°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResSleepCoolSp	Analog Value	2465	82°F (28°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.
Cfg_Setpoints_ResCustomHeatSp	Analog Value	2466	68°F (20°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResCustomCoolSp	Analog Value	2467	76°F (24°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.
Cfg_Setpoints_ResVacationHeatSp	Analog Value	2468	62°F (17°C)	40~105°F, 5~40°C	Users can set the residential heat setpoint in wake state.
Cfg_Setpoints_ResVacationCoolSp	Analog Value	2469	82°F (28°C)	50~115°F, 10~46°C	Users can set the residential cool setpoint in wake state.

Hospitality Control Setpoint

Table 29 Hospitality Control Setpoint

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Setpoints_HospTargetSP	Analog Value	2509	72°F (22°C)	50~90°F, 10~32°C	Users can set the target setpoint in hospitality
Cfg_Setpoints_HospOccuDiffAbsVal	Analog Value	2510	±1 °F ±0.6 °C	±1~±4°F, ±0.6 to ±2.2 °C	Users can set the differential value of the target setpoint in the occupied state.
Cfg_Setpoints_HospRenUnoccDiffAbsVal	Analog Value	2478	±4 °F ±2.2 °C)	±1~±10 °F, ±0.6 to ±5.6 °C	Users can set the differential value of the heat or cool setpoint in the rented and unoccupied state.
Cfg_Setpoints_HospUnrentedHeatSP	Analog Value	2479	55°F (13°C)	40~90°F, 5~32°C	Users can set the unrented heat setpoint in hospitality
Cfg_Setpoints_HospUnrentedCoolSP	Analog Value	2480	85°F (29°C)	50~100°F, 10~37°C	Users can set the unrented cool setpoint in hospitality
Cfg_Setpoints_HospTargetLowLim	Analog Value	2516	65 °F (18.3 °C)	50~90°F, 10~32°C	The minimum limit of the target setpoint
Cfg_Setpoints_HospTargetHighLim	Analog Value	2517	80 °F (26.7 °C)	50~90°F, 10~32°C	The maximum limit of the target setpoint
Cfg_Setpoints_HospAdjustSP	Analog Value	2518	0	-40~40°F, -6~10 °C	The user adjusts the relative value of the setpoint.

Hospitality Control Configuration

Table 30 Hospitality Control Configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Hospitality_DelayTimeBeforePt	Analog Value	2481	30 minutes	10~90	User can set delay time before occupancy status change logic.
Cfg_Hospitality_AwakePTPerMin	Analog Value	2482	4 Hours	0.5~12	User can set awake time until unoccupied state
Cfg_Hospitality_SleepPTPerMin	Analog Value	2483	8 Hours	0.5~12	User can set sleep time until unoccupied state.
Cfg_Hospitality_AwakeLightLevTh	Analog Value	2484	60 Lux	0~500	User can set awake light level threshold.

Table 30 Hospitality Control Configuration (Continued)

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Setpoints_HospUnrentedToOccDelTime	Analog Value	2532	1 minutes	0~5	Users can set the delay time for switching from the "unrented" state to the "occupied" state.

Purge

Table 31 Purge

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_PipePurgeTime	Analog Value	2025	5	0 to 5 minutes	Pipe purge duration
Cfg_PipePurgeInterval	Analog Value	2079	0.5	0.5 to 2 hours	Pipe purge interval
Cfg_ValveCycle	Multistate Value	2025	1	1min/24hours = **1** 2min/24hours = **2** Disable = **3**	Valve cycle type
Cfg_TimeOut	Analog Value	2080	4	1 to 4 hours	When heating keeps working for timeout time check whether pipe temperature meet pipe sensor threshold.
Cfg_HybridControlEnableHeat	Binary Value	2053	1	Off = **0** On = **1**	2 pipe single coil heat hybrid control enable flag
Cfg_HybridControLEnableCool	Binary Value	2054	1	Off = **0** On = **1**	2 pipe single coil cool hybrid control enable flag
Cfg_CoolTimeOut	Analog Value	2101	4	1 to 4 hours	When heating/cooling keep working for timeout time check whether pipe temperature meet pipe sensor threshold.

Recovery setpoint configuration

Table 32 Recovery setpoint configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Recovery_MaxCoolRampRate	Analog Value	18	6 Δ°F/hr (3.3 Δ°C/hr)	0 to 20 Δ°F/hr (0 to 11 Δ°C/hr)	Maximum cooling setpoint ramp
Cfg_Recovery_MinCoolRampRate	Analog Value	16	2 Δ°F/hr (1.1 Δ°C/hr)	0 to 20 Δ°F/hr (0 to 11 Δ°C/hr)	Minimum cooling setpoint ramp
Cfg_Recovery_MaxCoolRampTemp	Analog Value	17	70 °F (21.1 °C)	-40 to 120 °F (-40 to 48 °C)	Outdoor air temperature at the maximum cool setpoint ramp
Cfg_Recovery_MinCoolRampTemp	Analog Value	15	90 °F (32.2 °C)	-40 to 120 °F (-40 to 48 °C)	Outdoor air temperature at the minimum cool setpoint ramp
Cfg_Recovery_MaxHeatRampRate	Analog Value	22	8 Δ°F/hr (4.4 Δ°C/hr)	0 to 36 Δ°F/hr (0 to 20 Δ°C/hr)	Maximum heating setpoint ramp
Cfg_Recovery_MinHeatRampRate	Analog Value	20	2 Δ°F/hr (1.1 Δ°C/hr)	0 to 36 Δ°F/hr (0 to 20 Δ°C/hr)	Maximum heating setpoint ramp
Cfg_Recovery_MaxHeatRampTemp	Analog Value	21	60 °F (15.5 °C)	-40 to 120 °F (-40 to 48 °C)	Outdoor air temperature at the maximum heat setpoint ramp
Cfg_Recovery_MinHeatRampTemp	Analog Value	19	0 °F (-17.8 °C)	-40 to 120 °F (-40 to 48 °C)	Outdoor air temperature at the minimum heat setpoint ramp

Discharge air control

Table 33 Discharge air control

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_FanCoilSupTempHtgSp	Analog Value	1723	85 °F (29.4 °C)	75 to 180 °F (24 to 82 °C)	Discharge air control maximum heating setpoint.
Cfg_FanCoilSupTempClgSp	Analog Value	1724	55 °F (12.8 °C)	40 to 80 °F (5 to 26 °C)	Discharge air control minimum cooling setpoint.
Cfg_FanCoilDATSpEnSwitch	Binary Value	454	0	Off = **0** On = **1**	Discharge air control enable flag
Cfg_FanCoilDATHeatOffset	Analog Value	2009	0 Δ°F (0 Δ°C)	0 to 90 **Δ°F** (0 to 50 Δ°C)	Discharge air control heating initial offset
Cfg_FanCoilDATCoolOffset	Analog Value	2010	0 Δ°F (0 Δ°C)	0 to 40 **Δ°F** (0 to 22Δ°C)	Discharge air control cooling initial offset
Cfg_DaT_Ctrl_Cool_Tr	Analog Value	2011	6 Δ°F (3.3 Δ°C)	0 to 30 **Δ°F** (0 to 16 Δ°C)	Discharge air control cooling throttling range
Cfg_DaT_Ctrl_Cool_It	Analog Value	2012	300	0 to 5000 seconds	Discharge air control cooling integral time
Cfg_DaT_Ctrl_Heat_Tr	Analog Value	2014	6 Δ°F (3.3 Δ°C)	0 to 30 **Δ°F** (0 to 16 Δ°C)	Discharge air control heating throttling range
Cfg_DaT_Ctrl_Heat_It	Analog Value	2015	300	0 to 5000 seconds	Discharge air control heating integral time

Sylk sensor calibration offsets

Table 34 Sylk sensor calibration offsets

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_LocalSensCalOffset_Temp	Analog Value	23	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	Local onboard temperature sensor calibration offset
Cfg_LocalSensCalOffset_Hum	Analog Value	103	0	-10 to 10 %RH	Local onboard humidity sensor calibration offset
Cfg_SylkCalOffset_SylkBus2Temp	Analog Value	24	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	TR40_2/ TR-21 temperature calibration offset
Cfg_SylkCalOffset_SylkBus2RH	Analog Value	25	0	-10 to 10 %RH	TR40_2 humidity calibration offset
Cfg_SylkCalOffset_SylkBus2CO2	Analog Value	100 ppm	0	-100 to 100 ppm	TR40_2 CO2 calibration offset

Table 34 Sylk sensor calibration offsets (Continued)

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_SylkCalOffset_SylkBus3Temp	Analog Value	26	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	TR40_3 temperature calibration offset
Cfg_SylkCalOffset_SylkBus4Temp	Analog Value	27	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	TR40_4 temperature calibration offset
Cfg_SylkCalOffset_SylkBus5Temp	Analog Value	28	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	TR40_5 Temperature calibration offset
Cfg_SylkCalOffset_SylkBus8Temp	Analog Value	29	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	C7400S outdoor air temperature calibration offset.
Cfg_SylkCalOffset_SylkBus8RH	Analog Value	30	0	-10 to 10 %RH	C7400S outdoor air humidity calibration offset.
Cfg_SylkCalOffset_SylkBus10Temp	Analog Value	31	0 Δ°F (0 Δ°C)	-10 to 10 Δ°F (-5 to 5 Δ°C)	C7400S Discharge Air Temperature calibration offset
Cfg_SylkCalOffset_SylkBus10RH	Analog Value	32	0	-10 to 10 %RH	C7400S Discharge Air Humidity calibration offset
Cfg_LocalSensCalOffset_CO2	Analog Value	2512	0	-100~ 100	Local onboard CO2 sensor calibration offset.
Cfg_SylkCalOffset_SylkBus6Temp	Analog Value	2502	0	-10 ~ 10 Δ°F, -5~5 Δ °C	TR100 Em TR75 temperature calibration offset.
Cfg_SylkCalOffset_SylkBus6RH	Analog Value	2503	0	-10~ 10	TR100 Em TR75 humidity calibration offset.

Sylk sensor configuration

Table 35 Sylk sensor configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Sylk_SylkBus2Type	Multistate Value	2032	1	TR40 = **1** TR50 = **2**	Sylk bus addr-2 device type

Table 35 Sylk sensor configuration

Name	BACnet Object Type	BACnet Object Instance	Default Value	Range	Description
Cfg_Sylk_SylkBus2En	Multistate Value	85	1	NotConfigured = **1** TempOnly = **2** TempHum = **3** TempHumCO2 = **4** TempCO2 = **5**	Sylk bus addr-2 device enable/ disable
Cfg_Sylk_SylkBus3En	Binary Value	147	0	Disable = **0** Enable = **1**	Sylk bus addr-3 device enable/ disable
Cfg_Sylk_SylkBus4En	Binary Value	148	0	Disable = **0** Enable = **1**	Sylk bus addr-4 device enable/ disable
Cfg_Sylk_SylkBus5En	Binary Value	149	0	Disable = **0** Enable = **1**	Sylk bus addr-5 device enable/ disable
Cfg_Sylk_SylkBus8En	Binary Value	151	0	Disable = **0** Enable = **1**	Sylk bus addr-8 device enable/ disable.
Cfg_Sylk_SylkBus10En	Binary Value	153	0	Disable = **0** Enable = **1**	Sylk bus addr-10 device enable/ disable
Cfg_Sylk_SylkBus6En	Multistate Value	86	1	enum {NotConfigured=1, TempOnly=2, TempHum=3	Sylk bus addr-6 device enable/ disable.

Device settings and limits

Table 36 Device settings and limits

Note: *Supported only in TC-3XXB models.					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Default Value**	**Range**	**Description**
Cfg_Thermostat_SysSwitch	Multistate Value	8	1	Auto = **1** Cool = **2** Heat = **3** Ventilation = **4** Off = **5** Emergency heat = **6***	The system switch may be used by the contractor or occupant to change the operation of the unit.
Cfg_Thermostat_BypOverrideTime	Analog Value	10	180	0 to 1080 minutes	Unoccupied override time
Cfg_Thermostat_TempOffSpLimit	Analog Value	102	30 Δ°F (36.7 Δ°C)	0 to 45 Δ°F (0 to 25 Δ°C)	This point is used to limit the range of user adjustable setpoint.
Cfg_Thermostat_SystemConfig	Analog Value	2023	15	**BIT0** = Auto **BIT1** = Heat&Cool **BIT2**=Ventilation **BIT3** = Off **BIT4**=EmergencyHeat*	To limit available user configurable options. BIT 3 Off must be set as 1.
Cfg_Thermostat_Override	Binary Value	135	0	OverrideOff = **0** OverrideOn = **1**	Thermostat bypass override
Cfg_TstatOverrideType	Multistate Value	2035	2	Permanent = **1** Temporary = **2**	Thermostat override type
Cfg_Thermostat_MinCoolSp	Analog Value	12	50	50~115°F, 10~46 °C	Minimum cool setpoint of thermostat.
Cfg_Thermostat_MaxHeatSp	Analog Value	13	105	40~105°F, 5~40 °C	Maximum heat setpoint of thermostat.

Network error check

Table 37 Network error check

Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Description**
no_mstpHeaderCrcError	Analog Value	2005		The number of header CRC errors in received frames
no_mstpDataCrcErr	Analog Value	2006		The number of data CRC errors in received frames

Table 37 Network error check

Name	BACnet Object Type	BACnet Object Instance	Range	Description
ni_mstpClearErr	Binary Value	174	Unclear=**0** Clear=**1**	Write to 1 and then 0 will clear header CRC and data CRC count.
no_WifiRssi (Applicable only to TC320B-G/TC320C-G thermostats.)	Analog Value	2455		WiFi RSSI (Received Signal Strength Indicator) value.

CHAPTER

7 NETWORK INPUTS

Topics covered

Fail detect

Network fail detect is used to detect when a network input has not been updated from the network for a period. When the network input has not been updated after about 5 minutes, the network input will return to a default value, typically 'Invalid'. The Fail detect is enabled when configured for the network variable and the network input is bound using a network tool. For the Global thermostat controller, the Fail detect for each network input is enabled based on the information given in this chapter.

Some network inputs are desired to have the Fail detect enabled when they are not bound using a network tool. This is useful for sharing sensor data across multiple controllers using the Global thermostat gateway which allows the control to fall back to a predetermined action when the network input has not been updated after a period (e.g., communication is lost). A configuration flag called FDWhenNotBound allows the network input to provide fail detection when it is not bound. For the Global thermostat controller, FDWhenNotBound for each network input is enabled based on the table below.

Fail Detect Enable: This is the time until the Thermostat is notified of a failure on this point.

True: If the parameter has not received an update from the Thermostat network source in the Fail detect time, then an alarm is generated, and the Present Value is set to Invalid.

Fail Detect Fallback Value Select: The value that should be set to 'Out' (when failure is detected), if the Fail Detect 'Enable' is True and the Fail Detect 'Fallback Value' is set to "Fixed Value". The Fail Detect only works if "In" is NULL and Fail. Detect 'Enable' is set to true.

'Update Rate' - Update interval in seconds within which 'Present Value' should get written over BACnet periodically. 'Present Value' not written within this interval will result in failure and 'Out' will be set with the value as configured in 'Fallback Value'.

Fallback Value:

- "InvalidValue" - 'Out' is set as NULL,
- "LastknownGoodValue" - If the last 'Out' value was not NULL then 'Out' is retained as it is, otherwise, the value from the 'Default Value' parameter goes to Out.
- "FixedValue" - "Fail Detect Fixed Value" value goes to 'Out'. 'Enable' - Set it to true to enable the Fail detection feature.
- Note - This feature enables monitoring of periodic updates of a function block over the network.

Fail Detect Delay: Fail detect time depends on the update rate configured.

False: False means the object retains the last value that was written to it until an Thermostat network source changes it or the Thermostat has a power outage or reset

Tuning Policy

It defines the rules for evaluating both write requests, which is to writable proxy points, as well as the acceptable “freshness” of read requests that result from polling. It includes standard tuning policy properties and additional properties related to client-side usage of the BACnet Subscribe COV service.

Note: If the controller supports COV, it is recommended to use this feature, it will optimize the bandwidth of the controller. Thermostat supports up to 20 points for COV. Since there a is a limitation in the Niagara framework on the COV feature, it is recommended to configure only up to 20 points and the rest of the points for polling. Thermostat BACnet Device comes with default Thermostat Tuning policy which enables COV feature. Whenever you perform BACnet Network discover for Thermostat BACnet device tool automatically create Thermostat Tuning Policy.

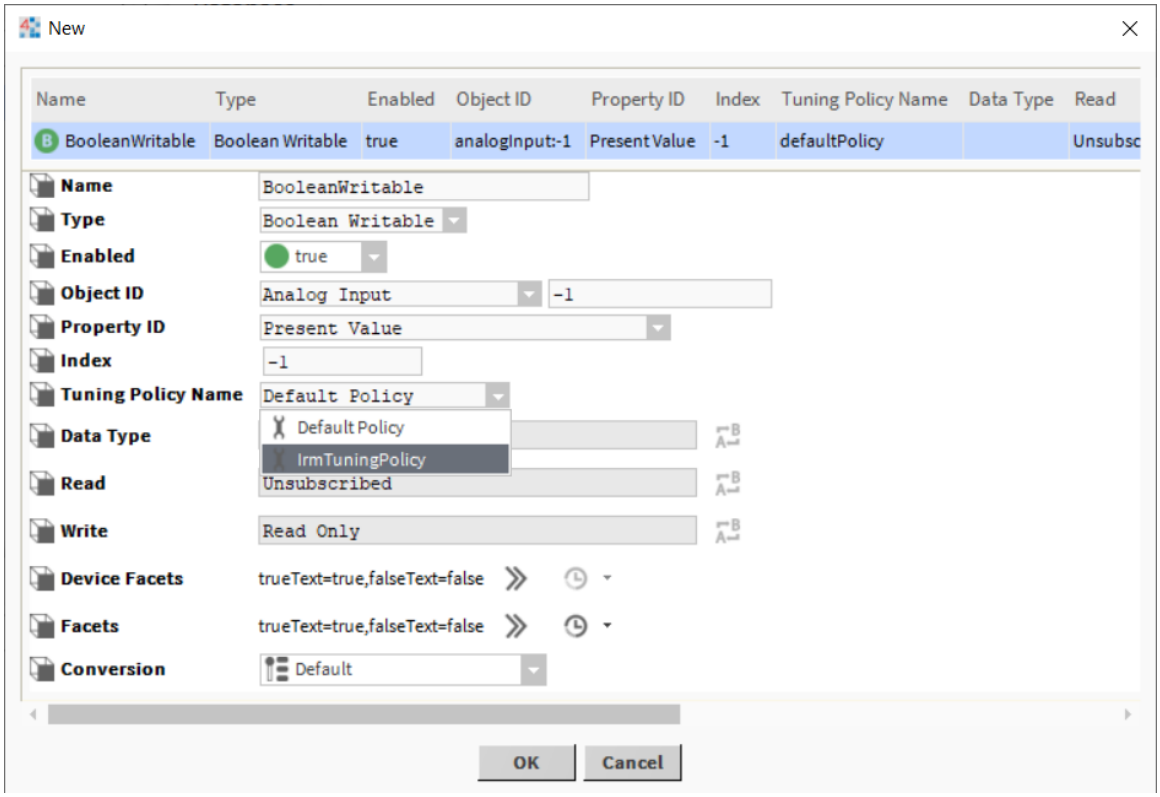
It is recommended to categories critical and less critical points, based on that you can assign the policy to all the different points. So that the critical points can be polled more frequently, and less critical points can be polled less frequently, this configuration helps to optimize the bandwidth.

To assign a policy

Step 1. Add points from the Thermostat point discovery manager.

Step 2. While configuring the point, assign the tuning policy from the drop-down list.

Fig 16. Adding Thermostat Tuning Policy



Another way to access these properties is by expanding **BacnetNetwork** > **Tuning Policies** or double-clicking **Default Policy**.

Fig 17. Tuning Policy - Default Policy

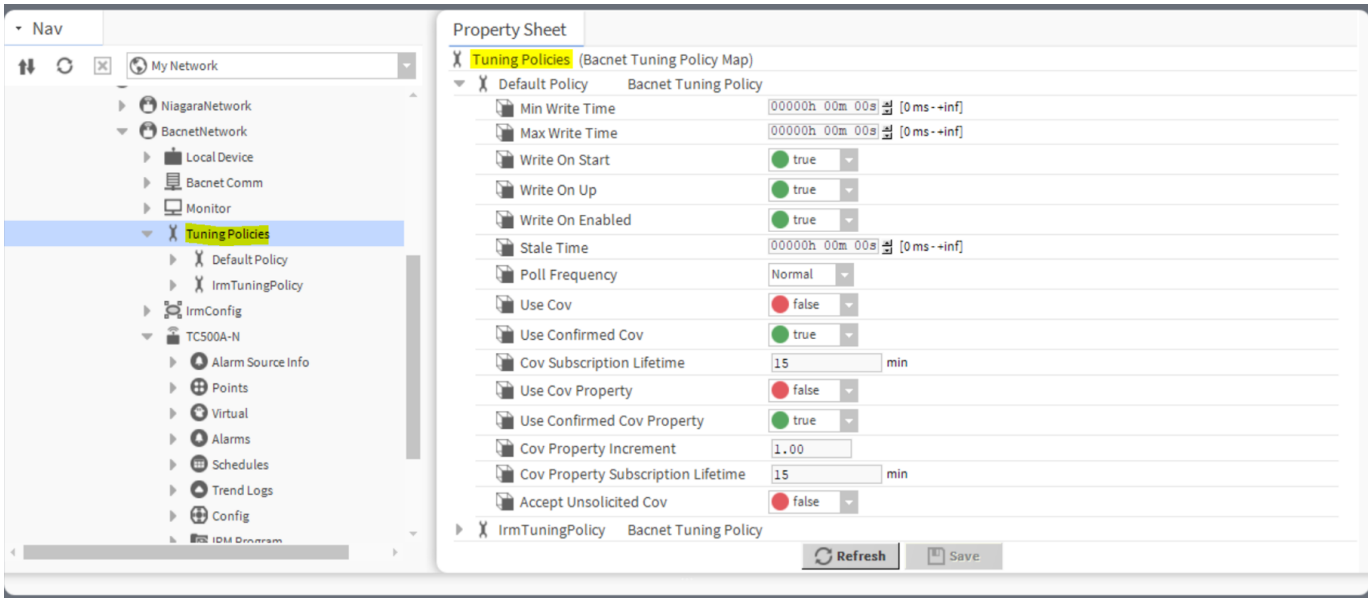
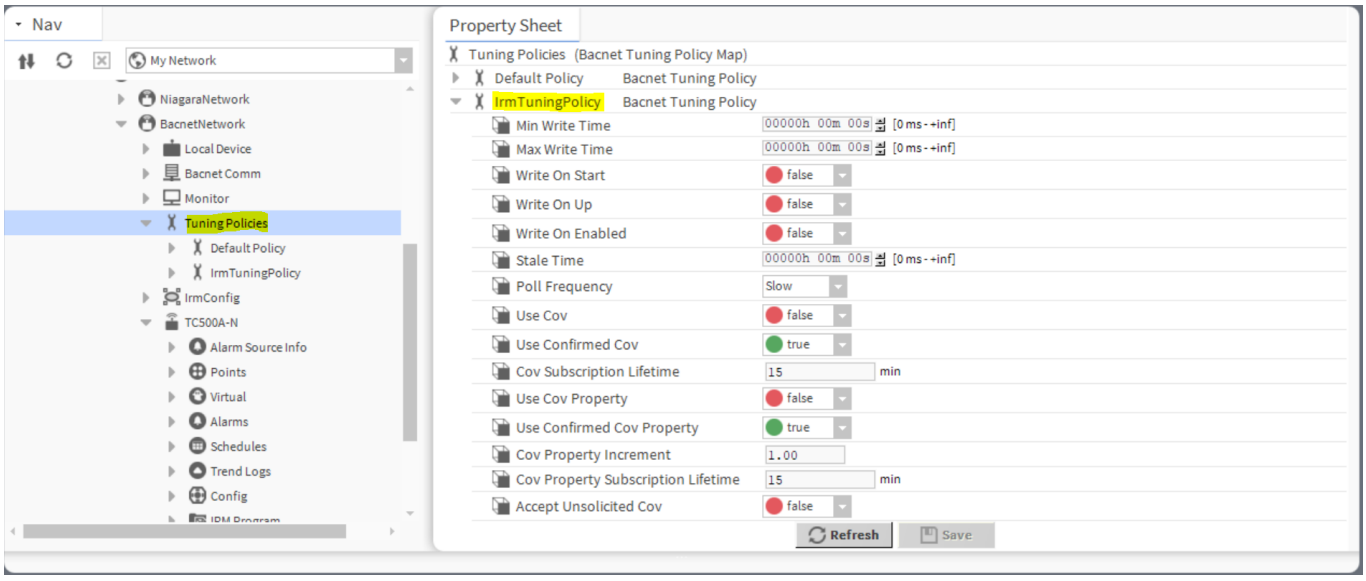


Fig 18. Tuning Policy Property Sheet



Network inputs

Table 38 Network inputs

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
ni_NetTUNCOS	Analog Value	1	0 to 11520 minutes		TUNCOS is the difference between the future change in event & current event in minutes.
ni_ApplicationMode	Multistate Value	3	Auto = **1** Cool = **2** Heat = **3** FanOnly = **4** Off = **5** EmergencyHeat = **6***	1	Effective application mode from network. This value will not be persisted over a power cycle.
ni_BypassState	Binary Value	1	Disable = **0** Enable = **1**	0	Net bypass input to enable bypass timer
ni_OccupancySensorState	Multistate Value	6	Occupied = **1** Unoccupied = **2** Bypass = **3** Standby = **4** NoOverride = **5**	5	Network occupancy sensor state
ni_OutdoorTemp	Analog Value	89	-40 to 200 °F (-40 to 93 °C)		Outdoor air temperatue from network input.
ni_OutdoorHum	Analog Value	194	0 to 100 % RH		Outdoor air humidity from network input.
ni_ShutdownState	Binary Value	4	Normal = **0** Shutdown = **1**	0	System shutdown input from network.
ni_SpaceRH	Analog Value	80	0 to 100% RH		Space humidity network input
ni_SpaceTemp	Analog Value	104	-40 to 150 °F (-40 to 65 °C)		Space temperature network input
ni_WSHPEnableState	Binary Value	25*	WSHPSystemEnable = **0** WSHPSystemDisable = **1**		This point is considered for network point sharing of water source heat pump enable network input.
ni_RunTimeReset	Multistate Value	38	Normal = **1** FanReset = **2** CoolReset = **3** HeatingReset = **4**	1	Runtime accumulate reset network input.
ni_DATemp	Analog Value	2024	-40 to 200 °F (-40 to 93 °C)		Discharge air temperature network input

Table 38 Network inputs (Continued)

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
ni_PipeTempMode	Multistate Value	2012	None = **1** Cool = **2** Heat = **3**	1	Pipe temperature mode network input
ni_NetSchCurrentState	Multistate Value	1	enum {Occupied_Wake=1, Unoccupied_Away=2, Bypass_Return=3, Standby_Sleep=4, NoOverride=5, None_Custom=6, None_Vacation=7, None_Unrented=8}	5	Current schedule state from network. In the commercial scenario, set it to 1 means Occupied, 2 means Unoccupied. 4 means Standby. In the hospitality scenario, setting it to 8 represents Unrented, 5 represents Rented. The fail detect is controlled by Cfg_NetFailDetEn and is enabled by default.
ni_NetSchNextState	Multistate Value	2	enum {Occupied_Wake=1, Unoccupied_Away=2, Bypass_Return=3, Standby_Sleep=4, NoOverride=5, None_Custom=6, None_Vacation=7, None_Unrented=8}	5	Next schedule state from network.
ni_ADREn	Binary Value	2	Disable=0, Enable=1	0	Users can set ADR functions remotely.
ni_SpaceCO2	Analog Value	2511	0~9999		Space CO2 network input.

Note: *If a network input point shows the value 65535 on the thermostat indicates that no value has been written to the network input point.*

Network sensor configuration

Table 39 Network sensor configuration

Note: *Supported only in TC3XX models, not in TC3XXC models.					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
Cfg_NetOccSenFailDetEn	Binary Value	159	Disable = **0** Enable = **1**	1	Occupancy sensor fail detect enable
Cfg_NetOccSenFailFalbck	Analog Value	262	InvalidValue(Null) = **0** LastKnownGoodValue = **1** FixedValue = **2**	2	Occupancy sensor fail detect fallback
Cfg_NetOccSenFailFxdVal	Multistate Value	2021	Occupied = **1** Unoccupied = **2** Bypass = **3** Standby = **4** NoOverride = **5**	5	Occupancy sensor fail detect fallback value
Cfg_NetOccSenFailDetDly	Analog Value	263	0 to 3600 seconds	300	Occupancy sensor fail detect delay
Cfg_NetShtdwnFailDetEn	Binary Value	164	Disable = **0** Enable = **1**	1	Shut down fail detect enable
Cfg_NetShtdwnFailFalbck	Analog Value	273	InvalidValue(Null) = **0** LastKnownGoodValue = **1** FixedValue = **2**	2	Shut down fail detect fallback
Cfg_NetShtdwnFailFxdVal	Binary Value	165	Normal = **0** Shutdown = **1**	0	Shut down fail detect fallback value
Cfg_NetShtdwnFailDetDly	Analog Value	274	0 to 3600 seconds	300	Shut down fail detect delay
Cfg_NetWSHPEnStFailDetEn	Binary Value	169*	Disable = **0** Enable = **1**	1	Network Fail Detection will be enabled only if network point is considered for sharing.
Cfg_NetWSHPEnStFailFalbck	Analog Value	284*	InvalidValue (Null) = **0** LastKnownGoodValue = **1** FixedValue = **2**	2	Network Fail Detection Fall back value.
Cfg_NetWSHPEnStFailFxdVal	Binary Value	170*	WSHPSystemEnable = **0** WSHPSystemDisable = **1**	0	Applicable only if Network Fail Fall back value is configured to Fixed value.
Cfg_NetWSHPEnStFailDetDly	Analog Value	285*	0 to 3600 seconds	900	Network Fail Detection delay in seconds.

Table 39 Network sensor configuration (Continued)

Note: *Supported only in TC3XX models, not in TC3XXC models.					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
Cfg_NetPipeTempModFailDetEn	Binary Value	2073	Disable = **0** Enable = **1**	1	Pipe temp mode fail detect enable.
Cfg_NetPipeTempModFailFalbck	Analog Value	2476	InvalidValue (Null) = **0** LastKnownGoodValue = **1** FixedValue = **2**	1	Pipe Temp Mode Fail Detect Fallback
Cfg_NetPipeTempModFailFxdVal	Multistate Value	2064	Enum None = **1** Cool = **2** Heat = **3**	1	Pipe Temp Mode Fail Detect Fallback Value
Cfg_NetPipeTempModFailDetDly	Analog Value	2477	0~3600	300	Pipe Temp Mode Fail Detect Delay
Cfg_NetFailDetEn	Binary Value	2087	Disable=**0**, Enable=**1**	1	Network sensor fail detect enable.
Cfg_NetFailFalbck	Analog Value	2507	InvalidValue (Null)=**0**, LastKnownGoodValue=**1**	0	Network sensor fail detect fallback.
Cfg_NetFailDetDly	Analog Value	2508	0~3600	300	Network sensor fail detect delay.

Service mode

Table 40 Service mode

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
ni_ServiceModeEn	Binary Value	6	NoOverride = **0** Service = **1**	0	Service mode network input to felicitate installer during commissioning/ maintenance to shut down all equipment.
ni_ServiceFan	Multistate Value	2026	Off = **1** On = **2** Low = **3** Medium = **4** High = **5**	1	Fan speed configuration network input for single/ two/three speed fan when service mode is enabled.
ni_ServiceFanSpeed	Analog Value	85	0 to 100%	0	Fan speed configuration network input for variable speed fan when service mode is enabled.
ni_ServiceHeatOnOff	Binary Value	2042	Off = **0** On = **1**	0	On/Off heat valve status network input when service mode is enabled.
ni_ServiceCoolOnOff	Binary Value	2043	Off = **0** On = **1**	0	On/Off cool valve status network input when service mode is enabled.
ni_ServiceHeatFloating	Multistate Value	2022*	Off = **1** Open = **2** Close = **3**	1	Floating heat valve status network input when service mode is enabled.
ni_ServiceCoolFloating	Multistate Value	2023*	Off = **1** Open = **2** Close = **3**	1	Floating cool valve status network input when service mode is enabled.
ni_ServiceModulatingHeat	Analog Value	2076	0 to 100%	0	Modulating heat valve status network input when service mode is enabled.
ni_ServiceModulatingCool	Analog Value	2077	0 to 100%	0	Modulating cool valve status network input when service mode is enabled.
ni_ServiceSixWayValve	Analog Value	2078	0 to 10 V	0	Six way valve status network input when service mode is enabled.
ni_ServiceAuxHeat	Binary Value	2044	Off = **0** On = **1**	0	Auxiliary heat status network input when service mode is enabled.
ni_ServiceChangeOver	Binary Value	2045	Off = **0** On = **1**	0	Changeover valve status when service mode is enabled

Table 40 Service mode (Continued)

*Note: Supported only in TC3XXB models					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
ni_ServiceHeatStage1	Binary Value	19	Off = **0** On = **1**	0	Heat stage 1/Heat pump heat/cool stage 1 status network input when service mode is enabled.
ni_ServiceCoolStage1	Binary Value	2046	Off = **0** On = **1**	0	Cool stage 1 status network input when service mode is enabled.
ni_ServiceValveStage1	Binary Value	2047	Off = **0** On = **1**	0	Modulating valve stage 1 status network input when service mode is enabled.
ni_ServiceValveOnOff	Binary Value	2048	Off = **0** On = **1**	0	Modulating valve status network input when service mode is enabled.
ni_ServiceValveFloating	Multistate Value	2024*	Off = **1** Open = **2** Close = **3**	1	Floating valve status network input when service mode is enabled.
ni_ServiceValveModulating	Analog Value	2086	0 to 100	0	Modulating valve status network input when service mode is enabled.
ni_ServiceRevVlvCmd	Binary Value	22*	Off = **0** On = **1**	0	Reversing valve status when service mode is enable.
ni_ServiceWaterFlowValve Cmd	Binary Value	2058*	Off = **0** On = **1**	0	WaterFlow valve status when service mode is enable.
ni_ServiceSimpleDehCmd	Binary Value	23*	Off = **0** On = **1**	0	Dehumidifier status when service mode is enable.
ni_ServiceSimpleHumCmd	Binary Value	24*	Off = **0** On = **1**	0	Humidifier status when service mode is enable.
ni_ServiceHeatStage2	Binary Value	20*	Off = **0** On = **1**	0	Conventional heat stage 2 status network input when service mode is enabled
ni_ServiceCoolStage2	Binary Value	2070*	Off = **0** On = **1**	0	Conventional Cool stage2 status network input when service mode is enabled.
ni_ServiceCO2BinaryOutp ut	Binary Value	2082	Off=0, On=1	0	CO2 binary output status when service mode is enable.
ni_ServiceCO2AnalogOutp ut	Analog Value	2497	0~100	0	CO2 analog output status when service mode is enable.
ni_ServiceLightingControl	Binary Value	2083	Off=0, On=1	0	Lighting control output status when service mode is enable.

Table 40 Service mode (Continued)

***Note: Supported only in TC3XXB models**					
Name	**BACnet Object Type**	**BACnet Object Instance**	**Range**	**Default Value**	**Description**
ni_ServiceOccupancyOutput	Binary Value	2084	Off=**0**, On=**1**	0	Occupancy output status when service mode is enable.

CHAPTER

8 CALENDAR & SCHEDULE

Topics covered

Calendar

Schedule

Calendar

Table 41 Calendar

Name	BACnet Object Type	BACnet Object Instance	Description
Calendar	Calendar	1	

Schedule

Table 42 Schedule

Name	BACnet Object Type	BACnet Object Instance	Description
OccSchedule	Schedule	2	**Commercial** Occupied = **1** Unoccupied = **2** Bypass = **3** Standby = **4** NoOverride = **5** **Residential** Wake = **1** Away = **2** Return = **3** Sleep = **4** NoOverride = **5** Custom = **6** Vacation = **7**

CHAPTER

9 SUPPLEMENTAL BACNET GUIDELINES

Topics covered

Special BACnet guidelines

TC300 thermostats proprietary properties list

List of all BACnet objects

Special BACnet guidelines

Table 43: Special BACnet guidelines

Feature	Limitation / Behavior	Description	Workaround
Schedule / Holiday	Calendar object is not supported	Calendar object is not supported and calender reference is not supported by schedule object in TC300 thermsotats.	NA
Schedule	Schedule does not work properly if effective period and default output is written from Niagara	The schedule default output is set to Unoccupied mode. User should not change this property over BACnet. The schedule effective period is enabled always. User should not change this property over BACnet.	Makes sure default output and effective period set as true in Skip writes facets
Schedule	Modes supported by TC300 thermostats are 1, 2 and 4	Modes and corresponding Enum values are 1:Occupied; 2-Unouucpied; 4- Standby.	NA
Schedule	Special / Holiday events are supported for the 3 years duration.	Special / Holiday can create more than 3 years in Niagara, but TC300 thermostat support only for 3-year duration	NA
Schedule	Users must write special events in order when using Niagara	When users writing special event/ holiday by Niagara, they must sequentially issue it in the order of 1, 2, 3...	NA
Device Object	Unsupported object and service is claimed in the device object capabilities	NA	NA
Alarm	Unsupported Intrinsic Alarm Property is being exposed in the objects	Intrinsic alarms are not supported by TC300 thermostats	NA
COV	COV not supported	TC300 thermostats do not support COV way of notifying values to the supervisor.	NA
NUMBER OF APDU RETRIES	NumberOfApduRetries is not writable.	NA	
DAY LIGHT SAVING	Unable to write Daylight savings from Niagara to TC300 thermostats	Unable to write Daylight savings from Niagara to TC300 thermostats	Set the daylight saving from TC300 thermostats HMI
Output Object Read / Write	Set operation on AO, BO & MSO is writing values to the priority-16 instead of relinquish default	NA	NA

Note: *The UTC_Offset is a standard property of the device object and indicates the number of minutes (-780 to +780) offset between local standard time and Coordinated Universal Time (UTC). Time zones to the west of the zero-degree meridian have positive values, while those to the east have negative values. The value of the UTC_Offset property is subtracted from the UTC received in UTCTimeSynchronization service requests to calculate the correct local standard time." Time Synchronization Methods include,*

1. Local Time Configuration: This method provides direct control over a device's time settings through the modification of dedicated Local_Date and Local_Time properties. These properties offer precise manual configuration of the device's internal clock, allowing for exact alignment with organization-specific time requirements or isolated system needs.
2. Time Sync Service: This approach enables dynamic time updates from an authoritative external source through the TimeSynchronization service. The service facilitates automatic synchronization across devices within the same time zone, ensuring consistent time representation throughout the BACnet network and reducing time-related communication errors.
3. UTC Time Synchronization: Designed specifically for multi-time-zone deployments, this method utilizes the UTCTimeSynchronization service to distribute Coordinated Universal Time across all network devices. Each device then applies its configured UTC_Offset to derive the appropriate local time, creating a standardized time synchronization framework that accommodates global installations spanning multiple time zones.

TC300 thermostats proprietary properties list

Note: *Items from BACNET_IP_PHY_SEL to the end of the table below are applicable only to TC320B-G, and TC320C-G thermostats.*

Table 44 Device

Note: BACnet object type for object is Device.					
Name	**Data Type**	**Property Identifier**	**Default Value**	**Range**	**Description**
Bootloader version	String	1026			Bootloader version
MSTP min auto mac	Unsigned	1028	1	1 to 127	MSTP auto mac address minimal value
MSTP max auto mac	Unsigned	1029	127	1 to 127	MSTP auto mac address maximum value
MSTP disable auto mac	Boolean	1030	0	Enable=**0** Disable=**1**	BACnet MSTP auto MAC disable or not.
MSTP baud rate	Unsigned	1226		B2BR_9600 = **1** B2BR_19200 = **2** B2BR_38400 = **3** B2BR_57600 = **4** B2BR_76800 = **5** B2BR_115200 = **6**	MSTP baud rate
Temp units	Enumerated	1237	0	Fahrenheit=**0** Celsius=**1**	Thermostat unit definition (Imperial/ Metric)
GUI brightness	Unsigned	1240	80%	20 to 100%	LCD Backlight brightness
Contractor name	String	1246			Contractor name
Contractor telephone number	String	1247			Contractor telephone number
Device Configured	Boolean	1249	0	Not Configured=**0** Configured=**1**	Device is configured or not
Display Options	Unsigned	1250	0xFFE7	**BIT1**=Time **BIT2**=Schedule Status **BIT3**=Outdoor Temp **BIT4**=Outdoor Humidity **BIT5**=Indoor CO2 **BIT6**=IndoorHumidity **BIT7**=System mode **BIT8**=Fan	Display options
Time Format	Enumerated	1252	0	12 hour = **0** 24 hour = **1**	Time format

Table 44 Device (Continued)

Note: BACnet object type for object is Device.					
Name	**Data Type**	**Property Identifier**	**Default Value**	**Range**	**Description**
Basic User Permission	Unsigned	1253	0xFFBE	**BIT1** = System Mode **BIT2** = Override **BIT3** = Alert View **BIT5** = Temp. Unit **BIT12** = Brightness **BIT15** = FanSpeedConfig **BIT16** = WifiConnectConfig **BIT17** = LanguageSettingConfig	Basic User Permission
Advanced User Permission	Unsigned	1254	0xFFFF	**BIT0**=Setpoint **BIT6**=Schedule	Advanced User Permission. 0xFFFF represents 0b1111111111111111. Enabling any bit in this range grants the corresponding permission.
Visitor Permission	Unsigned	1257	0xFFFF	None	Visitor Permission. 0xFFFF represents 0b1111111111111111. Enabling any bit in this range grants the corresponding permission.
Brand Type	Unsigned	1280	1	Honeywell=**1** Alerton=**2** None=**3** Custom = **4**	Brand type configuration
Custom Brand Name	String	1281	Custom	Max 18 Characters	Custom Brand Name
Residential Schedule Custom Event Name	String	1282		Max 16 Characters	Residential schedule custom event name configuration
BACNET_IP_PHY_SEL	Enumerated	1231	0	STAND_ALONE=**0** WIFI=**1** MSTP=**2** WIFI_MSTP=**3** MODBUS=**4** WIFI_MODBUS=**5**	Device connection type.
NETWORK_TYPE	Enumerated	1258	0	WIFI_TYPE_ITEM_NONE = **0** WIFI_TYPE_ITEM_CLOUD = **1** WIFI_TYPE_ITEM_BACNET_WIFI = **2** WIFI_TYPE_ITEM_BACNET_CLOUD = **3**	Network type

Table 44 Device (Continued)

Note: BACnet object type for object is Device.					
Name	**Data Type**	**Property Identifier**	**Default Value**	**Range**	**Description**
BBMD_IP_ADDR	OctetString	1277	0.0.0.0		This property determines whether Foreign Device functionality is enabled on the device. When set to 0 (or 0.0.0.0), the Foreign Device functionality is explicitly disabled, preventing the device from registering with any BBMD server. Conversely, when configured with a valid BBMD server IP address, the Foreign Device functionality becomes active, allowing the device to register with the specified BBMD for cross-network communication.
BBMD_UDP_PORT	Unsigned	1278	47808	1024 to 65535	This property works in conjunction with BBMD_IP_ADDR to establish Foreign Device registration. It specifies the UDP port number (typically 47808, also known as BAC0) on which the BBMD server is listening. When both BBMD_IP_ADDR and BBMD_UDP_PORT contain valid values, the device initiates the Foreign Device registration process, establishing a communication channel that enables interaction with devices on different BACnet networks.

Table 44 Device (Continued)

Note: BACnet object type for object is Device.					
Name	**Data Type**	**Property Identifier**	**Default Value**	**Range**	**Description**
BBMD_TTL	Unsigned	1279	30	0 to 65535	The Time To Live property defines, in seconds, the validity period of a Foreign Device registration. This critical parameter determines how long the device remains recognized as "alive" within the BBMD system. To maintain continuous communication status, the device typically re-registers automatically at intervals approximately 2/3 of the configured TTL value. For example, with a TTL of 1800 seconds (30 minutes), the device would typically re-register every 20 minutes to ensure uninterrupted operation.
BACNET_UDP_PORT	Unsigned	1232	47808	1024 to 65535	BACnet UDP port
BACNET_NET_NUM	Unsigned	1233	1	1 to 65534	BACnet network number
WIFI_IPV4_ADDR	OctetString	1203	0.0.0.0		Writable when DHCP Enable is 0
WIFI_IPV4_SUBNET_MASK	OctetString	1204	0.0.0.0		Writable when DHCP Enable is 0
WIFI_DEFAULT_GATEWAY	OctetString	1205	0.0.0.0		Writable when DHCP Enable is 0
WIFI_DHCP_ENABLE	Boolean	1206	0	Disable=**0** Enable=**1**	DHCP enable or not
WIFI_SSID_NAME	String	1209			Wi-Fi SSID
WIFI_MAC_ADDRESS	OctetString	1261			Wi-Fi MAC address
WIFI_RSSI	Integer	1262			Wi-Fi RSSI
WIRELESS_VERSION	String	1050			Wireless version

List of all BACnet objects

phy_SpaceTempSensor
phy_PipeSensor
phy_DatSensor
no_UIO3
no_VariableFan
no_Modulating_Heat
no_Modulating_Cool
no_SixWay_Valve_Heating
no_SixWay_Valve_Cooling
no_UIO1
no_UIO2
Cfg_CoolTimeOut
Cfg_DrainPanSensorAlarm
Cfg_RoomTempTrendFailure
Cfg_ProofofAirFlowAlarm
Cfg_FanConfig
ni_ServiceValveModulating
Alarm_PipeSensorTempHeatOrCoolThreshold
AlarmPriority_SpcTempHI_Lolimit
AlarmPriority_HumSens
AlarmPriority_TempSens
Cfg_TimeOut
Cfg_PipePurgeInterval
ni_ServiceSixWayValve
ni_ServiceModulatingCool
ni_ServiceModulatingHeat
Cfg_PipeSpaceCoolTempOffset
Cfg_PipeSpaceHeatTempOffset
Cfg_PipeTempLowLimit
Cfg_PipeTempHighLimit
Cfg_PipeTempCoolThreshold
Cfg_PipeTempHeatThreshold
Cfg_SixwayValveCoolingMaxOutput
Cfg_SixwayValveCoolingMinOutput
Cfg_SixwayValveHeatingMaxOutput
Cfg_SixwayValveHeatingMinOutput
no_EffDATSp
no_TermLdOut

no_CtrlSpaceTemp
no_OverrideRemTime
no_EffTUNCOS
no_PipeTemp
no_DaTemp
no_HeatTermLdOut
no_CoolTermLdOut
no_EffSp
no_Fan_RunTimeAccumulate
no_HeatStg1_RunTimeAccumulate
no_HeatCtrl_RunTimeAccumulate
no_CoolStg1_RunTimeAccumulate
no_AuxHeatTermLdOut
no_CoolCtrl_RunTimeAccumulate
Cfg_PipePurgeTime
ni_DATemp
Cfg_Thermostat_SystemConfig
Cfg_Dehum_OverCool_Offset
no_ScheduleTimeToNext
Cfg_AuxiliaryHeatSupplementalDroop
Cfg_AuxiliaryHeatPeriperalDroop
Cfg_FanRunOffDelayHeat
Cfg_DaT_Ctrl_Heat_It
Cfg_DaT_Ctrl_Heat_Tr
Cfg_DaT_Ctrl_Cool_It
Cfg_DaT_Ctrl_Cool_Tr
Cfg_FanCoilDATCoolOffset
Cfg_FanCoilDATHeatOffset
Cfg_Heat_valvefloatEnMinOut
Cfg_Cool_valvefloatEnMinOut
no_mstpDataCrcErr
no_mstpHeaderCrcError
no_EffCoolSp
no_EffHeatSp
no_SpaceHumidity
no_SpaceTemp
Cfg_FanCoilSupTempClgSp
Cfg_FanCoilSupTempHtgSp
Cfg_FanCoilClgDriveTime
Cfg_FanCoilHtgDriveTime

Cfg_ModCoolMax_Output
Cfg_ModHeatMax_Output
Cfg_ModCoolMin_Output
Cfg_ModHeatMin_Output
Cfg_VarSpeedFan_HeatMaxSpeed
Cfg_VarSpeedFan_HeatMinSpeed
Cfg_VarSpeedFan_VentSpeed
Cfg_VarSpeedFan_CoolMaxSpeed
Cfg_VarSpeedFan_CoolMinSpeed
Cfg_UISensCalOffset_SpcTemp
Cfg_Cool_ModClEnMinOut
Cfg_DATAlarmTempLowLim
Cfg_DaTAlarm_TempHighLim
Cfg_NetShtdwnFailDetDly
Cfg_NetShtdwnFailFalbck
Cfg_NetOccSenFailDetDly
Cfg_NetOccSenFailFalbck
Cfg_Thermostat_HtAdjStPt
Cfg_Thermostat_ClAdjStPt
Cfg_SpcAlarm_TempLowLim
Cfg_SpcAlarm_TempHighLim
no_SylkAddr10Hum
no_SylkAddr10Temp
no_SylkAddr5Temp
no_SylkAddr4Temp
no_SylkAddr3Temp
no_SylkAddr2CO2
no_SylkAddr2Hum
no_SylkAddr2Temp
Cfg_UISensCalOffset_DATemp
Cfg_ZoneMultiSens_HumSens1_Wt
Cfg_ZoneMultiSens_HumSens2_Wt
ni_SpaceTemp
Cfg_LocalSensCalOffset_Hum
Cfg_Thermostat_TempOffSpLimit
Cfg_Thermostat_Deadband
Cfg_SylkCalOffset_SylkBus2CO2
Cfg_Heat_ModHtEnMinOut
ni_ServiceFanSpeed
ni_SpaceRH

Cfg_Heat_DischHiLimSp
Cfg_Heat_It
Cfg_Heat_Tr
Cfg_Dehum_SpaceRHHighLimit
Cfg_Cool_DischLoLimSp
Cfg_Cool_It
Cfg_Cool_Tr
Cfg_FanRunOnDelayHeat
Cfg_FanRunOffDelayCool
Cfg_ZoneMultiSens_Sens5_Wt
Cfg_ZoneMultiSens_Sens4_Wt
Cfg_ZoneMultiSens_Sens3_Wt
Cfg_ZoneMultiSens_Sens2_Wt
Cfg_ZoneMultiSens_Sens1_Wt
Cfg_SylkCalOffset_SylkBus10RH
Cfg_SylkCalOffset_SylkBus10Temp
Cfg_SylkCalOffset_SylkBus5Temp
Cfg_SylkCalOffset_SylkBus4Temp
Cfg_SylkCalOffset_SylkBus3Temp
Cfg_SylkCalOffset_SylkBus2RH
Cfg_SylkCalOffset_SylkBus2Temp
Cfg_LocalSensCalOffset_Temp
Cfg_Recovery_MaxHeatRampRate
Cfg_Recovery_MaxCoolRampRate
Cfg_Control_PowerupDelay
Cfg_Thermostat_MaxHeatSp
Cfg_Thermostat_MinCoolSp
Cfg_Thermostat_BypOverrideTime
Cfg_Setpoints_UnOccHeatSp
Cfg_Setpoints_StbyHeatSp
Cfg_Setpoints_OccHeatSp
Cfg_Setpoints_UnOccCoolSp
Cfg_Setpoints_StbyCoolSp
Cfg_Setpoints_OccCoolSp
ni_NetTUNCOS
phy_ProofOfAirFlowSensor
phy_OccupancySensor
phy_DrainpanSensor
phy_ChangeOverSwitch
no_Modulating_Heating_stage_1

no_Modulating_Cooling_stage_1
no_Medium_Speed_Fan
no_Low_Speed_Fan
no_High_Single_Speed_Fan
no_Heating_Floating_Close
no_Heating_Floating_Open
no_Cooling_Floating_Close
no_Cooling_Floating_Open
no_Heating_Valve(On/Off)
no_Cooling_Valve(On/Off)
no_ChangeOverValve
no_Auxiliary_Heat
no_DIO2
no_DIO1
no_DO3
no_DO2
no_DO1
Cfg_HybridControLEnableCool
Cfg_HybridControlEnableHeat
Alarm_CHWDrainPanSensor
Alarm_RoomTempTrendFailure
AlarmPriority_UnknownTime
AlarmPriority_SpaceFreezeProtect
ni_ServiceValveOnOff
ni_ServiceValveStage1
ni_ServiceCoolStage1
ni_ServiceChangeOver
ni_ServiceAuxHeat
ni_ServiceCoolOnOff
ni_ServiceHeatOnOff
Cfg_DehumAuxHeatForReheat
Cfg_DehumEnable
Cfg_AuxiliaryHeatEnable
Cfg_SixwayValveDriveType
Cfg_SixwayValveOutput
Cfg_ChangeOverValveType
no_GenericAlarm
Cfg_StdbyConfig
no_RecoveryStatus
no_FanStart

no_IsCoolDisable
no_CoolDaLolimit
no_BypassState
no_SystemDisable
no_IsFanOnly
no_IsHeatDisable
no_DaHilimit
no_OccupancyState
AlarmPriority_ProofofAirFlow
Cfg_AuxHeat_FanOnOff
Cfg_FanCoilClgFloatingSyncEn
Cfg_FanCoilOnOffClgVlvChar
Cfg_FanCoilonOffHtgVlvChar
Cfg_LeakDetectorSensorChar
Cfg_FanCoilDATSpEnSwitch
Cfg_FanCoilHtgFloatingSyncEn
Cfg_ModCoolAction
Cfg_ModHeatAction
Cfg_Mod_StgCl1En
ni_mstpClearErr
Cfg_NetShtdwnFailFxdVal
Cfg_NetShtdwnFailDetEn
Cfg_NetOccSenFailDetEn
Cfg_Sylk_SylkBus10En
Cfg_Sylk_SylkBus5En
Cfg_Sylk_SylkBus4En
Cfg_Sylk_SylkBus3En
Cfg_Thermostat_TstUnitSel
Cfg_Thermostat_Override
Cfg_Dehum_StageReHeatOpEn
Cfg_Mod_StgHt1En
Cfg_AirFlwStsChar
Cfg_OccSensChar
ni_ServiceHeatStage1
ni_ServiceModeEn
ni_ShutdownState
ni_BypassState
Alarm_SylkCommFailure
Cfg_TstatOverrideType

Cfg_2PipeSingleCoilHeat&CoolSysModChangeoverType
Cfg_ChangeoverSwitchPolarityType
Cfg_Sylk_SylkBus2Type
Alarm_PipeSensorOutofRange
Alarm_PipeSensorFailure
AlarmPriority_DATempAlarm_Fault
no_ScheduleNextState
no_ScheduleCurrentState
ni_ServiceFan
Cfg_ValveCycle
ni_ServiceValveFloating
ni_ServiceCoolFloating
ni_ServiceHeatFloating
Cfg_NetOccSenFailFxdVal
no_EffSchNextState
no_EffSchCurrentState
no_EffOccSensState
no_ManualOverride
no_EffTempMode
no_EffOccState
no_LocalOccSensState
ni_PipeTempMode
Cfg_PipeSensChar
Cfg_UIO3
Cfg_HeatPmp_AuxMode
no_SetpointSts
Cfg_FanCoilThreeSpeedVentMode
Cfg_FanCoilTwoSpeedVentMode
Cfg_FanCoilManualSpeedSel
Cfg_FanCoilThreeSpeedType
Cfg_FanCoilTwoSpeedType
Cfg_FanCoilTwoPipeSingleCoilType
Cfg_FanCoilClgDriveType
Cfg_FanCoilHtgDriveType
Cfg_FanCoilClgType
Cfg_FanCoilHtgType
Cfg_FanCoilType
Cfg_BrandType
Cfg_DASensChar1

Cfg_VarSpeedFanType
Cfg_SpcSensChar
Cfg_ZoneMultiSens_Control
Cfg_FanCoilFourPipeSingleCoilType
Cfg_Sylk_SylkBus2En
Cfg_ZoneMultiHumSens_Control
ni_RunTimeReset
Cfg_DIO2
Cfg_DIO1
Cfg_DO3
Cfg_DO2
Cfg_DO1
Cfg_UIO2
Cfg_UIO1
Cfg_FanType
Cfg_Control_MainSensor
Cfg_Thermostat_SysSwitch
ni_OccupancySensorState
ni_ApplicationMode
ni_NetSchNextState
ni_NetSchCurrentState
Application_Image
Firmware_Image
Calendar
OccSchedule
N_DdcCommand_2
N_DdcCommand_1
N_DdcCommand_0
R1.1
AlarmPriority_OATempAlarm_Fault
AlarmPriority_WaterFlwPrf
Cfg_Alarm_WaterFlowAlarmConfig
Cfg_HeatPmp_AuxHeatLockoutSp
Cfg_HeatPmp_UpStgTmrEn
Cfg_HeatPmp_AuxHeatRampFactor
Cfg_CompressorDelay
Cfg_HeatPmp_CompLockoutSp
Cfg_Cool_CoolLockoutSp
Cfg_Equip_EquipType
Cfg_HeatPmp_CngOvrRelayType

Cfg_WaterFlowValveConfig
Cfg_HeatPumpType
Cfg_ConventionalMode
Cfg_FanDefaultMode
Cfg_TwoSpeedVentMode
Cfg_FanSpeed_CmprCoolSingle
Cfg_FanSpeed_CoolSingleMode
Cfg_FanSpeed_HeatSingle
Cfg_FanSpeed_AuxHeatMode
Cfg_Heat_HeatLockoutSp
no_OaTemp
no_OaHumidity
Cfg_HumidificationEnable
Cfg_Hum_SpaceRHLowLimit
Cfg_UISensCalOffset_OATemp
Cfg_WaterFlwStsChar
Cfg_OASensChar1
Cfg_OutdoorAirTempHighLimit
Cfg_OutdoorAirTempLowLimit
ni_OutdoorTemp
ni_OutdoorHum
no_HeatOATLockOut
no_CoolOATLockOut
no_HeatDatLockout
no_IsAuxHeatDisable
no_EffAuxHeatSetpoint
no_CoolDatLockout
Cfg_Recovery_MinCoolRampRate
Cfg_Recovery_MaxCoolRampTemp
Cfg_Recovery_MinCoolRampTemp
Cfg_Recovery_MinHeatRampRate
Cfg_Recovery_MaxHeatRampTemp
Cfg_Recovery_MinHeatRampTemp
Cfg_SylkCalOffset_SylkBus8Temp
Cfg_SylkCalOffset_SylkBus8RH
ni_ServiceRevVlvCmd
ni_ServiceWaterFlowValveCmd
ni_ServiceSimpleDehCmd
ni_ServiceSimpleHumCmd
Cfg_Sylk_SylkBus8En

no_SylkAddr8Temp
no_SylkAddr8Hum
phy_ProofofWaterflow
phy_OutdoorAirSensor
no_WaterFlowValve
no_ReversingValve
no_HumActive
Cfg_Thermostat_SystemConfig
R2
AlarmPriority_ShutdownFault
Cfg_SpaceTempFaultyAlarm
Cfg_Cool_CPH
Cfg_Cool_MinOnTime
Cfg_Cool_MinOffTime
Cfg_Thermostat_CommUnitSel
Cfg_Heat_CPH
Cfg_Heat_MinOnTime
Cfg_Heat_MinOffTime
Cfg_Heat_FuelType
no_SpaceCO2
Cfg_ShutdownChar
Cfg_Customized1SensorType
Cfg_Customized1DigitalInputType
Cfg_Customized1VoltageInputControlAction
Cfg_Customized1VoltageMinInput
Cfg_Customized1VoltageMaxInput
Cfg_Customized1TempSensorType
Cfg_Customized2SensorType
Cfg_Customized2DigitalInputType
Cfg_Customized2VoltageInputControlAction
Cfg_Customized2VoltageMinInput
Cfg_Customized2VoltageMaxInput
Cfg_Customized2TempSensorType
Cfg_Customized3SensorType
Cfg_Customized3DigitalInputType
Cfg_Customized3VoltageInputControlAction
Cfg_Customized3VoltageMinInput
Cfg_Customized3VoltageMaxInput
Cfg_Customized3TempSensorType
no_Customized1DigitalOutput

no_Customized1VoltageOutput
no_Customized1TempOutput
no_Customized2DigitalOutput
no_Customized2VoltageOutput
no_Customized2TempOutput
no_Customized3DigitalOutput
no_Customized3VoltageOutput
no_Customized3TempOutput
phy_ShutdownSensor
no_DehumActive
Cfg_NetWSHPEnStFailDetEn
Cfg_NetWSHPEnStFailFalbck
Cfg_NetWSHPEnStFailFxdVal
Cfg_NetWSHPEnStFailDetDly
ni_WSHPEnableState
R2.1
Cfg_Thermostat_LanguageType
no_Conventional_Cooling_stage_2
no_Conventional_Heating_stage_2
Cfg_Setpoints_FixedSpHeatSp
Cfg_Setpoints_FixedSpCoolSp
Cfg_Setpoints_ResWakeHeatSp
Cfg_Setpoints_ResWakeCoolSp
Cfg_Setpoints_ResAwayHeatSp
Cfg_Setpoints_ResAwayCoolSp
Cfg_Setpoints_ResReturnHeatSp
Cfg_Setpoints_ResReturnCoolSp
Cfg_Setpoints_ResSleepHeatSp
Cfg_Setpoints_ResSleepCoolSp
Cfg_Setpoints_ResCustomHeatSp
Cfg_Setpoints_ResCustomCoolSp
Cfg_Setpoints_ResVacationHeatSp
Cfg_Setpoints_ResVacationCoolSp
Cfg_FanManualVariableSpeed
Cfg_FanVariableSwitchType
Cfg_FanResSpeedSetting
Cfg_FanCoilManualSpeedSel
Cfg_FanResWakeMode
Cfg_FanResAwayMode

Cfg_FanResReturnMode
Cfg_FanResSleepMode
Cfg_FanResCustomMode
Cfg_FanResVacationMode
Cfg_FanSpeed_HeatMulti
Cfg_FanSpeed_CoolMulti
Cfg_VarSpeedFan_AdjustLowSpeed
Cfg_VarSpeedFan_AdjustHighSpeed
Cfg_Cool_EnableOATLockout
Cfg_Heat_EnableOATLockout
Cfg_AuxiliaryHeat_EnableOATLockout
Cfg_ScheduleType
no_ScheduleCurrentState
no_ScheduleNextState
Cfg_Compressor_EnableOATLockout
ni_ServiceHeatStage2
ni_ServiceCoolStage2
no_CoolStg2_RunTimeAccumulate
no_HeatStg2_RunTimeAccumulate

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