

# TC500A Thermostat

## BACnet Integration Guide

31-00478-01 | Rev. 06-21





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# Declaration

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## Waste Electrical and Electronic Equipment (WEEE)

| WEEE: Waste Electrical and Electronic Equipment Directive                           |                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"><li>• At the end of the product life, dispose of the packaging and product in an appropriate recycling center.</li><li>• Do not dispose of the device with the usual domestic refuse.</li><li>• Do not burn the device.</li></ul> |

## 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 TC500A-W / thermostat mainboard CBA, thermostat wall plate 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 Mounting Instructions (31-00399M-02) are to be observed.

- TC500A Thermostat 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 TC500A Thermostat, as it 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.
- TC500A Thermostat is 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 having 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 24VAC 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.



## Warning

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## Safety Information as per EN60730-1

TC500A Thermostat is intended for commercial and residential environments.

TC500A Thermostat is an independently mounted electronic control system with fixed wiring.

TC500A Thermostat is used for the purpose of building HVAC control and is suitable for use only in non-safety controls for installation on or in appliances.



## About TC500A

TC500A-N/TC500A-W Thermostat is an advanced, configurable, connected device for commercial buildings. It controls and monitors Rooftop Unit, Heat Pump equipment, and their configurations. This device communicates over Wi-Fi, Bluetooth, Sylk, and easily integrates with the building automation system.

The built-in intelligent control algorithms of the device help to achieve the perfect balance between Energy Efficiency and Comfort. The device is packaged with numerous presets suitable for most commercial building requirements that enable the easy and quick initial setup. The firmware of the device can be upgraded via Wi-Fi network. The device has four universal terminals and a pair of Sylk terminals to connect with sensors or other accessories. It also has a built-in temperature sensor, humidity sensor, and proximity sensor.

Users can connect to the thermostat via Wi-Fi with the Honeywell Connect Me app. The Honeywell Connect Me app gives authorized users access to the Honeywell TC500 Thermostats in their commercial buildings. They can remotely monitor sites, schedules, settings, and override controls. Users can add and configure devices, manage users and more – all from a mobile device.

## Scope of the document

The BACnet Integration document contains information related to BACnet Objects and its properties of the thermostat that helps engineers to integrate and configure the settings via a BACnet tool.

## Reference documents

- TC500A Commercial Thermostat User guide (31-00400M-02)
- TC500A Commercial Thermostat Datasheet (31-00398M-02)
- TC500A Commercial Thermostat Mounting instructions (31-00399M-02)
- TC500A Commercial Thermostat Quick start guide (31-00401M-02)

- TC500A Commercial Thermostat Pocket guide (31-00463M)
- TC500A Deco Plate Pocket guide (31-00457M)

## 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             |
| NCi                         | Network Configuration      |

## Topics covered

Terminal input/output

Terminal configuration

Terminal input characteristics configuration

Sylk sensors

Space temperature & Humidity sensor inputs

# Terminal input/output

**Table 1:** Terminal input/output

| Terminal | Point Name | BACnet Point Type     | BACnet Object Instance ID | Description                         |
|----------|------------|-----------------------|---------------------------|-------------------------------------|
| UI-1     | ni_UI1     | BACnet Numeric Input  | 8                         | Universal Input shared to network.  |
| UI2      | ni_UI2     | BACnet Numeric Input  | 9                         | Universal Input shared to network.  |
| UIO1     | ni_UIO1    | BACnet Numeric Input  | 10                        | Universal Input shared to network.  |
|          | no_UIO1    | BACnet Numeric Output | 64                        | Universal Output shared to network. |
| UIO2     | ni_UIO2    | BACnet Numeric Input  | 11                        | Universal Input shared to network.  |
|          | no_UIO2    | BACnet Numeric Output | 63                        | Universal Output shared to network. |
| DO1      | no_DO1     | BACnet Boolean Output | 74                        | Digital Output shared to network.   |
| DO2      | no_DO2     | BACnet Boolean Output | 75                        | Digital Output shared to network.   |
| DO3      | no_DO3     | BACnet Boolean Output | 76                        | Digital Output shared to network.   |
| DO4      | no_DO4     | BACnet Boolean Output | 77                        | Digital Output shared to network.   |
| DO5      | no_DO5     | BACnet Boolean Output | 78                        | Digital Output shared to network.   |
| DO6      | no_DO6     | BACnet Boolean Output | 79                        | Digital Output shared to network.   |
| DO7      | no_DO7     | BACnet Boolean Output | 80                        | Digital Output shared to network.   |
| DO8      | no_DO8     | BACnet Boolean Output | 81                        | Digital Output shared to network.   |

# Terminal configuration

**Table 2:** Terminal configuration

| Terminal | Default                                 | BACnet Point Type | BACnet Object Instance ID | Options                                                                                                                                                                                                                                                                         |
|----------|-----------------------------------------|-------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_UI1  | 1 = None                                | BACnet ENUM Value | 24                        | 1=None, 2=Occupancy Sensor, 3=Dirty Filter, 4=Air Flow Status, 5=Shutdown, 10 =WtrFlwSts<br>6=Mixed Air Sensor, 7=Outside Air Sensor, 8=Discharge Air Sensor, 9=CO2 Sensor, 11=Space Temp Sensor, 12=FiltPres, 13=CompCurSens,14=FanCurSens,15=CompDATemp                       |
| Cfg_UI2  | 1 = None                                | BACnet ENUM Value | 25                        | 1=None, 2=Occupancy Sensor, 3=Dirty Filter, 4=Air Flow Status, 5=Shutdown, 10=WtrFlwSts<br>6=Mixed Air Sensor, 7=Outside Air Sensor, 8=Discharge Air Sensor, 9=CO2 Sensor, 11=Space Temp Sensor, 12=FiltPres, 13=CompCurSens,14=FanCurSens,15=CompDATemp                        |
| Cfg_UIO1 | 1 = None                                | BACnet ENUM Value | 26                        | 1=None, 2=Occupancy Sensor, 3=Dirty Filter, 4=Air Flow Status, 5=Shutdown, 11=WtrFlwSts<br>6=Mixed Air Sensor, 7=Outside Air Sensor, 8=Discharge Air Sensor, 9=CO2 Sensor, 10=Fan Speed Control, 12=Space Temp Sensor, 13=OaDmprCtrl, 14=FiltPres, 15=CompCurSens,16=FanCurSens |
| Cfg_UIO2 | 1 = None                                | BACnet ENUM Value | 27                        | 1=None, 2=Occupancy Sensor, 3=Dirty Filter, 4=Air Flow Status, 5=Shutdown, 11=WtrFlwSts<br>6=Mixed Air Sensor, 7=Outside Air Sensor, 8=Discharge Air Sensor, 9=CO2 Sensor, 10=Heating Control, 12=Space Temp Sensor, 13=OaDmprCtrl, 14=FiltPres, 15=CompCurSens,16=CompDATemp   |
| Cfg_DO1  | 2 = Fan Command                         | BACnet ENUM Value | 28                        | 1=None, 2=Fan Command, 3=Fan High Speed Command                                                                                                                                                                                                                                 |
| Cfg_DO2  | 2 = Heating Stage1 Command              | BACnet ENUM Value | 29                        | 1=None, 2=Heating Stage1 Command                                                                                                                                                                                                                                                |
| Cfg_DO3  | 2 = Heating Stage2 Command              | BACnet ENUM Value | 30                        | 1=None, 2=Heating Stage2 Command                                                                                                                                                                                                                                                |
| Cfg_DO4  | 1=None                                  | BACnet ENUM Value | 31                        | 1=None, 2=Heating Stage3 Command 3=Heat Pump Reversing Valve Command, 4=Fan Low Speed Command, 5=Occupancy Status, 6=Dehumidification Command, 7=Humidification Command                                                                                                         |
| Cfg_DO5  | 2 = Cooling / Compressor Stage1 Command | BACnet ENUM Value | 32                        | 1=None, 2=Cooling / Compressor Stage1 Command                                                                                                                                                                                                                                   |

**Table 2: Terminal configuration (Continued)**

| <b>Terminal</b> | <b>Default</b>                          | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Options</b>                                                                                                                                                              |
|-----------------|-----------------------------------------|--------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_DO6         | 2 = Cooling / Compressor Stage2 Command | BACnet ENUM Value        | 33                               | 1=None, 2=Cooling / Compressor Stage2 Command                                                                                                                               |
| Cfg_DO7         | 1=None                                  | BACnet ENUM Value        | 34                               | 1=None, 2=Cooling / Compressor Stage3 Command, 3=Econ Min Damper Command, 4=Fan Low Speed Command, 5=Occupancy Status, 6=Dehumidification Command, 7=Humidification Command |
| Cfg_DO8         | 1 = None                                | BACnet ENUM Value        | 35                               | 1=None, 2=Econ Min Damper Command, 3=Fan Low Speed Command, 4=Occupancy Status, 5=Dehumidification Command, 6=Humidification Command                                        |

# Terminal input characteristics configuration

**Table 3:** Terminal input characteristics configuration

| Name                   | Range                          | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                      |
|------------------------|--------------------------------|---------------|----------------------|---------------------------|--------------------------------------------------|
| Cfg_OccSensChk         | 0 = Direct<br>1 = Reverse      | Direct (0)    | BACnet Boolean Value | 31                        | Occupancy sensor input characteristics selection |
| Cfg_DirtyFilterChk     | 0 = Direct<br>1 = Reverse      | Direct (0)    | BACnet Boolean Value | 32                        | Dirty filter input characteristics selection     |
| Cfg_AirFlwStsChk       | 0 = Direct<br>1 = Reverse      | Direct (0)    | BACnet Boolean Value | 33                        | Airflow status input characteristics selection   |
| Cfg_ShutdownChk        | 0 = Direct<br>1 = Reverse      | Direct (0)    | BACnet Boolean Value | 34                        | Shutdown input characteristics selection         |
| Cfg_MASensChk          | 0 = NTC 20K<br>1 = NTC 10K     | NTC 20K (0)   | BACnet Boolean Value | 137                       | Temperature Sensor characteristics selection     |
| Cfg_OASensChk          | 0 = NTC 20K<br>1 = NTC 10K     | NTC 20K (0)   | BACnet Boolean Value | 138                       | Temperature Sensor characteristics selection     |
| Cfg_DASensChk          | 0 = NTC 20K<br>1 = NTC 10K     | NTC 20K (0)   | BACnet Boolean Value | 139                       | Temperature Sensor characteristics selection     |
| Cfg_FiltPresChk        | 0 = 0-5 InWC<br>1 = 0.2.5 InWC | 0-5 InWC (0)  | BACnet Boolean Value | 155                       | Filter Pressure Characteristics selection        |
| Cfg_CompCurSensMaxAmps | 0~9999 Amps                    | 10 Amps       | BACnet Numeric Value | 220                       | Comp Current Sensor Maximum Range                |
| Cfg_FanCurSensMaxAmps  | 0~9999 Amps                    | 10 Amps       | BACnet Numeric Value | 221                       | Fan Current Sensor Maximum Range                 |

# Sylk sensors

**Table 4:** Sylk sensors

| Sylk Address | Use                | Name             | BACnet Point Type    | BACnet Object Instance ID | Description                                              |
|--------------|--------------------|------------------|----------------------|---------------------------|----------------------------------------------------------|
| 2            | Remote Wall Module | no_SylkAddr2Temp | BACnet Numeric Value | 223                       | TR40-H-CO2: Temperature, Humidity, and/or CO2.           |
|              |                    | no_SylkAddr2Hum  |                      | 224                       | (May also use models TR40, TR40-H, TR40-CO2, TR40-H-CO2) |
|              |                    | no_SylkAddr2CO2  |                      | 225                       |                                                          |
| 3            | Remote Wall Module | no_SylkAddr3Temp | BACnet Numeric Value | 226                       | TR40: Temperature                                        |
| 4            | Remote Wall Module | no_SylkAddr4Temp | BACnet Numeric Value | 227                       | TR40: Temperature                                        |
| 5            | Remote Wall Module | no_SylkAddr5Temp | BACnet Numeric Value | 228                       | TR40: Temperature                                        |
| 6            | Remote Wall Module | no_SylkAddr6Temp | BACnet Numeric Value | 229                       | TR120: Temperature and Humidity                          |
|              |                    | no_SylkAddr6Hum  |                      | 230                       |                                                          |

# Space temperature & Humidity sensor inputs

**Table 5:** Space temperature and Humidity sensor inputs

| Key             | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                                                                                                                                                                                       |
|-----------------|---------------|----------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OnBoardTempSens | Nan           | BACnet Numeric Input | 16                        | This point represents the actual Temperature value computed from 5 On-Board temperature sensor. If this is modified, the modified value will affect the control logic if the local/multi sensor configuration is used for control. Modifying this value will not suppress the On Board Temperature sensor alarms. |
| OnBoardHumSens  | Nan           | BACnet Numeric Input | 17                        | This point represents the actual humidity value computed from On-Board humidity sensor. If this is modified, the modified value will affect the control logic if the local/multi sensor configuration is used for control. Modifying this value will not suppress the On Board humidity sensor alarms.            |



# APPLICATION CONFIGURATION

## Topics covered

- Fan configuration
- Cooling configuration
- Heating configuration
- Dehumidification configuration
- Humidification configuration
- Heat pump configuration
- Filter configuration

# Fan configuration

**Table 6:** Fan configuration

| Name                              | Range                                                                            | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                    |
|-----------------------------------|----------------------------------------------------------------------------------|---------------|----------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_FanType                       | 1 = Single Speed<br>2 = Two Speed<br>3 = Variable Speed                          | 1             | BACnet ENUM Value    | 12                        | Fan can be configured as single speed, 2 speed or as a variable speed fan.                                                                     |
| Cfg_FanMode                       | 1 = Continuous<br>2 = Auto<br>3 = FanCirculate                                   | 1             | BACnet ENUM Value    | 89                        | Fan Mode of operation config by user & supervisor.                                                                                             |
| Cfg_FanRunOnCoolDelay             | 0 to 300 seconds.                                                                | 0             | BACnet Numeric Value | 39                        | Fan run on time after all cooling stages and economizer stage turns off.                                                                       |
| Cfg_FanRunOnHeatDelay             | 0 to 300 seconds                                                                 | 90            | BACnet Numeric Value | 40                        | Fan run on time after all heating stages turns off.                                                                                            |
| Cfg_FanOnHeat                     | 0 = Disable<br>1 = Enable                                                        | 1             | BACnet Boolean Value | 10                        | Disable: Supply fan controlled by external duct thermostat during heat mode. Enable: Supply fan controller by digital output during heat mode. |
| Cfg_FanCirculate_FanOnTimePercent | 0-100%                                                                           | 35%           | BACnet Numeric       | 253                       | When Fan circulate mode is enabled, based on this                                                                                              |
| Cfg_FanSpeed_VentMode             | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1             | BACnet ENUM Value    | 14                        | Fan speed selection for vent mode.                                                                                                             |
| Cfg_FanSpeed_Comp1Mode            | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1             | BACnet ENUM Value    | 15                        | Fan speed selection for Compressor/Cooling single stage mode.                                                                                  |
| Cfg_FanSpeed_Comp2Mode            | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1             | BACnet ENUM Value    | 16                        | Fan speed selection for Cooling/Compressor Multiple Stages.                                                                                    |

**Table 6: Fan configuration (Continued)**

| <b>Name</b>              | <b>Range</b>                                                                     | <b>Default Value</b> | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Description</b>                                        |
|--------------------------|----------------------------------------------------------------------------------|----------------------|--------------------------|----------------------------------|-----------------------------------------------------------|
| Cfg_FanSpeed_Heat1Mode   | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1                    | BACnet ENUM Value        | 17                               | Fan speed selection for Heating/Aux Heat Single Stage.    |
| Cfg_FanSpeed_Heat2Mode   | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1                    | BACnet ENUM Value        | 18                               | Fan speed selection for Heating/Aux Heat Multiple Stages. |
| Cfg_FanMinSpeed_ModHeat  | 40 to 100%                                                                       | 40                   | BACnet Numeric Value     | 83                               | Fan minimum speed selection for modulating heat           |
| Cfg_FanMaxSpeed_ModHeat  | 40 to 100%                                                                       | 100                  | BACnet Numeric Value     | 84                               | Fan maximum speed selection for modulating heat           |
| Cfg_FanSpeed_DefaultMode | 1 = Speed1<br>2 = Speed2<br>3 = Speed3<br>4 = Speed4<br>5 = Speed5<br>6 = Speed6 | 1                    | BACnet ENUM Value        | 19                               | Fan speed selection for Default mode.                     |
| Cfg_FanSpeed_Speed1      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 64                               | Fan speed 1                                               |
| Cfg_FanSpeed_Speed2      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 65                               | Fan speed 2                                               |
| Cfg_FanSpeed_Speed3      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 66                               | Fan speed 3                                               |
| Cfg_FanSpeed_Speed4      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 67                               | Fan speed 4                                               |
| Cfg_FanSpeed_Speed5      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 68                               | Fan speed 5                                               |
| Cfg_FanSpeed_Speed6      | 40 to 100%                                                                       | 100%                 | BACnet Numeric Value     | 69                               | Fan speed 6                                               |

# Cooling configuration

**Table 7:** Cooling configuration

| Name                   | Range                                                   | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                     |
|------------------------|---------------------------------------------------------|---------------|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------|
| Cfg_Cool_CoolType      | 1 = 1 Stage<br>2 = 2 Stages<br>3 = 3 Stages<br>4 = None | 2 (2 Stages)  | BACnet ENUM Value    | 13                        | Cooling Type selection. The number of compressor stages used for cooling or heat pump heating / cooling stages. |
| Cfg_Cool_Tr            | 0 = Auto<br>1 to 30 °F                                  | Auto (0)      | BACnet Numeric Value | 41                        | Cooling Throttling Range                                                                                        |
| Cfg_Cool_It            | 0 to 5000 seconds                                       | 2500 seconds  | BACnet Numeric Value | 42                        | Cooling Integral Time<br>0 = disable (i.e. proportional only)                                                   |
| Cfg_Cool_Dt            | 0 to 3000 seconds                                       | 0 seconds     | BACnet Numeric       | 43                        | Cooling Derivative Time                                                                                         |
| Cfg_Cool_CPH           | 2 to 20 CPH                                             | 3 CPH         | BACnet Numeric       | 44                        | Cooling System Response                                                                                         |
| Cfg_Cool_MinOnTime     | 0 to 300 seconds                                        | 120 seconds   | BACnet Numeric       | 45                        | Cooling Stage Minimum on Time                                                                                   |
| Cfg_Cool_MinOffTime    | 0 to 300 seconds                                        | 60 seconds    | BACnet Numeric Value | 82                        | Cooling Stage Minimum Off Time                                                                                  |
| Cfg_Cool_CoolLockoutSp | -40°F to 120°F                                          | 35°F          | BACnet Numeric Value | 46                        | Outside Air Cooling Lockout Setpoint                                                                            |
| Cfg_Cool_DischLoLimSp  | -40°F to 60°F                                           | 45°F          | BACnet Numeric Value | 47                        | Discharge Air Temperature Low Limit Setpoint.                                                                   |

# Heating configuration

**Table 8:** Heating configuration

| Name                   | Range                                                   | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                           |
|------------------------|---------------------------------------------------------|---------------|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Cfg_Heat_HeatType      | 1 = 1 Stage<br>2 = 2 Stages<br>3 = 3 Stages<br>4 = None | 2 (2 Stages)  | BACnet ENUM Value    | 20                        | Heating Type selection. The number used for gas or electric heat. For heat pump, these are the auxiliary heat stages. |
| Cfg_Equip_HeatType     | 1 = None<br>2 = Staged<br>3 = Modulating                | 2             | BACnet ENUM Value    | 21                        | Conventional Heat equipment type                                                                                      |
| Cfg_Heat_Tr            | 0 = Auto<br>1 to 30 $\Delta^{\circ}\text{F}$            | Auto (0)      | BACnet Numeric Value | 54                        | Heating Throttling Range.                                                                                             |
| Cfg_Heat_It            | 0 to 5000 seconds                                       | 2500 seconds  | BACnet Numeric Value | 55                        | Heating Integral Time<br>0 = disable (i.e. proportional only)                                                         |
| Cfg_Heat_Dt            | 0 to 3000 seconds                                       | 0 seconds     | BACnet Numeric Value | 56                        | Heating Derivative Time                                                                                               |
| Cfg_Heat_CPH           | 2 to 20 CPH                                             | 6 CPH         | BACnet Numeric       | 57                        | Heating System Response                                                                                               |
| Cfg_Heat_MinOnTime     | 0 to 300 seconds                                        | 120 seconds   | BACnet Numeric Value | 58                        | Heating Stage Minimum on Time                                                                                         |
| Cfg_Heat_MinOffTime    | 0 to 300 seconds                                        | 60 seconds    | BACnet Numeric Value | 59                        | Heating Stage Minimum Off Time                                                                                        |
| Cfg_Heat_HeatLockoutSp | 40°F to 120°F                                           | 65°F          | BACnet Numeric Value | 60                        | Outside Air Heating Lockout Setpoint                                                                                  |
| Cfg_Heat_DischHiLimSp  | 65 to 140°F                                             | 140°F         | BACnet Numeric Value | 61                        | Discharge Air Temperature High Limit Setpoint                                                                         |
| Cfg_Heat_ModHtEnSp     | 0-100%                                                  | 20%           | BACnet Numeric Value | 96                        | Minimum HeatoutSp to enable modulating Heating                                                                        |
| Cfg_Mod_StgHt1En       | 0 = Disable<br>1 = Enable                               | 0 (Disable)   | BACnet Boolean Value | 35                        | Modulating Heat stage mode                                                                                            |

**Table 8:** Heating configuration (Continued)

| Name              | Range                                                                             | Default Value               | BACnet Point Type | BACnet Object Instance ID | Description                                                                                                                  |
|-------------------|-----------------------------------------------------------------------------------|-----------------------------|-------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Cfg_Heat_FuelType | 1 = Standard Efficiency Gas<br>2 = High Efficiency Gas<br>3 = Oil<br>4 = Electric | 1 = Standard Efficiency Gas | BACnet ENUM Value | 87                        | Fuel Type selection. Based on the fuel type the default CPH will vary. For Electric default CPH is 9, for other it is 6 CPH. |

# Dehumidification configuration

**Table 9:** Dehumidification configuration

| Key                         | Options / Range           | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                       |
|-----------------------------|---------------------------|---------------|----------------------|---------------------------|---------------------------------------------------|
| Cfg_DeHum_SpaceRHHHighLimit | 0 to 100                  | 65 %RH        | BACnet Numeric Value | 48                        | Space Relative Humidity (RH) High Limit setpoint. |
| Cfg_DeHum_MinOnTimeOpEn     | Disable (0)<br>Enable (1) | Disable (0)   | BACnet Boolean Value | 12                        | Minimum on Time Operation Enable                  |
| Cfg_DeHum_MinOnTime         | 240 to 1200 Secs          | 600 sec       | BACnet Numeric Value | 49                        | Dehumidify Extended Cooling Minimum on Time       |
| Cfg_DeHum_MinOnDelay        | 0 to 60 minutes           | 20 minutes    | BACnet Numeric Value | 98                        | Dehumidification Minimum ON time                  |
| Cfg_DeHum_StageReHeatOpEn   | Disable (0)<br>Enable (1) | Disable (0)   | BACnet Boolean Value | 133                       | Staged Reheat Operation Enable                    |

# Humidification configuration

Table 10: Humidification configuration

| Key                     | Options / Range | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                      |
|-------------------------|-----------------|---------------|----------------------|---------------------------|--------------------------------------------------|
| Cfg_Hum_SpaceRHLowLimit | 0 to 100        | 35 %RH        | BACnet Numeric Value | 62                        | Space Relative Humidity (RH) Low Limit setpoint. |
| Cfg_Hum_MinOnDelay      | 0 to 60 minutes | 20 minutes    | BACnet Numeric Value | 99                        | Humidification Minimum ON time.                  |

# Heat pump configuration

**Table 11:** Heat pump configuration

| Name                            | Range                              | Default Value     | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                                  |
|---------------------------------|------------------------------------|-------------------|----------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_HeatPmp_CngOvrRelayType     | 0 = EnergOnCool<br>1 = EnergOnHeat | ActiveOn (O)      | BACnet Boolean Value | 13                        | Heat Pump Change Over Relay<br>- Energize on Cooling (O)<br>- Energize on Heating (B)                                                                        |
| Cfg_HeatPmp_AuxHeatLockoutSp    | 30F~120F                           | 65°F              | BACnet Numeric Value | 50                        | Auxiliary OAT High Heat Lockout                                                                                                                              |
| Cfg_HeatPmp_CompressorLockoutSp | 0F~70F                             | 30°F              | BACnet Numeric Value | 51                        | Heat Pump Compressor OAT Low Lockout                                                                                                                         |
| Cfg_HeatPmp_AuxHeatDroop        | 0 to 10°F                          | 1°F               | BACnet Numeric Value | 52                        | Auxiliary Heating Droop                                                                                                                                      |
| Cfg_HeatPmp_AuxHeatRampFactor   | 0.0 to 100.0                       | 2                 | BACnet Numeric Value | 53                        | Auxiliary Heating Recovery Ramp Factor. The heat pump setpoint recovery ramp is multiplied by this factor to determine the auxiliary setpoint recovery ramp. |
| Cfg_HeatPmp_ComfortMode         | 0 = Saving<br>1 = Comfort          | 0 (Savings)       | BACnet Boolean Value | 14                        | Decides the Auxiliary and compressor Heating operation                                                                                                       |
| Cfg_HeatPmp_UpStgTmr            | 30~960 Mins                        | 0 Mins (Disabled) | BACnet Numeric Value | 215                       | Up stage timer value.                                                                                                                                        |

# Filter configuration

Table 12: Filter configuration

| Key              | Range    | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description             |
|------------------|----------|---------------|----------------------|---------------------------|-------------------------|
| Cfg_Filt_HiLimit | 0~5 InWC | 2.0 InWC      | BACnet Numeric Value | 222                       | High Limit Alarm Point. |

# COMMON CONFIGURATION

## Topics covered

- Equipment configuration
- Standby configuration
- Control configuration
- Multi-sensor configuration
- Occupancy setpoints configuration
- Recovery setpoint configuration
- Demand shift setpoints configuration
- Thermostat configurations
- Sylk calibration configuration
- Sylk sensor configuration
- Alarm configuration
- Space temperature alarm configuration

## Equipment configuration

**Table 13:** Equipment configuration

| Name                | Range                            | Default Value | BACnet Point Type | BACnet Object Instance ID | Description                                                                                          |
|---------------------|----------------------------------|---------------|-------------------|---------------------------|------------------------------------------------------------------------------------------------------|
| Cfg_Equip_EquipType | 1 = Conv<br>2 = ASHP<br>3 = WSHP | Conv (1)      | BACnet ENUM Value | 7                         | Heat Pump Type selection<br>Conventional<br>Air Side Heat Pump (ASHP)<br>Water Side Heat Pump (WSHP) |

## Standby configuration

**Table 14:** Standby configuration

| Name             | Range                          | Default Value  | BACnet Point Type    | BACnet Object Instance ID | Description              |
|------------------|--------------------------------|----------------|----------------------|---------------------------|--------------------------|
| Cfg_Stdby_OccSts | 0 = Unoccupied<br>1 = Occupied | 0 (Unoccupied) | BACnet Boolean Value | 36                        | Standby occupancy status |

# Control configuration

**Table 15:** Control configuration

| Name                    | Range                                                                       | Default Value             | BACnet Point Type          | BACnet Object Instance ID | Description                                                                                 |
|-------------------------|-----------------------------------------------------------------------------|---------------------------|----------------------------|---------------------------|---------------------------------------------------------------------------------------------|
| Cfg_ControlMainSensor   | 1 = Local Temp/<br>Hum<br>2 = Remote<br>Temp/ Hum<br>3 = Multi Temp/<br>Hum | 1 = Local<br>Temp/<br>Hum | BACnet<br>ENUM<br>Value    | 9                         | Temperature/ Humidity<br>sensor selection.                                                  |
| Cfg_ControlPowerupDelay | 0-300 Sec                                                                   | 10                        | BACnet<br>Numeric<br>Value | 14                        | Initial delay to start control<br>after power cycle.                                        |
| Cfg_ControlSmokeMode    | 1 = No Override<br>2 = Shutdown<br>3 = Pressurize<br>4 = Depressurize       | 1 (No<br>Override)        | BACnet<br>ENUM<br>Value    | 10                        | When Smoke Monitor<br>state is on, the unit<br>operates as configured<br>through smoke mode |

# Multi-sensor configuration

Table 16: Multi-sensor configuration

| Name                          | Range                                      | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|--------------------------------------------|---------------|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_ZoneMultiSens_Control     | 1 = Avg<br>2 = Min<br>3 = Max<br>4 = Smart | 1             | BACnet ENUM Value    | 0                         | Main control sensor configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Cfg_ZoneMultiSens_Sens1_Wt    | 0 to 10<br>(0 = Disable)                   | 10            | BACnet Numeric Value | 33                        | A weighted average allows individual sensors to have more influence on the average calculation. Sensor 1 is the local on-board temperature sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Cfg_ZoneMultiSens_Sens2_Wt    | 0 to 10<br>(0 = Disable)                   | 10            | BACnet Numeric Value | 34                        | 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    | 0 to 10<br>(0 = Disable)                   | 10            | BACnet Numeric       | 35                        | A weighted average allows individual sensors to have more influence on the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Cfg_ZoneMultiSens_Sens4_Wt    | 0 to 10<br>(0 = Disable)                   | 1000%         | BACnet Numeric       | 36                        | A weighted average allows individual sensors to have more influence on the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Cfg_ZoneMultiSens_Sens5_Wt    | 0 to 10<br>(0 = Disable)                   | 10            | BACnet Numeric       | 37                        | A weighted average allows individual sensors to have more influence on the                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Cfg_ZoneMultiHumSens_Control  | 1 = Avg<br>2 = Min<br>3 = Max<br>4 = Smart | 1             | BACnet ENUM Value    | 77                        | Humidity sensor configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cfg_ZoneMultiSens_HumSens1_Wt | 0 to 10<br>(0 = Disable)                   | 10            | BACnet Numeric Value | 181                       | <p>Weighted avg allows individual sensors to have more influence on the avg calculation. Sensor 1 is the on-board Humidity sensor.</p> <p>Zone humidity sensor weighting. 0 = Sensor is disabled and not included in average, min, and max calculations. 1 to 10 = Sensor is enabled. If sensor has a valid reading, the sensor is included in average, min, and max calculations.</p> $\text{Weighted Average} = \frac{W1 \cdot H1 + W2 \cdot H2 + W3 \cdot H3 + W4 \cdot H4}{W1 + W2 + W3 + W4}$ <p>W1 to w4 are weights of sensor1 to sensor6 respectively.<br/>H1 to H4 are humidity values of sensor1 to sensor6 respectively.</p> |

**Table 16:** Multi-sensor configuration (Continued)

| Name                          | Range                    | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                                                                                  |
|-------------------------------|--------------------------|---------------|----------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_ZoneMultiSens_HumSens2_Wt | 0 to 10<br>(0 = Disable) | 10            | BACnet Numeric Value | 180                       | 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.<br>Refer Sensor1 for weighing calculation.     |
| Cfg_ZoneMultiSens_HumSens3_Wt | 0 to 10<br>(0 = Disable) | 10            | BACnet Numeric Value | 218                       | A weighted average allows individual sensors to have more influence on the average calculation. Sensor 3 is the remote TR120 Sylk humidity sensor with Addr 6.<br>Refer Sensor1 for weighing calculation.    |
| Cfg_ZoneMultiSens_Sens6_Wt    | 0 to 10<br>(0 = Disable) | 10            | BACnet Numeric Value | 219                       | A weighted average allows individual sensors to have more influence on the average calculation. Sensor 6 is the remote TR120 Sylk temperature sensor with Addr 6.<br>Refer Sensor1 for weighing calculation. |

# Occupancy setpoints configuration

**Table 17:** Occupancy setpoints configuration

| Name                      | Range         | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                 |
|---------------------------|---------------|---------------|----------------------|---------------------------|-----------------------------|
| Cfg_Setpoints_OccCoolSp   | 40°F to 120°F | 76 °F         | BACnet Numeric Value | 4                         | Occupied Cooling Setpoint   |
| Cfg_Setpoints_StbyCoolSp  | 40°F to 120°F | 80°F          | BACnet Numeric Value | 5                         | Standby Cooling Setpoint    |
| Cfg_Setpoints_UnOccCoolSp | 40°F to 120°F | 85 °F         | BACnet Numeric Value | 6                         | Unoccupied Cooling Setpoint |
| Cfg_Setpoints_OccHeatSp   | 40°F to 120°F | 68 °F         | BACnet Numeric Value | 7                         | Occupied Heating Setpoint   |
| Cfg_Setpoints_StbyHeatSp  | 40°F to 120°F | 65 °F         | BACnet Numeric Value | 8                         | Standby Heating Setpoint    |
| Cfg_Setpoints_UnOccHeatSp | 40°F to 120°F | 55 °F         | BACnet Numeric Value | 9                         | Unoccupied Heating Setpoint |

# Recovery setpoint configuration

**Table 18:** Recovery setpoint configuration

| Key                          | Options / Range                     | Default Value                 | BACnet Point Type    | BACnet Object Instance ID | Description                                                |
|------------------------------|-------------------------------------|-------------------------------|----------------------|---------------------------|------------------------------------------------------------|
| Cfg_Recovery_MaxCoolRampRate | 0 to 20 $\Delta^{\circ}\text{F/hr}$ | 6 $\Delta^{\circ}\text{F/hr}$ | BACnet Numeric Value | 18                        | Maximum Cooling Setpoint Ramp                              |
| Cfg_Recovery_MinCoolRampRate | 0 to 20 $\Delta^{\circ}\text{F/hr}$ | 2 $\Delta^{\circ}\text{F/hr}$ | BACnet Numeric Value | 16                        | Minimum Cooling Setpoint Ramp                              |
| Cfg_Recovery_MaxCoolRampTemp | -40 to 120 $^{\circ}\text{F}$       | 70 $^{\circ}\text{F}$         | BACnet Numeric Value | 17                        | Outdoor air temperature at the maximum cool setpoint ramp. |
| Cfg_Recovery_MinCoolRampTemp | -40 to 120 $^{\circ}\text{F}$       | 90 $^{\circ}\text{F}$         | BACnet Numeric Value | 15                        | Outdoor air temperature at the minimum cool setpoint ramp. |
| Cfg_Recovery_MaxHeatRampRate | 0 to 36 $\Delta^{\circ}\text{F/hr}$ | 8 $\Delta^{\circ}\text{F/hr}$ | BACnet Numeric Value | 22                        | Maximum Cooling Setpoint Ramp                              |
| Cfg_Recovery_MinHeatRampRate | 0 to 36 $\Delta^{\circ}\text{F/hr}$ | 2 $\Delta^{\circ}\text{F/hr}$ | BACnet Numeric Value | 20                        | Minimum Cooling Setpoint Ramp                              |
| Cfg_Recovery_MaxHeatRampTemp | -40 to 120 $^{\circ}\text{F}$       | 60 $^{\circ}\text{F}$         | BACnet Numeric Value | 21                        | Outdoor air temperature at the maximum heat setpoint ramp. |
| Cfg_Recovery_MinHeatRampTemp | -40 to 120 $^{\circ}\text{F}$       | 0 $^{\circ}\text{F}$          | BACnet Numeric Value | 19                        | Outdoor air temperature at the minimum heat setpoint ramp. |

# Demand shift setpoints configuration

Table 19: Demand shift setpoints configuration

| Key                         | Options / Range | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                    |
|-----------------------------|-----------------|---------------|----------------------|---------------------------|------------------------------------------------|
| Cfg_DemandLimCtLTTempDiffSp | 0F~10F          | 3 °F          | BACnet Numeric Value | 38                        | Demand limit temperature differential Setpoint |

# Thermostat configurations

**Table 20:** Thermostat configuration

| Key                           | Options / Range                                                                                                                      | Default Value                             | BACnet Point Type          | BACnet Object Instance ID | Description                                                                                                                 |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Cfg_Thermostat_SysSwitch      | 1 = Auto<br>2 = Cool<br>3 = Heat<br>4 =<br>EmergHeat<br>5 = Off                                                                      | 1 = Auto                                  | BACnet<br>ENUM<br>Value    | 8                         | The system switch may be used by the contractor or occupant to change the operation of the Unit.                            |
| Cfg_Thermostat_SystemConfig   | 1 = off/heat<br>2 = off/cool<br>3 = off/<br>cool/heat<br>4 = off/<br>Auto/cool/<br>heat<br>5 = off/<br>Auto/cool/<br>heat/Em<br>heat | 5 = off/<br>Auto/cool/<br>heat/Em<br>heat | BACnet<br>ENUM<br>Value    | 36                        | To limit available user configurable options                                                                                |
| Cfg_Thermostat_BypTime        | 0 - 1080<br>Minutes                                                                                                                  | 180<br>minutes                            | BACnet<br>Numeric          | 10                        | Thermostat Bypass Time.                                                                                                     |
| Cfg_Thermostat_MinCoolSp      | 40°F to<br>120°F                                                                                                                     | 40 °F                                     | BACnet<br>Numeric<br>Value | 12                        | Minimum Cool Setpoint of Thermostat                                                                                         |
| Cfg_Thermostat_MaxHeatSp      | 40°F to<br>120°F                                                                                                                     | 120 °F                                    | BACnet<br>Numeric          | 13                        | Maximum Heat Setpoint of Thermostat                                                                                         |
| Cfg_Thermostat_Deadband       | 2 °F ~ 9 °F                                                                                                                          | 3 °F                                      | BACnet<br>Numeric<br>Value | 101                       | Temperature differential between heat and cool setpoint                                                                     |
| Cfg_Thermostat_AdjStPt        | -5 Δ°F ~ 5<br>Δ°F                                                                                                                    | 0 Δ°F                                     | BACnet<br>Numeric<br>Value | 3                         | Temporary setpoint adjustment from User or from the supervisor.                                                             |
| Cfg_Thermostat_TempOffSpLimit | 0 Δ°F ~ 5<br>Δ°F                                                                                                                     | 3 Δ°F                                     | BACnet<br>Numeric<br>Value | 102                       | This point is used to limit the range of user adjustable setpoint.                                                          |
| Cfg_Thermostat_TstUnitSel     | 0=Imperial<br>1=Metric                                                                                                               | 0=Imperial                                | BACnet<br>Boolean<br>Value | 136                       | Thermostat unit definition (Imperial/ Metric)                                                                               |
| Cfg_Thermostat_Override       | 0=Normal<br>1=Override                                                                                                               | 0=Normal                                  | BACnet<br>Boolean<br>Value | 135                       | Thermostat Bypass override. This point will not be saved over power cycle & will reset to default value upon loss of power. |

## Time syncing for the Niagara tool

The TC500A thermostat requires local host time syncing in the Niagara tool.

### To time sync the thermostat

- Step 1. On the Niagara tool, under **BACnet network > Local Device > AX Property Sheet view**, expand the Time Synchronization Recipients property.
- Step 2. Right click and select **Actions > addElement**. An addElement edit box opens. You may need to resize it.
- Step 3. Select the double-down arrows by the device-1 to open the edit screen.
- Step 4. Select device from the second pull-down and enter the device ID for the TC-500 in the final entry ("500" in this example).
- Step 5. Select **OK**.
- Step 6. Change the default Time Synchronization, as desired.

## DHCP

The IT system can be configured to use DHCP, but the Wi-Fi router / IT network will configure it to reserve a specific, permanent pre-assigned IP address for the TC500. The TC500 MAC is visible on the TC500 under System Status > Network Status. Once the DHCP reserves the IP address, the TC500 will connect to this IP address.

# Sylk calibration configuration

**Table 21:** Sylk calibration configuration

| Sylk Address | Name                           | Range           | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                         |
|--------------|--------------------------------|-----------------|---------------|----------------------|---------------------------|-----------------------------------------------------|
| NA           | Cfg_LocalSensCalOffset_Temp    | -10F~10F        | 0             | BACnet Numeric Value | 23                        | Local Onboard Temperature sensor calibration offset |
| NA           | Cfg_LocalSensCalOffset_Hum     | -10% RH ~10% RH | 0             | BACnet Numeric Value | 103                       | Local Onboard humidity sensor calibration offset    |
| 2            | Cfg_SylkCalOffset_SylkBus2Temp | -10F~10F        | 0             | BACnet Numeric Value | 24                        | TR40_2/ TR-21 Temperature calibration offset        |
| 2            | Cfg_SylkCalOffset_SylkBus2RH   | -10% RH ~10% RH | 0             | BACnet Numeric Value | 25                        | TR40_2 Humidity calibration offset                  |
| 2            | Cfg_SylkCalOffset_SylkBus2CO2  | -100PPM ~100PPM | 0             | BACnet Numeric Value | 100                       | TR40_2 CO2 calibration offset                       |
| 3            | Cfg_SylkCalOffset_SylkBus3Temp | -10F~10F        | 0             | BACnet Numeric Value | 26                        | TR40_3 Temperature calibration offset               |
| 4            | Cfg_SylkCalOffset_SylkBus4Temp | -10F~10F        | 0             | BACnet Numeric Value | 27                        | TR40_4 Temperature calibration offset               |
| 5            | Cfg_SylkCalOffset_SylkBus5Temp | -10F~10F        | 0             | BACnet Numeric Value | 28                        | TR40_5 Temperature calibration offset               |
| 6            | Cfg_SylkCalOffset_SylkBus6Temp | -10F~10F        | 0             | BACnet Numeric Value | 216                       | TR120_6 Temperature calibration offset              |
| 6            | Cfg_SylkCalOffset_SylkBus6RH   | -10% RH ~10% RH | 0             | BACnet Numeric Value | 217                       | TR120_6 Humidity calibration offset                 |
| 8            | Cfg_SylkCalOffset_SylkBus8Temp | -10F~10F        | 0             | BACnet Numeric Value | 29                        | C7400S Outdoor Air Temperature calibration offset   |
| 8            | Cfg_SylkCalOffset_SylkBus8RH   | -10% RH ~10% RH | 0             | BACnet Numeric Value | 30                        | C7400S Outdoor Air Humidity calibration offset      |
| 9            | Cfg_SylkCalOffset_SylkBus9Temp | -10F~10F        | 0             | BACnet Numeric Value | 137                       | C7400S Return Air Temperature calibration offset    |
| 9            | Cfg_SylkCalOffset_SylkBus9RH   | -10% RH ~10% RH | 0             | BACnet Numeric Value | 214                       | C7400S Return Air Humidity calibration offset       |

**Table 21:** Sylk calibration configuration (Continued)

| <b>Sylk Address</b> | <b>Name</b>                     | <b>Range</b>    | <b>Default Value</b> | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Description</b>                                           |
|---------------------|---------------------------------|-----------------|----------------------|--------------------------|----------------------------------|--------------------------------------------------------------|
| 10                  | Cfg_SylkCalOffset_SylkBus10Temp | -10F~10F        | 0                    | BACnet Numeric Value     | 31                               | C7400S Discharge Air Temperature calibration offset          |
| 10                  | Cfg_SylkCalOffset_SylkBus10RH   | -10% RH ~10% RH | 0                    | BACnet Numeric Value     | 32                               | C7400S Discharge Air Humidity calibration offset             |
| 11                  | Cfg_SylkCalOffset_SylkBus11Temp | -10F~10F        | 0                    | BACnet Numeric Value     | 138                              | C7400S Mixed Air Temperature calibration offset              |
| NA                  | Cfg_UISensCalOffset_DATemp      | -10F~10F        | 0                    | BACnet Numeric Value     | 185                              | Universal Input Discharge Air Temperature calibration offset |
| NA                  | Cfg_UISensCalOffset_OATemp      | -10F~10F        | 0                    | BACnet Numeric Value     | 186                              | Universal Input Outdoor Air Temperature calibration offset   |
| NA                  | Cfg_UISensCalOffset_MATemp      | -10F~10F        | 0                    | BACnet Numeric Value     | 187                              | Universal Input Mixed Air Temperature calibration offset     |
| NA                  | Cfg_UISensCalOffset_CO2Lvl      | -100PPM ~100PPM | 0                    | BACnet Numeric Value     | 188                              | Universal Input CO2 calibration offset                       |

# Sylk sensor configuration

Table 22: Sylk sensor configuration

| Sylk Address | Name                 | Range                                                      | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                             |
|--------------|----------------------|------------------------------------------------------------|---------------|----------------------|---------------------------|-----------------------------------------|
| 2            | Cfg_Sylk_SylkBus2En  | 1=Disable<br>2=TempOnly<br>3=Temp&Hum<br>4=Temp, Hum & CO2 | Disable (1)   | BACnet ENUM Value    | 85                        | Sylk Bus addr-2 device enable/ disable  |
| 3            | Cfg_Sylk_SylkBus3En  | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 147                       | Sylk Bus addr-3 device enable/ disable  |
| 4            | Cfg_Sylk_SylkBus4En  | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 148                       | Sylk Bus addr-4 device enable/ disable  |
| 5            | Cfg_Sylk_SylkBus5En  | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean       | 149                       | Sylk Bus addr-5 device enable/ disable  |
| 6            | Cfg_Sylk_SylkBus6En  | 1=Disable<br>2=TempOn                                      | Disable (1)   | BACnet ENUM          | 86                        | Sylk Bus addr-6 device enable/ disable  |
| 8            | Cfg_Sylk_SylkBus8En  | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 151                       | Sylk Bus addr-8 device enable/ disable  |
| 9            | Cfg_Sylk_SylkBus9En  | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 152                       | Sylk Bus addr-9 device enable/ disable  |
| 10           | Cfg_Sylk_SylkBus10En | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 153                       | Sylk Bus addr-10 device enable/ disable |
| 11           | Cfg_Sylk_SylkBus11En | 0=Disable<br>1=Enable                                      | Disable (0)   | BACnet Boolean Value | 154                       | Sylk Bus addr-11 device enable/ disable |

# Alarm configuration

**Table 23:** Alarm configuration

| Key                             | Options / Range                                                                                                                               | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Cfg_Alarm_SupplyFan AlarmConfig | Bits 0 False – Don't turn off Heat/ Cool Outputs when alarm is triggered<br>Bits 0 True – Turn off Heat/ Cool Outputs when alarm is triggered | Bits 0 = True | BACnet Numeric Value | 192                       | The user shall decide whether to enable or disable heating/ cooling outputs when supply fan is in alarm condition.         |
| Cfg_Alarm_TempSens AlarmConfig  | Bits 0 False – Don't turn off Heat/ Cool Outputs when alarm is triggered<br>Bits 0 True – Turn off Heat/ Cool Outputs when alarm is triggered | Bits 0 = True | BACnet Numeric Value | 193                       | The user shall decide whether to enable or disable heating/ cooling outputs when temperature sensor is in alarm condition. |

# Space temperature alarm configuration

**Table 24:** Space temperature alarm configuration

| Key                      | Options / Range | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                                                               |
|--------------------------|-----------------|---------------|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cfg_SpcAlarm_TempHighLim | 100~150 Deg F   | 125 Deg F     | BACnet Numeric Value | 254                       | This is a user configurable point shown in HMI/Supervisor/ mobile app which determines the high limit after which the space temp alarm will be generated. |
| Cfg_SpcAlarm_TempLowLim  | 0~60 Deg F      | 35 Deg F      | BACnet Numeric Value | 255                       | This is a user configurable point shown in HMI/supervisor/ mobile app which accepts the low limit after which the space temp alarm will be generated.     |



CHAPTER

# 5

## CONFIGURATION POINTS FOR POINT SHARING

### Topics covered

[Configuration points for Point sharing](#)

# Configuration points for Point sharing

**Table 25:** Configuration points for Point sharing

| Name                     | Range                                                               | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                            |
|--------------------------|---------------------------------------------------------------------|---------------|----------------------|---------------------------|----------------------------------------------------------------------------------------|
| Cfg_NetOccSenFailDetEn   | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 159                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetOccSenFailFallbck | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 262                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetOccSenFailFxdVal  | 1 = Occupied<br>0 = Unoccupied                                      | 0             | Bacnet Boolean Value | 160                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetOccSenFailDetDly  | 0....3600 Seconds                                                   | 900 Sec       | Bacnet Numeric Value | 263                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetVOCLvlFailDetEn   | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 161                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetVOCLvlFailFallbck | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 264                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetVOCLvlFailFxdVal  | 0-100 ppm                                                           | nan           | Bacnet Numeric Value | 266                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetVOCLvlFailDetDly  | 0....3600 Seconds                                                   | 600 Sec       | Bacnet Numeric Value | 265                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetOATFailDetEn      | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 163                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetOATFailFallbck    | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 270                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetOATFailFxdVal     | -40-150 Deg F                                                       | nan           | Bacnet Numeric Value | 272                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |

**Table 25:** Configuration points for Point sharing (Continued)

| Name                      | Range                                                               | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                            |
|---------------------------|---------------------------------------------------------------------|---------------|----------------------|---------------------------|----------------------------------------------------------------------------------------|
| Cfg_NetOATFailDetDly      | 0....3600 Seconds                                                   | 600 Sec       | Bacnet Numeric Value | 271                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetOAHumFailDetEn     | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 162                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetOAHumFailFallbck   | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 267                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetOAHumFailFxdVal    | 0~100 %RH                                                           | nan           | Bacnet Numeric Value | 269                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetOAHumFailDetDly    | 0....3600 Seconds                                                   | 600 Sec       | Bacnet Numeric Value | 268                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetShtdwnFailDetEn    | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 164                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetShtdwnFailFallbck  | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 273                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetShtdwnFailFxdVal   | 0=Normal<br>1=Shutdown                                              | 0             | Bacnet Boolean Value | 165                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetShtdwnFailDetDly   | 0....3600 Seconds                                                   | 300 Sec       | Bacnet Numeric Value | 274                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetSpceCO2FailDetEn   | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 166                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetSpceCO2FailFallbck | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 275                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetSpceCO2FailFxdVal  | 0~2000 PPM                                                          | nan           | Bacnet Numeric Value | 277                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |

**Table 25: Configuration points for Point sharing (Continued)**

| <b>Name</b>                | <b>Range</b>                                                        | <b>Default Value</b> | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Description</b>                                                                     |
|----------------------------|---------------------------------------------------------------------|----------------------|--------------------------|----------------------------------|----------------------------------------------------------------------------------------|
| Cfg_NetSpceCO2FailDetDly   | 0....3600 Seconds                                                   | 600 Sec              | Bacnet Numeric Value     | 276                              | Network Fail Detection delay in seconds                                                |
| Cfg_NetSpceRHFailDetEn     | 0 = Disable, 1 = Enable                                             | 0                    | Bacnet Boolean Value     | 167                              | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetSpceRHFailFallbck   | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0                    | Bacnet Numeric Value     | 278                              | Network Fail Detection Fall back value                                                 |
| Cfg_NetSpceRHFailFxdVal    | 0~100% RH                                                           | nan                  | Bacnet Numeric Value     | 280                              | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetSpceRHFailDetDly    | 0....3600 Seconds                                                   | 600 Sec              | Bacnet Numeric Value     | 279                              | Network Fail Detection delay in seconds                                                |
| Cfg_NetSpceTmpFailDetEn    | 0 = Disable, 1 = Enable                                             | 0                    | Bacnet Boolean Value     | 168                              | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetSpceTmpFailFallbck  | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0                    | Bacnet Numeric Value     | 281                              | Network Fail Detection Fall back value                                                 |
| Cfg_NetSpceTmpFailFxdVal   | -40~140 Deg F                                                       | nan                  | Bacnet Numeric Value     | 283                              | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetSpceTmpFailDetDly   | 0....3600 Seconds                                                   | 600 Sec              | Bacnet Numeric Value     | 282                              | Network Fail Detection delay in seconds                                                |
| Cfg_NetWSHPEnStFailDetEn   | 0 = Disable, 1 = Enable                                             | 0                    | Bacnet Boolean Value     | 169                              | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetWSHPEnStFailFallbck | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0                    | Bacnet Numeric Value     | 284                              | Network Fail Detection Fall back value                                                 |
| Cfg_NetWSHPEnStFailFxdVal  | 0=Disable<br>1=Enable                                               | 0                    | Bacnet Boolean Value     | 170                              | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |

**Table 25:** Configuration points for Point sharing (Continued)

| Name                       | Range                                                               | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                                            |
|----------------------------|---------------------------------------------------------------------|---------------|----------------------|---------------------------|----------------------------------------------------------------------------------------|
| Cfg_NetWSHPEnStFailDetDly  | 0....3600 Seconds                                                   | 900 Sec       | Bacnet Numeric Value | 285                       | Network Fail Detection delay in seconds                                                |
| Cfg_NetWSHPEnValFailDetEn  | 0 = Disable, 1 = Enable                                             | 0             | Bacnet Boolean Value | 171                       | Network Fail Detection will be enabled only if network point is considered for sharing |
| Cfg_NetWSHPEnValFailFalbck | 0 = InvalidValue (Null)<br>1 = LastKnownGoodValue<br>2 = FixedValue | 0             | Bacnet Numeric Value | 286                       | Network Fail Detection Fall back value                                                 |
| Cfg_NetWSHPEnValFailFxdVal | 0~100 %                                                             | nan           | Bacnet Numeric Value | 287                       | Applicable only if Network Fail Fall back value is configured to Fixed value (2)       |
| Cfg_NetWSHPEnValFailDetDly | 0....3600 Seconds                                                   | 600 Sec       | Bacnet Numeric Value | 288                       | Network Fail Detection delay in seconds                                                |



# NETWORK INPUTS

## Topics covered

User non-configurable network inputs

User configurable network inputs

Sylk sensor proxy inputs

# User non-configurable network inputs

**Table 26:** User non-configurable network inputs

| Name                    | Range                                                                | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                                                    |
|-------------------------|----------------------------------------------------------------------|---------------|----------------------|---------------------------|----------------------------------------------------------------|
| ni_NetSchCurrentState   | 1=Occupied<br>2=Unoccupied<br>3=Bypass<br>4=Standby<br>5=No Override | 5=No Override | BACnet ENUM Value    | 1                         | Current Schedule State from Network.                           |
| ni_BypassState          | 0=Disable<br>1=Enable                                                | Disable (0)   | BACnet Boolean Value | 1                         | Net Bypass Input to enable Bypass Timer                        |
| ni_BypassValue          | >=0                                                                  | 0             | BACnet Numeric Value | 2                         | Bypass Value to enable Bypass Time                             |
| ni_DemandLimitControlEn | 0=Normal<br>1=DLCEnable                                              | Normal (0)    | BACnet Boolean Value | 2                         | Demand Limit Control (DLC) input to limit the htg/ clg demand. |
| ni_OccupancySensorState | 1=Occupied<br>2=Unoccupied<br>3=Bypass<br>4=Standby<br>5=No Override | 5=No Override | BACnet ENUM Value    | 6                         | Network Occupancy Sensor State                                 |
| ni_VOC_Level            | 0-100 ppm                                                            | NA            | BACnet Numeric Value | 90                        | Network Input of Volatile Organic Compound Level.              |
| ni_OutsideTemp          | -40-150 Deg F                                                        | NA            | BACnet Numeric Value | 89                        | Network Outside Humidity Value.                                |
| ni_OutsideHum           | 0-100%RH                                                             | NA            | BACnet Numeric Value | 194                       | Network Outside Temperature Value.                             |
| ni_ShutdownState        | 0=Normal<br>1=Shutdown                                               | Normal (0)    | BACnet Boolean Value | 4                         | System Shutdown input from Network.                            |
| ni_SmokeMonitorstate    | 0=Normal<br>1=Smoke                                                  | Normal (0)    | BACnet Boolean Value | 5                         | Smoke Detector Network Input                                   |
| ni_SpaceCO2             | 0-2000 PPM                                                           | NA            | BACnet Numeric Value | 81                        | Network Space CO2 Value.                                       |
| ni_SpaceRH              | 0-100%RH                                                             | NA            | BACnet Numeric Value | 80                        | Network Space RH Value.                                        |
| ni_SpaceTemp            | -40-200 Deg F                                                        | NA            | BACnet Numeric Value | 104                       | Network Space Temperature Value.                               |

**Table 26:** User non-configurable network inputs **(Continued)**

| <b>Name</b>        | <b>Range</b>          | <b>Default Value</b> | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Description</b>         |
|--------------------|-----------------------|----------------------|--------------------------|----------------------------------|----------------------------|
| ni_WSHPEnableState | 0=Disable<br>1=Enable | Disable (0)          | BACnet Boolean Value     | 25                               | WSHP enable network input. |
| ni_WSHPEnableValue | >=0                   | 0                    | BACnet Numeric Value     | 88                               | WSHP water flow available  |

# User configurable network inputs

**Table 27:** User configurable network inputs

| Key                  | Options / Range                                                       | Default Value   | BACnet Point Type    | BACnet Object Instance ID | Description                                                                                                     |
|----------------------|-----------------------------------------------------------------------|-----------------|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------|
| ni_ApplicationMode   | 1=Auto<br>2=Heat<br>3=Cool<br>4=Emergency Heat<br>5=Fan Only<br>6=Off | 1 = Auto        | BACnet ENUM Value    | 3                         | Effective application mode from network. This value wil not be persisted over power cycle.                      |
| ni_ServiceModeEn     | 0=No Override<br>1=Service                                            | No Override (0) | BACnet Boolean Value | 6                         | Service Mode network input to felicitate installer during commissioning/ maintenance to shutdown all equipment. |
| ni_ServiceFan        | 1=Off<br>2=On (Hi)<br>3=Low                                           | 1=Off           | BACnet ENUM Value    | 23                        | Fan type configuration network input when service mode is enabled.                                              |
| ni_ServiceFanSpeed   | 0-100%                                                                | 0%              | BACnet Numeric Value | 85                        | Fan speed configuration network input when service mode is enabled.                                             |
| ni_ServiceCompStage1 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 16                        | Compressor Stage 1 configuration network input when service mode is enabled.                                    |
| ni_ServiceCompStage2 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 17                        | Compressor Stage 2 configuration network input when service mode is enabled.                                    |
| ni_ServiceCompStage3 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 18                        | Compressor Stage 3 configuration network input when service mode is enabled.                                    |
| ni_ServiceHeatStage1 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 19                        | Heating Stage 1 configuration network input when service mode is enabled.                                       |
| ni_ServiceHeatStage2 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 20                        | Heating Stage 2 configuration network input when service mode is enabled.                                       |
| ni_ServiceHeatStage3 | 0=Cmd Off<br>1=Cmd On                                                 | Cmd Off (0)     | BACnet Boolean Value | 21                        | Heating Stage 3 configuration network input when service mode is enabled.                                       |

**Table 27: User configurable network inputs (Continued)**

| Key                      | Options / Range                                                      | Default Value  | BACnet Point Type    | BACnet Object Instance ID | Description                                                                          |
|--------------------------|----------------------------------------------------------------------|----------------|----------------------|---------------------------|--------------------------------------------------------------------------------------|
| ni_ServiceHeatCtrl       | 0-100%                                                               | 0%             | BACnet Numeric Value | 86                        | Modulating Heating control configuration network input when service mode is enabled. |
| ni_ServiceRevVlvCmd      | 0=Cmd Off<br>1=Cmd On                                                | Cmd Off (0)    | BACnet Boolean Value | 22                        | Reversing valve configuration network input when service mode is enabled.            |
| ni_ServiceSimpleDehCmd   | 0=Cmd Off<br>1=Cmd On                                                | Cmd Off (0)    | BACnet Boolean Value | 23                        | Dehumudification configuration network input when service mode is enabled.           |
| ni_ServiceSimpleHumCmd   | 0=Cmd Off<br>1=Cmd On                                                | Cmd Off (0)    | BACnet Boolean Value | 24                        | Humidification configuration network input when service mode is enabled.             |
| ni_ServiceEconomizerCmd  | 0=Cmd Off<br>1=Cmd On                                                | Cmd Off (0)    | BACnet Boolean Value | 141                       | Economizer command when service mode is enabled                                      |
| ni_ServiceOccStatusCmd   | 0=UnOcc<br>1=Occ                                                     | UnOcc (0)      | BACnet Boolean Value | 140                       | Occupancy Status command when service mode is enabled                                |
| ni_ServiceOaDmprCtrl     | 0-100%                                                               | 0%             | BACnet Numeric Value | 212                       | Outside air damper position when service mode is enabled.                            |
| ni_OccManCom             | 1=Occupied<br>2=Unoccupied<br>3=Bypass<br>4=Standby<br>5=No Override | 5=No sOverride | BACnet ENUM Value    | 4                         | Network Occupancy Manual Override Command.                                           |
| ni_EmergencyHVACOverride | 1=Normal<br>2=Pressurize<br>3=Depressurize<br>4=Purge<br>5=Shutdown  | 1=Normal       | BACnet ENUM Value    | 5                         | Network emergency override to override the system operation manually.                |

# Sylk sensor proxy inputs

**Table 28:** Sylk sensor proxy inputs

| Name              | Default Value | BACnet Point Type    | BACnet Object Instance ID | Description                            |
|-------------------|---------------|----------------------|---------------------------|----------------------------------------|
| ni_SylkAddr2Temp  | nan           | BACnet Numeric Value | 238                       | Network Temp override for sylk addr-2  |
| ni_SylkAddr2Hum   | nan           | BACnet Numeric Value | 239                       | Network Hum override for sylk addr-2   |
| ni_SylkAddr2CO2   | nan           | BACnet Numeric Value | 240                       | Network CO2 override for sylk addr-2   |
| ni_SylkAddr3Temp  | nan           | BACnet Numeric Value | 241                       | Network Temp override for sylk addr-3  |
| ni_SylkAddr4Temp  | nan           | BACnet Numeric Value | 242                       | Network Temp override for sylk addr-4  |
| ni_SylkAddr5Temp  | nan           | BACnet Numeric Value | 243                       | Network Temp override for sylk addr-5  |
| ni_SylkAddr6Temp  | nan           | BACnet Numeric Value | 244                       | Network Temp override for sylk addr-6  |
| ni_SylkAddr6Hum   | nan           | BACnet Numeric Value | 245                       | Network Hum override for sylk addr-6   |
| ni_SylkAddr9Temp  | nan           | BACnet Numeric Value | 248                       | Network Temp override for sylk addr-9  |
| ni_SylkAddr9Hum   | nan           | BACnet Numeric Value | 249                       | Network Hum override for sylk addr-9   |
| ni_SylkAddr10Temp | nan           | BACnet Numeric Value | 250                       | Network Temp override for sylk addr-10 |
| ni_SylkAddr10Hum  | nan           | BACnet Numeric Value | 251                       | Network Hum override for sylk addr-10  |
| ni_SylkAddr11Temp | nan           | BACnet Numeric Value | 246                       | Network Temp override for sylk addr-11 |

**Note:** For overriding *OaTemp* & *OaHum* Sylk Sensor values please use *ni\_OutsideTemp* (BACnet Numeric Value – 89) & *ni\_OutsideHum* (BACnet Numeric Value – 194).

# NETWORK OUTPUTS

## Topics covered

General network outputs

**Note:** All display points starts with prefix “no\_xxx”. Where “xxx” is the actual point name. Overriding these points over BACnet will have no effect in the actual logic. These are meant to be used only as display points.

# General network outputs

**Table 29:** General network outputs

| Name                 | Range                                                         | Default Value  | BACnet Point Type     | BACnet Object Instance ID | Description                                   |
|----------------------|---------------------------------------------------------------|----------------|-----------------------|---------------------------|-----------------------------------------------|
| no_LocalOccSensState | 1=Occupied<br>2=Unoccupied<br>3=Unused                        | 3=Unused       | BACnet ENUM Value     | 1                         | Local Occupancy sensor state                  |
| no_EffOccSensState   | 1=Occupied<br>2=Unoccupied<br>3=Unused                        | 3=Unused       | BACnet ENUM Value     | 2                         | Effective Occupancy sensor state              |
| no_EffOccState       | 1=Occupied<br>2=Unoccupied<br>3=Bypass<br>4=Standby<br>5=Null | 5 = Null       | BACnet ENUM Value     | 20                        | Effective occupancy state.                    |
| no_ManualOverride    | 1=Occupied<br>2=Unoccupied<br>3=Bypass<br>4=Standby<br>5=Null | 5=Null         | BACnet ENUM Value     | 4                         | Manual Override                               |
| no_BypassState       | 0=No Bypass<br>1=Bypass                                       | No Bypass (0)  | BACnet Boolean Output | 1                         | Bypass State Output                           |
| no_BypassValue       | 0-100                                                         | Null           | BACnet Numeric Output | 1                         | Bypass Value output. 0=No Bypass, 100=Bypass. |
| no_OccupancyState    | 0=Unoccupied<br>1= Occupied                                   | Unoccupied (0) | BACnet Boolean Output | 3                         | System is in occupied/ unoccupied state.      |
| no_SmokeMode         | 1=No Override<br>2=Shutdown<br>3=Pressurize<br>4=Depressurize | 1=No Override  | BACnet ENUM Value     | 5                         | Current smoke mode state.                     |
| no_SystemDisable     | 0=Normal<br>1=Disable                                         | Normal (0)     | BACnet Boolean Output | 4                         | System disable.                               |
| no_ServiceMd         | 0=Disable<br>1=Enable                                         | Disable (0)    | BACnet Boolean Output | 5                         | Service mode enable                           |
| no_EffDlcShift       | 0-10 Deg F                                                    | Null           | BACnet Numeric Output | 2                         | Effective Demand Limit Shift.                 |
| no_EffHeatSp         | 40-120 Deg F                                                  | Null           | BACnet Numeric Output | 3                         | Effective Heating Setpoint                    |

**Table 29:** General network outputs (Continued)

| Name                  | Range                                                                    | Default Value | BACnet Point Type     | BACnet Object Instance ID | Description                                                                                                                                                |
|-----------------------|--------------------------------------------------------------------------|---------------|-----------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| no_EffCoolSp          | 40-120 Deg F                                                             | Null          | BACnet Numeric Output | 4                         | Effective Cooling Setpoint                                                                                                                                 |
| no_EffSp              | 40-120 Deg F                                                             | Null          | BACnet Numeric Output | 5                         | Effective Setpoint                                                                                                                                         |
| no_EffTempMode        | 1=Cool Mode<br>2=Reheat Mode<br>3=Heat Mode<br>4=Emergency Heat<br>5=Off | 5=Off         | BACnet ENUM Value     | 6                         | Effective Temperature Mode                                                                                                                                 |
| no_SetpointSts        | 1=Occupied<br>2=Unoccupied<br>3=Temporary<br>4=Standby                   | 1=Occupied    | BACnet ENUM Value     | 7                         | 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_EffAuxHeatSetpoint | 40-120 Deg F                                                             | Null          | BACnet Numeric Output | 6                         | Effective auxiliary heat setpoint.                                                                                                                         |
| no_IsFanOnly          | 0=Normal<br>1=Fan Only                                                   | Normal (0)    | BACnet Boolean Output | 7                         | Fan Only mode enabled/ disabled.                                                                                                                           |
| no_DehumActive        | 0=Inactive<br>1=Active                                                   | Inactive (0)  | BACnet Boolean Output | 8                         | DehumidificationActive/ Inactive                                                                                                                           |
| no_HumActive          | 0=Inactive<br>1=Active                                                   | Inactive (0)  | BACnet Boolean Output | 9                         | HumidificationActive/ Inactive                                                                                                                             |
| no_IsHeatDisable      | 0=Enable<br>1=Disable                                                    | Enable (0)    | BACnet Boolean Output | 10                        | Heating enabled/ disabled.                                                                                                                                 |
| no_IsAuxHeatDisable   | 0=Enable<br>1=Disable                                                    | Enable (0)    | BACnet Boolean Output | 11                        | Auxiliary heating enabled/ disabled                                                                                                                        |
| no_IsCompHeatDisable  | 0=Enable<br>1=Disable                                                    | Enable (0)    | BACnet Boolean Output | 12                        | Compressor heating enabled/ disabled                                                                                                                       |
| no_ActiveHeatStages   | 0-3 Stages                                                               | 0 Stage       | BACnet Numeric Output | 7                         | Active heat Stages                                                                                                                                         |

**Table 29: General network outputs (Continued)**

| Name                    | Range                 | Default Value | BACnet Point Type     | BACnet Object Instance ID | Description                                |
|-------------------------|-----------------------|---------------|-----------------------|---------------------------|--------------------------------------------|
| no_ActiveAuxHeatStages  | 0-2 Stages            | 0 Stage       | BACnet Numeric Output | 8                         | Active auxiliary heat stages               |
| no_HeatCtrlOut          | 0-100%                | 0%            | BACnet Numeric Output | 9                         | Modulating Heat Output                     |
| no_ActiveCompHeatStages | 0-3 Stages            | 0 Stage       | BACnet Numeric Output | 10                        | Active compressor Stages                   |
| no_DaHiLimit            | 0=Normal<br>1=HiLimit | Normal (0)    | BACnet Boolean Output | 13                        | Discharge Air High Limit output            |
| no_CompDaHiLimit        | 0=Normal<br>1=HiLimit | Normal (0)    | BACnet Boolean Output | 14                        | Compressor Discharge Air High Limit output |
| no_IsCoolDisable        | 0=Enable<br>1=Disable | Enable (0)    | BACnet Boolean Output | 15                        | Cooling enabled/ disabled.                 |
| no_ActiveCoolStages     | 0-3 Stages            | 0 Stage       | BACnet Numeric Output | 11                        | Active cool Stages                         |
| no_ReversingVlv         | 0=Close<br>1=Open     | Close (0)     | BACnet Boolean Output | 16                        | Reversing Valve Output                     |
| no_CompDaLoLimit        | 0=Normal<br>1=LoLimit | Normal (0)    | BACnet Boolean Output | 17                        | Compressor Discharge Air Low Limit output  |
| no_FanStart             | 0=Off<br>1=On         | Off (0)       | BACnet Boolean Output | 19                        | Fan start command                          |
| no_FanSpd               | 0-100%                | 0%            | BACnet Numeric Output | 12                        | Variable Fan speed output                  |
| no_FanHiSpd             | 0=Off<br>1=On         | Off (0)       | BACnet Boolean Output | 20                        | Fan high speed command                     |
| no_FanLoSpd             | 0=Off<br>1=On         | Off (0)       | BACnet Boolean Output | 21                        | Fan low speed command                      |
| no_SpaceTemp            | -40~140 Deg F         | Null          | BACnet Numeric Output | 18                        | Space Temperature                          |
| no_SpaceHumidity        | 0-100 %               | Null          | BACnet Numeric Output | 19                        | Space Humidity                             |

**Table 29:** General network outputs (Continued)

| Name                       | Range                                                                                                                  | Default Value            | BACnet Point Type     | BACnet Object Instance ID | Description                                                                               |
|----------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|---------------------------|-------------------------------------------------------------------------------------------|
| no_SpaceCO2                | 0-2000 PPM                                                                                                             | Null                     | BACnet Numeric Output | 20                        | Space CO2                                                                                 |
| no_EconEn                  | 0=Disable<br>1=Enable                                                                                                  | Disable (0)              | BACnet Boolean Output | 22                        | Economizer Enable output                                                                  |
| no_ApplicationCommand Mode | 1=StartupWait<br>2=Heat<br>3=Cool<br>4=Off<br>5=EmgHt<br>6=SmkEmg<br>7= Freeze Protect<br>8=Service Mode<br>9= FanOnly | 4=Off                    | BACnet ENUM Value     | 8                         | Gives out the current application mode                                                    |
| no_CtrlSpaceTemp           | -40~140 Deg F                                                                                                          | Null                     | BACnet Numeric Output | 67                        | Control Space Temperature output (Only for testing purpose)                               |
| no_RecoveryStatus          | 0 = Normal<br>1 = Recovery                                                                                             | Inactive (Normal)        | BACnet Boolean Output | 82                        | This point gives out when the system is in recovery mode.                                 |
| no_IsFreeCoolAvailable     | 0 = Not Available<br>1= Available                                                                                      | Inactive (Not Available) | BACnet Boolean Output | 86                        | This point gives the status whether free cooling is available or not.                     |
| no_CompCurSens             | 0~100 Amps                                                                                                             | Null                     | BACnet Numeric Output | 71                        | This point gives out the Comp Current Sensor value from the terminal input.               |
| no_FanCurSens              | 0~100 Amps                                                                                                             | Null                     | BACnet Numeric Output | 72                        | This point gives out the Fan Current Sensor value from the terminal input.                |
| no_OccupancySensor         | 1=Occupied<br>0=Unoccupied                                                                                             | Null                     | Bacnet Boolean Output | 94                        | This point is considered for Network point sharing of Occupancy sensor status of terminal |
| no_ShutdownState           | 0=NoOvrd<br>1=ShutdownE n                                                                                              | Null                     | Bacnet Boolean Output | 95                        | This point is considered for Network point sharing of shutdown state of terminal          |
| no_WSHPEnableState         | 0 = Disable<br>1 = Enable                                                                                              | Null                     | Bacnet Boolean Output | 96                        | This point is considered for Network point sharing of WSHP state through Waterflow status |

**Table 29:** General network outputs (Continued)

| Name               | Range    | Default Value | BACnet Point Type     | BACnet Object Instance ID | Description                                                                               |
|--------------------|----------|---------------|-----------------------|---------------------------|-------------------------------------------------------------------------------------------|
| no_WSHPEnableValue | 0 to 100 | Null          | Bacnet Numeric Output | 97                        | This point is considered for Network point sharing of WSHP state through Waterflow status |

CHAPTER

# 8

## BACNET OBJECTS FOR ALARMS

### Topics covered

BACnet object used for alarm

# BACnet object used for alarm

**Table 30:** BACnet object used for alarm

| Key                              | BACnet Point Type     | BACnet Object Instance ID | Priority                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|-----------------------|---------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AlarmPriority_SupplyFan          | BACnet Boolean Output | 64                        | 0 = Nml<br>1 = High Priority                     | Supply Fan Status Mismatch Alarm & Priority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| AlarmPriority_SpaceFreezeProtect | BACnet Boolean Output | 65                        | 0 = Nml<br>1 = High Priority                     | Space temperature freeze protection alarm & Priority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| AlarmPriority_WaterFlwPrf        | BACnet Boolean Output | 66                        | 0 = Nml<br>1 = High Priority                     | Proof of water flow alarm & Priority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Alarm_UI_SpcTemp                 | BACnet Numeric Input  | 12                        | Actual Alarm point is AlarmPriority_TempSens     | UI Space Temperature fault detection point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| AlarmPriority_TempSens           | BACnet ENUM Value     | 13                        | 1 = Nml<br>2 = Med Priority<br>3 = High Priority | On Board Temperature Sensor Priority.<br>High Priority:<br>1. Only local sensor configured & even if any one of the on-board temperature sensor is in alarm<br>2. Only Remote sensor configured & TR40 sensor connected to sylk addr 2 is giving null value.<br>3. configured as multi sensor & both the remote sensor & on-board configured sensor has failed.<br>Medium priority:<br>1. Configured as Multi sensor & only the on-board sensor has failed. but getting reliable value from the sylk sensors.<br>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.<br>When a valid network temperature is available, then the high priority alarms will be considered as medium priority alarm. |
| Alarm_OnBoardHumSens             | BACnet Numeric Input  | 2                         | Actual Alarm point is AlarmPriority_HumSens      | On Board Humidity Sensor input.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**Table 30: BACnet object used for alarm (Continued)**

| Key                          | BACnet Point Type     | BACnet Object Instance ID | Priority                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-----------------------|---------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AlarmPriority_HumSens        | BACnet ENUM Value     | 14                        | 1 = Nml<br>2 = Med<br>Priority<br>3 = High<br>Priority | On Board Humidity Sensor Priority.<br>High Priority:<br>1. Only local sensor configured & on-board humidity sensor is in alarm<br>2. Only Remote sensor configured & TR40 sensor connected to sylk addr 2 is giving null value.<br>3. configured as multi sensor & both the remote sensor & on-board configured sensor has failed.<br>Medium priority:<br>1. Configured as Multi sensor & only the on-board sensor has failed. but getting reliable value from the sylk sensors.<br>2. Configured as multi sensor & only the sylk sensor has failed with values available from on-board sensor.<br>When a valid network humidity is available, then the high priority alarms will be considered as medium priority alarm. |
| AlarmPriority_SpcTempHILimit | BACnet Boolean Output | 68                        | 0 = Nml<br>1 = Med<br>Priority                         | Space Air Temperature High/ low Limit Alarm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Alarm_StPtOutOfRangeAlm      | BACnet Boolean Output | 63                        | No Priority assigned                                   | Setpoint Configurations Out of Range Alarm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Alarm_UI_OccSens             | BACnet Boolean Input  | 3                         | Actual Alarm point is AlarmPriority_OccSensFault       | Occupancy Sensor Physical Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| AlarmPriority_OccSensFault   | BACnet Boolean Output | 69                        | 0 = Nml<br>1 = Med<br>Priority                         | Occupancy Sensor Alarm Priority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Alarm_UI_DirtyFilter         | BACnet Boolean Input  | 4                         | Actual Alarm point is AlarmPriority_DirtyFiltFault     | Dirty Filter Physical Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| AlarmPriority_DirtyFiltFault | BACnet Boolean Output | 70                        | 0 = Nml<br>1 = Med<br>Priority                         | Dirty Filter Physical Input Alarm Priority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Alarm_UI_AirFlwSts           | BACnet Boolean Input  | 5                         | Actual Alarm point is AlarmPriority_AirFlwFault        | Air Flow Status Physical Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Table 30: BACnet object used for alarm (Continued)**

| Key                             | BACnet Point Type     | BACnet Object Instance ID | Priority                                                                               | Description                                     |
|---------------------------------|-----------------------|---------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------|
| AlarmPriority_AirFlwFault       | BACnet Boolean Output | 71                        | 0 = Nml<br>1= Med<br>Priority                                                          | Air Flow Status Physical Input Alarm Priority   |
| Alarm_UI_Shutdown               | BACnet Boolean Input  | 6                         | Actual Alarm point is AlarmPriority_ShutdownFault                                      | Shutdown Physical Input                         |
| Alarm_UI_Shutdown               | BACnet Boolean Input  | 6                         | Actual Alarm point is AlarmPriority_ShutdownFault                                      | Shutdown Physical Input                         |
| AlarmPriority_ShutdownFault     | BACnet Boolean Output | 72                        | 0 = Nml<br>1= Med<br>Priority                                                          | Shutdown Physical Input Alarm Priority          |
| Alarm_UI_CO2Lvl                 | BACnet Numeric Input  | 7                         | Actual Alarm point is AlarmPriority_CO2LvlAlarm_Fault                                  | CO2 Level Physical Input                        |
| AlarmPriority_CO2LvlAlarm_Fault | BACnet ENUM Value     | 12                        | 1 = Nml<br>2 = Med<br>Priority (Out of Range)<br>3 = High<br>Priority (Sensor Failure) | CO2 Level Physical Input Alarm Priority         |
| Alarm_UI_WtrFlwSts              | BACnet Boolean Input  | 7                         | Actual Alarm point is AlarmPriority_WtrFlwFault                                        | Water Flow Status Physical Input                |
| AlarmPriority_WtrFlwFault       | BACnet Boolean Output | 73                        | 0 = Nml<br>1= Med<br>Priority                                                          | Water Flow Status Physical Input Alarm Priority |
| Alarm_UI_CompDASens             | BACnet Numeric Input  | 14                        | Actual Alarm point is AlarmPriority_DATempAlarm_Fault                                  | Comp Discharge Air Temperature Physical Input   |

**Table 30: BACnet object used for alarm (Continued)**

| <b>Key</b>                       | <b>BACnet Point Type</b> | <b>BACnet Object Instance ID</b> | <b>Priority</b>                                                                  | <b>Description</b>                                           |
|----------------------------------|--------------------------|----------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------|
| AlarmPriority_CompDAAAlarm_Fault | BACnet ENUM Value        | 22                               | 1 = Nml<br>2 = Med Priority (Out of Range)<br>3 = High Priority (Sensor Failure) | Comp Discharge Air Temperature Physical Input Alarm Priority |
| AlarmPriority_DirtyFilter        | BACnet Boolean Output    | 88                               | 0 = Nml<br>1 = High Priority                                                     | Dirty Filter Alarm                                           |



CHAPTER

# 9

## BACNET GUIDELINES FOR TC500A

### Topics covered

[Situational BACnet guidelines for TC500A](#)

# Situational BACnet guidelines for TC500A

**Table 31:** BACnet guidelines for TC500A

| Feature            | Limitation / Behavior                                                                                     | Description                                                                                                                                                                                                                                                                        | Workaround                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Schedule / Holiday | Calendar object is not supported                                                                          | Current implementation of thermostat does not support calendar object and If user wants to configure holiday list for a schedule apart from special events then HMI is the option to configure holiday schedule.                                                                   | HMI is the option to configure holiday schedule.                                 |
| 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 thermostat are 0, 1 and 3                                                              | Modes and corresponding Enum values are                                                                                                                                                                                                                                            | NA                                                                               |
| Schedule           | Niagara allows all types of date range while creating special events which is not supported by thermostat | Thermostat does not support floating date type special events. If user try to write special events with unsupported date range format, then schedule read operation does not work until deleting the unsupported date range special events from Niagara database.                  | NA                                                                               |
| Schedule           | Special / Holiday events are supported for the 3 years duration.                                          | Special / Holiday can create more than 3 years in Niagara, but thermostat supports only for 3-year duration                                                                                                                                                                        | NA                                                                               |
| Device Object      | Unsupported object and service is claimed in the device object capabilities                               | The device capabilities list shows many of the unsupported object and services, it will not impact any functionality issues and will be hidden future release.                                                                                                                     | NA                                                                               |
| Alarm              | Unsupported Intrinsic Alarm Property is being exposed in the objects                                      | Intrinsic alarms are not supported by global thermostat, but the corresponding properties are exposed in BACnet object. user should not configure those properties and this will be hidden in future release and the point alarms must be configured using Niagara alarm extension | NA                                                                               |
| COV                | COV not supported                                                                                         | Thermostat does not support COV way of notifying values to the supervisor but the COV increment properties are exposed in the objects. user should not configure this property and this will be hidden in future release.                                                          | NA                                                                               |
| DAY LIGHT SAVING   | Unable to read/write Daylight savings from Niagara to GT                                                  | Unable to read/write Daylight savings from Niagara to GT                                                                                                                                                                                                                           | Set the daylight saving from Thermostat HMI                                      |

**Table 31: BACnet guidelines for TC500A (Continued)**

| <b>Feature</b>             | <b>Limitation / Behavior</b>                                                                                                                                                           | <b>Description</b> | <b>Workaround</b>                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|
| PICS statement             | Reference input and output is claimed in the PIC statement, but the corresponding objects is not there in thermostat                                                                   | NA                 | NA                                                         |
| Output Object Read / Write | Priority array values are not synchronized with actual for AO, MSO, & BO in Niagara                                                                                                    | NA                 | NA                                                         |
| Output Object Read / Write | Set operation on AO, BO & MSO is writing values to the priority-16 instead of relinquish default                                                                                       | NA                 | NA                                                         |
| Output Object Read / Write | If user configure binary input or output in UIO terminal and the corresponding values has to be refereed in analog input or output object instead of binary input or output in Niagara | NA                 | NA                                                         |
| FIRMWARE                   | Thermostat firmware & application download does not support by Niagara (start restore and end restore service is missing)                                                              | NA                 | 3rd party tool like YABE can be used for firmware download |





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