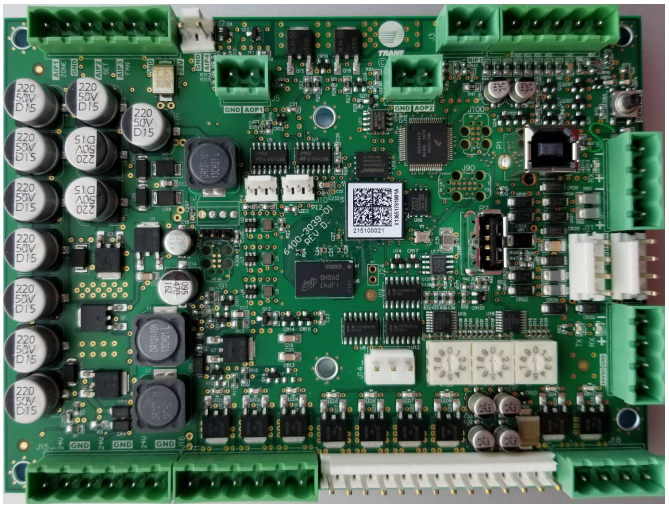
Integration Guide

Symbio™ 400–B/500 Programmable Controller

For Water Source Heat Pump



⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

January 2026

BAS-SVP061C-EN

TRANE TECHNOLOGIES

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.
Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.**
- **Non-Trane personnel should always follow local regulations.**

⚠ WARNING

Cancer and Reproductive Harm!

This product can expose you to chemicals including lead and bisphenol A (BPA), which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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Trademarks

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Revision History

Updated points list for object and diagnostic data points and alarm objects.

Table of Contents

Overview

The Symbio 400–B/500 is a multi-purpose, programmable (or application-specific) controller that provides direct-digital zone temperature control. This controller can operate as a stand-alone device or as part of a building automation system (BAS). Communication between the controller and a BAS occurs on an open standard with inter-operable protocols used in Building Automation and Control Networks (BACnet®). Programming is done by means of the Tracer®TU service tool. This guide provides installation and configuration information for the Symbio 400–B/500 Controller with specific operation description for Water Source Heat Pump (WSHP).

Note: *LonTalk Communications are not supported on Symbio 210/210e/400–B/500.*

BACnet® Protocol

The Building Automation and Control Network (BACnet®) protocol is ANSI/ASHRAE Standard 135. This standard allows building automation systems or components from different manufacturers to share information and control functions. BACnet® provides building owners the capability to connect various types of building control systems or subsystems together for many uses. Multiple vendors can use this protocol to share information for monitoring and supervisory control between systems and devices in a multi-vendor interconnected system. The BACnet® protocol defines standard objects (data points) called BACnet® objects. Each object has a defined list of properties that provide context information about that object. In addition, BACnet® defines a number of application services that are used to interact with objects in a BACnet® device.

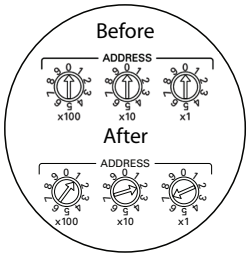
BACnet Testing Laboratory (BTL) Certification

The Symbio 400–B/500 is BTL certified as a B-BC profile device. A complete list of Trane certified devices is available at www.bacnetinternational.org.

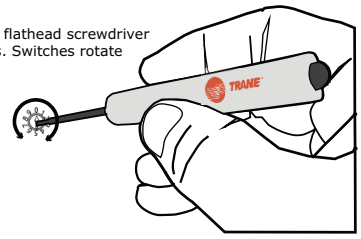
Rotary Switches

There are three (3) rotary switches on the front of the controller. They are used to set the BACnet network address and BACnet Device ID.

Important: *Each controller on the BACnet link must have a unique rotary switch value, otherwise communication problems will occur.*



Use a 1/8 in. (3 mm) flathead screwdriver to set rotary switches. Switches rotate in either direction.



Configuring the Symbio 400-B/500

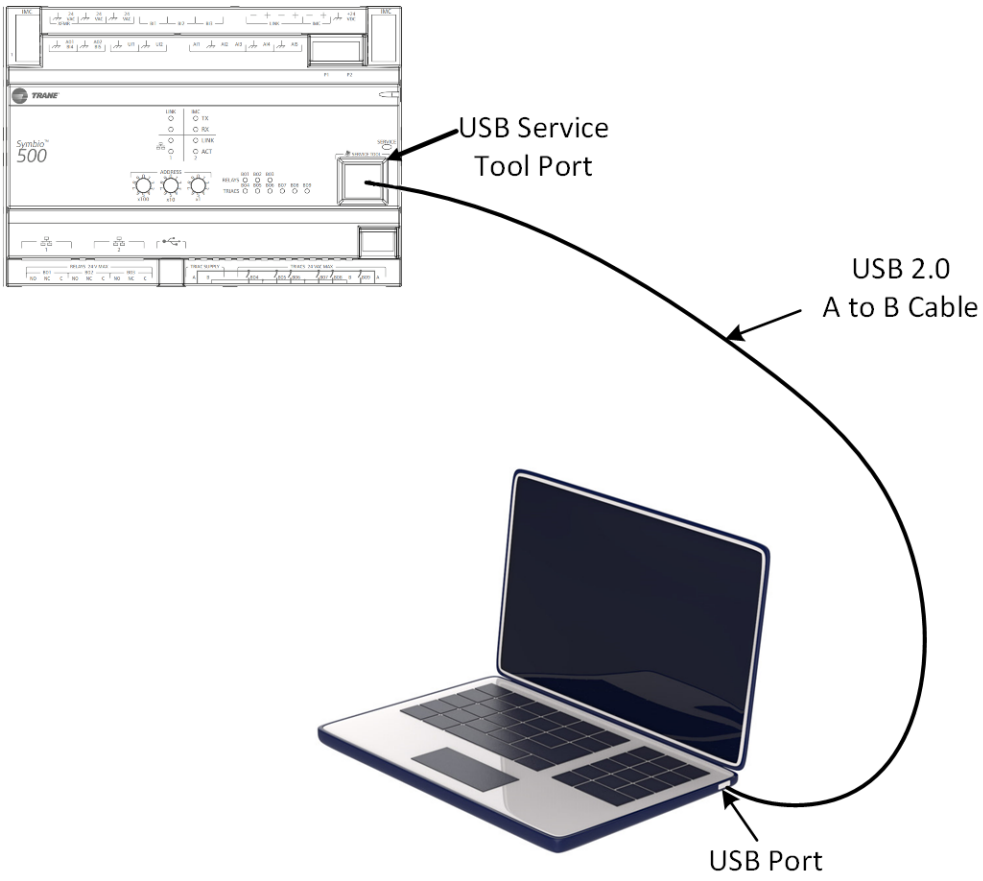
Using Symbio UI to Configure Settings

Symbio UI is a built-in web-based user interface that is used for basic setup and configuration of the Symbio 400–B/500. This interface replaces the need to use the BACnet Setup Tool to configure BACnet protocol settings and allows users to select BAS or local for the source on many sensors and setpoints on the equipment.

Connecting to Symbio UI

1. Connect a laptop to the USB service tool port using a USB 2.0 A to B cable. Symbio UI can only be accessed over USB connection.
2. Open a web browser and connect to http://198.80.18.1 to access Symbio UI.

Figure 1. Connecting to Symbio UI

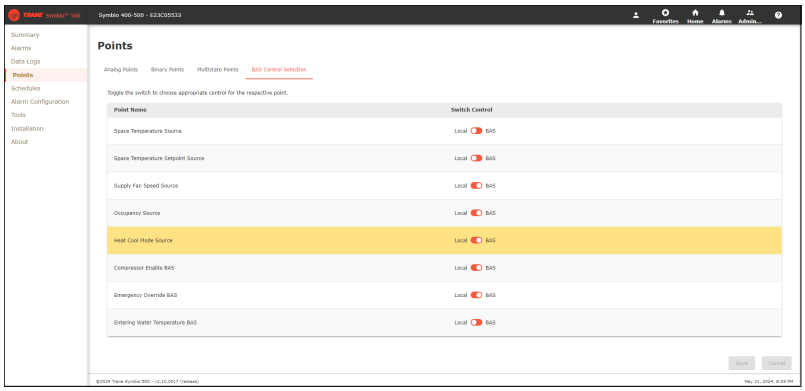


Configuring BAS Control Selection

Symbio UI allows users to select which sensors and setpoints use values communicated over the Building Automation System (BAS) vs. using the local sensor. This can be selected for a varying number of sensors and setpoints depending on how the equipment is configured.

1. With Symbio UI open in a web browser navigate to the **Points** menu on the left-hand navigation.
2. In the **Points** menu select **BAS Control Selection** to open the selection tool.
3. In the **BAS Control Selection** tool use the toggle to select from BAS or Local as the source of information for the selected sensor or setpoint.
4. Click **Save**.

Figure 2. BAS Control Selection

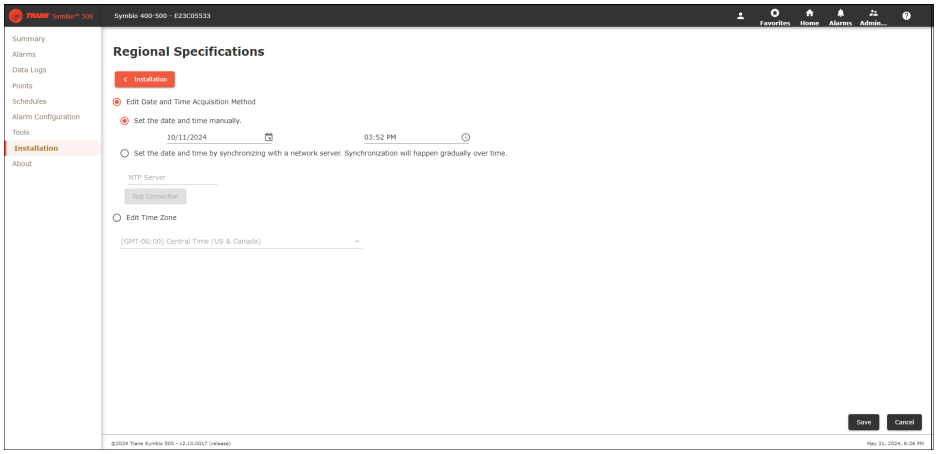


Configuring Regional Specifications

Symbio UI allows users to set the date, time and time zone. IP based controllers will also have the ability to configure NTP server for time synchronization.

1. In Symbio UI, navigate to the **Installation** menu on the left-hand navigation.
2. Select **Regional Specifications**.
3. Select **Edit** to change the settings.
4. Fill in the date, time and time zone for the controller.
5. Select **Save** button in bottom right to save changes.

Figure 3. Regional Specifications



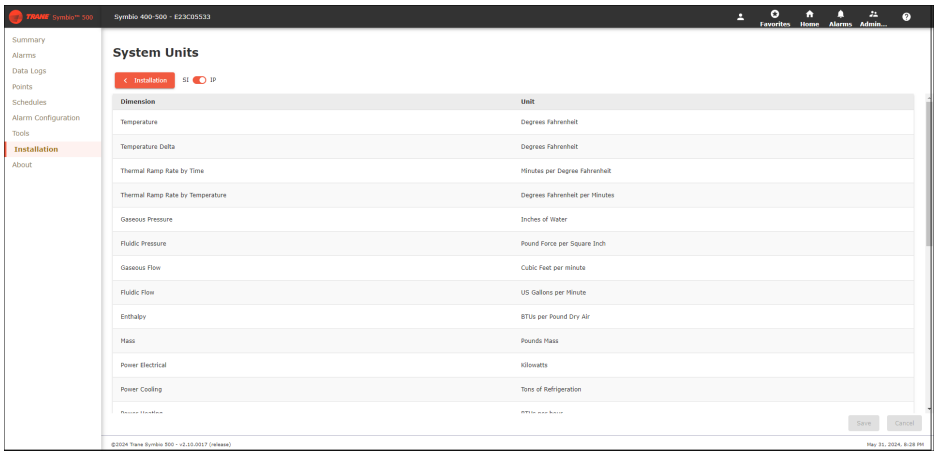
Configuring System Units

Symbio UI allows users to set the desired System Units of the controller. This will change the unit communicated over BACnet. Making changes to System Units will restart the controller and equipment will be inoperable for a brief period of time.

1. With Symbio UI open in a web browser, navigate to the **Installation** menu on the left-hand navigation.
2. In the **Installation** menu, select **System Units**.
3. In the **System Units** window, use the toggle at the top of the page to switch between Inch-Pound (IP) and System International (SI) units.
4. Select **Save** button in bottom right to save changes. Saving changes will restart the controller and equipment will be inoperable for a brief period of time.

Note: *It may not be possible to change the System Units because TGP2 programs exist that could not be converted. Tracer TU must be used to rectify this issue.*

Figure 4. System Units



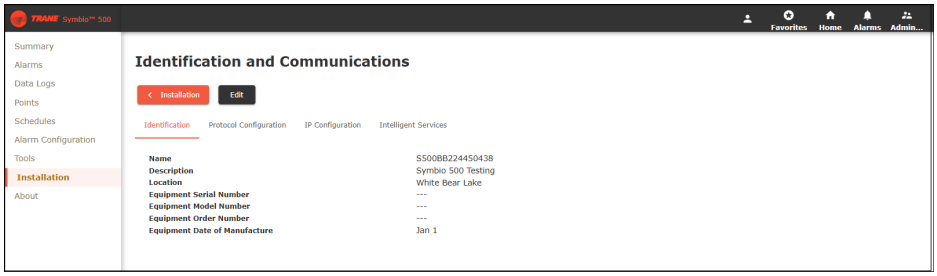
Configuring Identification and Communications

Symbio UI allows users to set the Name, Description, and Location of the controller as well as the communication protocol and associated settings.

Identification Settings:

1. With Symbio UI open in a web browser, navigate to the **Installation** menu on the left-hand navigation.
2. In the **Installation** menu, select **Identification and Communications**.
3. In the **Identification and Communications** window, select the **Identification** tab.
4. Click **Edit** to change the Name, Description, and Location fields.
5. Click **Save**.

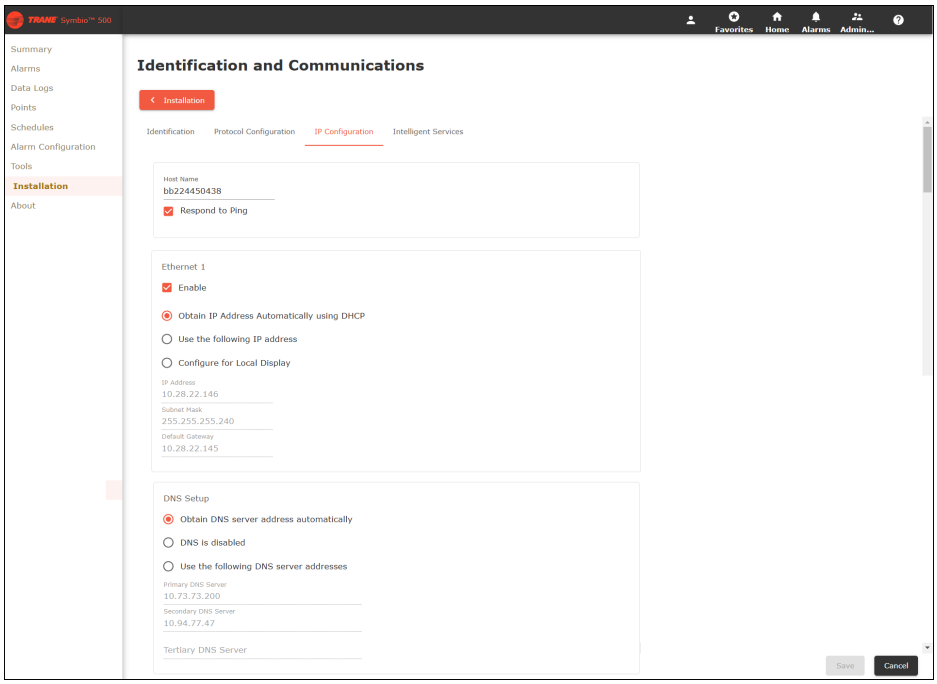
Figure 5. Identification and Communications – Identification Tab



Protocol Settings:

1. With Symbio UI open in a web browser, navigate to the **Installation** menu on the left-hand navigation.
2. In the **Installation** menu, select **Identification and Communications**.
3. In the **Identification and Communications** window, select the **Protocol Configuration** tab.
4. Use the **Edit** button at the top of the page to change Protocol Settings.
5. Click **Save**. Saving changes restarts the controller and the equipment becomes inoperable for a brief period of time.

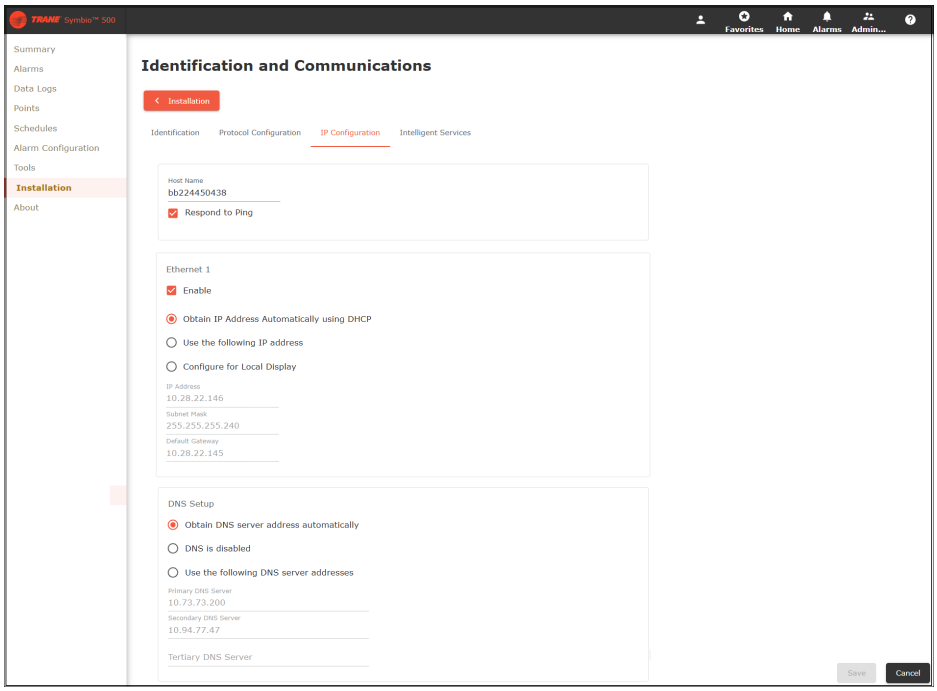
Figure 6. Identification and Communications – Protocol Configuration Tab



IP Settings:

1. With Symbio UI open in a web browser, navigate to the **Installation** menu on the left-hand navigation.
2. In the **Installation** menu, select **Identification and Communications**.
3. In the **Identification and Communications** window, select the **IP Configuration** tab.
4. Click **Edit** to change Protocol Settings.
5. Click **Save**. Saving changes restarts the controller and the equipment becomes inoperable for a brief period of time.

Figure 7. Identification and Communications – IP Configuration Tab

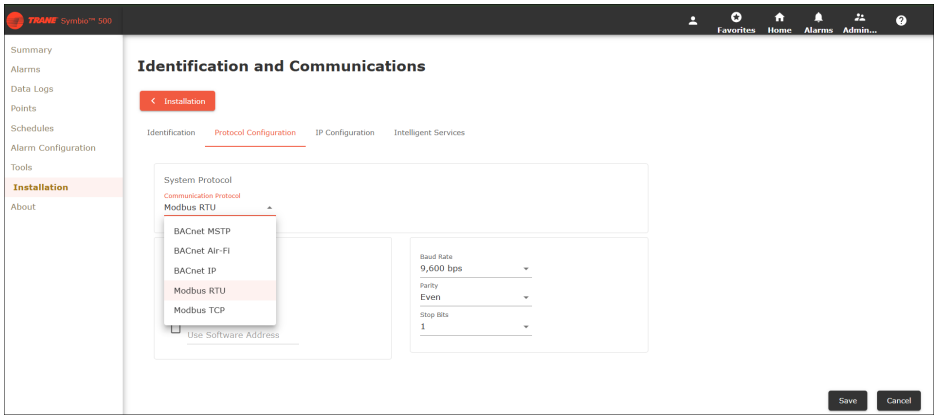


Modbus Protocol Configuration

To access the Symbio™ 400B/500 Protocol Configuration page:

1. Connect to the Symbio UI web interface.
2. On the left-hand navigation, click **Installation**.
3. Click **Identification and Communications**.
4. Click the **Protocol Configuration** tab.

Figure 8. Protocol Configuration Tab



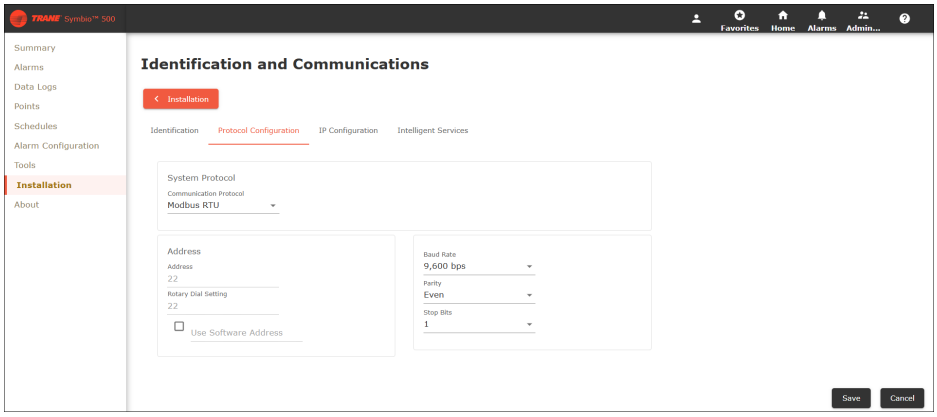
5. View the existing Protocol Configuration settings.

Modbus Protocol Settings

The rotary address on the Symbio™ 400B/500 controller sets the Modbus address, sometimes called a device ID. Each Modbus server controller on the same Modbus RTU link must have a unique address. The valid range of Modbus RTU server addresses for the Symbio 400B/500 is: **001 – 247**.

Important: *Symbio 400B/500 controller disables Modbus RTU communications if the rotary address is 000! Changing the rotary address will immediately take effect and does NOT require a power cycle to the Symbio 400B/500 controller.*

Figure 9. Protocol Configuration Tab – Modbus RTU



1. Set the Communication Protocol drop down to **Modbus RTU**.
2. The rotary dial setting field shows the physical setting of the rotary dials on the Symbio 400B/500. The address field shows the Modbus RTU address. The Modbus RTU address matches the rotary dial setting unless the Use Software address option is used. The recommendation is to change the Modbus address using the physical rotary dials on the Symbio 400B/500 controller.
3. Verify the baud rate (default is 19200 bps), parity (default is Even), and stop bits (default is 1).All Modbus RTU devices on a link must communicate using the same communication parameters.

Modbus Wiring

The Modbus RTU communication wire is connected to the LINK port. Observe wire polarity when connecting to the + and – terminals. The + terminals and the – terminals are internally connected. The second set of + and – terminals on the LINK are used to make it easier to wire the next Modbus RTU device in the daisy chain.

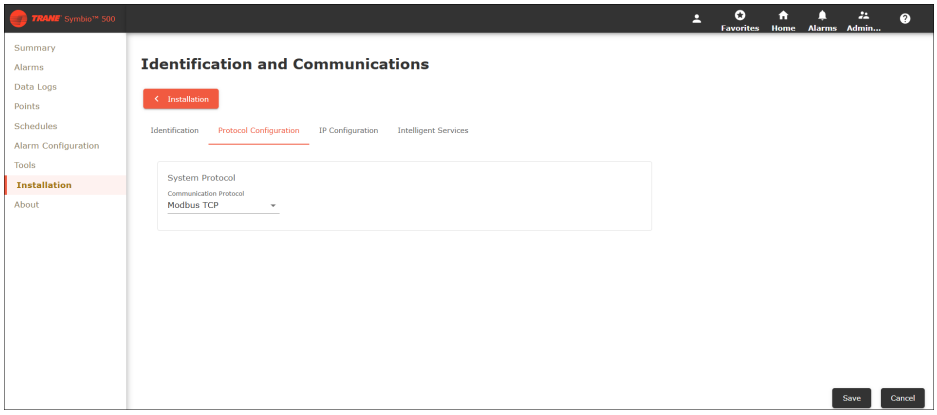
Refer to the TIA/EIA 485 standard for detailed information on Modbus RTU wiring.

Modbus TCP (Ethernet)

The Symbio™ 400B/500 controller can communicate Modbus TCP using a standard Ethernet cable. Connect an Ethernet cable with RJ-45 connectors to Ethernet port 1 and the IP network (For Symbio 400B use the CM2 module to obtain the Ethernet port for this connection). The Symbio 400B/500 controller does not support the optional Wi-Fi module with Modbus TCP communications. The rotary address on the Symbio 400B/500 controller is not used with Modbus TCP communications.

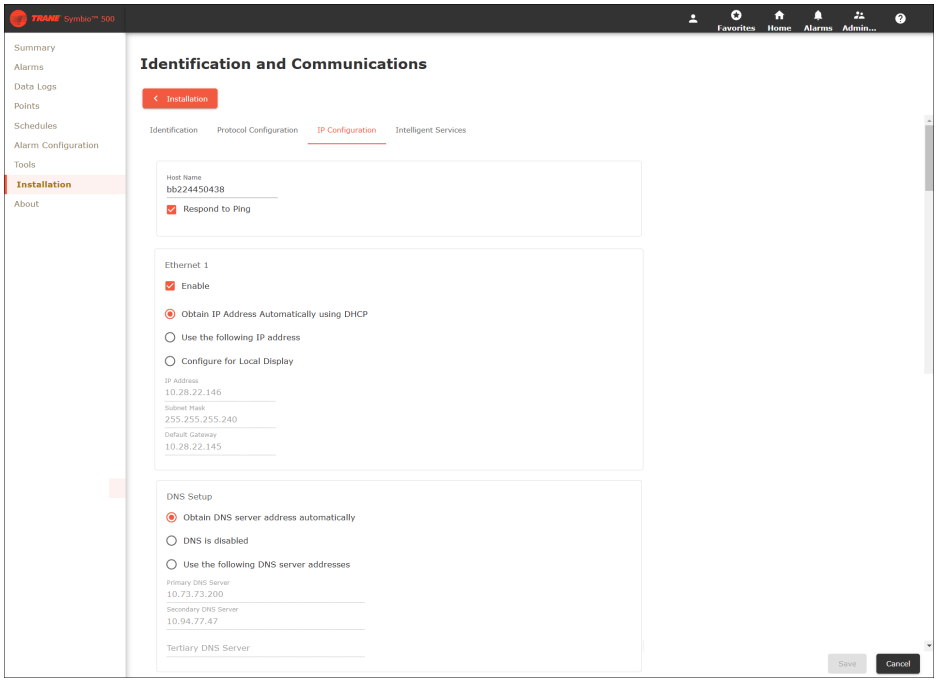
1. Set the System Protocol drop down to **Modbus TCP**.

Figure 10. Protocol Configuration Tab – Modbus TCP



2. Click the **IP Configuration** tab to set the IP address of the Symbio™ 400B/500 controller.
3. Click **Edit**.

Figure 11. Edit IP Configuration



4. Setup the Ethernet port to either obtain an IP addresss automatically using DHCP or use a static IP address by manually entering the IP address, subnet mask, and default gateway. The IP address is typically provided by the local IT administrator.
5. Set the Preferred IP Interface.
6. Set up the DNS section if using a Domain Name System server to identify the Symbio 400B/400 controller by host name.

Modbus Register Mapping (Modbus Server)

To access the Modbus Register Mapping page, select **Tools > Modbus Register Mapping**. On this page, the user can view and export modbus register mappings.

This page displays:

- **Point Type** – indicates the point type, such as Analogs, Binary, and Multistate.
- **Point Name** – indicates the name of the point.
- **Register Type** – indicates the register type, such as Input Register or Holding Register.
- **Offset** – register offset address is shown using the attribute register. The default user-created offset address starts from 6000.
- **Register Address** – indicates the address for each register.
- **Priority** – indicates the point priority level (default is 12). The priority attribute is applicable only to holding register type.
- **Point Value** – indicates the raw value of the point register.
- **Export** – to export the Modbus Register Mappings, click **Export**.

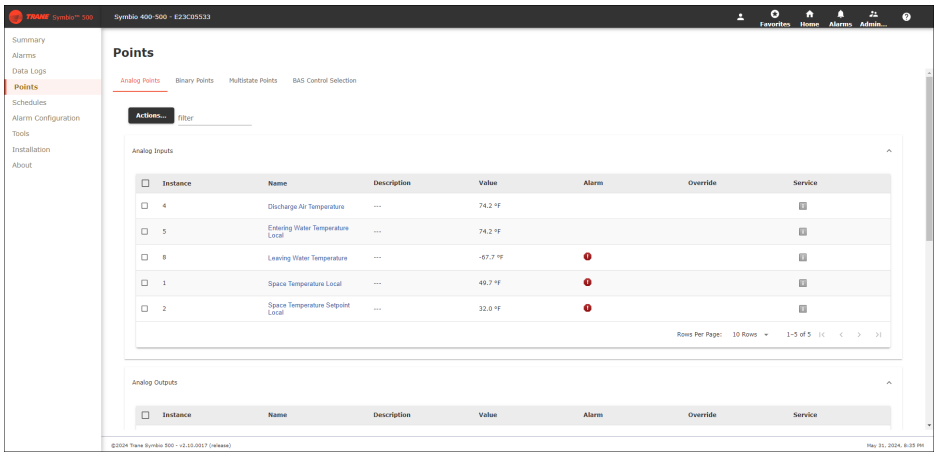
Points

With Symbio UI open in a web browser, navigate to the Points menu on the left-hand navigation.

- The Points menu shows analog, binary, and multistate points that are included in the controller.
- The name, instance number, present value, alarm status, override status and service status of each point is shown.
- Overrides can be initiated or released by clicking on the **Override** icon.
- Points can be put into or taken out of service by clicking on the **Service** icon.

Note: *Points cannot be created or deleted using the Symbio UI tool.*

Figure 12. Symbio points



Tracer SC+ BAS Integration

When Tracer SC+ is the BAS, the integration technician is not required to manually configure the Device ID of the controller. The Tracer SC+ will do this as part of the site discovery and installation process.

Tracer SC+ will perform the following steps:

1. Enable the Use Software Device ID feature.
2. Calculate a unique BACnet Device ID value, based on Tracer SC+ Device ID, MS/TP link number, and MAC address of the unit controller.

3. Send the BACnet Device ID value to the device.

BAS Unit Control

The Symbio 400–B/500 gets controlled by the BAS by changing values of point and placing points in or out of service.

Initiating System Control

By default, the following BACnet points are put out of service and need to be put into service to be used, if required:

- Space Temperature BAS
- Space Humidity BAS
- Outdoor Air Temperature BAS
- Discharge Temperature BAS
- Outside Air Temperature BAS
- Outdoor Air Humidity BAS

Routinely Updating BAS Values

The Symbio 400–B/500 requires the BAS system to provide a routine update to the sensor values. This protects against communication loss between the BAS and the Symbio 400–B/500. By BACnet definition, the present value of the object maintains the last value written to it, regardless of the amount of time that has elapsed since the last write. If communication is lost for several minutes or longer, the present value of BAS-supplied sensor objects may no longer represent the current state of environmental conditions. This may result in decreased occupant comfort and damage to building systems.

BAS Communication Failure

The Symbio 400–B/500 is designed to minimize communication failure mode. It does this by monitoring the length of time that has elapsed since the last *write to the present value* of the sensor object. If the length of time exceeds a predefined limit, the Symbio 400–B/500 will place the object into the fault state and revert to a unit-supplied sensor value for control. At power-up, the sensor objects are set to a fault state and they remain in this state until a *write to the sensor object* is detected. The minimum periodic refresh rate for the objects is 15 minutes. The following list is a set of sensor values that can be supplied by the BAS:

- Space Temperature BAS
- Outdoor Air Temp BAS
- Space Humidity BAS
- Entering Water Temp BAS

Input/Output Commands and Calculations

This section provides the following information about certain inputs and outputs that perform:

- Filter timer reset command
- Diagnostic reset command
- Setpoint calculations

Filter Timer Reset Command

The Symbio 400-B/500 uses the "Filter Runtime Hours" (AV38) to generate a diagnostic ("Diagnostic: Filter Change Required", BV8) when its present value is greater than the "Filter Runtime Hours Setpoint" (AV12) present value. The procedure for resetting the timer is as follows:

Change the state of the "Filter Timer Reset Request" (BV12) to the active state. Upon the change to active state, the Symbio 400-B/500 will set the present value of the "Filter Runtime Hours" (AV38) object to zero and then set the "Filter Timer Reset Request" object back to the inactive state.

Diagnostics Reset Command

The Symbio 400-B/500 control system monitors the operation of the HVAC equipment. If an abnormal condition is detected, an event notification message is sent to the Tracer SC+. The corresponding binary input object will change state from *inactive* to

active when the diagnostic is detected. The object has been configured to send a BACnet event message to external BACnet devices as defined by the protocol.

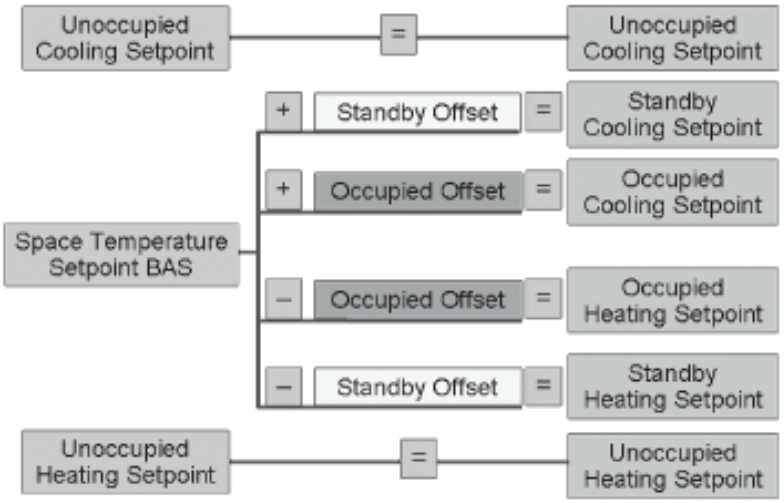
The BAS has the ability to reset internal diagnostics by controlling the state of the *Reset Diagnostic Request* object (BV2) as follows:

- Change the state of the *"Reset Diagnostic Request"* (BV2) to the *active* state.
- •Upon the change to *active* state, the Symbio 400-B/500 control system will reset all internal diagnostics other than BV8 ("Diagnostic: Filter Change Required"), and other than BV8 (*"Diagnostic: Filter Change Required"*) set the state of all the diagnostic objects to *inactive*.
- •Upon completion of this action, the Symbio 400-B/500 will set the present value of the *"Reset Diagnostic Request"* (BV2) object back to the *inactive* state.

Setpoint Calculations

The equipment has the ability to control the air temperature of the space that contains the space air temperature sensor. This value may be provided by wiring the sensor to the unit or by means of a sensor value provided by the BAS.

The illustration below shows how the various temperature setpoints are calculated for space temperature control. When the unit is in an occupied mode the active space temperature setpoint is calculated based on the space temperature setpoint and the two setpoint offset values. In unoccupied mode, the unoccupied heating and cooling setpoints are used as the active setpoint.



Object and Diagnostic Data Points

For quick reference, the following tables are listed and sorted two different ways. Table 1, p. 17 through Table 9, p. 24 are listed by input/output type and sorted by object type. Table 10, p. 25 is sorted by Object Name.

Note: *Not all points are available to the user. The available data points are defined and dependent on the type of equipment and options.*

Table 1. Analog inputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AI1	Space Temperature Local	Temperature (°F or °C)	-25°C (-13°F) to 100°C (212°F)	All Units	Local zone temperature or return air temperature. When Space Temperature BAS is in service, the local space temperature will not be used.
AI2	Space Temperature Setpoint Local	Temperature (°F or °C)	4.44°C (39.99°F) to 35°C (95°F)	All Units	Local zone sensor setpoint. When Space Temperature Setpoint BAS is in service, the local setpoint will not be used.
AI3	Space Humidity Local	None	0% to 100%	Dehumidification Units	Local relative humidity sensor value. When Space Humidity BAS is in service, the local value will not be used.
AI4	Discharge Air Temperature	Temperature (°F or °C)	-50°C (-58°F) to 115°C (239°F)	All Units	Discharge air temperature from equipment.
AI5	Entering Water Temperature Local	Temperature (°F or °C)	-0°C (32°F) 100°C (212°F)	All Unit	Local sensor entering water temperature.
AI8	Leaving Water Temperature	Temperature (°F or °C)	-40°C (-40°F) to 70°C (158°F)	All Units	Leaving water temperature sensor.
AI9	Drive Motor Current	Current	-5000A to 100000A	Variable Speed Compressor Units	Compressor variable frequency drive motor current feedback.
AI21	Space CO_2 Concentration Local	Concentration	0 ppm to 2000 ppm	CO_2 Sensing Units	Local carbon dioxide concentration. When Space CO_2 Concentration BAS is in service, the local value will not be used.

Table 2. Analog outputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AO1	Supply Fan Motor Signal Output	Percent	0% to 100%	ECM Fan Units	This point sends a control signal to the ECM Fan. 0% is low speed, 100% is high speed. Cannot be written to.
AO2	Compressor Speed Command	Voltage	-5000V to 100000V	Variable Speed Compressor Units	Voltage ouput to compressor variable frequency drive.

Table 3. Analog values

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV2	Space Humidity BAS	Percent	0% to 100%	Dehumidification Units	Communicated space relative humidity. When this point is out of service, the unit will use the local sensor value (AI/3).
AV3	Entering Water Compressor Heat Disable Setpoint	Temperature (°F or °C)	-17.78°C (-0.004° F) to 32.22°C (89.996° F)	Units With Electric Heat	When the entering water temperature drops below this setpoint, the compressor(s) are locked out and electric heat is used. There is 5 degree deadband for re-enabling the compressors.
AV4	Source Water Temperature BAS	Temperature (°F or °C)	0°C (32°F) to 100°C (212°F)	All Units	Communicated entering water temperature. When this point is out of service, the unit will use the local sensor value (AI/5).
AV5	Entering Water Temperature Active	Temperature (°F or °C)	0°C 32°F) to 100°C (212°F)	All Units	Actively used entering water temperature.
AV6	Space Humidity Active	Percent	0% to 100%	Dehumidification Units	Actively used space relative humidity.
AV8	Economizer Enable Minimum Water Temperature Setpoint	Temperature (°F or °C)	0°C (32°F) to 37.77°C (100°F)	Waterside Economizing Units	If the entering water temperature is □ the configured enable setpoint, then economizing is possible. Economizing is not disabled until the water temperature is 5°F above the setpoint. Factory default is 50°F.

Table 3. Analog values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV9	Supply Fan Off Delay Time	Seconds	0 to 600	Staged Compressor Units	Fan off delay time using electric heat.
AV10	Compressor Enable BAS	Percent	0% to 100%	Staged Compressor Units	Compressor enable limits the compressor capacity for DX cool and heat pump. • 100%; Compressor Enabled. • 1% to 99%; Limits the compressor capacity (for 2 stages of DX: 1% to 50% enables stage 1 and disables stage 2 and 51% to 100% enables both stages). • 0%; Disable Compressor(s).
AV12	Filter Runtime Hours Setpoint	Hours	0 to 10,000	All Units	When the fan runtime exceeds this *Maintenance Request Setpoint Time*, the controller generates a *Maintenance Required* diagnostic (not a specified diagnostic for dirty filter). A value of zero disables this feature and no *Maintenance Required* diagnostic occurs.
AV14	Space Temperature BAS	Temperature (°F or °C)	-15°C (5°F) to 50° C (122°F)	All Units	Communicated space temperature. When this point is out of service, the unit will use the local sensor value (AI/1).
AV17	Supply Fan Speed Maximum Heat Cool Capacity	Percent	20% to 100%	ECM Fan Units	Maximum supply fan speed.
AV18	Supply Fan Speed Dehumidification	Percent	20% to 100%	Staged Compressor Units with ECM Fan	Fan speed used during dehumidification. This is limited between supply fan speed ventilation, AV20 and the supply fan speed maximum heat cool capacity, AV17.
AV19	Supply Fan Speed First Stage Minimum	Percent	20% to 100%	Staged Compressor Units with ECM Fan	Fan speed used when first stage of heating or cooling is ON. This is limited between supply fan speed ventilation, AV20 and supply fan speed maximum heat cool capacity, AV17.
AV20	Supply Fan Speed Ventilation	Percent	20% to 100%	ECM Fan Units	Fan speed used when fan is continuously ON and compressor heating or cooling is cycled OFF. This is limited between fan capacity low limit, AV64 and 100%.
AV21	Discharge Air Temperature Low Limit Setpoint	Temperature (°F or °C)	8.33°C (46.00°F) to 12.78°C (55.00°F)	Staged Compressor Units	Discharge air temp setpoint to trigger Low Discharge Air Temp Diagnostic which occurs when DAT □ DAT Low Limit (47°F default, selectable between 47°F and 55°F) for a period of 1 minute. When DAT □ Low limit setpoint + 5°F, then the control will transition out of Low Discharge Air Temp mode and back to normal cooling.
AV22	Supply Fan Scaling Factor	None	0 to 1	Staged Compressor Units with ECM Fan (Torque)	Used to scale min fan values from max value (AV17).
AV23	Unoccupied Cooling Setpoint	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Cooling setpoint used in unoccupied mode. Factory default is 85°F.
AV24	Unoccupied Heating Setpoint	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Heating setpoint used in unoccupied mode. Factory default is 60°F.
AV27	Space Temperature Setpoint BAS	Temperature (°F or °C)	-10°C (14°F) to 35°C (95°F)	All Units	Communicated space temperature setpoint. When this point is out of service, the unit will use the local setpoint (AI/2).
AV28	Space Temperature Setpoint Active	Temperature (°F or °C)	-10°C (14°F) to 50°C (122°F)	All Units	The currently used space temperature setpoint after arbitration and offsets are applied.
AV29	Heat Cool Mode Changeover Delay	Minutes	0 to 60	Staged Compressor Units	Before a heat/cool mode (or vice versa) changeover is allowed to occur, all capacity (including compressors) need to be OFF for this amount of time.

Table 3. Analog values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV30	Occupied Offset	Temperature (°F or °C)	0°C (32°F) to 17°C (62.6F)	All Units	The value used to calculate the heating /cooling setpoints in occupied mode and occupied bypass modes. Factory default is 2.5°F. • Active heating setpoint = active setpoint - occupied offset. • Active cooling setpoint = active setpoint + occupied offset.
AV33	Occupied Bypass Time	Minutes	0 to 240	All Units	Duration a unit will go into Occupied Bypass mode when a timed override is initiated.
AV34	Occupied Standby Offset	Temperature (°F or °C)	0°C (32°F) to 17°C (62.6°F)	All Units	The value used to calculate the heating/cooling setpoints in occupied standby mode. Factory default is 7.5°F. • Active heating setpoint = active setpoint - occupied offset. • Active cooling setpoint = active setpoint + occupied offset.
AV36	Space Dehumidification Setpoint BAS	Percent	0% to 100%	Dehumidification Units	Active relative humidity (RH) setpoint.
AV37	Space Temperature Setpoint Default	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Default space temperature setpoint when a valid communicated or local space temperature setpoint do not exist. Factory default is 72.5°F.
AV38	Filter Runtime Hours	Hours	0 to 100,000	All Units	Elapsed time (in hours) of fan runtime since the Filter Timer Reset Request (BV/12) was last set to TRUE.
AV39	Dehumidification Discharge Air Setpoint BAS	Temperature (°F or °C)	7.22°C (45°F) to 12.78°C (55°F)	ECM Fan Units without Hot Gas Reheat	ECM fan will control to this setpoint during passive dehumidification mode.
AV40	Loop Water Temperature Low Limit	Temperature (°F or °C)	-6.67°C (19.99°F) to 1.66°C (34.99°F)	All Units	If Leaving Water Temperature (lwt) < Loop Water Temperature Low Limit, this triggers Low Leaving Water Temp Diagnostic. It resets when lwt >= Loop Water Temperature Low Limit +15 °F.
AV46	Compressor PWM Cycle Period	Seconds	360 to 3600	Staged Compressor Units	The total period for compressor PWM operation. The factory default 1200 seconds (2 hours).
AV47	Electric Heat PWM Cycle Period	Seconds	360 to 3600	Electric Heat Units	The total period for electric heat PWM operation. The factory default is 1200 seconds (2 hours).
AV48	Waterside Economizer PWM Cycle Period	Seconds	360 to 3600	Waterside Economizing Units	The total period for waterside economizing PWM operation. The factory default is 1200 seconds (2 hours).
AV49	Compressor Delay	Seconds	20 to 120	Staged Compressor Units	Isolation valve turns on for this amount of time before compressor is allowed to turn on.
AV59	Space Temperature Active	Temperature (°F or °C)	-15°C (5°F) to 50° C (122°F)	All Units	The currently used space temperature.
AV64	Fan Capacity Low Limit	Percent	0% to 100%	Staged Compressor Units with ECM Fan	Lowest speed at which the fan can run. User cannot change.
AV67	Auxiliary Heat Control Request	Percent	0% to 100%	Electric and Hot Gas Reheat Units	Auxiliary heating capacity limit.
AV68	Space Relative Humidity Deadband	Percent	1% to 100%	Dehumidification Units	• Dehumidification starts when the relative humidity is greater than relative humidity setpoint. • Dehumidification stops at relative humidity if less than RH setpoint - offset. • Default is 8%.
AV73	Supply Fan Speed Status	Percent	0% to 100%	All Units	Current fan capacity.
AV74	Heating Capacity Primary Status	Percent	0% to 100%	All Units	Heat Pumps: Current primary heating capacity of the compressors (in heat mode). If compressors are cooling only, this will report the current electric heat capacity.
AV75	Heating Capacity Secondary Status	Percent	0% to 100%	Electric or Hot Gas Reheat Units	• Current capacity of the secondary heat source (electric or hot gas reheat).

Table 3. Analog values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV76	Cooling Capacity Status	Percent	0% to 100%	All Units	Current capacity of the compressors when in a cooling mode: • For 1 compressor: 0% is OFF, 100% is ON, no values in between. • For 2 compressors: 0% is OFF, 50% is 1 compressor ON, 100% is both compressors ON.
AV87	Cooling Setpoint High Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit cooling setpoint. Factory default is 110°F.
AV88	Cooling Setpoint Low Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit cooling setpoint. Factory default is 40°F.
AV89	Heating Setpoint High Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit heating setpoint. Factory default is 105°F.
AV90	Heating Setpoint Low Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit heating setpoint. Factory default is 40°F.
AV96	Discharge Air Temperature Maximum Cool Limit	Temperature (°F or °C)	10°C (°F) to 40°C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 104°F.
AV97	Discharge Air Temperature Maximum Heat Limit	Temperature (°F or °C)	10°C (°F) to 48.89° C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 120°F.
AV98	Discharge Air Temperature Minimum Cool Limit	Temperature (°F or °C)	10°C (°F) to 40°C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 50°F.
AV99	Discharge Air Temperature Minimum Heat Limit	Temperature (°F or °C)	10°C (°F) to 48.89° C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 50°F.
AV112	Discharge Air Temperature Setpoint Active	Temperature (°F or °C)	-50°C (°F) to 250° C (°F)	Variable Speed Compressor Units	The currently used discharge air temperature setpoint determined by cascade control algorithm.

Table 4. Binary inputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BI1	Occupancy Input	None	None	All Units	Normally open input. • 0 = Occupied • 1 = Unoccupied
BI2	Compressor 1 Lockout Status	None	None	All Units	Normally closed input. • Compressor 1 Protection (high or low pressure or freeze protection). • 0 = Inactive • 1 = Locked out
BI3	Compressor 2 Lockout Status	None	None	2 Compressor Units	Normally closed input. • Compressor 2 Protection (high or low pressure or freeze protection). • 0 = Inactive • 1 = Locked out
BI4	Condensate Overflow Input	None	None	All Units	Normally open input. • 0 = Normal • 1 = Overflow

Table 4. Binary inputs (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BI5	In Defrost	None	None	Staged Compressor Units with Waterside Economizer or Variable Speed Compressor Units	Normally closed input. • 0 = Not in Defrost • 1 = Defrost
BI6	Supply Fan Status	None	None	Fan Status Sensor Option	Normally open input. • 0 = OFF • 1 = ON (fan running)
BI7	Refrigerant Leak Detection System Input	None	None	Units with refrigerant leak detection sensors	Input reflects the status of the LDS. • 0 = Sensor Alarm, Fault • 1 = No Alarm, No Fault • Hardware reference is Binary Input LLID value.
BI9	Drive Fault Status	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In Alarm

Table 5. Binary outputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BO1	Supply Fan Enable	None	None	ECM Fan Units	Enables/disables the variable-speed fan • 0 = Disable • 1 = Enable
BO2	Waterside Economizer Valve Command	None	None	Waterside Economizing Units	• 0 = Closed • 1 = Open
BO3	Auxiliary Heat Command	None	None	Electric Heat Units	Electric Heat • 0 = OFF • 1 = ON
BO4	Compressor 1 Command	None	None	Staged Compressor Units	• 0 = OFF • 1 = ON
BO5	Compressor 2 Command	None	None	2 Compressor Units	• 0 = OFF • 1 = ON
BO6	Dehumidification Output	None	None	Dehumidification Units (Hot Gas Reheat)	Hot Gas Reheat • 0 = OFF • 1 = ON
BO7	Reversing Valve Output	None	None	All Units	Reversing Valve Output • 0 = Cooling • 1 = Heating
BO8	Isolation Valve Command	None	None	All Units	Isolation Valve/External Pump • 0 = Closed • 1 = Open
BO9	Outdoor Air Damper Position Status	None	None	Outdoor Air Damper Units	2-position Damper • 0 = Closed • 1 = Open

Table 6. Binary values

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BV1	Supply Fan Configuration Command	None	None	All Units	• Fan in occupied modes can cycle on/off with capacity or can be on continuously. • 1 = Continuous • 0 = Cycling (default)
BV2	Reset Diagnostic	None	None	All Units	1 = Reset diagnostics. This will reset ALL diagnostics except the *Filter Change Required*. If the condition still exists, the diagnostic reoccurs. After the UC resets the diagnostics, this value automatically reverts back to 0.
BV3	Diagnostic: Low Discharge Air Temperature	None	None	All Units	Low Leaving Air Protection Diagnostic • 0 = Normal • 1 =In Alarm

Table 6. Binary values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BV4	Diagnostic: Condensate Overflow	None	None	All Units	Condensate Overflow Diagnostic • 0 = Normal • 1 = In alarm • Latching diagnostic. Cleared with Reset Diagnostic Request or power cycle.
BV5	Waterside Economizer Fan Speed	None	None	Waterside Economizing Units	Use this fan speed when arbitrated fan switch is auto during waterside economizing (with no compressor on). • 0 = Low • 1 = High
BV6	Diagnostic: Low Primary Air Flow	None	None	Fan Status Sensor Option	Fan status diagnostic (BI5). • 0 = Normal • 1 = In alarm • Latching; Cleared with Reset Diagnostic Request or power cycle.
BV7	First Stage Compressor Minimum Fan Speed	None	None	2 Compressor Units	Fan speed when only 1 of 2 compressors are ON. • 0 = Low (default) • 1 = High
BV8	Diagnostic: Filter Change Required	None	None	All Units	Filter Status Diagnostic (based on fan run hours). • 0 = Clean • 1 = Dirty • Non-latching (will clear automatically when resolved)
BV9	Water Temperature Sampling Enable	None	None	Staged Compressor Units	Set this to false to disable entering water temperature sampling. • 0 = Disabled • 1 = Enable
BV10	Diagnostic: Compressor 2 Failure	None	None	2 Compressor Units	Compressor 2 Protection Status (high or low pressure or freeze protection). This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm
BV11	Dehumidification Status	None	None	Dehumidification Units	• 1 = Dehumidification is active • 0 = Not active
BV12	Filter Timer Reset	None	None	All Units	1 = Reset the filter timer. After the UC resets the timer, this binary value reverts back to 0.
BV14	Predicted Occupied Heat Cool Mode Status	None	None	Staged Compressor Units	*Anticipated Heat Cool* mode upon entering the occupied mode. The value is calculated based on current space conditions and occupied setpoints. Can be used to anticipate load on water loop when transitioning into occupied mode.
BV15	Diagnostic: Compressor 1 Failure	None	None	All Units	Compressor 1 Protection Status (high or low pressure or freeze protection) This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm
BV17	Diagnostic: Low Leaving Water Temperature	None	None	All Units	Low Leaving Water Temp Diagnostic. • 0 = Normal • 1 = In alarm
BV18	Boilerless Control Enable	None	None	Electric Heat Units	Boilerless Control • 0 = Disable • 1 = Enable
BV19	Refrigerant Mitigation Active	None	None	Units with refrigerant leak detection sensors	Diagnostic point communicates input status and alarm to BAS system (coupled to sw point BI7).
BV20	Loop Water Request Status	None	None	All Units	Unit requires condenser water flow.
BV21	Passive Dehumidification Enable	None	None	ECM Fan Units without Hot Gas Reheat	Enables Passive Dehumidification: • 0 = Disable • 1 = Enable
BV35	Oil Recovery Mode	None	None	Variable Speed Compressor Units	Indicates compressor is operating at a higher speed for oil recovery.
BV36	Crankcase Heater Mode	None	None	Variable Speed Compressor Units	Indicates compressor variable frequency drive is providing motor heat to compressor crankcase.

Table 6. Binary values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BV37	Low Pressure Ratio Control	None	None	Variable Speed Compressor Units	Indicates compressor is operating at a speed to maintain differential pressure.
BV38	Service Test Command	None	None	Variable Speed Compressor Units	• 0 = Inactive • 1 = Initiate Test
BV39	Diagnostic: FroStat Trip	None	None	Variable Speed Compressor Units	Coil frost diagnostic. • 0 = Normal • 1 = In alarm
BV40	VFD Fault Status	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV41	Diagnostic: Entering Water Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV42	Diagnostic: Space Temperature Source Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV44	Diagnostic: Leaving Water Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV45	Diagnostic: Discharge Air Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV46	Demand Limit Request - Active	None	None	Variable Speed Compressor Units	Enables Demand Limit mode. • 0 = Not Limited • 1 = Limited

Table 7. Multi-state inputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
MI1	Timed Override Status	None	None	All Units	Status of timed override request/cancel from space temperature input. • 1 = Idle • 2 = ON • 3 = Cancel
MI2	Supply Fan Speed Setpoint Local	None	None	All Units	Local fan switch. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MI4	Wireless Sensor Battery Level	None	None	Trane Wireless Comm Enabled Terminal Units	Monitors the battery level of Trane wireless zone sensors on Trane Wireless Comm systems. • 1 = Replace Batteries • 2 = Schedule Replacement • 3 = Good

Table 8. Multi-state outputs

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
MO1	Supply Fan Output	None	None	1- and 2-speed Fan Units (Non-ECM)	• Fan speed output for 1- and 2-speed fan units. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High **Note:** For 1 speed fan, states 3,4 and 5 are all treated as high speed. For 2 speed fan, state 3 is low speed and states 4 and 5 are high speed
MO2	Compressor Capacity Output	None	None	2-step Compressor Units	• 1 = Off (BO4 & 5 off) • 2 = Low Capacity (BO4 on, BO5 off) • 3 = High Capacity (BO4 & 5 on)

Table 9. Multi-state values

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
MV1	Supply Fan Staged Speed Status	None	None	1- and 2-speed Fan Units (Non-ECM)	Discrete fan speed status for 1- and 2-speed fan units. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MV2	Cooling Fan Speed Default	None	None	Staged Compressor Units	Default fan speed when cooling. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MV3	Heating Fan Speed Default	None	None	Staged Compressor Units	Default fan speed when heating. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MV4	Heat Cool Mode Request	None	None	All Units	• 1 = Auto • 2 = Heat • 3 = Morning warm-up • 4 = Cool • 5 = Night Purge • 6 = Pre Cool • 7 = Off • 8 = Test (status only) • 9 = Emergency Heat • 10 = Fan Only • 11 = Free Cool (treats this as Auto) • 12 = Ice-Making (treat this as Auto) • 13 = Max Heat (treats this as Auto) • 14 = Economizer (treats as Auto) • 15 = Dehumidify (treats this as Auto) • 16 = Calibrate (treats this as Auto)
MV5	Heat Cool Mode Status	None	None	All Units	• 1 = Auto • 2 = Heat • 3 = Morning warm-up • 4 = Cool • 5= Pre Cool • 6= Off • 7= Test • 8= Emergency Heat
MV6	Occupancy Request	None	None	All Units	• 1 = Occupied • 2 = Unoccupied • 3 = Occupied Bypass • 4 = Occupied Standby • 5 = Auto
MV7	Occupancy Status	None	None	All Units	• 1 = Occupied • 2 = Unoccupied • 3 = Occupied Bypass • 4 = Occupied Standby
MV8	Supply Fan Staged Speed Setpoint BAS	None	None	All Units	Communicated fan speed setpoint. When in Auto, the controller will use the local fan speed decision. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MV9	Emergency Override BAS	None	None	All Units	• 1 = Normal • 2 = Pressurize • 3 = De-pressurized • 4 = Purge • 5 = Shutdown • 6 = Fire 1 = normal operation. All other values are treated like shutdown. Unit turns OFF/Closes all outputs immediately.

Table 9. Multi-state values (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
MV12	Manual Test Sequence	None	None	Staged Compressor Units	If using TU to perform manual test, then this also is the command/ request.
MV15	Economizer Waterside Enable Command	None	None	Waterside Economizing Units	• 1 = Disabled • 2 = Enabled • 3 = Auto Auto means that the local decision determines waterside economizer operation. Enabled or disabled means that economizer operation is allowed or not allowed, overriding the local decision.
MV18	Manual Test Sequence Variable Speed	None	None	Variable Speed Compressor Units	• 1 = Off • 2 = Isolation Valve Open • 3 = Minimum Fan • 4 = Maximum Fan • 5 = Maximum Cooling • 6 = Changeover (Low Heat) • 7 = Maximum Heating • 8 = Isolation Valve Closed • 9 = Normal
MV22	Isolation Valve Override	None	None	Variable Speed Compressor Units	• 1 = Auto • 2 = Open • 3 = Closed

Table 10. All object types sorted by object name

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BO3	Auxiliary Heat Command	None	None	Electric Heat Units	Electric Heat • 0 = OFF • 1 = ON
AV67	Auxiliary Heat Control Request	Percent	0% to 100%	Electric and Hot Gas Reheat Units	Auxiliary heating capacity limit.
BV18	Boilerless Control Enable	None	None	Electric Heat Units	Boilerless Control • 0 = Disable • 1 = Enable
BO4	Compressor 1 Command	None	None	Staged Compressor Units	• 0 = OFF • 1 = ON
BI2	Compressor 1 Lockout Status	None	None	All Units	Normally closed input. • Compressor 1 Protection (high or low pressure or freeze protection). • 0 = Inactive • 1 = Locked out
BO5	Compressor 2 Command	None	None	2 Compressor Units	• 0 = OFF • 1 = ON
BI3	Compressor 2 Lockout Status	None	None	2 Compressor Units	Normally closed input. • Compressor 2 Protection (high or low pressure or freeze protection). • 0 = Inactive • 1 = Locked out
MO2	Compressor Capacity Output	None	None	2-step Compressor Units	• 1 = Off (BO4 and BO5 off) • 2 = Low Capacity (BO4 on, BO5 off) • 3 = High Capacity (BO4 and BO5 on)
AV49	Compressor Delay	Seconds	20 to 120	Staged Compressor Units	Isolation valve turns on for this amount of time before compressor is allowed to turn on.
AV10	Compressor Enable BAS	Percent	0% to 100%	Staged Compressor Units	Compressor enable limits the compressor capacity for DX cool and heat pump. • 100%; Compressor Enabled. • 1% to 99%; Limits the compressor capacity (for 2 stages of DX: 1% to 50% enables stage 1 and disables stage 2 and 51% to 100% enables both stages). • 0%; Disable Compressor(s).
AV46	Compressor PWM Cycle Period	Seconds	360 to 3600	Staged Compressor Units	The total period for compressor PWM operation. The factory default 1200 seconds (2 hours).

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AO2	Compressor Speed Command	Voltage	-5000V to 100000V	Variable Speed Compressor Units	Voltage ouput to compressor variable frequency drive.
BI4	Condensate Overflow Input	None	None	All Units	Normally open input. • 0 = Normal • 1 = Overflow
AV76	Cooling Capacity Status	Percent	0% to 100%	All Units	Current capacity of the compressors when in a cooling mode: • For 1 compressor: 0% is OFF, 100% is ON, no values in between. • For 2 compressors: 0% is OFF, 50% is 1 compressor ON, 100% is both compressors ON.
MV2	Cooling Fan Speed Default	None	None	Staged Compressor Units	Default fan speed when cooling. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
AV87	Cooling Setpoint High Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit cooling setpoint. Factory default is 110°F.
AV88	Cooling Setpoint Low Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit cooling setpoint. Factory default is 40°F
BV36	Crankcase Heater Mode	None	None	Variable Speed Compressor Units	Indicates compressor variable frequency drive is providing motor heat to compressor crankcase.
BO6	Dehumidification Output	None	None	Dehumidification Units (Hot Gas Reheat)	Hot Gas Reheat • 0 = OFF • 1 = ON
AV39	Dehumidification Discharge Air Setpoint BAS	Temperature (°F or °C)	7.22°C (45°F) to 12.78°C (55°F)	ECM Fan Units without Hot Gas Reheat	ECM fan will control to this setpoint during passive dehumidification mode.
BV11	Dehumidification Status	None	None	Dehumidification Units	• 1 = Dehumidification is active • 0 = Not active
BV46	Demand Limit Request - Active	None	None	Variable Speed Compressor Units	Enables Demand Limit mode. • 0 = Not Limited • 1 = Limited
BV15	Diagnostic: Compressor 1 Failure	None	None	All Units	Compressor 1 Protection Status (high or low pressure or freeze protection) This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm
BV10	Diagnostic: Compressor 2 Failure	None	None	2 Compressor Units	Compressor 2 Protection Status (high or low pressure or freeze protection). This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm
BV4	Diagnostic: Condensate Overflow	None	None	All Units	Condensate Overflow Diagnostic • 0 =Normal • 1 =In alarm • Latching diagnostic. Cleared with Reset Diagnostic Request or power cycle.
BV45	Diagnostic: Discharge Air Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV41	Diagnostic: Entering Water Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
BV8	Diagnostic: Filter Change Required	None	None	All Units	Filter Status Diagnostic (based on fan run hours). • 0 = Clean • 1 = Dirty • Non-latching (will clear automatically when resolved)
BV39	Diagnostic: FroStat Trip	None	None	Variable Speed Compressor Units	Coil frost diagnostic. • 0 = Normal • 1 = In alarm
BV44	Diagnostic: Leaving Water Temperature Sensor Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV3	Diagnostic: Low Discharge Air Temperature	None	None	All Units	Low Leaving Air Protection Diagnostic • 0 = Normal • 1 =In Alarm
BV17	Diagnostic: Low Leaving Water Temperature	None	None	All Units	Low Leaving Water Temp Diagnostic. • 0 = Normal • 1 = In alarm
BV6	Diagnostic: Low Primary Air Flow	None	None	Fan Status Sensor Option	Fan status diagnostic (BI5). • 0 = Normal • 1 = In alarm • Latching; Cleared with Reset Diagnostic Request or power cycle.
BV42	Diagnostic: Space Temperature Source Failure	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
AI4	Discharge Air Temperature	Temperature (°F or °C)	-50°C (-58°F) to 115°C (239°F)	All Units	Discharge air temperature from equipment.
AV21	Discharge Air Temperature Low Limit Setpoint	Temperature (°F or °C)	8.33°C (46.00°F) to 12.78°C (55.00°F)	Staged Compressor Units	Discharge air temp setpoint to trigger Low Discharge Air Temp Diagnostic which occurs when DAT □ DAT Low Limit (47°F default, selectable between 47°F and 55°F) for a period of 1 minute. When DAT □ Low limit setpoint + 5°F, then the control will transition out of Low Discharge Air Temp mode and back to normal cooling.
AV96	Discharge Air Temperature Maximum Cool Limit	Temperature (°F or °C)	10°C (°F) to 40°C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 104°F.
AV97	Discharge Air Temperature Maximum Heat Limit	Temperature (°F or °C)	10°C (°F) to 48.89° C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 120°F.
AV98	Discharge Air Temperature Minimum Cool Limit	Temperature (°F or °C)	10°C (°F) to 40°C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 50°F.
AV99	Discharge Air Temperature Minimum Heat Limit	Temperature (°F or °C)	10°C (°F) to 48.89° C (°F)	Variable Speed Compressor Units	Value used in cascade control algorithm. Factory default is 50°F.
AV112	Discharge Air Temperature Setpoint Active	Temperature (°F or °C)	-50°C (°F) to 250° C (°F)	Variable Speed Compressor Units	The currently used discharge air temperature setpoint determined by cascade control algorithm.
BI9	Drive Fault Status	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In Alarm
AI9	Drive Motor Current	Current	-5000A to 100000A	Variable Speed Compressor Units	Compressor variable frequency drive motor current feedback.
AV8	Economizer Enable Minimum Water Temperature Setpoint	Percent	0% to 100%	Waterside Economizing Units	If the entering water temperature is □ the configured enable setpoint, then economizing is possible. Economizing is not disabled until the water temperature is 5°F above the setpoint.
MV15	Economizer Waterside Enable Command	None	None	Waterside Economizing Units	• 1 = Disabled • 2 = Enabled • 3 = Auto Auto means that the local decision determines waterside economizer operation. Enabled or disabled means that economizer operation is allowed or not allowed, overriding the local decision.

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV47	Electric Heat PWM Cycle Period	Seconds	360 to 3600	Electric Heat Units	The total period for electric heat PWM operation. The factory default is 1200 seconds (2 hours).
MV9	Emergency Override BAS	None	None	All Units	• 1 = Normal • 2 = Pressurize • 3 = De-pressurized • 4 = Purge • 5 = Shutdown • 6 = Fire 1 = Normal operation. All other values are treated like shutdown. Unit turns OFF/Closes all outputs immediately.
AV3	Entering Water Compressor Heat Disable Setpoint	Temperature (°F or °C)	-17.78°C (-0.004° F) to 32.22°C (89.996° F)	Electric Heat Units	When the entering water temperature drops below this setpoint, the compressor(s) are locked out and electric heat is used. There is 5 degree deadband for re-enabling the compressors.
AV5	Entering Water Temperature Active	Temperature (°F or °C)	0°C 32°F) to 100°C (212°F)	All Units	Actively used entering water temperature.
AI5	Entering Water Temperature Local	Temperature (°F or °C)	-0°C (32°F) 100°C (212°F)	All Units	Local sensor entering water temperature.
AV64	Fan Capacity Low Limit	Percent	0% to 100%	Staged Compressor Units with ECM Fan	Lowest speed at which the fan can run. User cannot change.
BV7	Fan Speed Compressor Cooling	None	None	2 Compressor Units	Fan speed when only 1 of 2 compressors are ON. • 0 = Low (default) • 1 = High
AV38	Filter Runtime Hours	Hours	0 to 100,000	All Units	Elapsed time (in hours) of fan runtime since the Filter Timer Reset Request (BV/12) was last set to TRUE.
AV12	Filter Runtime Hours Setpoint	Hours	0 to 10,000	All Units	When the fan runtime exceeds this *Maintenance Request Setpoint Time*, the controller generates a *Maintenance Required* diagnostic (not a specified diagnostic for dirty filter). A value of zero disables this feature and no *Maintenance Required* diagnostic occurs.
BV12	Filter Timer Reset	None	None	All Units	1 = Reset the filter timer. After the UC resets the timer, this binary value reverts back to 0.
AV29	Heat Cool Mode Changeover Delay	Minutes	0 to 60	Staged Compressor Units	Before a heat/cool mode (or vice versa) changeover is allowed to occur, all capacity (including compressors) need to be OFF for this amount of time.
MV4	Heat Cool Mode Request	None	None	All Units	• 1 = Auto • 2 = Heat • 3 = Morning warm-up • 4 = Cool • 5 = Night Purge • 6 = Pre Cool • 7 = Off • 8 = Test (status only) • 9 = Emergency Heat • 10 = Fan Only • 11 = Free Cool (treats this as Auto) • 12 = Ice-Making (treat this as Auto) • 13 = Max Heat (treats this as Auto) • 14 = Economizer (treats as Auto) • 15 = Dehumidify (treats this as Auto) • 16 = Calibrate (treats this as Auto)
MV5	Heat Cool Mode Status	None	None	All Units	• 1 = Auto • 2 = Heat • 3 = Morning warm-up • 4 = Cool • 5= Pre Cool • 6= Off • 7= Test • 8= Emergency Heat

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV74	Heating Capacity Primary Status	Percent	0% to 100%	All Units	Heat Pumps: Current primary heating capacity of the compressors (in heat mode). If compressors are cooling only, this will report the current electric heat capacity.
AV75	Heating Capacity Secondary Status	Percent	0% to 100%	Electric or Hot Gas Reheat Units	• Current capacity of the secondary heat source (electric or hot gas reheat).
MV3	Heating Fan Speed Default	None	None	All Units	Default fan speed when heating. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
AV89	Heating Setpoint High Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	Staged Compressor Units	Value used to limit heating setpoint. Factory default is 105°F
AV90	Heating Setpoint Low Limit	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.998° F)	All Units	Value used to limit heating setpoint. Factory default is 40°F
BI5	In Defrost	None	None	Staged Compressor Units with Waterside Economizer or Variable Speed Compressor Units	Normally closed input. • 0 = Not in defrost • 1 = In defrost
BO8	Isolation Valve Command	None	None	All Units	Isolation Valve/External Pump • 0 = Closed • 1 = Open
MV22	Isolation Valve Override	None	None	Variable Speed Compressor Units	• 1 = Auto • 2 = Open • 3 = Closed
AI8	Leaving Water Temperature	Temperature (°F or °C)	-40°C (-40°F) to 70°C (158°F)	All Units	Leaving water temperature sensor.
BV20	Loop Water Request Status	None	None	All Units	Unit requires condenser water flow.
AV40	Loop Water Temperature Low Limit	Temperature (°F or °C)	-6.67°C (19.99°F) to 1.66°C (34.99° F)	All Units	If Leaving Water Temperature (lwt) < Loop Water Temperature Low Limit, this triggers Low Leaving Water Temp Diagnostic. It resets when lwt >= Loop Water Temperature Low Limit +15 °F.
BV37	Low Pressure Ratio Control	None	None	Variable Speed Compressor Units	Indicates compressor is operating at a speed to maintain differential pressure.
MV12	Manual Test Sequence	None	None	Staged Compressor Units	If using TU to perform manual test, then this also is the command/request.
MV18	Manual Test Sequence Variable Speed	None	None	Variable Speed Compressor Units	• 1 = Off • 2 = Isolation Valve Open • 3 = Minimum Fan • 4 = Maximum Fan • 5 = Maximum Cooling • 6 = Changeover (Low Heat) • 7 = Maximum Heating • 8 = Isolation Valve Closed • 9 = Normal
BI1	Occupancy Input	None	None	All Units	Normally open input. • 0 = Occupied • 1 = Unoccupied

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
MV6	Occupancy Request	None	None	All Units	• 1 = Occupied • 2 = Unoccupied • 3 = Occupied Bypass • 4 = Occupied Standby • 5 = Auto
MV7	Occupancy Status	None	None	All Units	• 1 = Occupied • 2 = Unoccupied • 3 = Occupied Bypass • 4 = Occupied Standby
AV33	Occupied Bypass Time	Minutes	0 to 240	All Units	Duration a unit will go into Occupied Bypass mode when a timed override is initiated.
AV30	Occupied Offset	Temperature (°F or °C)	0°C (32°F) to 17°C (62.6F)	All Units	The value used to calculate the heating /cooling setpoints in occupied mode and occupied bypass modes. Factory default is 2.5°F. • Active heating setpoint = active setpoint - occupied offset. • Active cooling setpoint = active setpoint + occupied offset.
AV34	Occupied Standby Offset	Temperature (°F or °C)	0°C (32°F) to 17°C (62.6°F)	All Units	The value used to calculate the heating/cooling setpoints in occupied standby mode. Factory default is 7.5°F. • Active heating setpoint = active setpoint - occupied offset. • Active cooling setpoint = active setpoint + occupied offset.
BV35	Oil Recovery Mode	None	None	Variable Speed Compressor Units	Indicates compressor is operating at a higher speed for oil recovery.
BO9	Outdoor Air Damper Position Status	None	None	Outdoor Air Damper Units	2-position Damper • 0 = Closed • 1 = Open
BV21	Passive Dehumidification Enable	None	None	ECM Fan Units without Hot Gas Reheat	Enables Passive Dehumidification: • 1 = Enable • 0 = Disable
BV14	Predicted Occupied Heat Cool Mode Status	None	None	Staged Compressor Units	*Anticipated Heat Cool* mode upon entering the occupied mode. The value is calculated based on current space conditions and occupied setpoints. Can be used to anticipate load on water loop when transitioning into occupied mode.
BI7	Refrigerant Leak Detection System Input	None	None	Units with refrigerant leak detection sensors	Input reflects the status of the LDS. • 0 = Sensor Alarm, Fault • 1 = No Alarm, No Fault • Hardware reference is Binary Input LLID value.
BV19	Refrigerant Mitigation Active	None	None	Units with refrigerant leak detection sensors	Diagnostic point communicates input status and alarm to BAS system (coupled to sw point BI7).
BV2	Reset Diagnostic	None	None	All Units	1 = Reset diagnostics. This will reset ALL diagnostics except the *Filter Change Required*. If the condition still exists, the diagnostic reoccurs. After the UC resets the diagnostics, this value automatically reverts back to 0.
BO7	Reversing Valve Output	None	None	All Units	Reversing Valve Output • 0 = Cooling • 1 = Heating
BV38	Service Test Command	None	None	Variable Speed Compressor Units	• 0 = Inactive • 1 = Initiate Test
AV4	Source Water Temperature BAS	Temperature (°F or °C)	0°C (32°F) to 100°C (212°F)	All Units	Communicated entering water temperature. When this point is out of service, the unit will use the local sensor value (AI/ 5).
AI21	Space CO_2 Concentration Local	None	0 to 2000	CO_2 Sensing Units	Local carbon dioxide concentration. When Space CO_2 Concentration BAS is in service, the local value will not be used.
AV36	Space Dehumidification Setpoint BAS	Percent	0% to 100%	Dehumidification Units	Active relative humidity (RH) setpoint.
AV6	Space Humidity Active	Percent	0% to 100%	Dehumidification Units	Actively used space relative humidity.

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV2	Space Humidity BAS	None	0% to 100%	Dehumidification Units	Communicated space relative humidity. When this point is out of service, the unit will use the local sensor value (AI/3).
AI3	Space Humidity Local	None	0% to 100%	Dehumidification Units	Local relative humidity sensor value. When Space Humidity BAS is in service, the local value will not be used.
AV68	Space Relative Humidity Deadband	None	None	Dehumidification Units	• Dehumidification starts when the relative humidity is greater than relative humidity setpoint. • Dehumidification stops at relative humidity if less than RH setpoint - offset. • Default is 8%.
AV59	Space Temperature Active	Temperature (°F or °C)	-15°C (5°F) to 50° C (122°F)	All Units	The currently used space temperature.
AV14	Space Temperature BAS	Temperature (°F or °C)	-15°C (5°F) to 50° C (122°F)	All Units	Communicated space temperature. When this point is out of service, the unit will use the local sensor value (AI/1).
AI1	Space Temperature Local	Temperature (°F or °C)	-25°C (-13°F) to 100°C (212°F)	All Units	Local zone temperature or return air temperature. When Space Temperature BAS is in service, the local space temperature will not be used.
AV28	Space Temperature Setpoint Active	Temperature (°F or °C)	-10°C (14°F) to 50°C (122°F	All Units	The currently used space temperature setpoint after arbitration and offsets are applied.
AV27	Space Temperature Setpoint BAS	Temperature (°F or °C)	-10°C (14°F) to 35°C (95°F)	All Units	Communicated space temperature setpoint. When this point is out of service, the unit will use the local setpoint (AI/2).
AV37	Space Temperature Setpoint Default	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Default space temperature setpoint when a valid communicated or local space temperature setpoint do not exist. Factory default is 72.5°F.
AI2	Space Temperature Setpoint Local	Temperature (°F or °C)	4.44°C (39.99°F) to 35°C (95°F)	All Units	Local zone sensor setpoint. When Space Temperature Setpoint BAS is in service, the local setpoint will not be used.
BV1	Supply Fan Configuration Command	None	None	All Units	• Fan in occupied modes can cycle on/off with capacity or can be on continuously. • 1 = Continuous • 0 = Cycling (default)
BO1	Supply Fan Enable	None	None	ECM Fan Units	Enables/disables the ECM fan. • 0 = Disable • 1 = Enable
AO1	Supply Fan Motor Signal Output	Percent	0% to 100%	ECM Fan Units	This point sends a control signal to the ECM Fan. 0% is low speed, 100% is high speed. Constant torque fan 0% is off. Cannot be written to.
AV9	Supply Fan Off Delay Time	Seconds	0 to 600	Staged Compressor Units	Fan off delay time using electric heat.
MO1	Supply Fan Output	None	None	1- and 2-speed Fan Units (Non-ECM)	• Fan speed output for 1- and 2-speed fan units. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High **Note:** For 1 speed fan, states 3,4 and 5 are all treated as high speed. For 2 speed fan, state 3 is low speed and states 4 and 5 are high speed
AV22	Supply Fan Scaling Factor	None	0 to 1	Staged Compressor Units with ECM Fan (Torque)	Used to scale min fan values from max value (AV17).
AV18	Supply Fan Speed Dehumidification	Percent	73% to 100%	Staged Compressor Units with ECM Fan	Fan speed used during dehumidification. This is limited between supply fan speed ventilation, AV20 and the supply fan speed maximum heat cool capacity, AV17.
AV19	Supply Fan Speed First Stage Minimum	Percent	33% to 100%	Staged Compressor Units with ECM Fan	Fan speed used when first stage of heating or cooling is ON. This is limited between supply fan speed ventilation, AV20 and supply fan speed maximum heat cool capacity, AV17.

Table 10. All object types sorted by object name (continued)

Object Type	Object Name	Units of Measure	Min /Max	When the Point Exists	Description
AV17	Supply Fan Speed Maximum Heat Cool Capacity	Percent	73% to 100%	ECM Fan Units	Maximum supply fan speed.
MI2	Supply Fan Speed Setpoint Local	None	None	All Units	Local fan switch. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
AV73	Supply Fan Speed Status	Percent	0% to 100%	All Units	Current fan capacity.
AV20	Supply Fan Speed Ventilation	Percent	33% to 100%	ECM Fan Units	Fan speed used when fan is continuously ON and compressor heating or cooling is cycled OFF. This is limited between fan capacity low limit, AV64 and 100%.
MV8	Supply Fan Staged Speed Setpoint BAS	None	None	All Units	Communicated fan speed setpoint. When in Auto, the controller will use the local fan speed decision. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
MV1	Supply Fan Staged Speed Status	None	None	1- and 2-speed Fan Units (Non-ECM)	Discrete fan speed status for 1- and 2-speed fan units. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High
BI6	Supply Fan Status	None	None	Fan Status Sensor Option	Normally open input. • 0 = OFF • 1 = ON (fan running)
MI1	Timed Override Status	None	None	All Units	Status of timed override request/cancel from space temperature input. • 1 = Idle • 2 = ON • 3 = Cancel
AV23	Unoccupied Cooling Setpoint	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Cooling setpoint used in unoccupied mode. Factory default is 85°F.
AV24	Unoccupied Heating Setpoint	Temperature (°F or °C)	4.44°C (39.99°F) to 46.11°C (114.99° F)	All Units	Heating setpoint used in unoccupied mode. Factory default is 60°F.
BV40	VFD Fault Status	None	None	Variable Speed Compressor Units	• 0 = Normal • 1 = In alarm
BV9	Water Temperature Sampling Enable	None	None	Staged Compressor Units	Set this to false to disable entering water temperature sampling. • 0 = Disabled • 1 = Enable
BV5	Waterside Economizer Fan Speed	None	None	Waterside Economizing Units	Use this fan speed when arbitrated fan switch is auto during waterside economizing (with no compressor on). • 0 = Low • 1 = High
AV48	Waterside Economizer PWM Cycle Period	Seconds	360 to 3600	Waterside Economizing Units	The total period for waterside economizing PWM operation. The factory default is 1200 seconds (2 hours).
BO2	Waterside Economizer Valve Command	None	None	Waterside Economizing Units	• 0 = Closed • 1 = Open
MI4	Wireless Sensor Battery Level	None	None	Trane Wireless Comm Enabled Terminal Units	Description: Monitors t+B2:G127+B118:G127he battery level of Trane wireless zone sensors on Trane Wireless Comm systems. • 1 = Replace Batteries • 2 = Schedule Replacement • 3 = Good

Alarming

The Symbio 400–B/500 has several objects used for communicating alarms to the system.

Table 11. Alarm Objects

Object Type	Object Name	Description	Notification Class
AI1	Space Temperature Local	Local zone sensor temperature or return air temperature.	2
AI2	Space Temperature Setpoint Local	Local zone sensor setpoint.	2
AI3	Space Humidity Local	Local humidity sensor value.	2
AI4	Discharge Air Temperature	Discharge air temperature from equipment.	2
AI5	Entering Water Temperature Local	Local sensor entering water temperature.	2
AI8	Leaving Water Temperature	Leaving water temperature sensor.	2
AI21	Space CO2 Concentration Local	Local carbon dioxide concentration.	2
AV59	Space Temperature Active	The currently used space temperature.	2
BI5	In Defrost	Normally closed input. • 1 = Not in Frost • 0 = Defrost	4
BI7	Refrigerant Leak Detection System Input	• Closed (normal operation) = Inactive • Open (when switch open) = Active	2
BV3	Diagnostic: Discharge Air Temperature Low Limit	• 0 = Inactive • 1 = Active	4
BV4	Diagnostic: Condensate Overflow	Condensate overflow diagnostic • 1=Active • 0=Inactive • Latching diagnostic. Cleared with Reset Diagnostic Request or power cycle	2
BV6	Diagnostic: Low Air Flow- Supply Fan Failure	Fan status diagnostic. • 1=Active • 0=Inactive • Latching; Cleared with Reset Diagnostic Request or power cycle	2
BV8	Diagnostic: Filter Change Required	Filter status diagnostic (based on fan run hours). • 1=Active • 0=Inactive • Non-latching (will clear automatically when resolved)	4
BV10	Diagnostic: Compressor 2 Failure	Compressor 2 protection status (high or low pressure or freeze protection). This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm	2
BV15	Diagnostic: Compressor 1 Failure	Compressor 1 protection status (high or low pressure or freeze protection) This has a one time auto-reset function. If the diagnostic recurs within 24 hours after an auto-reset the diagnostic latches and must be manually reset. • 0 = Normal • 1 = In alarm	2
BV17	Diagnostic: Low Leaving Water Temperature	Low leaving water temp diagnostic. • 0 = Normal • 1 = In alarm	4
BV39	Diagnostic: FroStat Trip	Coil frost diagnostic. • 0 = Normal • 1 = In alarm	2
BV40	VFD Fault Status	• 0 = Normal • 1 = In alarm	2
BV41	Diagnostic: Entering Water Temperature Sensor Failure	• 0 = Normal • 1 = In alarm	2

Table 11. Alarm Objects (continued)

Object Type	Object Name	Description	Notification Class
BV42	Diagnostic: Space Temperature Source Failure	• 0 = Normal • 1 = In alarm	2
BV44	Diagnostic: Leaving Water Temperature Sensor Failure	• 0 = Normal • 1 = In alarm	2
BV45	Diagnostic: Discharge Air Temperature Sensor Failure	• 0 = Normal • 1 = In alarm	2
MI2	Supply Fan Speed Setpoint Local	Local fan switch. • 1 = Auto • 2 = Off • 3 = Low • 4 = Medium • 5 = High	2
MI4	IMC Status	• 1 = ok • 2 = commLoss • 3 = newConfig • 4 = hwMismatch • 5 = swMismatch • 6 = hwVersion • 7 = swVersion • 8 = nvDataMismatch • 9 = dupRotarySwitch • 10 = extraDevice • 11 = rotarySwitchNotFound	2

Additional Resources

- *Tracer BACnet Terminator Installation Instructions* (BAS-SVN214*-EN)
- *Symbio 500 Programmable Controller Installation, Operation, and Maintenance Manual* (BAS-SVX090*-EN)

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