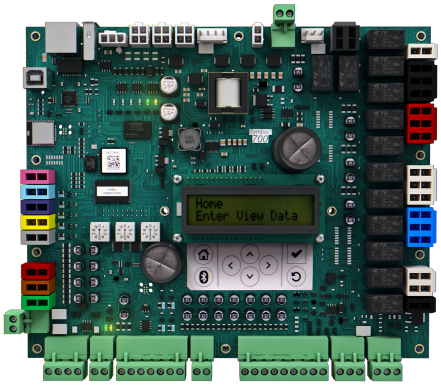
Integration Guide

BACnet® and Modbus™ Integration

Precedent™ Packaged Rooftop Air-Conditioners and Axiom™ Water Source Heat Pumps with Symbio™ 700 Controls



⚠ 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.

August 2023 **BAS-SVP062D-EN**

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.**

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Revision History

- Updated to include variable speed compressor and modulating gas heat.
- Added information regarding Modbus RTU and Modbus TCP connections.

Table of Contents

Overview

Purpose

The purpose of this document is to provide instructions for integrating the Symbio™ 700 controller into building automation systems. This document is targeted to system integrators and controls contractors.

Symbio™ 700 Controller Overview

The Symbio™ 700 controller has been installed, programmed, wired, commissioned, and tested in the factory prior to shipment. While some sensors and end devices are normally wired in the field, nearly all other wiring is factory-provided. Power for the controller is provided and connected from within the control panel.

The unit and associated controller can be applied as standalone or as part of a building automation system.

Note: *For communicating applications to third-party control systems, network communication wiring must be provided by others.*

Communication Options

The Symbio™ 700 controller supports the following communication protocol options for integration to either Trane or Non-Trane control systems:

- BACnet® MS/TP
- BACnet IP
- BACnet Zigbee (Air-Fi®)
- Modbus™ RTU
- Modbus TCP
- LonTalk®

For information pertaining to the integration of the Symbio™ controller using LonTalk® communication, refer to the integration guide specific to that application.

Units of Measure

The communicated data of the Symbio™ 700 controller can be changed from inch-pound (IP) to the international system (SI) if desired. This can be done by using the Symbio™ Service and Installation app or the Onboard Display.

Regardless of the communicated (system) units of measure, the user may change the displayed units of measure the mobile app or Onboard Display. These user preference units of measure are independent of the communicated units.

Axiom™ Water Source Heat Pump

Not all BACnet and Modbus properties apply to the Axiom™ water source heat pump. Examples include condenser fan and defrost points.

Communication Setup and Configuration

Depending on the protocol and associated settings ordered from the factory, some changes may be required during equipment start-up. These can be made using the mobile app or Onboard Display protocol settings and/or IP settings in the Symbio™ controller.

Mobile App

The Trane Symbio™ Service and Installation mobile app is required to setup, edit, and confirm the communication protocol and associated settings.

The free download of Trane Symbio Service and Installation mobile app is available on the App Store® for iOS, and on Google Play® for Android™.

Figure 1. Trane Symbio service and installation mobile app

Bluetooth Pairing

Quick Connection Instructions

Follow these instructions to quickly connect the mobile app to the Symbio™ 700 controller:

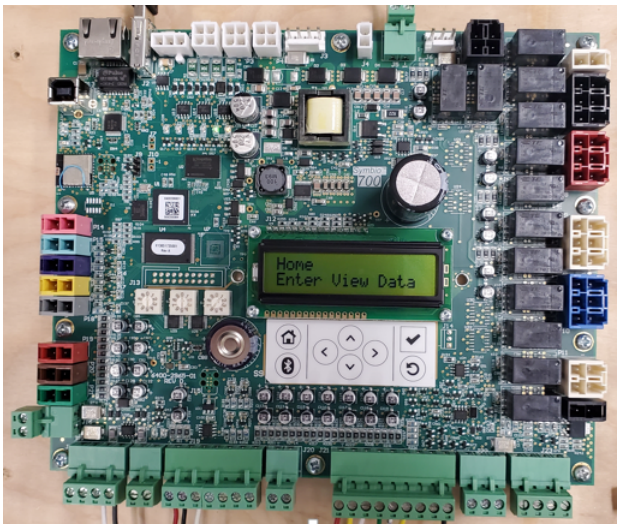
1. Turn on Bluetooth®[1].
2. Tap  .
3. Start the app. Tap **View Available Devices**.
4. Select the controller.
5. Tap **OK** to pair.
6. Tap  .

Connecting to the Symbio™ 700 controller

1. Enable Bluetooth®[1] on your smart device.
2. Access the Symbio 700 controller in the low voltage portion of the equipment.

[1] *The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by the company is under license.*

Figure 2. Symbio 700 controller

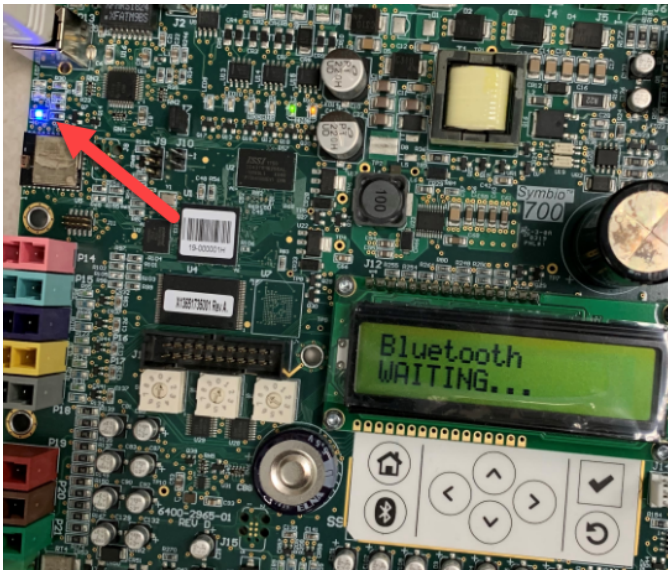


3. Tap  on Symbio 700 keyboard/display to turn on Bluetooth.
4. Confirm the status of Bluetooth communications. A solid blue LED indicates a successful pairing.

Table 1. Bluetooth communication status

	Blue LED	Display	Description
Tap for On/Off	Off	NOT CONNECTED	Bluetooth Off
	Blinking	WAITING...	Bluetooth On — Not Paired
	On Solid	CONNECTED	Bluetooth On — Connected/ Paired

Figure 3. Symbio 700 bluetooth status



5. Start the mobile app on your smart device.

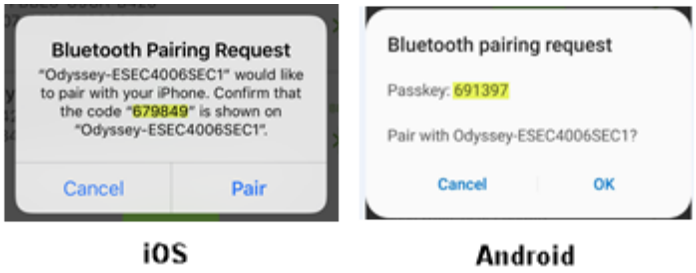
Figure 4. Login screen

6. On the login screen, tap **View Available Devices** in the lower section of the screen. Or Trane personnel can login using their Trane Connect username and password.
7. On the Unit List page, select the Symbio 700 controller that you want to pair with. If the controller is not listed, tap the refresh arrow in the upper right-hand corner of the screen.

Note: *If a Symbio 700 is not the original Symbio controller as shipped with the equipment, the Bluetooth equipment list will list the controller serial number, instead of the equipment serial number.*

8. When prompted, pair the app to the Symbio 700 controller. A popup message displays a 6-digit random number. The same number is shown on the display of the Symbio™ 700 controller until the pairing is complete, allowing the user to confirm connection to the intended controller.

Figure 5. Bluetooth pairing



9. Tap  on the Symbio 700 on-board keyboard/display to complete the connection.

When the LED light is a solid blue and the display reads Bluetooth Connected, the Bluetooth pairing and connection is complete.

Important: *To keep the list of previously-connected devices manageable, the Bluetooth smart devices list is limited to 10 devices. When 10 or more Bluetooth devices are defined on the smart device, connection to the Symbio 700 controller is not allowed.*

- ***iOS devices*** *- delete any unused devices until there are less than 10 items.*
- ***Android devices*** *- the devices list is automatically limited to 10 items.*

The Symbio Installation and Service tool is required to view, manage, and configure the following:

- Building Automation System configuration (Advanced Controller Configuration)
  - BACnet® over Zigbee® (Air-Fi® Wireless)
  - BACnet IP (Internet Protocol)
  - BACnet MS/TP
  - LonTalk®
  - Modbus RTU
  - Modbus TCP
- Historical Alarms
- Firmware Update (includes both the Symbio 700 Module and the Options Modules)
- Backing up and Restoring the database
- Transfer Settings from one controller to another
- Return the Symbio 700 to its Factory Default configuration by using the Factory Default Database (if available)

For more detailed information on the Symbio Service and Installation Mobile Application, refer to *Quick Start Guide, Symbio Service and Installation App* (BAS-SVN043*-EN).

Backing Up and Restoring the Database

Best practice is to backup the database after the unit is fully commissioned and set up. The database can be backed up to a technician-provided USB memory stick by using the Symbio Service and Installation Tool. The Symbio™ 700 controller has a USB port for this purpose. A backup file can be quickly restored into a service board in the event of board replacement. The backup file contains all Symbio 700 installation information, including configuration, setpoints and settings, communications setup, XM Module setup, TGP2 programs, and the Factory Default File.

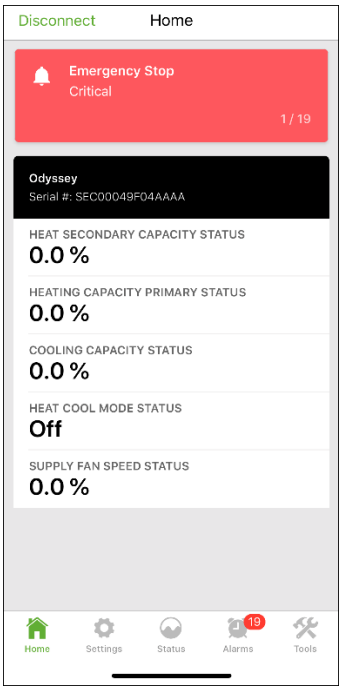
Note: *Restoring a Backup file is best practice when making a service replacement of a Symbio 700 board.*

Protocol Configuration

After completing Bluetooth pairing, the mobile app main screen displays. From here, configure the Symbio™ 700 protocols.

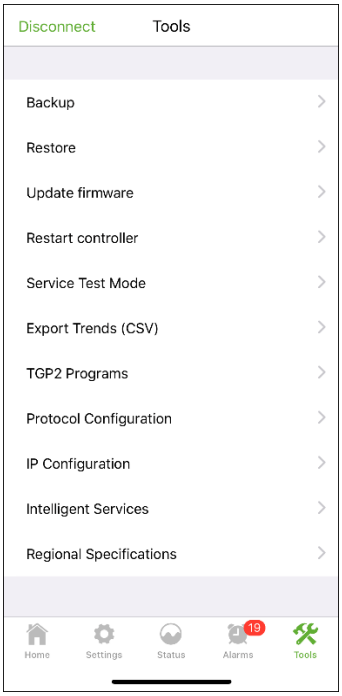
1. On the bottom of the home screen, tap **Tools**.

Figure 6. Tools



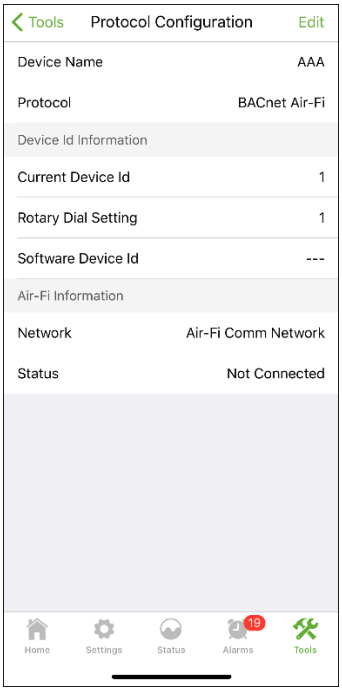
2. Tap **Protocol Configuration** to select the appropriate protocol.

Figure 7. Protocol Configuration



3. Tap **Edit**.

Figure 8. Edit



4. Edit according to the connectivity requirement of the building automation system.

BACnet MS/TP Protocol Setup

The Symbio™ 700 controller rotary address sets the BACnet® MS/TP MAC address. Each BACnet® MS/TP device on the same MS/TP link must have a unique MAC address. The valid range of BACnet® MS/TP MAC addresses for the Symbio™ 700 is 001–127.

Changing the rotary address will immediately take effect and does NOT require a power cycle to the Symbio™ 700 controller.

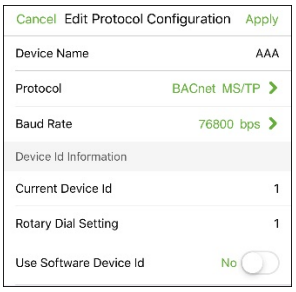
The rotary address also sets the BACnet® Device ID which gives a range of 1-127. All BACnet® devices must have a unique BACnet® Device ID. The Device ID can be edited using the mobile app or Onboard Display.

To configure the Symbio™ 700 controller for BACnet® MS/TP Protocol:

1. Set the **Protocol** selection to **BACnet® MS/TP**.
2. Verify the **Baud Rate** (default is 76,800 bps). All BACnet® MS/TP devices on an MS/TP link must communicate at the same baud rate.
3. Verify the **Current Device ID**. To change the device ID, tap **Use Software Device ID** and enter the desired device ID (See Figure 9, p. 14).

   Note: *The valid Device ID range using a software Device ID is 1 – 4194302 as defined by the BACnet standard.*

Figure 9. Edit Protocol Configuration



4. Tap **Apply** to save your changes.

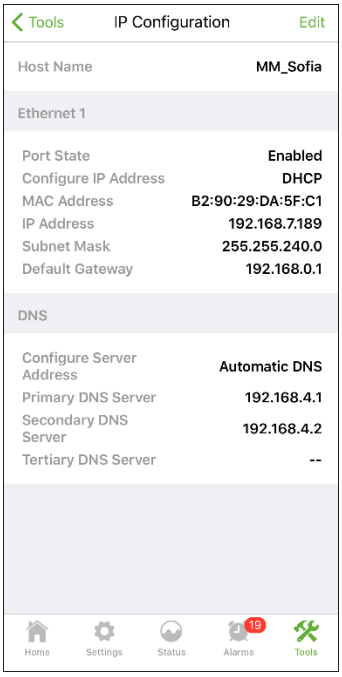
BACnet IP Protocol Setup

The Symbio™ 700 controller can communicate BACnet/IP using a standard Ethernet cable. Connect the Ethernet cable (RJ-45 connectors) between the Ethernet port on the Symbio™ 700 controller and the BACnet network.

Set up the IP address of the Symbio™ 700 controller before changing other BACnet/IP configuration parameters:

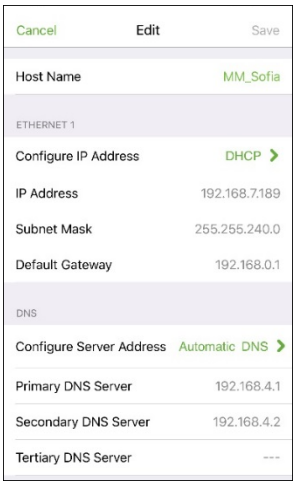
1. From the **Tools** page, tap **IP Configuration**.

Figure 10. IP Configuration



2. Tap **Edit**.
3. Configure IP Address to either obtain the IP address automatically using DHCP or define a Static IP Address. If Static IP Address has been selected, manually enter the applicable **IP Address**, **Subnet Mask**, and **Default Gateway**.
4. Setup the DNS section if using a Domain Name System server to identify the Symbio™ 700 controller by host name.

Figure 11. Host Name



5. Tap **Save**.

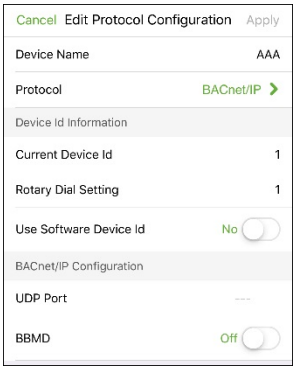
To configure the Symbio™ 700 controller for BACnet IP Protocol:

1. Set the Protocol select to **BACnet IP**.
2. Verify the current Device ID. To change the Device ID, click **Use Software Device ID** and enter the desired **Device ID**. Most installations will not require you to manually change the BACnet Device ID.

Note: *The valid Device ID range using a software Device ID is 1 – 4194302 as defined by the BACnet standard.*

3. Tap **Apply** to save your changes.
4. Set the **UDP Port** to match the port number used by the BACnet IP network.
5. Select BBMD only if the Symbio™ 700 controller is the only BACnet IP device on the IP subnet.

Figure 12. Edit Protocol Configuration



6. Tap **Apply**.

Air-Fi® Wireless

Air-Fi Wireless – Conforms to ANSI/ASHRAE Standard 135-2016 (BACnet®/ZigBee®1). Air-Fi Wireless provides reliable and secure, and location-flexible communication between equipment controls, sensors, and service tools to the system controller.

Air-Fi networks will be setup by a Trane technician. Integration to a Symbio™ 700 controller setup for Air-Fi communications uses BACnet IP communication through a Tracer SC+ system controller. Contact your local Trane office for additional information if the Symbio™ 700 controller is setup for Air-Fi Wireless.

Communication Wiring

BACnet® MS/TP or Modbus RTU

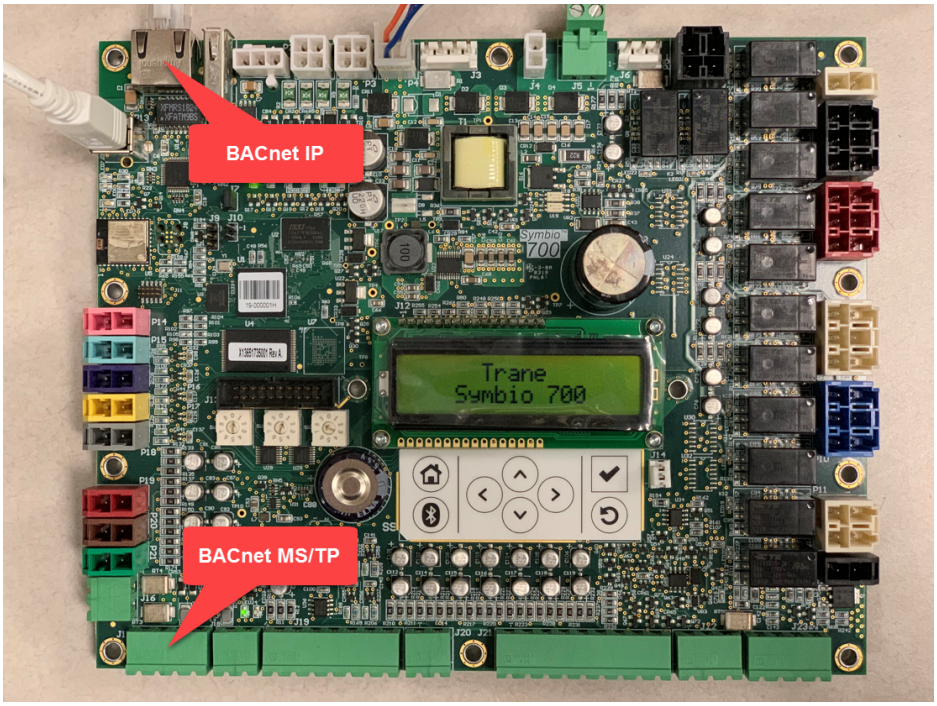
The BACnet MS/TP or Modbus RTU communication wire is connected to the J17 Connector. Observe wire polarity when connecting to the + and – terminals. The + terminals and the – terminals are internally connected. The second set of + and – terminals on the J17 Connector are used to make it easier to wire the next device in the communication daisy chain.

BACnet® IP or Modbus TCP

If using BACnet/IP or Modbus TCP using a standard Ethernet cable, connect the Ethernet cable with RJ-45 connectors to the Ethernet port.

Refer to the BACnet standard or BACnet® MS/TP Wiring and Link Performance Best Practices and Troubleshooting guide (BAS-SVX51*–EN) for detailed information on MS/TP wiring.

Figure 13. Communication wiring



Points List

Object Naming Conventions

The communicated points for the Symbio™ controllers are generally named according to their function. While many of the points are read-only, others include both read and write capability. The established naming convention helps to identify the capabilities of each point. For most points, the suffix identifies the capability according to the following definition.

While there are some exceptions, the majority of the points have been defined according to these guidelines.

Suffix	Description
Status	Points with the Status suffix are defined as read-only. The status point reports the value being used by the controller.
Local	Points with the Local suffix are defined as read-only. The local point reports values associated with controller sensors, both wired and wireless. The local value may or may not be actively used by the controller, depending on the presence or absence of a communicated value (BAS). When both a local and communicated value exist, the communicated value is used.
Active	Points with the Active suffix are defined as read-only. Points designated as active are normally the result of the arbitration between a communicated value. The active point reports the value being input to the controller.
Setpoint	Points with the Setpoint suffix are defined as either read-only or read/write. For BACnet®, the binary input, analog input and multi-state input points are all read-only. These setpoints report the value currently in use by the controller. The analog value, binary value and multi-state value points are all read/write. These points are provided for use by the building automation system (BAS). When used, these points are written internally to arbitration logic. This defines the interaction with hardwired points, editable software configuration points and the relinquish default value/state. Refer to the Appendix for additional information.
Input	Points with the Input suffix are defined as read-only. These points normally reflect the status of a sensor input, either hardwired or communicating wirelessly (Air-Fi®). However, the input point reflects the arbitrated result of the controller sensor input and a communicated value, if present. When both a controller sensor and communicated value exist, the controller will use and report the communicated value.
Arbitrator	Points with the “Arbitrator” suffix are to be used as read-only. The arbitrator prioritizes inputs from communicating points, hardwired points and stored defaults points. The priority array of the arbitration point displays each of the values provided, including the active status, indicating which of the input sources is being used. Refer to the Appendix for additional information.
BAS	Points with the BAS suffix are defined as read/write. These points are provided for use by the building automation system (BAS). When used, these points are written to arbitration logic. This defines the interaction with hardwired points, editable software configuration points and the relinquished default value/state. Refer to the Appendix for additional information.
Command	Points with the Command suffix are defined as read/write. These points are written to change the default behavior of the controller. Once written, these point values may be persisted.
Request	Points with the Request suffix are defined as read/write. These points are written to request a change the operating behavior of the controller.

Object Data Points and Diagnostic Data Points

The following tables are sorted as follows:

- Tables are listed by input/output type and sorted by object identifier. These tables provide the user with the units type for each object type.
- Tables are sorted by object name and provide a complete list of object names, types, values/ ranges, and descriptions.

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

Table 2. Analog inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-10101	Cooling Capacity Status	Indicates the actual operating unit cooling capacity, in percent	Always	Read	NA	PERCENT	0	100		Input	30010	30011
AI-10102	Heating Capacity Primary Status	Indicates the unit (primary) heating capacity, in percent	Primary Heating Source Installed	Read	NA	PERCENT	0	100		Input	30012	30013
AI-10104	Outdoor Air Relative Humidity Local	Indicates the OA humidity value from sensor connected to the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Read	Sensor Complex	PERCENT	0	100		Input	30014	30015
AI-10110	Return Air Humidity Local	Indicates the return air humidity value from sensor connected to the controller	Economizer Type is Configured as Comparative Enthalpy	Read	Sensor Complex	PERCENT	0	100		Input	30016	30017
AI-10111	Outdoor Air Damper Position	Indicates OA Damper Actuator feedback signal.	Outside Air is Configured at 0-100% or 0-50% Motorized Damper	Read	NA	PERCENT	0	100		Input	30018	30019
AI-10116	Space Humidity Active	Indicates the active space relative humidity being used by the controller	Humidity Sensor Configured	Read	Sensor Complex	PERCENT	0	100		Input	30024	30025
AI-10117	Outdoor Air Dew Point	The outdoor air dewpoint value being utilized by the unit	Hot Gas Reheat is configured as Installed	Read	NA	DE-GREES_ FAHREN-HEIT	-39.5	200		Input	30424	30425
AI-10118	Outdoor Air Temperature Active	Indicates the active OA temperature currently being used by the controller	Always	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30026	30027
AI-10120	Outdoor Air Humidity Active	Indicates the active outdoor air humidity value used by the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Read	Sensor Complex	PERCENT	0	100		Input	30028	30029
AI-10124	Discharge Air Temperature Local	Indicates the discharge air temperature value from a sensor connected to the controller	System Type Configured as VVZT, VVDA, or Outside Air is Configured as 0-100% or Discharge Temperature Sensor is Configured	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30030	30031

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-10126	Return Air Temperature Input	Indicates the actual return air temperature being used by the controller	Economizer Type is Configured as r Comparative Enthalpy or Differential Drybulb	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30034	30035
AI-10155	Duct Static Pressure Local	Indicates the duct static pressure value from a sensor connected to the controller	System Type is Configured as VVDA	Read	NA	INCHES_ OF_ WATER	-0.1	5		Input	30040	30041
AI-10156	Outdoor Air Temperature Local	Indicates the OA temp value from a sensor connected to the controller	Always	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30042	30043
AI-10218	Space Temperature Input	Indicates the space temp from a wired sensor.	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30048	30049
AI-10226	Space Dew Point	Calculated Space Dewpoint	Hot Gas Reheat is Configured as Installed	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30426	30427
AI-11100	Coil Temperature Sensor 1	Outdoor Coil Temperature Sensor for Circuit 1 on HP units	All Heat Pumps	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30050	30051
AI-11103	Space CO2 Concentration Input	Indicates the space CO2 concentration from a sensor hardwired to the controller.	CO2 Sensor Configured	Read	Sensor Complex	PARTS_ PER_ MILLION	50	2000		Input	30056	30057
AI-11104	Space Humidity Input	Indicates the space relative humidity from a sensor wired to the controller.	Humidity Sensor Configured	Read	Sensor Complex	PERCENT	0	100		Input	30058	30059
AI-11106	Supply Fan Speed Command Status	Indicates the unit commanded supply fan speed output. Typically reflects commands to a speed control device.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	PERCENT	0	100		Input	30062	30063
AI-11109	Modulating Heat Command Status	Indicates the unit commanded modulating heat output.	Modulating gas heat installed	Read	NA	PERCENT	0	100		Input	30066	30067

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-11111	Outdoor Air Damper Command	Indicates the unit commanded outside air damper position.	Outside Air is Configured at 0-100%	Read	NA	PERCENT	0	100		Input	30068	30069
AI-11132	On-Board I/O Firmware Major Version	Software Major Version for On-Board I/O Module	Always	Read	NA	NO_ UNITS	0	255		Input	30072	30073
AI-11133	On-Board I/O Firmware Minor Version	On-Board I/O Module Software build number	Always	Read	NA	NO_ UNITS	0	255		Input	30074	30075
AI-11134	Indoor Options Module Firmware Major Version	Software Major Version for Indoor Options Module	Indoor Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30076	30077
AI-11135	Indoor Options Module Firmware Minor Version	Indoor Options Module Software build number	Indoor Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30078	30079
AI-11136	Fresh Air Options Module Firmware Major Version	Software Major Version for Fresh Air Options Module	Fresh Air Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30080	30081
AI-11137	Fresh Air Options Module Firmware Minor Version	Fresh Air Options Module Software build number	Fresh Air Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30082	30083
AI-11140	Customer Options Module Firmware Major Version	Software Major Version for Customer Connection Options Module	Customer Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30088	30089
AI-11141	Customer Options Module Firmware Minor Version	Customer Options Module Software build number	Customer Options Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30090	30091
AI-11142	IGN Module 1 Firmware Major Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NO_ UNITS	0	255		Input	30092	30093
AI-11143	IGN Module 1 Firmware Minor Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NO_ UNITS	0	255		Input	30094	30095

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-11148	Remote Minimum Position	Hardwired remote minimum position for OA damper control.	Remote Minimum Position is Configured as Installed	Read	NA	PERCENT	0	50		Input	30100	30101
AI-11149	Return Air Temperature Active	Return Air Temperature being used for control	Economizer Type is Configured as r Comparative Enthalpy or Differential Drybulb	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30102	30103
AI-11150	Sensor Battery Status Air-Fi	Status percentage of connected AirFi sensor (s).	Air-Fi Sensor Installed and Communicating	Read	NA	PERCENT	5	100		Input	30104	30105
AI-11151	Space CO2 Concentration Air-Fi	Indicates the space CO2 concentration from a wireless sensor connected to the controller.	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	PARTS_ PER_ MILLION	50	2000		Input	30106	30107
AI-11152	Space Humidity Air-Fi	Indicates the space relative humidity from a connected wireless sensor.	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	PERCENT	0	100		Input	30108	30109
AI-11154	Space Temperature Air-Fi	Indicates the space temp from a connected wireless (AirFi) sensor	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200		Input	30112	30113
AI-11155	Space Temperature Cooling Setpoint Air-Fi	Indicates the (occupied) cooling setpoint from the connected wireless space sensor	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	52	95		Input	30114	30115
AI-11156	Space Temperature Heating Setpoint Air-Fi	Indicates the (occupied) heating setpoint from the connected wireless space sensor	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	92		Input	30116	30117
AI-11157	Space Temperature Setpoint Air-Fi	Space Temperature Setpoint from a connected wireless sensor.	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	95		Input	30118	30119
AI-11159	Space Temperature Cooling Setpoint Input	Indicates the (occupied) cooling setpoint from the connected wired space sensor	Space Controller Configured as Dual Setpoint Zone Sensor	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	52	95		Input	30122	30123

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-11160	Space Temperature Heating Setpoint Input	Indicates the (occupied) heating setpoint from the connected wired space sensor	Heating Source Installed and Space Controller Configured as Dual Setpoint Zone Sensor	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	92		Input	30124	30125
AI-11161	Space Temperature Setpoint Input	Space Temperature Setpoint from a connected wired sensor.	Space Controller Configured as Single Setpoint Zone Sensor	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	95		Input	30126	30127
AI-11164	Reheat Valve 1 Step Status	Reheat Valve 1 Status in steps from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	NO_ UNITS	0	65535		Input	30132	30133
AI-11166	Evaporator Entering Refrigerant Temperature	Indicates the Evaporator Entering Refrigerant Temperature from a connected wire sensor on the Indoor Options Module.	Hot Gas Reheat is Configured as Installed	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30402	30403
AI-11167	Stepper Motor Module Firmware Major Version	Software Major Version for Stepper Motor Module	Stepper Motor Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30428	30429
AI-11168	Stepper Motor Module Firmware Minor Version	Stepper Motor Module Software build number	Stepper Motor Module Installed and In-Use	Read	NA	NO_ UNITS	0	255		Input	30430	30431
AI-11169	Saturated Discharge Temperature	Saturated Discharge Temperature sensor used for 12.5.T-25T UHE units for VSPD compressor map control.	All 12.5T-25T UHE configurations	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30462	30463
AI-11170	Supply Fan Entering Air Temperature	Indicates the air temp entering the supply fan.	Modulating Gas Heat is Configured	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200		Input	30468	30469

Table 3. Analog values

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10103	Outdoor Air Temperature Arbitrator	Indicates the OA temp determined by arbitration	Always	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	0	Holding	40010	40011
AV-10104	Outdoor Air Humidity Arbitrator	Indicates the actual outdoor air humidity being used by the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Write	Sensor Complex	PERCENT	0	100	0	Holding	40012	40013
AV-10106	Space Temperature Arbitrator	Indicates the space temp determined by arbitration	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	0	Holding	40014	40015
AV-10108	Space CO2 Concentration Arbitrator	Indicates the space CO2 concentration being used by the controller	CO2 Sensor Configured	Write	Sensor Complex	PARTS_ PER_ MILLION	50	2000	0	Holding	40018	40019
AV-10109	Space Humidity Arbitrator	Indicates the space relative humidity, determined by the arbitration	Space Humidity Sensor Configured	Write	Sensor Complex	PERCENT	0	100	0	Holding	40020	40021
AV-10113	Outdoor Air Temperature BAS	Used to send the outdoor air temperature sensor value	Always	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	900	Holding	40022	40023
AV-10114	Space Temperature BAS	Used to send the space temperature value	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	900	Holding	40024	40025
AV-10116	Outdoor Air Humidity BAS	Used to send the outdoor air humidity sensor value	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Write	Sensor Complex	PERCENT	0	100	900	Holding	40026	40027
AV-10118	Space CO2 Concentration BAS	Used to send the space CO2 concentration value	CO2 Sensor Configured	Write	Sensor Complex	PARTS_ PER_ MILLION	0	2000	900	Holding	40028	40029
AV-10119	Space Humidity BAS	Used to send the space relative humidity value	Space Humidity Sensor Configured	Write	Sensor Complex	PERCENT	0	100	900	Holding	40030	40031
AV-10121	Discharge Air Cooling Setpoint BAS	Used to request the discharge air temp cooling setpoint value	System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40032	40033

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10122	Discharge Air Heating Setpoint BAS	Used to request the discharge air temperature heating setpoint value	System Type is Configured as VVDA and Primary Heat is Configured or Conventional Thermostat with modulating gas heat installed.	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	158	0	Holding	40034	40035
AV-10123	Unoccupied Cooling Setpoint	Used to define the cooling temp setpoint used for control in unoccupied mode	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	DE-GREES_ FAHREN-HEIT	50	90	0	Holding	40036	40037
AV-10124	Unoccupied Heating Setpoint	Used to define the heating temp setpoint used for control in unoccupied mode	Heating Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	DE-GREES_ FAHREN-HEIT	50	90	0	Holding	40038	40039
AV-10127	Space Temperature Setpoint BAS	BAS-supplied space temperature setpoint value	Space Controller Configured as Single Setpoint Zone Sensor	Write	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	40	115	0	Holding	40040	40041
AV-10130	Occupied Offset	Difference between the occ cool and heat setpoints when a single setpoint is used	Space Controller Configured As Single Setpoint Zone Sensor	Write	NA	DELTA_ DE-GREES_ FAHREN-HEIT	1	10	0	Holding	40042	40043
AV-10134	Discharge Air Reheat Setpoint BAS	Used to request the discharge air temperature reheat setpoint value, for dehumidification control	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	65	80	0	Holding	40044	40045
AV-10138	Filter Runtime Hours Setpoint	The setpoint value used by the filter run hours calculation	Always	Write	Setpoint Simple with Priority Array	NO_ UNITS	0	10000	0	Holding	40048	40049
AV-10139	Cooling Capacity Enable	Used to limit the cooling capacity of the unit; 0% = no cooling possible	Always	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40050	40051
AV-10119	Space Humidity BAS	Used to send the space relative humidity value	Space Humidity Sensor Configured	Write	Sensor Complex	PERCENT	0	100	900	Holding	40030	40031
AV-10121	Discharge Air Cooling Setpoint BAS	Used to request the discharge air temp cooling setpoint value	System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40032	40033

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10122	Discharge Air Heating Setpoint BAS	Used to request the discharge air temperature heating setpoint value	System Type is Configured as VVDA and Primary Heat is Configured or Conventional Thermostat with modulating gas heat installed.	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	158	0	Holding	40034	40035
AV-10123	Unoccupied Cooling Setpoint	Used to define the cooling temp setpoint used for control in unoccupied mode	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	DE-GREES_ FAHREN-HEIT	50	90	0	Holding	40036	40037
AV-10124	Unoccupied Heating Setpoint	Used to define the heating temp setpoint used for control in unoccupied mode	Heating Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	DE-GREES_ FAHREN-HEIT	50	90	0	Holding	40038	40039
AV-10127	Space Temperature Setpoint BAS	BAS-supplied space temperature setpoint value	Space Controller Configured as Single Setpoint Zone Sensor	Write	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	40	115	0	Holding	40040	40041
AV-10130	Occupied Offset	Difference between the occ cool and heat setpts when a single setpoint is used	Space Controller Configured As Single Setpoint Zone Sensor	Write	NA	DELTA_ DE-GREES_ FAHREN-HEIT	1	10	0	Holding	40042	40043
AV-10134	Discharge Air Reheat Setpoint BAS	Used to request the discharge air temperature reheat setpoint value, for dehumidification control	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	65	80	0	Holding	40044	40045
AV-10155	Space Cooling Setpoint Low Limit BAS	Space Cooling Setpoint Low Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	NA	DE-GREES_ FAHREN-HEIT	40	110	0	Holding	40068	40069
AV-10157	Space Heating Setpoint High Limit BAS	Space Heating Setpoint High Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	NA	DE-GREES_ FAHREN-HEIT	40	105	0	Holding	40070	40071

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10158	Space Heating Setpoint Low Limit BAS	Space Heating Setpoint Low Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	NA	DE-GREES_ FAHREN-HEIT	40	105	0	Holding	40072	40073
AV-10159	Occupied Cooling Setpoint BAS	Used to define the occ cooling setpoint when both heat and cool setpoints are used	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	40	115	0	Holding	40074	40075
AV-10160	Occupied Heating Setpoint BAS	Used to define the occ heating setpoint when both heat and cool setpoints are used	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	40	115	0	Holding	40076	40077
AV-10161	Occupied Standby Cooling Setpoint BAS	Defines the occ standby cooling setpt when both heat/cool setpoints are provided	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	52	95	0	Holding	40078	40079
AV-10162	Occupied Standby Heating Setpoint BAS	Defines the occ standby heating setpoint when both heat/cool setpoints are provided	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	92	0	Holding	40080	40081
AV-10167	Discharge Air Temperature Minimum Cool Limit	Used to define the discharge air temperature minimum cool limit	Discharge Air Temperature Sensor is Configured as Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	100	0	Holding	40082	40083
AV-10168	Relief Enable Position Setpoint	The OA damper position above which the Relief sequence is enabled	Space Pressure Control is Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40084	40085
AV-10169	Occupied Bypass Time	Used to configure the occupied bypass time (occupancy override)	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	NO_ UNITS	0	240	0	Holding	40086	40087

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10170	Economizer Outdoor Air Enthalpy Enable Setpoint BAS	Used to determine the outdoor air enthalpy below which economizing is enabled	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy	Write	Setpoint Simple with Priority Array	BTUS_ PER_ POUND	19	36	0	Holding	40088	40089
AV-10175	Space CO2 High Limit	Used to define the CO2 high limit, for ventilation purposes	Demand Controlled Ventilation is Configured as Installed	Write	Setpoint Simple with Priority Array	PARTS_ PER_ MILLION	1000	2000	0	Holding	40090	40091
AV-10176	Space CO2 Low Limit	Normally provided by the BMS to define the CO2 low limit	Demand Controlled Ventilation is Configured as Installed	Write	Setpoint Simple with Priority Array	PARTS_ PER_ MILLION	300	1900	0	Holding	40092	40093
AV-10214	Space Dehumidification Unoccupied Setpoint Active	Active value for Space Dehumidification Setpoint BAS point being used for control.	Hot Gas Reheat is Configured as Modulating and Dehumidification Control is Configured as Relative Humidity or Dew Point	Read	Setpoint Simple with Priority Array	PERCENT	40	65	0	Input	30408	30409
AV-10228	Space Dew Point Unoccupied Setpoint Active	Indicates the Unoccupied Space Dew Point Setpoint actively being used for dehumidification control.	Hot Gas Reheat is Configured as Modulating and Dehumidification Control is Configured as Relative Humidity or Dew Point	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30412	30413
AV-10281	Discharge Air Temperature Setpoint Active	Indicates the discharge air temp setpoint actively being used for control.	System Type Configured as VVZT and Space Controller not Configured as Conventional Tstat, or HGRH installed, or Economizer installed.	Read	NA	DE-GREES_ FAHREN-HEIT	40	200	0	Input	30400	30401
AV-11103	Return Air Humidity BAS	BAS Source for Return Air Humidity	Economizer Type is Configured as Comparative Enthalpy	Write	Sensor Complex	PERCENT	0	100	900	Holding	40094	40095
AV-11108	Cabinet Style	Indicates the cabinet style of the unit	Always	Read	NA	NO_ UNITS	0	255	0	Input	30150	30151
AV-11110	Supply Fan Speed Command	Remote supply fan speed request	Always	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40096	40097
AV-11112	Cooling Capacity Setpoint BAS	Remote cooling capacity request	Always	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40100	40101

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11113	Space Dehumidification Setpoint Offset BAS - Active	The active value for the offset applied to the Space Dehumidification Setpoint.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array	PERCENT	2	20	0	Input	30420	30421
AV-11115	Exhaust Or Return Fan Type	Identifies the product exhaust or return fan type	Always	Read	NA	NO_ UNITS	0	255	0	Input	30154	30155
AV-11116	Filter Runtime Hours	Indicates the number of hours air has flowed through the filter	Always	Read	NA	NO_ UNITS	0	10000	0	Input	30156	30157
AV-11117	Outdoor Air Enthalpy Active	The outdoor air enthalpy value being utilized by the unit	Economizer Type is Configured as Comparative Enthalpy or Reference Enthalpy	Read	NA	BTUS_ PER_ POUND	10	96	0	Input	30158	30159
AV-11118	Return Air Temperature Arbitrator	Arbitrator for Return Air Temperature	Economizer Type is Configured as Comparative Enthalpy or Differential Drybulb	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	0	Holding	40104	40105
AV-11119	Return Air Temperature BAS	BAS source for Return Air Temperature	Economizer Type is Configured as Comparative Enthalpy or Differential Drybulb	Write	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	900	Holding	40106	40107
AV-11120	Heating Demand Limit Capacity Enable Setpoint	Heating Demand Limit Capacity Enable Setpoint	Demand Management Configured as Demand Limit and Primary Heating Source Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40108	40109
AV-11121	Discharge Air Temperature Maximum Cool Limit	Maximum discharge air temperature allowed during space temperature cooling mode of operation.	System Type Configured as VVZT and Space Controller not Configured as Conventional TStat	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	200	0	Holding	40110	40111
AV-11122	Run Time - Condenser Fan 1 (Hours)	Condenser Fan 1 Runtime	Always	Read	NA	NO_ UNITS	0	200000	0	Input	30160	30161
AV-11123	Run Time - Condenser Fan 2 (Hours)	Condenser Fan 2 Runtime	Dual Condenser Fan Systems	Read	NA	NO_ UNITS	0	200000	0	Input	30162	30163
AV-11124	Run Time - Relief Fan (Hours)	Relief Fan Runtime	Space Pressure Control is Configured	Read	NA	NO_ UNITS	0	200000	0	Input	30164	30165

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11125	Run Time - Electric Heat Stage 1 (Hours)	Electric Heat Stage 1 Runtime	One or more stages of Staged Electric Heat configured	Read	NA	NO_ UNITS	0	200000	0	Input	30166	30167
AV-11126	Run Time - Electric Heat Stage 2 (Hours)	Electric Heat Stage 2 Runtime	Two or more stages of Staged Electric Heat configured	Read	NA	NO_ UNITS	0	200000	0	Input	30168	30169
AV-11127	Run Time - Supply Fan (Hours)	Supply Fan Runtime	Always	Read	NA	NO_ UNITS	0	200000	0	Input	30170	30171
AV-11128	Space Temp Cooling Setpoint Status	Indicates the space cooling setpoint, determined by arbitration	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	NA	DE-GREES_ FAHREN-HEIT	52	95	0	Input	30172	30173
AV-11129	Space Temp Heating Setpoint Status	Indicates the space heating setpoint, determined by arbitration	Heating Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	NA	DE-GREES_ FAHREN-HEIT	49	92	0	Input	30174	30175
AV-11130	Design Minimum OA Damper Position at Full Fan Capacity	Design Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-100%	Write	Setpoint Simple with Priority Array	PERCENT	0	50	0	Holding	40112	40113
AV-11131	Design Minimum OA Damper Position at Mid Fan Capacity	Design Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40114	40115
AV-11132	Design Minimum OA Damper Position at Min Fan Capacity	Design Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40116	40117
AV-11133	DCV Minimum OA Damper Position at Full Fan Capacity	DCV Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and DCV is Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	40	0	Holding	40118	40119

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11134	DCV Minimum OA Damper Position at Mid Fan Capacity	DCV Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed and DCV is Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40120	40121
AV-11135	DCV Minimum OA Damper Position at Min Fan Capacity	DCV Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed and DCV is Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40122	40123
AV-11136	Space Dehumidification Setpoint BAS - Active	The active value for the Space Dehumidification Setpoint for Relative Humidity control.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array	PERCENT	40	60	0	Input	30422	30423
AV-11137	Discharge Air Heating Setpoint High Limit	Discharge Air Heating Setpoint High Limit (deg F)	VVZT and modulating gas heat installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Holding	40124	40125
AV-11138	Discharge Air Heating Setpoint (Target)	Discharge Air Heating Setpoint (Target)	VVZT and modulating gas heat installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Holding	40126	40127
AV-11140	Discharge Air Cooling Setpoint (Target)	Discharge Air Cooling Setpoint (Target)	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40128	40129
AV-11147	Economizer Dry Bulb Enable Offset	Outdoor air temperature offset below dry bulb economizer enable setpoint.	Outside Air is Configured as 0-100%	Write	NA	DE-GREES_ FAHREN-HEIT	2	10	0	Holding	40130	40131
AV-11148	Duct Static Pressure P-Gain (%/IWC)	Proportional gain for fan speed on duct static pressure control (%/IWC)	System Type Configured as VVDA	Write	NA	PERCENT	0.5	10	0	Holding	40198	40199
AV-11149	Duct Static Pressure Deadband BAS	Supply Air Pressure Setpoint Deadband	System Type Configured as VVDA	Write	Setpoint Simple with Priority Array	INCHES_ OF_ WATER	0.15	1	0	Holding	40134	40135
AV-11150	Cooling Reset Start Temp	Discharge air cooling reset start temperature	System Type Configured as VVDA	Write	NA	DE-GREES_ FAHREN-HEIT	0	95	0	Holding	40136	40137

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11151	Cooling Reset End Temp	Discharge air cooling reset end temperature	System Type Configured as VVDA	Write	NA	DE-GREES_ FAHREN-HEIT	0	95	0	Holding	40138	40139
AV-11152	Cooling Reset Amount	Discharge air cooling amount to reset between start and end temperatures	System Type Configured as VVDA	Write	NA	DELTA_ DE-GREES_ FAHREN-HEIT	0	20	0	Holding	40266	40267
AV-11153	Service Test Timeout (Minutes)	Timer (minutes) to indicate when the unit should cease service test.	Always	Write	NA	NO_ UNITS	1	120	0	Holding	40140	40141
AV-11154	Economizer Cooling Reference Enthalpy Offset	Economizer Cooling Reference Enthalpy Offset	Economizer Type is Configured as Comparative Enthalpy or Reference Enthalpy	Write	NA	BTUS_ PER_ POUND	2	6	0	Holding	40142	40143
AV-11155	Starts - Condenser Fan 1	Condenser Fan 1 Starts	Always	Read	NA	NO_ UNITS	0	150000-0	0	Input	30186	30187
AV-11156	Starts - Condenser Fan 2	Condenser Fan 2 Starts	Dual Condenser Fan Systems	Read	NA	NO_ UNITS	0	150000-0	0	Input	30188	30189
AV-11157	Starts - Relief Fan	Relief Fan Starts	Space Pressure Control is Configured	Read	NA	NO_ UNITS	0	150000-0	0	Input	30190	30191
AV-11158	Starts - Electric Heat Stage 1	Electric Heat Stage 1 Starts	One or more stages of Staged Electric Heat configured	Read	NA	NO_ UNITS	0	150000-0	0	Input	30192	30193
AV-11159	Starts - Electric Heat Stage 2	Electric Heat Stage 2 Starts	Two or more stages of Staged Electric Heat configured	Read	NA	NO_ UNITS	0	150000-0	0	Input	30194	30195
AV-11160	Starts - Supply Fan	Counter for Supply Fan Starts	Always	Read	NA	NO_ UNITS	0	150000-0	0	Input	30196	30197
AV-11161	Supply Fan Type	Indicates the unit supply fan type	Always	Read	NA	NO_ UNITS	0	255	0	Input	30198	30199
AV-11163	Supply Fan Speed Status	Estimated supply fan speed being utilized.	Always	Read	NA	PERCENT	0	100	0	Input	30202	30203
AV-11164	Heating Capacity Setpoint BAS	Setpoint to command the unit to a given heating capacity output	Primary Heating Source Configured	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40144	40145
AV-11167	Demand Shed Offset Setpoint	Demand Shed Offset Setpoint	Demand Management Configured as Demand Shed	Write	Setpoint Simple with Priority Array	DELTA_ DE-GREES_ FAHREN-HEIT	0	10	0	Holding	40148	40149

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11168	Cooling Demand Limit Capacity Enable Setpoint	Cooling Demand Limit Capacity Enable Setpoint	Demand Management Configured as Demand Limit	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40150	40151
AV-11169	Run Time - Compressor 1 (Hours)	Compressor 1 Runtime	Always	Read	NA	NO_ UNITS	0	200000	0	Input	30204	30205
AV-11170	Run Time - Compressor 2 (Hours)	Compressor 2 Runtime	Multi-Compressor Systems	Read	NA	NO_ UNITS	0	200000	0	Input	30206	30207
AV-11173	Supply Fan Minimum Speed Setpoint	Minimum supply fan speed command.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40152	40153
AV-11174	Supply Fan Maximum Speed Setpoint	Maximum supply fan speed command.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Write	Setpoint Simple with Priority Array	PERCENT	38	100	0	Holding	40154	40155
AV-11178	Space Temperature Active	Indicates the active space temperature being used by the controller	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Sensor Complex	DE-GREES_ FAHREN-HEIT	-40	200	0	Input	30212	30213
AV-11180	Space Temperature Heating Setpoint Input Active	Active heating space temperature input setpoint as determined by arbitrating the heating setpoint inputs (wired and air-fi) with the occupied setpoint BAS.	Heating Installed and Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	92	0	Input	30214	30215
AV-11181	Space Temperature Setpoint Active	Indicates the active space temperature setpoint being used by the controller	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	NA	DE-GREES_ FAHREN-HEIT	49	95	0	Input	30216	30217
AV-11183	Starts - Compressor 1	Compressor 1 Starts	Always	Read	NA	NO_ UNITS	0	150000-0	0	Input	30218	30219
AV-11184	Starts - Compressor 2	Compressor 2 Starts	Multi-Compressor Systems	Read	NA	NO_ UNITS	0	150000-0	0	Input	30220	30221
AV-11185	Cooling Capacity Enable - Active	Active value for Cooling Capacity Enable point being used for control.	Always	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30222	30223
AV-11186	Daytime Warmup Setpoint BAS - Active	Active value for Daytime Warmup Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	90	0	Input	30224	30225

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11187	Supply Fan Speed Command - Active	Active value for Supply Fan Speed Command point being used for control.	Always	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30226	30227
AV-11189	Cooling Capacity Setpoint BAS - Active	Active value for Cooling Capacity Setpoint BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30230	30231
AV-11190	Discharge Air Cooling Setpoint BAS - Active	Active value for Discharge Air Cooling Setpoint BAS point being used for control.	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30232	30233
AV-11191	Discharge Air Heating Setpoint BAS - Active	Active value for Discharge Air Heating Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA or Conventional Thermostat with modulating gas heat installed.	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	158	0	Input	30234	30235
AV-11192	Discharge Air Reheat Setpoint BAS - Active	Active value for Discharge Air Reheat Setpoint BAS point being used for control.	Hot Gas Reheat is Configured as Modulating	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	65	80	0	Input	30236	30237
AV-11193	Discharge Air Temperature Minimum Cool Limit - Active	Active value for Discharge Air Temperature Minimum Cool Limit point being used for control.	(System Type Configured as VVZT or Supply Air Tempering Configured as Enabled and Space Controller Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	100	0	Input	30238	30239
AV-11195	Economizer Minimum Position Setpoint BAS - Active	Active value for Economizer Minimum Position Setpoint BAS point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30240	30241
AV-11196	Economizer Outdoor Air Enthalpy Enable Setpoint BAS - Active	Active value for Economizer Outdoor Air Enthalpy Enable Setpoint BA point being used for control.	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy	Read	Setpoint Simple with Priority Array	BTUS_ PER_ POUND	19	36	0	Input	30242	30243
AV-11197	Economizer Outdoor Air Enable Setpoint BAS - Active	Active value for Economizing Outdoor Air Enable Setpoint point being used for control.	Outside Air is Configured as 0-100%	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	140	0	Input	30244	30245

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11198	Relief Enable Position Setpoint - Active	Active value for Relief Enable Position Setpoint point being used for control.	Space Pressure Control is Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30246	30247
AV-11199	Heating Demand Limit Capacity Enable Setpoint - Active	Active value for Heating Demand Limit Capacity Enable Setpoint point being used for control.	Demand Management Configured as Demand Limit and Primary Heating Source Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30248	30249
AV-11200	Discharge Air Temperature Maximum Cool Limit - Active	Active value for Discharge Air Temperature Maximum Cool Limit point being used for control.	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	200	0	Input	30250	30251
AV-11202	Cool Type	Describes the type of cooling in the unit	Always	Read	NA	NO_ UNITS	0	255	0	Input	30252	30253
AV-11204	DCV Minimum OA Damper Position at Full Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and DCV is Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	40	0	Input	30256	30257
AV-11205	DCV Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed and DCV is Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30258	30259
AV-11206	DCV Minimum OA Damper Position at Min Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed and DCV is Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30260	30261
AV-11209	Demand Shed Offset Setpoint - Active	Active value for Demand Shed Offset Setpoint point being used for control.	Demand Management Configured as Demand Shed	Read	Setpoint Simple with Priority Array	DELTA_ DE-GREES_ FAHREN-HEIT	0	10	0	Input	30264	30265
AV-11211	Design Minimum OA Damper Position at Full Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	Setpoint Simple with Priority Array	PERCENT	0	50	0	Input	30268	30269

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11212	Design Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30270	30271
AV-11213	Design Minimum OA Damper Position at Min Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30272	30273
AV-11214	Economizer Dry Bulb Disable Return Air Offset	Differential dry bulb economizer disable offset.	Outside Air is Configured as 0-100%	Write	NA	DE-GREES_ FAHREN-HEIT	0	10	0	Holding	40290	40291
AV-11217	Filter Runtime Hours Setpoint - Active	Active value for Filter Runtime Hours Setpoint point being used for control.	Always	Read	Setpoint Simple with Priority Array	NO_ UNITS	0	10000	0	Input	30280	30281
AV-11218	Heat Primary Enable BAS - Active	Active value for Heat Primary Enable BAS point being used for control.	Primary Heating Source Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30282	30283
AV-11219	Heating Capacity Setpoint BAS - Active	Active value for Heating Capacity Setpoint BAS point being used for control.	Primary Heating Source Configured	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30284	30285
AV-11220	Morning Warmup Setpoint BAS - Active	Active value for Morning Warmup Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA or Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	90	0	Input	30286	30287
AV-11226	Space CO2 High Limit - Active	Active value for Space CO2 High Limit point being used for control.	Demand Controlled Ventilation is Configured as Installed	Read	Setpoint Simple with Priority Array	PARTS_ PER_ MILLION	1000	2000	0	Input	30292	30293
AV-11227	Space CO2 Low Limit - Active	Active value for Space CO2 Low Limit point being used for control.	Demand Controlled Ventilation is Configured as Installed	Read	Setpoint Simple with Priority Array	PARTS_ PER_ MILLION	300	1900	0	Input	30294	30295
AV-11236	Discharge Air Cooling Setpoint (Target) - Active	Active value for Discharge Air Cooling Setpoint (Target) point being used for control.	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30302	30303

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11237	Discharge Air Heating Setpoint High Limit - Active	Active value for Discharge Air Heating Setpoint High Limit point being used for control.	VVZT and modulating gas heat installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Input	30304	30305
AV-11238	Duct Static Pressure Reset Time (seconds)	Reset time for fan speed on duct static pressure control (seconds)	System Type Configured as VVDA	Write	NA	NO_ UNITS	0.5	60	0	Holding	40200	40201
AV-11240	Duct Static Pressure Deadband Active	Active value for Supply Air Pressure Setpoint Deadband point being used for control.	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array	INCHES_ OF_ WATER	0.15	1	0	Input	30310	30311
AV-11241	Heating Reset Start Temp	Discharge air heating reset start temperature	Heating is Installed and System Type is Configured as VVDA	Write	NA	DE-GREES_ FAHREN-HEIT	0	95	0	Holding	40260	40261
AV-11242	Heating Reset End Temp	Discharge air heating reset end temperature	Heating is Installed and System Type is Configured as VVDA	Write	NA	DE-GREES_ FAHREN-HEIT	0	95	0	Holding	40262	40263
AV-11243	Supply Fan Maximum Speed Setpoint - Active	Active value for Supply Fan Maximum Speed Setpoint point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	Setpoint Simple with Priority Array	PERCENT	25	100	0	Input	30316	30317
AV-11245	Supply Fan Minimum Speed Setpoint - Active	Active value for Supply Fan Minimum Speed Setpoint point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30320	30321
AV-11247	Cooling Demand Limit Capacity Enable Setpoint - Active	Active value for Cooling Demand Limit Capacity Enable Setpoint point being used for control.	Demand Management Configured as Demand Limit	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30324	30325
AV-11248	Economizer Minimum Position Setpoint Active	Indicates the economizer min position setpoint value resulting from arbitration	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	NA	PERCENT	0	100	0	Input	30326	30327
AV-11249	Heating Capacity Secondary Status	Indicates the unit secondary heating capacity being utilized.	Secondary Heating Source Configured	Read	NA	PERCENT	0	100	0	Input	30328	30329

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11250	Occupied Standby Cooling Setpoint BAS - Active	Active value for Occupied Standby Cooling Setpoint BAS	Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	52	95	0	Input	30330	30331
AV-11251	Occupied Standby Heating Setpoint BAS - Active	Active value for Occupied Standby Heating Setpoint BAS	Heating Installed and Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	92	0	Input	30332	30333
AV-11252	Preheat Type	Identifies the product preheat type	Always	Read	NA	NO_ UNITS	0	255	0	Input	30334	30335
AV-11253	Reheat Type	Identifies the product reheat type	Always	Read	NA	NO_ UNITS	0	255	0	Input	30336	30337
AV-11254	Space CO2 Concentration Active	Indicates the active space CO2 concentration being used by the controller	CO2 Sensor Configured	Read	Sensor Complex	PARTS_ PER_ MILLION	0	2000	0	Input	30338	30339
AV-11256	Compressor Cooling P-Gain (%/F)	Proportional gain for single loop Compressor Cooling PI controller (%/F)	System Type Configured as CVZT or VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	PERCENT	0.1	100	0	Holding	40156	40157
AV-11257	Compressor Cooling Reset Time (seconds)	Reset time for single loop compressor Cooling PI controller (second)	System Type Configured as CVZT or VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	NO_ UNITS	10	3600	0	Holding	40158	40159
AV-11257	Compressor Cooling Reset Time (seconds)	Reset time for discharge air controls - compressor cooling PI controller (seconds)	System Type Configured as VVDA	Write	NA	NO_ UNITS	10	3600	0	Holding	40158	40159
AV-11258	Economizer Cooling P-Gain - 1 (%/F)	Proportional gain for 1st loop Econ PI controller (%/F), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is configured as 0-100%	Write	NA	PERCENT	0.1	100	0	Holding	40160	40161
AV-11259	Economizer Cooling Reset Time -1 (Seconds)	Reset time for 1st loop Econ PI controller (seconds), for CVZT/ VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is configured as 0-100%	Write	NA	NO_ UNITS	10	3600	0	Holding	40162	40163

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11264	Compressor Heating P-Gain (%/F)	Proportional gain for single loop Heat Pump Heating PI controller (%/F)	Heat Pumps with Space Controller not Configured as Conventional TStat	Write	NA	PERCENT	0.1	100	0	Holding	40168	40169
AV-11264	Compressor Heating P-Gain (%/F)	Proportional gain for discharge air control - compressor Heating PI controller (%/F)	Heat Pumps with VVDA System Type	Write	NA	PERCENT	0.1	100	0	Holding	40168	40169
AV-11265	Compressor Heating Reset Time (seconds)	Reset time for single loop Heat Pump Heating PI controller (seconds)	Heat Pumps with non-Thermostat CVZT, VVZT System Type	Write	NA	NO_ UNITS	10	3600	0	Holding	40170	40171
AV-11265	Compressor Heating Reset Time (seconds)	Reset time for discharge air controls - compressor Heating PI controller (seconds)	Heat Pumps with VVDA System Type	Write	NA	NO_ UNITS	10	3600	0	Holding	40170	40171
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for Electric single loop PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	PERCENT	0.1	100	0	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for Gas single loop PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	PERCENT	0.1	100	0	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for PI controller (%/F) for VVDA with electrical heat type.	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	PERCENT	0.1	100	0	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for discharge air control - Staged Gas Heating PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	PERCENT	0.1	100	0	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for discharge air control - Modulating Gas Heating PI controller (%/F)	Modulating gas heat installed and System Type is configured as VVDA or Conventional Thermostat with modulating gas heat installed.	Write	NA	PERCENT	0.1	100	0	Holding	40172	40173

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for Electric single loop PI controller (in seconds)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for PI controller (%/F) for VVDA with electrical heat type.	VVDA with electric heat	Write	NA	NO_ UNITS	10	3600	0	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for discharge air control - Staged Gas Heating PI controller (%/F)	VVDA with staged gas heat installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for discharge air control - Modulating Gas Heating PI controller (%/F)	VVDA or Conventional Thermostat control with modulating gas heat installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40174	40175
AV-11268	Compressor Cooling P-Gain - 1 (%/F)	Proportional gain for 1st loop Cooling PI controller (%/F)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	PERCENT	0.1	100	0	Holding	40176	40177
AV-11269	Compressor Cooling Reset Time - 1 (seconds)	Reset time for 1st loop Cooling PI controller (second)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	NO_ UNITS	10	3600	0	Holding	40178	40179
AV-11270	Compressor Cooling P-Gain - 2 (%/F)	Proportional gain for 2nd loop compressor cooling PI controller (%/F)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	PERCENT	0.1	100	0	Holding	40180	40181
AV-11271	Compressor Cooling Reset Time - 2 (seconds)	Reset time for 2nd loop compressor cooling PI controller (second)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	NO_ UNITS	1	1000	0	Holding	40182	40183
AV-11272	Economizer Discharge Air Setpoint	Discharge Air Setpoint selection to be used for Economizer control on Conventional Thermostat controlled units.	Outside Air is Configured as 0-100% and Space Controller is Configured as Conventional Tstat	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40184	40185

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11273	Economizer Discharge Air Setpoint - Active	Active Discharge Air Setpoint used for Economizer control on Conventional Thermostat controlled units.	Outside Air is Configured as 0-100% and Space Controller is Configured as Conventional Tstat	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30340	30341
AV-11274	Heat Pump Heating Lockout Setpoint	Setpoint at which to disable heat pump heating based on outdoor air temperature.	Heat Pump Systems	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	-18	45	0	Holding	40186	40187
AV-11275	Heat Pump Heating Lockout Setpoint - Active	Setpoint at which to disable heat pump heating based on outdoor air temperature.	Heat Pump Systems	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	-18	45	0	Input	30342	30343
AV-11276	Space Temperature Setpoint Input Active	Active space temperature input setpoint as determined by arbitrating the space temperature setpoint inputs (wired and air-fi) with the space temperature setpoint BAS.	Space Controller Configured as Single Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	49	95	0	Input	30344	30345
AV-11277	Space Temperature Cooling Setpoint Input Active	Active cooling space temperature input setpoint as determined by arbitrating the cooling setpoint inputs (wired and air-fi) with the occupied setpoint BAS.	Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS	DE-GREES_ FAHREN-HEIT	52	95	0	Input	30346	30347
AV-11278	Supply Fan Power	Supply Fan Drive Output Power	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	KILO-WATTS	0	120	0	Input	30348	30349
AV-11280	Duct Static Pressure Setpoint Active	Indicates the duct static pressure control setpoint value resulting from arbitration	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array	INCHES_ OF_ WATER	0	3.5	0	Input	30352	30353

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11281	Dehumidification Control Status	Indicates the status of the unit dehumidification capacity	Hot Gas Reheat is Configured as Installed	Read	NA	PERCENT	0	100	0	Input	30354	30355
AV-11282	Supply Fan 1 Maximum RPM Status	Active value for Supply Fan 1 Maximum Output RPM point being used for control.	Always	Read	NA	NO_ UNITS	0	3000	0	Input	30394	30395
AV-11283	Supply Fan Minimum RPM Status	Active value for Supply Fan Minimum Output RPM point being used for control.	Always	Read	NA	NO_ UNITS	0	3000	0	Input	30358	30359
AV-11284	Run Time - Supply Fan 2 (Hours)	Supply Fan 2 Runtime	Tonnage is Configured as 15-25 tons	Read	NA	NO_ UNITS	0	200000	0	Input	30360	30361
AV-11285	Starts - Supply Fan 2	Counter for Supply Fan 2 Starts	Tonnage is Configured as 15-25 tons	Read	NA	NO_ UNITS	0	150000-0	0	Input	30362	30363
AV-11286	Motorized Damper Position Setpoint	Motorized Damper Position Setpoint	Outside Air is Configured as 0-50% Motorized Damper	Write	Setpoint Simple with Priority Array	PERCENT	0	50	0	Holding	40188	40189
AV-11287	Motorized Damper Position Setpoint - Active	Active value for Motorized Damper Position Setpoint	Outside Air is Configured as 0-50% Motorized Damper	Read	Setpoint Simple with Priority Array	PERCENT	0	50	0	Input	30364	30365
AV-11288	Standby Minimum OA Damper Position at Full Fan Capacity	Standby Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple with Priority Array	PERCENT	0	50	0	Holding	40190	40191
AV-11289	Standby Minimum OA Damper Position at Full Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array	PERCENT	0	50	0	Input	30366	30367

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11290	Standby Minimum OA Damper Position at Mid Fan Capacity	Standby Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40192	40193
AV-11291	Standby Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30368	30369
AV-11292	Standby Minimum OA Damper Position at Min Fan Capacity	Standby Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Write	Setpoint Simple with Priority Array	PERCENT	0	100	0	Holding	40194	40195
AV-11293	Standby Minimum OA Damper Position at Min Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Read	Setpoint Simple with Priority Array	PERCENT	0	100	0	Input	30370	30371
AV-11294	Supply Fan 2 Power	Supply Fan 2 Output Power	Tonnage is Configured as 15-25 tons	Read	NA	KILO-WATTS	0	120	0	Input	30372	30373
AV-11295	Run Time - Gas Heat Stage 1 (Hours)	Gas heat Stage 1 Runtime	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	NO_ UNITS	0	200000	0	Input	30374	30375

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11296	Starts - Gas Heat Stage 1	Gas heat Stage 1 Starts	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	NO_ UNITS	0	150000-0	0	Input	30376	30377
AV-11297	Run Time - Gas Heat Stage 2 (Hours)	Gas heat Stage 2 Runtime	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	NO_ UNITS	0	200000	0	Input	30378	30379
AV-11298	Starts - Gas Heat Stage 2	Gas heat Stage 2 Starts	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	NO_ UNITS	0	150000-0	0	Input	30380	30381
AV-11299	Return Air Humidity Active	Active Return Air Humidity sensor used for control	Economizer Type is Configured as Comparative Enthalpy	Read	Sensor Complex	PERCENT	0	100	0	Input	30382	30383
AV-11300	Return Air Humidity Arbitrator	Arbitrator for Return Air Humidity	Economizer Type is Configured as Comparative Enthalpy	Write	Sensor Complex	PERCENT	0	100	0	Holding	40196	40197
AV-11301	Return Air Enthalpy Active	The return air enthalpy value being utilized by the unit	Economizer Type is Configured as Comparative Enthalpy	Read	NA	BTUS_ PER_ POUND	10	96	0	Input	30384	30385
AV-11302	Relief Enable Position Setpoint Status	Outdoor air damper position to enable Relief sequence	Space Pressure Control is Configured	Read	NA	PERCENT	0	100	0	Input	30038	30039
AV-11304	Supply Fan RPM	Supply Fan 1 RPM	Tonnage is Configured as 6-25 tons	Read	NA	NO_ UNITS	0	3000	0	Input	30386	30387
AV-11305	Supply Fan 2 RPM	Supply Fan 2 RPM	Tonnage is Configured as 15-25 tons	Read	NA	NO_ UNITS	0	3000	0	Input	30388	30389
AV-11306	Supply Fan 2 Maximum RPM Status	Active value for Supply Fan 2 Maximum Output RPM point being used for control.	Tonnage is Configured as 15-25 tons	Read	NA	NO_ UNITS	0	3000	0	Input	30396	30397
AV-11307	Discharge Air Heating Setpoint (Target) - Active	Active value for Discharge Air Heating Setpoint (Target) point being used for control.	VVZT and modulating gas heat installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Input	30306	30307
AV-11308	Duct Static Pressure Setpoint High Limit Setpoint BAS	Duct Static Pressure Setpoint High Limit is used to limit fan speed prevent damage to equipment	System Type Configured as VVDA	Write	Setpoint Simple with Priority Array	INCHES_ OF_ WATER	1	5	0	Holding	40202	40203

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11309	Duct Static Pressure Setpoint High Limit Setpoint BAS - Active	Active Duct Static Pressure Setpoint High Limit is used to limit fan speed prevent damage to equipment	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array	INCHES_OF_WATER	1	5	0	Input	30390	30391
AV-11314	Comfort Purge Interval (minutes)	User adjustable setpoint used to set the amount of time the compressor will run on the reheat circuit before entering Comfort Purge Cycle.	Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	60	120	0	Holding	40246	40247
AV-11315	Reheat Purge Interval (minutes)	User adjustable setpoint used to set the amount of time the compressors on the reheat circuit will operate in Reheat mode before entering Reheat Purge Cycle.	Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	60	180	0	Holding	40248	40249
AV-11316	Reheat P-Gain 1	Proportional gain for 1st loop Reheat PI controller (%/F)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	PERCENT	0.1	100	0	Holding	40222	40223
AV-11316	Reheat P-Gain 1	Proportional gain for 1st loop Reheat PI controller (%/F)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	PERCENT	0.1	100	0	Holding	40222	40223
AV-11317	Reheat Reset Time - 1	Reset time for 1st loop Reheat PI controller (second)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	10	3600	0	Holding	40226	40227
AV-11317	Reheat Reset Time - 1	Reset time for 1st loop Reheat PI controller (second)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	10	3600	0	Holding	40226	40227
AV-11318	Reheat P-Gain 2	Proportional gain for 2nd loop Reheat PI controller (%/F)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	PERCENT	0.1	100	0	Holding	40228	40229
AV-11318	Reheat P-Gain 2	Proportional gain for 2nd loop Reheat PI controller (%/F)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	PERCENT	0.1	100	0	Holding	40228	40229
AV-11319	Reheat Reset Time - 2	Reset time for discharge air Reheat PI controller (second)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	10	3600	0	Holding	40232	40233
AV-11319	Reheat Reset Time - 2	Reset time for discharge air Reheat PI controller (second)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	NO_UNITS	10	3600	0	Holding	40232	40233

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11320	Space Dew Point Setpoint BAS	User adjustable setpoint used to set the maximum Space Dew Point Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40234	40235
AV-11321	Dew Point Setpoint Offset BAS	User adjustable setpoint used to set the maximum Space Dew Point Setpoint Offset in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	2	20	0	Holding	40238	40239
AV-11323	Outdoor Air Dew Point Setpoint BAS	User adjustable setpoint used to set the Outdoor Air Dew Point Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40240	40241
AV-11326	Space Dehumidification Setpoint Offset BAS	Setting for unit to use for applying a % offset to the space relative humidity setpoint.	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	PERCENT	2	20	0	Holding	40242	40243
AV-11327	Space Dehumidification Setpoint BAS	Setting for unit to use to control dehumidification.	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	PERCENT	40	60	0	Holding	40244	40245
AV-11329	Space Dehumidification Unoccupied Setpoint BAS	Used to define the (occupied) space dehumidification setpoint	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	PERCENT	40	65	0	Holding	40258	40259
AV-11330	Space Dew Point Unoccupied Setpoint BAS	User adjustable setpoint used to set the maximum Space Dew Point Unoccupied Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Holding	40236	40237
AV-11331	Compressor Dehumid P-Gain 2	Proportional Gain for 2nd loop Compressor Dehumid PI controller (%/deg F)	Hot Gas Reheat is configured as Installed	Write	NA	DE-GREES_ FAHREN-HEIT	0.1	80	0	Holding	40250	40251
AV-11332	Compressor Dehumid P-Gain 1	Proportional gain for 1st loop Compressor Dehumid PI controller (%/F)	Hot Gas Reheat is configured as Installed	Write	NA	DE-GREES_ FAHREN-HEIT	0.1	80	0	Holding	40252	40253

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11333	Compressor Dehumid Reset Time - 2 (seconds)	Reset time for 2nd loop compressor Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	NO_ UNITS	1	1000	0	Holding	40230	40231
AV-11334	Compressor Dehumid Reset Time - 1 (seconds)	Reset time for 1st loop Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40224	40225
AV-11335	Pre Cool Setpoint BAS	Defines the space temp above which Pre Cool is enabled	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor or System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	90	0	Holding	40254	40255
AV-11336	Pre Cool Setpoint BAS - Active	Active value for Pre Cool Setpoint BAS point being used for control.	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor or System Type is Configured as VVDA	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	90	0	Input	30404	30405
AV-11337	Refrigerant Target Setpoint Active	Indicates the refrigerant target setpoint actively being used for dehumidification control.	Hot Gas Reheat is Configured as installed	Read	NA	DE-GREES_ FAHREN-HEIT	39	200	0	Input	30406	30407
AV-11338	Space Dew Point Setpoint Active	Indicates the Occupied Space Dew Point Setpoint actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30410	30411
AV-11340	Dew Point Setpoint Offset BAS - Active	Indicates the Dew Point Setpoint Offset actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	2	20	0	Input	30414	30415
AV-11341	Outdoor Air Dew Point Setpoint BAS - Active	Indicates the Outdoor Air Dew Point Setpoint Offset actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	80	0	Input	30416	30417

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11342	Unoccupied Dehumidification Timer	User adjustable time the space relative humidity is controlled <65% in unoccupied mode.	Hot Gas Reheat is Configured as installed	Write	NA	NO_ UNITS	0	720	0	Holding	40270	40271
AV-11343	Heating Reset Amount	Discharge air heating amount to reset between start and end temperatures	System Type is Configured as VVDA and Primary Heat is Configured.	Write	NA	DELTA_ DE-GREES_ FAHREN-HEIT	0	20	0	Holding	40264	40265
AV-11344	VAV Box Stroke Timer	User adjustable VAV Box Stroke time that should be allowed for full airflow modes of operation.	System Type is Configured as VVDA	Write	NA	NO_ UNITS	0	600	0	Holding	40268	40269
AV-11346	Economizer Cooling P-Gain (%/F)	Proportional gain for VVDA systems Econ PI controller (%/F).	System Type Configured as VVDA and Outside Air is Configured as 0-100%	Write	NA	PERCENT	0.1	100	0	Holding	40272	40273
AV-11347	Economizer Cooling Reset Time (Seconds)	Reset time for VVDA systems Econ PI controller (in seconds).	System Type Configured as VVDA and Outside Air is Configured as 0-100%	Write	NA	NO_ UNITS	10	3600	0	Holding	40274	40275
AV-11348	Economizer Cooling P-Gain - 2 (%/F)	Proportional gain for 2nd loop Econ PI controller (%/F), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is Configured as 0-100%	Write	NA	PERCENT	0.1	100	0	Holding	40276	40277
AV-11349	Economizer Cooling Reset Time -2 (Seconds)	Reset time for 2nd loop Econ PI controller (seconds), for CVZT/ VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is Configured as 0-100%	Write	NA	NO_ UNITS	10	3600	0	Holding	40278	40279
AV-11350	Auxiliary Heating P-Gain - 1 (%/F)	Space control proportional gain for 1st loop Heating PI controller (%/F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	PERCENT	0.1	100	0	Holding	40280	40281
AV-11351	Auxiliary Heating Reset Time - 1 (seconds)	Space control reset Time for 1st loop Auxiliary Heating PI Controller (in seconds)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40282	40283
AV-11352	Auxiliary Heating P-Gain - 2 (%/F)	Space control proportional gain for 2nd loop Heating PI controller (%/F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	PERCENT	0.1	100	0	Holding	40284	40285

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11353	Auxiliary Heating Reset Time - 2 (seconds)	Space control reset Time for 2nd loop Auxiliary Heating PI Controller (in seconds)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	NO_ UNITS	10	3600	0	Holding	40286	40287
AV-11354	Discharge Air Heating Setpoint Low Limit	Discharge Air Heating Setpoint Low Limit (deg F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Holding	40288	40289
AV-11355	Discharge Air Heating Setpoint Low Limit - Active	Active value for Discharge Air Heating Setpoint Low Limit point being used for control.	System type VVZT with Modulating Gas Auxiliary Heat Installed	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Input	30432	30433
AV-11356	Discharge Air Cooling Setpoint Status	Indicates actual discharge air cooling setpoint value being used for control	System Type is Configured as VVDA	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200	0	Input	30434	30435
AV-11357	Discharge Air Heating Setpoint Status	Indicates actual discharge air heating setpoint value being used for control	System Type is Configured as VVDA and Primary Heating Source is Installed	Read	NA	DE-GREES_ FAHREN-HEIT	-40	200	0	Input	30436	30437
AV-11358	Discharge Air Reheating Setpoint High Limit - Active	Active value for Discharge Air Reheating Setpoint High Limit point being used for control.	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Input	30438	30439
AV-11359	Discharge Air Reheating Setpoint Low Limit - Active	Active value for Discharge Air Reheating Setpoint Low Limit point being used for control.	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	150	0	Input	30440	30441
AV-11360	Discharge Air Reheating Setpoint High Limit	Discharge Air Reheating Setpoint High Limit (deg F)	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	50	150	0	Holding	40292	40293

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11361	Discharge Air Reheating Setpoint Low Limit	Discharge Air Reheating Setpoint Low Limit (deg F)	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	DE-GREES_ FAHREN-HEIT	40	150	0	Holding	40294	40295
AV-11362	Run Time - Gas Heat Manifold 1 Burner 1 (Hours)	Gas heat runtime	Modulating gas heat is configured	Read	NA	NO_ UNITS	0	200000	0	Input	30442	30443
AV-11363	Starts - Gas Heat Manifold 1 Burner 1	Gas heat starts	Modulating gas heat is configured	Read	NA	NO_ UNITS	0	150000-0	0	Input	30444	30445
AV-11364	Run Time - Gas Heat Manifold 1 Burner 2 (Hours)	Gas heat runtime	Modulating gas heat is configured	Read	NA	NO_ UNITS	0	200000	0	Input	30446	30447
AV-11365	Starts - Gas Heat Manifold 1 Burner 2	Gas heat starts	Modulating gas heat is configured	Read	NA	NO_ UNITS	0	150000-0	0	Input	30448	30449
AV-11368	Auxiliary Heating P-Gain Modulating Gas Staging (%/F)	Proportional gain for 2nd loop- Staging control for Modulating Gas Heating	Modulating gas heat is configured	Write	NA	PERCENT	0.1	100	0	Holding	40306	40307
AV-11369	Auxiliary Heating Reset Time Modulating Gas Staging (seconds)	Reset Time for 2nd loop- Staging control for Modulating Gas Heating	Modulating gas heat is configured	Write	NA	NO_ UNITS	10	3600	0	Holding	40308	40309
AV-11375	Run Time - Circuit 1 Condenser Defrost (Hours)	Circuit 1 Condenser Defrost Run Time	Heat Pump Systems	Read	NA	NO_ UNITS	0	200000	0	Input	30454	30455
AV-11376	Starts - Circuit 1 Condenser Defrost	Circuit 1 Condenser Defrost Starts	Heat Pump Systems	Read	NA	NO_ UNITS	0	150000-0	0	Input	30456	30457
AV-11377	Run Time - Circuit 2 Condenser Defrost (Hours)	Circuit 2 Condenser Defrost Run Time	Heat Pump Systems	Read	NA	NO_ UNITS	0	200000	0	Input	30458	30459

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11378	Starts - Circuit 2 Condenser Defrost	Circuit 2 Condenser Defrost Starts	Heat Pump Systems	Read	NA	NO_ UNITS	0	150000-0	0	Input	30460	30461
AV-11383	Condenser Fan Capacity	Indicates the status of the total unit condenser fan capacity.		Read	NA	PERCENT	0	100	0	Input	30464	30465
AV-11384	Compressor Cooling Mod P-Gain - 2 (%/F)	Proportional gain for 2nd loop modulating compressor cooling PI controller (%/F)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	PERCENT	0.1	100	0	Holding	40318	40319
AV-11385	Compressor Cooling Mod Reset Time - 2 (seconds)	Reset time for 2nd loop modulating compressor cooling PI controller (second)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	NO_ UNITS	1	1000	0	Holding	40320	40321
AV-11386	Compressor Cooling Mod P-Gain (%/F)	Proportional gain for discharge air control - modulating compressor cooling PI controller (%/F)	System Type Configured as VVDA	Write	NA	PERCENT	0.1	100	0	Holding	40322	40323
AV-11387	Compressor Cooling Mod Reset Time (seconds)	Reset time for discharge air controls - modulating compressor cooling PI controller (seconds)	System Type Configured as VVDA	Write	NA	NO_ UNITS	10	3600	0	Holding	40324	40325
AV-11388	Control State	Control State Status.		Read	NA	NO_ UNITS	0	100	0	Input	30466	30467

Table 4. Binary inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-10105	FDD: Unit Economizing When It Should Not	Diagnostic: Unit Economizing When It Should Not	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	0	Input	33010
BI-10106	FDD: Unit Not Economizing When It Should	Diagnostic: Unit Not Economizing When It Should	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	0	Input	33011
BI-10107	FDD: Excessive Outdoor Air	Diagnostic: Excessive Air	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	0	Input	33012
BI-10108	FDD: Outdoor Air Damper Not Modulating	Diagnostic: Damper NOT Modulating	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	0	Input	33013
BI-10121	Relief Fan Output Status	Indicates the status of the Relief fan output on the controller	Space Pressure Control is Configured	Read	NA	false = Off true = On	0	Input	33014
BI-10143	VAV Box Command	Indicates whether the associated VAV boxes should be AUTO or forced open	System Type is Configured as VVDA	Read	NA	false = Off true = On	0	Input	33015
BI-10170	Condensate Overflow Input	Indicates the status of the condensate overflow input	Condensate Overflow Switch is Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33017
BI-10172	Occupancy Input	Indicates the status of the wired occupancy input	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor with/without Outside Air Configured as 0-100% or System Type is Configured as VVDA	Read	Sensor Complex	false = Occupied true = Unoccupied	0	Input	33018
BI-10210	Equipment Shutdown Input Status	Indicates the status of the equipment shutdown function of the unit	Always	Read	NA	false = Equipment Run true = Equipment Shutdown	0	Input	33019
BI-10211	External Auto Stop Input Status	Indicates the status of the externally wired auto/stop input	External Auto/Stop Configured as Installed	Read	NA	false = Stop true = Auto	1	Input	33020
BI-10219	Economizer Airside Status	Indicates the status of airside economizing	Outside Air is Configured as 0-100%	Read	NA	false = Inactive true = Active	0	Input	33021
BI-10226	Supply Fan Status	Indicates the status of the supply fan output of the controller	Always	Read	NA	false = Off true = On	0	Input	33022
BI-11100	Compressor 1 Command Status	Compressor 1 Run Command Status	Efficiency is not Configured as High	Read	NA	false = Off true = On	0	Input	33023

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11101	Circuit 1 LPC Status	Circuit 1 LPC Input Status	Always	Read	NA	false = Open true = Closed	0	Input	33024
BI-11102	Compressor 1 Proving Status	Status of input for monitoring Compressor 1 proof of operation circuit.	Always	Read	NA	false = Not Proved true = Proved	0	Input	33025
BI-11103	Compressor 2 Command Status	Compressor 2 Run Command Status	Multi-Compressor Systems	Read	NA	false = Off true = On	0	Input	33026
BI-11105	Compressor 2 Proving Status	Status of input for monitoring Compressor 2 proof of operation circuit.	Multi-Compressor Systems	Read	NA	false = Not Proved true = Proved	0	Input	33028
BI-11111	Compressor 2 Unloader Command Status	Compressor 2 Unloader Command Status	Unloading Compressors Installed	Read	NA	false = Off true = On	0	Input	33033
BI-11113	Demand Limit Input	Configurable, hardwired input to command Demand Limit	Demand Management Configured as Demand Limit	Read	Setpoint Simple BAS	false = Not Limited true = Limited	0	Input	33035
BI-11114	Demand Shed Input	Configurable, hardwired input to command Demand Shed	Demand Management Configured as Demand Shed	Read	NA	false = Off true = On	0	Input	33036
BI-11115	Phase Monitor Status	Status of local Phase Monitor Input	Always	Read	NA	false = Tripped true = Okay	0	Input	33037
BI-11116	Condenser Fan 1 Command Status	Condenser Fan 1 Run Command Status	Always	Read	NA	false = Off true = On	0	Input	33038
BI-11117	Condenser Fan 2 Command Status	Condenser Fan 2 Run Command Status	Dual Condenser Fan Systems	Read	NA	false = Off true = On	0	Input	33039
BI-11118	Switchover Valve 1 Command Status	Status of Switchover Valve Command for HP Circuit 1	Heat Pump Systems	Read	NA	false = Off true = On	0	Input	33040
BI-11120	Thermostat G Input	Thermostat Fan Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33042
BI-11121	Thermostat W1/ O Input	Thermostat Heat Stage 1 Request or Thermostat Heat/Cool Mode Request for HP	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33043

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11122	Thermostat W2 Input	Thermostat Heat Stage 2 Request (or Emergency Heat)	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33044
BI-11123	Thermostat X2 Input	Thermostat Emergency Heat Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33045
BI-11124	Thermostat Y1 Input	Thermostat Compressor Stage 1 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33046
BI-11125	Thermostat Y2 Input	Thermostat Compressor Stage 2 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33047
BI-11127	FroStat Input	Status of Hardwired Frostat Input	FroStat Configured as Installed	Read	NA	false = Open true = Closed	1	Input	33049
BI-11128	Electric Heat Stage 1 Status	Status of Electric Heat Stage 1 command	One or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	0	Input	33050
BI-11129	Electric Heat Stage 2 Status	Status of Electric Heat Stage 2 command	Two or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	0	Input	33051
BI-11130	Clogged Filter Input	Status of Hardwired Clogged Filter Input	Clogged Filter Configured as Installed	Read	NA	false = Clean true = Dirty Filter	0	Input	33052
BI-11133	Ventilation Override Exhaust Status	Hardwired input VOM Exhaust	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33054
BI-11134	Ventilation Override Pressurize Status	Hardwired input VOM Pressurize	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33055
BI-11135	Ventilation Override Purge Status	Hardwired input VOM Purge	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33056
BI-11143	Reheat Humidistat Input	Hardwired input to support dehumidification requests on hot gas reheat units.	Humidistat is Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33059
BI-11149	Fan Mode - Air-Fi	Supply Fan Mode as set from a wireless sensor connected to the controller.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensors and System Type is Configured as VVZT or CVZT	Read	NA	false = Cycling true = Continuous	0	Input	33064

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11150	Occupancy Input - Air-Fi	Local Occupancy Input as detected by a wireless sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	Sensor Complex	false = Occupied true = Unoccupied	0	Input	33065
BI-11151	Fan Mode Input	Supply Fan Mode as set from a wired sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	NA	false = Cycling true = Continuous	0	Input	33066
BI-11152	Supply Air Smoke Detector Status	Status of Hardwired Supply Air Smoke Detector Input	Supply Air Smoke Detector Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33067
BI-11153	Return Air Smoke Detector Status	Status of Hardwired Return Air Smoke Detector Input	Return Air Smoke Detector Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33068
BI-11154	Gas Heat Stage 1 Status	Status of gas heat Stage 1	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	0	Input	33069
BI-11155	Gas Heat Stage 2 Status	Status of gas heat Stage 2	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	0	Input	33070
BI-11156	Diagnostic: ERM Supply Fan Locked Motor - 1	Diagnostic: ERM Supply Fan Locked Motor - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33071
BI-11157	Diagnostic: ERM Supply Fan Locked Motor - 2	Diagnostic: ERM Supply Fan Locked Motor - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33072
BI-11158	Diagnostic: ERM Supply Fan Motor Overheated - 1	Diagnostic: ERM Supply Fan Motor Overheated - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33073
BI-11159	Diagnostic: ERM Supply Fan Motor Overheated - 2	Diagnostic: ERM Supply Fan Motor Overheated - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33074
BI-11160	Diagnostic: ERM Supply Fan Power Mod Overheated - 1	Diagnostic: ERM Supply Fan Power Mod Overheated - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33075

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11161	Diagnostic: ERM Supply Fan Power Mod Overheated - 2	Diagnostic: ERM Supply Fan Power Mod Overheated - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33076
BI-11162	Diagnostic: ERM Fault Supply Fan - 1	Diagnostic: ERM Fault Supply Fan - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33077
BI-11163	Diagnostic: ERM Fault Supply Fan - 2	Diagnostic: ERM Fault Supply Fan - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33078
BI-11164	Diagnostic: IGN1 Module Lockout	Diagnostic: IGN1 Module Lockout	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33079
BI-11165	Diagnostic: IGN1 Heating High Temp Limit Open	Diagnostic: IGN1 Heating High Temp Limit Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33080
BI-11166	Diagnostic: IGN1 Flame Rollout Switch Open	Diagnostic: IGN1 Flame Rollout Switch Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33081
BI-11167	Diagnostic: IGN1 Inducer Proving Switch Fail Closed	Diagnostic: IGN1 Inducer Proving Switch Fail Closed	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33082
BI-11168	Diagnostic: IGN1 Inducer Proving Switch Fail Open	Diagnostic: IGN1 Inducer Proving Switch Fail Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33083
BI-11169	Diagnostic: IGN1 No Flame Sensed on Ignition	Diagnostic: IGN1 No Flame Sensed on Ignition	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33084
BI-11170	Diagnostic: IGN1 Flame Sensed w/Gas Valve Off	Diagnostic: IGN1 Flame Sensed w/Gas Valve Off	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33085
BI-11171	Diagnostic: IGN1 Hardware Configuration Error	Diagnostic: IGN1 Hardware Configuration Error	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33086
BI-11172	Diagnostic: IGN1 Weak Flame	Diagnostic: IGN1 Weak Flame	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33087

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11173	Diagnostic: IGN1 Gas Valve Error	Diagnostic: IGN1 Gas Valve Error	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33088
BI-11174	Diagnostic: IGN1 Module Failure	Diagnostic: IGN1 Module Failure	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	0	Input	33089
BI-11175	Diagnostic: ERM Supply Fan Phase Failure -1	Diagnostic: ERM Supply Fan Phase Failure -1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33180
BI-11176	Diagnostic: ERM Supply Fan Phase Failure - 2	Diagnostic: ERM Supply Fan Phase Failure - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33181
BI-11177	Diagnostic: ERM Supply Fan Internal Comm Failure - 1	Diagnostic: ERM Supply Fan Internal Comm Failure - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33182
BI-11178	Diagnostic: ERM Supply Fan Internal Comm Failure - 2	Diagnostic: ERM Supply Fan Internal Comm Failure - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33183
BI-11179	Diagnostic: ERM Supply Fan Hall Sensor Error -1	Diagnostic: ERM Supply Fan Hall Sensor Error -1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33184
BI-11180	Diagnostic: ERM Supply Fan Hall Sensor Error -2	Diagnostic: ERM Supply Fan Hall Sensor Error -2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33185
BI-11181	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 1	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33186
BI-11182	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 2	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33187
BI-11183	Diagnostic: ERM Supply Fan Rotor Calibration - 1	Diagnostic: ERM Supply Fan Rotor Calibration - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33188

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11184	Diagnostic: ERM Supply Fan Rotor Calibration - 2	Diagnostic: ERM Supply Fan Rotor Calibration - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33189
BI-11185	Diagnostic: ERM Supply Fan DC link Undervoltage - 1	Diagnostic: ERM Supply Fan DC-link Undervoltage - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	0	Input	33190
BI-11186	Diagnostic: ERM Supply Fan DC link Undervoltage - 2	Diagnostic: ERM Supply Fan DC-link Undervoltage - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	0	Input	33191
BI-11187	Reheat Pumpout Solenoid Status	Reheat Pumpout Solenoid IMC Command Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Off true = On	0	Input	33195
BI-11189	Reheat Valve 1 Fault Status	Reheat Valve 1 Fault Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33196
BI-11190	Reheat Valve 1 Calibration Status	Reheat Valve 1 Calibration Status from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33199
BI-11192	VAV Changeover Input	VAV Changeover Request	System Type is Configured as VVDA	Read	NA	false = Open true = Closed	0	Input	33093
BI-11193	Crankcase Heater Command	Crankcase Heater status for VSPD Compressor		Read	NA	false = Off true = On	0	Input	33206
BI-11195	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 1	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33212
BI-11196	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 2	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33213
BI-11197	Diagnostic: Modulating Gas Invalid ID Plug Manifold 1	Gas heat ignition controller detected an invalid or failed ID Plug	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33214

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11198	Diagnostic: Modulating Gas Heat Configuration Invalid	Unit controller configuration does not match gas heat ignition controller ID Plug configuration	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33215
BI-11199	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 1	Weak flame or aged flame rod detected on burner 1	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33216
BI-11200	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 2	Weak flame or aged flame rod detected on burner 2	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33217
BI-11201	Diagnostic: Gas Heat Insufficient Combustion Air	Gas heat is being derated/reduced due to insufficient combustion air	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33218
BI-11202	Diagnostic: Modulating Gas Primary Limit Open Manifold 1	Gas heat failure, primary limit detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33219
BI-11203	Diagnostic: Modulating Gas Heat Open Fuse Manifold 1	Gas heat failure, fuse detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33220
BI-11204	Diagnostic: Gas Heat Failed Ignition Manifold 1	Gas heat is locked out for one hour due to failed ignition attempts	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33221
BI-11205	Diagnostic: Modulating Gas Valve Failure Manifold 1	Modulating gas valve did not reach park or full On position	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33222
BI-11206	Diagnostic: Modulating Gas Control Board Failure Manifold 1	Ignition control board failure during startup self test	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33223

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11231	Diagnostic: Gas Heat Lockout Manifold 1	Modulating gas heat ignition controller operation is locked out.	Modulating Gas Heat Configured	Read	NA	false = Inactive true = Active	0	Input	33248
BI-11235	Diagnostic: Gas Heat Failed Ignition Manifold 1 Burner 2	Modulating gas heat ignition controller burner 2 operation failed ignition.	Modulating gas heat configured	Read	NA	false = Inactive true = Active	0	Input	33252
BI-11237	Diagnostic: VFD Cprsr Current Overload - Cprsr 1	Diagnostic: VFD Cprsr Current Overload - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	0	Input	33057
BI-11238	Diagnostic: VFD Compressor Ground Fault - Cprsr 1	Diagnostic: VFD Compressor Ground Fault - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	0	Input	33260
BI-11239	Diagnostic: VFD Compressor Short Circuit - Cprsr 1	Diagnostic: VFD Compressor Short Circuit - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	0	Input	33261
BI-11240	Diagnostic: VFD Compressor In Hand Mode - Cprsr 1	Diagnostic: VFD Compressor In Hand Mode - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	0	Input	33262
BI-11241	Diagnostic: Gas Heat Air Pressure Sensor Reading Low	Modulating gas heat ignition controller, air pressor sensor is reading low	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33264
BI-11242	Diagnostic: Gas Heat Air Pressure Sensor Reading High	Modulating gas heat ignition controller, air pressor sensor is reading high, air pressure switch failed to close	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33265
BI-11243	Diagnostic: Gas Heat Loss of Inducer Motor Control	Modulating gas heat ignition controller, loss of inducer motor control	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33266
BI-11244	Diagnostic: Gas Heat Air Sensor Null Pressure Check	Modulating gas heat ignition controller, air sensor null pressure check out of tolerance	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33267

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11245	Diagnostic: Gas Heat Limited Low Fire	Modulating gas heat ignition controller, flame loss at low fire results in an auto-adjustment that limits the burner turn down during the rest of the current call for heat.	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33268
BI-11246	Heating Output Operational Limit	Heating capacity is being limited due to heat rise across gas furnace.	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33269

Table 5. Binary values

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-10105	FDD: Unit Economizing When It Should Not	Diagnostic: Unit Economizing When It Should Not	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	Input	33010
BI-10106	FDD: Unit Not Economizing When It Should	Diagnostic: Unit Not Economizing When It Should	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	Input	33011
BI-10107	FDD: Excessive Outdoor Air	Diagnostic: Excessive Air	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	Input	33012
BI-10108	FDD: Outdoor Air Damper Not Modulating	Diagnostic: Damper NOT Modulating	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true = Active	Input	33013
BI-10121	Relief Fan Output Status	Indicates the status of the Relief fan output on the controller	Space Pressure Control is Configured	Read	NA	false = Off true = On	Input	33014
BI-10143	VAV Box Command	Indicates whether the associated VAV boxes should be AUTO or forced open	System Type is Configured as VVDA	Read	NA	false = Off true = On	Input	33015
BI-10170	Condensate Overflow Input	Indicates the status of the condensate overflow input	Condensate Overflow Switch is Configured as Installed	Read	NA	false = Open true = Closed	Input	33017
BI-10172	Occupancy Input	Indicates the status of the wired occupancy input	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor with/without Outside Air Configured as 0-100% or System Type is Configured as VVDA	Read	Sensor Complex	false = Occupied true = Unoccupied	Input	33018
BI-10210	Equipment Shutdown Input Status	Indicates the status of the equipment shutdown function of the unit	Always	Read	NA	false = Equipment Run true = Equipment Shutdown	Input	33019
BI-10211	External Auto Stop Input Status	Indicates the status of the externally wired auto/stop input	External Auto/Stop Configured as Installed	Read	NA	false = Stop true = Auto	Input	33020
BI-10219	Economizer Airside Status	Indicates the status of airside economizing	Outside Air is Configured as 0-100%	Read	NA	false = Inactive true = Active	Input	33021

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-10226	Supply Fan Status	Indicates the status of the supply fan output of the controller	Always	Read	NA	false = Off true = On	Input	33022
BI-11100	Compressor 1 Command Status	Compressor 1 Run Command Status	Efficiency is not Configured as High	Read	NA	false = Off true = On	Input	33023
BI-11101	Circuit 1 LPC Status	Circuit 1 LPC Input Status	Always	Read	NA	false = Open true = Closed	Input	33024
BI-11102	Compressor 1 Proving Status	Status of input for monitoring Compressor 1 proof of operation circuit.	Always	Read	NA	false = Not Proved true = Proved	Input	33025
BI-11103	Compressor 2 Command Status	Compressor 2 Run Command Status	Multi-Compressor Systems	Read	NA	false = Off true = On	Input	33026
BI-11105	Compressor 2 Proving Status	Status of input for monitoring Compressor 2 proof of operation circuit.	Multi-Compressor Systems	Read	NA	false = Not Proved true = Proved	Input	33028
BI-11111	Compressor 2 Unloader Command Status	Compressor 2 Unloader Command Status	Unloading Compressors Installed	Read	NA	false = Off true = On	Input	33033
BI-11113	Demand Limit Input	Configurable, hardwired input to command Demand Limit	Demand Management Configured as Demand Limit	Read	Setpoint Simple BAS	false = Not Limited true = Limited	Input	33035
BI-11114	Demand Shed Input	Configurable, hardwired input to command Demand Shed	Demand Management Configured as Demand Shed	Read	NA	false = Off true = On	Input	33036
BI-11115	Phase Monitor Status	Status of local Phase Monitor Input	Always	Read	NA	false = Tripped true = Okay	Input	33037
BI-11116	Condenser Fan 1 Command Status	Condenser Fan 1 Run Command Status	Always	Read	NA	false = Off true = On	Input	33038
BI-11117	Condenser Fan 2 Command Status	Condenser Fan 2 Run Command Status	Dual Condenser Fan Systems	Read	NA	false = Off true = On	Input	33039
BI-11118	Switchover Valve 1 Command Status	Status of Switchover Valve Command for HP Circuit 1	Heat Pump Systems	Read	NA	false = Off true = On	Input	33040
BI-11120	Thermostat G Input	Thermostat Fan Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33042

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11121	Thermostat W1/ O Input	Thermostat Heat Stage 1 Request or Thermostat Heat/Cool Mode Request for HP	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33043
BI-11122	Thermostat W2 Input	Thermostat Heat Stage 2 Request (or Emergency Heat)	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33044
BI-11123	Thermostat X2 Input	Thermostat Emergency Heat Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33045
BI-11124	Thermostat Y1 Input	Thermostat Compressor Stage 1 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33046
BI-11125	Thermostat Y2 Input	Thermostat Compressor Stage 2 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	Input	33047
BI-11127	FroStat Input	Status of Hardwired Frostat Input	FroStat Configured as Installed	Read	NA	false = Open true = Closed	Input	33049
BI-11128	Electric Heat Stage 1 Status	Status of Electric Heat Stage 1 command	One or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	Input	33050
BI-11129	Electric Heat Stage 2 Status	Status of Electric Heat Stage 2 command	Two or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	Input	33051
BI-11130	Clogged Filter Input	Status of Hardwired Clogged Filter Input	Clogged Filter Configured as Installed	Read	NA	false = Clean true = Dirty Filter	Input	33052
BI-11133	Ventilation Override Exhaust Status	Hardwired input VOM Exhaust	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	Input	33054
BI-11134	Ventilation Override Pressurize Status	Hardwired input VOM Pressurize	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	Input	33055
BI-11135	Ventilation Override Purge Status	Hardwired input VOM Purge	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	Input	33056
BI-11143	Reheat Humidistat Input	Hardwired input to support dehumidification requests on hot gas reheat units.	Humidistat is Configured as Installed	Read	NA	false = Open true = Closed	Input	33059

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11149	Fan Mode - Air-Fi	Supply Fan Mode as set from a wireless sensor connected to the controller.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensors and System Type is Configured as VVZT or CVZT	Read	NA	false = Cycling true = Continuous	Input	33064
BI-11150	Occupancy Input - Air-Fi	Local Occupancy Input as detected by a wireless sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	Sensor Complex	false = Occupied true = Unoccupied	Input	33065
BI-11151	Fan Mode Input	Supply Fan Mode as set from a wired sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	NA	false = Cycling true = Continuous	Input	33066
BI-11152	Supply Air Smoke Detector Status	Status of Hardwired Supply Air Smoke Detector Input	Supply Air Smoke Detector Configured as Installed	Read	NA	false = Open true = Closed	Input	33067
BI-11153	Return Air Smoke Detector Status	Status of Hardwired Return Air Smoke Detector Input	Return Air Smoke Detector Configured as Installed	Read	NA	false = Open true = Closed	Input	33068
BI-11154	Gas Heat Stage 1 Status	Status of gas heat Stage 1	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	Input	33069
BI-11155	Gas Heat Stage 2 Status	Status of gas heat Stage 2	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	Input	33070
BI-11156	Diagnostic: ERM Supply Fan Locked Motor - 1	Diagnostic: ERM Supply Fan Locked Motor - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33071
BI-11157	Diagnostic: ERM Supply Fan Locked Motor - 2	Diagnostic: ERM Supply Fan Locked Motor - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33072
BI-11158	Diagnostic: ERM Supply Fan Motor Overheated - 1	Diagnostic: ERM Supply Fan Motor Overheated - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33073
BI-11159	Diagnostic: ERM Supply Fan Motor Overheated - 2	Diagnostic: ERM Supply Fan Motor Overheated - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33074

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11160	Diagnostic: ERM Supply Fan Power Mod Overheated - 1	Diagnostic: ERM Supply Fan Power Mod Overheated - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33075
BI-11161	Diagnostic: ERM Supply Fan Power Mod Overheated - 2	Diagnostic: ERM Supply Fan Power Mod Overheated - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33076
BI-11162	Diagnostic: ERM Fault Supply Fan - 1	Diagnostic: ERM Fault Supply Fan - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33077
BI-11163	Diagnostic: ERM Fault Supply Fan - 2	Diagnostic: ERM Fault Supply Fan - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33078
BI-11164	Diagnostic: IGN1 Module Lockout	Diagnostic: IGN1 Module Lockout	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33079
BI-11165	Diagnostic: IGN1 Heating High Temp Limit Open	Diagnostic: IGN1 Heating High Temp Limit Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33080
BI-11166	Diagnostic: IGN1 Flame Rollout Switch Open	Diagnostic: IGN1 Flame Rollout Switch Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33081
BI-11167	Diagnostic: IGN1 Inducer Proving Switch Fail Closed	Diagnostic: IGN1 Inducer Proving Switch Fail Closed	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33082
BI-11168	Diagnostic: IGN1 Inducer Proving Switch Fail Open	Diagnostic: IGN1 Inducer Proving Switch Fail Open	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33083
BI-11169	Diagnostic: IGN1 No Flame Sensed on Ignition	Diagnostic: IGN1 No Flame Sensed on Ignition	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33084

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11170	Diagnostic: IGN1 Flame Sensed w/Gas Valve Off	Diagnostic: IGN1 Flame Sensed w/Gas Valve Off	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33085
BI-11171	Diagnostic: IGN1 Hardware Configuration Error	Diagnostic: IGN1 Hardware Configuration Error	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33086
BI-11172	Diagnostic: IGN1 Weak Flame	Diagnostic: IGN1 Weak Flame	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33087
BI-11173	Diagnostic: IGN1 Gas Valve Error	Diagnostic: IGN1 Gas Valve Error	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33088
BI-11174	Diagnostic: IGN1 Module Failure	Diagnostic: IGN1 Module Failure	Primary Heating Source is Configured as Gas	Read	NA	false = Inactive true = Active	Input	33089
BI-11175	Diagnostic: ERM Supply Fan Phase Failure -1	Diagnostic: ERM Supply Fan Phase Failure -1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33180
BI-11176	Diagnostic: ERM Supply Fan Phase Failure - 2	Diagnostic: ERM Supply Fan Phase Failure - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33181
BI-11177	Diagnostic: ERM Supply Fan Internal Comm Failure - 1	Diagnostic: ERM Supply Fan Internal Comm Failure - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33182
BI-11178	Diagnostic: ERM Supply Fan Internal Comm Failure - 2	Diagnostic: ERM Supply Fan Internal Comm Failure - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33183
BI-11179	Diagnostic: ERM Supply Fan Hall Sensor Error -1	Diagnostic: ERM Supply Fan Hall Sensor Error -1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33184
BI-11180	Diagnostic: ERM Supply Fan Hall Sensor Error -2	Diagnostic: ERM Supply Fan Hall Sensor Error -2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33185
BI-11181	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 1	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33186

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11182	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 2	Diagnostic: ERM Supply Fan Speed Limit Exceeded - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33187
BI-11183	Diagnostic: ERM Supply Fan Rotor Calibration - 1	Diagnostic: ERM Supply Fan Rotor Calibration - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33188
BI-11184	Diagnostic: ERM Supply Fan Rotor Calibration - 2	Diagnostic: ERM Supply Fan Rotor Calibration - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33189
BI-11185	Diagnostic: ERM Supply Fan DC link Undervoltage - 1	Diagnostic: ERM Supply Fan DC-link Undervoltage - 1	Tonnage is Configured as 6-25 tons	Read	NA	false = Inactive true = Active	Input	33190
BI-11186	Diagnostic: ERM Supply Fan DC link Undervoltage - 2	Diagnostic: ERM Supply Fan DC-link Undervoltage - 2	Tonnage is Configured as 15-25 tons	Read	NA	false = Inactive true = Active	Input	33191
BI-11187	Reheat Pumpout Solenoid Status	Reheat Pumpout Solenoid IMC Command Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Off true = On	Input	33195
BI-11189	Reheat Valve 1 Fault Status	Reheat Valve 1 Fault Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	Input	33196
BI-11190	Reheat Valve 1 Calibration Status	Reheat Valve 1 Calibration Status from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	Input	33199
BI-11192	VAV Changeover Input	VAV Changeover Request	System Type is Configured as VVDA	Read	NA	false = Open true = Closed	Input	33093
BI-11193	Crankcase Heater Command	Crankcase Heater status for VSPD Compressor		Read	NA	false = Off true = On	Input	33206
BI-11195	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 1	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33212

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11196	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 2	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33213
BI-11197	Diagnostic: Modulating Gas Invalid ID Plug Manifold 1	Gas heat ignition controller detected an invalid or failed ID Plug	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33214
BI-11198	Diagnostic: Modulating Gas Heat Configuration Invalid	Unit controller configuration does not match gas heat ignition controller ID Plug configuration	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33215
BI-11199	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 1	Weak flame or aged flame rod detected on burner 1	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33216
BI-11200	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 2	Weak flame or aged flame rod detected on burner 2	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33217
BI-11201	Diagnostic: Gas Heat Insufficient Combustion Air	Gas heat is being derated/reduced due to insufficient combustion air	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33218
BI-11202	Diagnostic: Modulating Gas Primary Limit Open Manifold 1	Gas heat failure, primary limit detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33219
BI-11203	Diagnostic: Modulating Gas Heat Open Fuse Manifold 1	Gas heat failure, fuse detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33220
BI-11204	Diagnostic: Gas Heat Failed Ignition Manifold 1	Gas heat is locked out for one hour due to failed ignition attempts	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33221

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11205	Diagnostic: Modulating Gas Valve Failure Manifold 1	Modulating gas valve did not reach park or full On position	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33222
BI-11206	Diagnostic: Modulating Gas Control Board Failure Manifold 1	Ignition control board failure during startup self test	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33223
BI-11231	Diagnostic: Gas Heat Lockout Manifold 1	Modulating gas heat ignition controller operation is locked out.	Modulating Gas Heat Configured	Read	NA	false = Inactive true = Active	Input	33248
BI-11235	Diagnostic: Gas Heat Failed Ignition Manifold 1 Burner 2	Modulating gas heat ignition controller burner 2 operation failed ignition.	Modulating gas heat configured	Read	NA	false = Inactive true = Active	Input	33252
BI-11237	Diagnostic: VFD Cprsr Current Overload - Cprsr 1	Diagnostic: VFD Cprsr Current Overload - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	Input	33057
BI-11238	Diagnostic: VFD Compressor Ground Fault - Cprsr 1	Diagnostic: VFD Compressor Ground Fault - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	Input	33260
BI-11239	Diagnostic: VFD Compressor Short Circuit - Cprsr 1	Diagnostic: VFD Compressor Short Circuit - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	Input	33261
BI-11240	Diagnostic: VFD Compressor In Hand Mode - Cprsr 1	Diagnostic: VFD Compressor In Hand Mode - Cprsr 1	Efficiency == Ultra High	Read	NA	false = Inactive true = Active	Input	33262
BI-11241	Diagnostic: Gas Heat Air Pressure Sensor Reading Low	Modulating gas heat ignition controller, air pressor sensor is reading low	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33264

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read/ Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
BI-11242	Diagnostic: Gas Heat Air Pressure Sensor Reading High	Modulating gas heat ignition controller, air pressor sensor is reading high, air pressure switch failed to close	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33265
BI-11243	Diagnostic: Gas Heat Loss of Inducer Motor Control	Modulating gas heat ignition controller, loss of inducer motor control	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33266
BI-11244	Diagnostic: Gas Heat Air Sensor Null Pressure Check	Modulating gas heat ignition controller, air sensor null pressure check out of tolerance	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33267
BI-11245	Diagnostic: Gas Heat Limited Low Fire	Modulating gas heat ignition controller, flame loss at low fire results in an auto-adjustment that limits the burner turn down during the rest of the current call for heat.	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33268
BI-11246	Heating Output Operational Limit	Heating capacity is being limited due to heat rise across gas furnace.	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	Input	33269

Table 6. Multistate inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	States	Modbus Register Type	Modbus Register 1
MI-10101	Heat Cool Mode Status	Indicates the current heat cool mode of the controller	Always	Read	NA	1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Input	32010
MI-10144	Economizer System Status	Indicates the operating state of the airside economizer system.	Always	Read	NA	1 = Disabled 2 = Enabled 3 = Not Present	Input	32012
MI-11100	System Mode Switch Air-Fi	Indicates the status of the wireless system mode switch connected to the controller.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32013
MI-11101	Timed Override Air-Fi	Indicates the status of the Timed Override wireless input.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Read	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Input	32014
MI-11102	System Mode Switch Input	Indicates the status of the wired system mode switch connected to the controller.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32015
MI-11103	Timed Override Input	Indicates the status of the Timed Override wired input.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Read	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Input	32016

Table 6. Multistate inputs (continued)

MI-11104	Supply Fan 1 ERM Information Alarm Status	Informational alarm status from the ERM supply fan 1.	Tonnage is Configured as 6-25 tons	Read	NA	1 = Normal 2 = Current Limitation in Action 3 = Line Impedance Too High 4 = Power Limiter in Action 5 = Output Stage Temperature High 6 = Motor Temperature High 7 = Temperature Inside Electronics High 8 = DC Link Voltage High 9 = Braking Mode 10 = Calibration of Rotor Position 11 = Actual Speed is Lower Than Run Monitoring Speed Limit 12 = Cable Break at Analog or PWM Input For Analog Set Value 13 = DC Link Voltage Low 14 = Line Voltage High 15 = Shedding Function Active	Input	32040
MI-11105	Supply Fan 2 ERM Information Alarm Status	Informational alarm status from the ERM supply fan 2.	Tonnage is Configured as 15-25 tons	Read	NA	1 = Normal 2 = Current Limitation in Action 3 = Line Impedance Too High 4 = Power Limiter in Action 5 = Output Stage Temperature High 6 = Motor Temperature High 7 = Temperature Inside Electronics High 8 = DC Link Voltage High 9 = Braking Mode 10 = Calibration of Rotor Position 11 = Actual Speed is Lower Than Run Monitoring Speed Limit 12 = Cable Break at Analog or PWM Input For Analog Set Value 13 = DC Link Voltage Low 14 = Line Voltage High 15 = Shedding Function Active	Input	32041

Table 7. Multistate values

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-10101	Cooling Reset Type Status	Indicates the type of cooling reset used by the controller	System Type is Configured as VVDA	Read	NA	1 = None 2 = Outdoor Air 3 = Zone 4 = Return Air	Input	32047
MV-10101	Cooling Reset Type Status	Indicates the type of cooling reset used by the controller	System Type is Configured as VVDA	Read	NA	1 = None 2 = Outdoor Air 3 = Zone 4 = Return Air	Input	32047
MV-10102	Emergency Override BAS	Used to command the unit into an emergency mode of operation	Always	Write	Setpoint Simple with Priority Array	1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Holding	42010
MV-10103	Economizer Airside Enable BAS	Normally provided by the BAS to enable airside economizing	Outside Air is Configured as 0-100% Economizer	Write	Setpoint Simple with Priority Array	1 = Disabled 2 = Enabled 3 = Auto	Holding	42011
MV-10104	Heat Cool Mode Request	Used to command the unit into a heat/cool mode	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Holding	42012
MV-10106	Occupancy Request	Normally used by the BMS to command the unit into an occupancy mode	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Holding	42013
MV-10110	Timed Override Request	Used to request a temporary timed override during unoccupied	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VZT or CVZT or System Type is Configured as VVDA	Write	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Holding	42014

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11100	Arbitration Method Request	Setting for unit to use "Enable External/BAS Control" or "Standalone Control" data prioritization.	Always	Write	NA	1 = Enable External/BAS Control 2 = Standalone Control	Holding	42015
MV-11101	Customer Options Module Communication Status	Communication Status of the Customer Options Module	Customer Options Module Installed and In-Use	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32017
MV-11102	Economizer Type	Indicates the general description of the type of economizer system	Always	Read	NA	1 = None 2 = 2 Position Ventilation 3 = Modulation Economizer 4 = 2 Position Ventilation/ Waterside Economizer 5 = Waterside Economizer 6 = Airside/Waterside Economizer 7 = TRAQ Damper 8 = Airside Economizer and TRAQ Damper/Sensor 9 = Waterside Economizer and TRAQ Damper/Sensor 10 = Airside/Waterside Economizer and TRAQ Damper/ Sensor	Input	32018
MV-11103	Fresh Air Options Module Communication Status	Communication Status of the Fresh Air Options Module	Fresh Air Options Module Installed and In-Use	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32019
MV-11105	Indoor Options Module Communication Status	Communication Status of the Indoor Options Module	Indoor Options Module Installed and In-Use	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32021
MV-11106	On-Board I/O Communication Status	Communication Status of the On-Board Inputs and Outputs	Always	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32022

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Open Reheat Valve 1 10 = Close Reheat Valve 1	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Open Reheat Valve 1 12 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Open Reheat Valve 1 13 = Close Reheat Valve 1	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Heat 1 9 = Heat 2	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Heat 1 10 = Heat 2 11 = Open Reheat Valve 1 12 = Close Reheat Valve 1	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Heat 1 11 = Heat 2	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Heat 1 12 = Heat 2 13 = Open Reheat Valve 1 14 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Heat 1 12 = Heat 2	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Heat 1 13 = Heat 2 14 = Open Reheat Valve 1 15 = Close Reheat Valve 1	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Heat 1 9 = Heat 2 10 = Heat 3 11 = Heat 4 12 = Defrost	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Heat 1 10 = Heat 2 11 = Heat 3 12 = Heat 4 13 = Defrost 14 = Open Reheat Valve 1 15 = Close Reheat Valve 1	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Heat 1 11 = Heat 2 12 = Heat 3 13 = Heat 4 14 = Defrost	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Heat 1 12 = Heat 2 13 = Heat 3 14 = Heat 4 15 = Defrost 16 = Open Reheat Valve 1 17 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Heat 1 12 = Heat 2 13 = Heat 3 14 = Heat 4 15 = Defrost	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Heat 1 13 = Heat 2 14 = Heat 3 15 = Heat 4 16 = Defrost 17 = Open Reheat Valve 1 18 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Heat 1 9 = Heat 2 10 = Heat 3 11 = Heat 4 12 = Aux Heat 1 13 = Aux Heat 2 14 = Defrost 15 = Emergency Heat	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Heat 1 10 = Heat 2 11 = Heat 3 12 = Heat 4 13 = Aux Heat 1 14 = Aux Heat 2 15 = Defrost 16 = Emergency Heat 17 = Open Reheat Valve 1 18 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Heat 1 11 = Heat 2 12 = Heat 3 13 = Heat 4 14 = Aux Heat 1 15 = Aux Heat 2 16 = Defrost 17 = Emergency Heat	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Heat 1 12 = Heat 2 13 = Heat 3 14 = Heat 4 15 = Aux Heat 1 16 = Aux Heat 2 17 = Defrost 18 = Emergency Heat 19 = Open Reheat Valve 1 20 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Heat 1 12 = Heat 2 13 = Heat 3 14 = Heat 4 15 = Aux Heat 1 16 = Aux Heat 2 17 = Defrost 18 = Emergency Heat	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Heat 1 13 = Heat 2 14 = Heat 3 15 = Heat 4 16 = Aux Heat 1 17 = Aux Heat 2 18 = Defrost 19 = Emergency Heat 20 = Open Reheat Valve 1 21 = Close Reheat Valve 1	Holding	42017

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11111	Cooling Reset Type	Selectable discharge air cooling reset type based on outdoor, space, or return air temperature.	System Type is Configured as VVDA	Write	NA	1 = None 2 = Outdoor Air 3 = Zone 4 = Return Air	Holding	42018
MV-11112	System Mode Switch Local	Indicates the status of the system mode switch connected to the controller as arbitrated between wired and wireless sources.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32025
MV-11113	Timed Override Status	Indicates the status of the timed override request	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT or System Type is Configured as VVDA	Read	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Input	32026
MV-11114	Trane Unit Type	Indicates the equipment type according to the manufacturer's classification	Always	Read	NA	1 = 1 Heat/1 Cool 2 = Heat Pump 3 = Blower Coil 4 = Unit Ventilator 5 = Fan Coil 6 = Rooftop 7 = Air Handler 8 = Vertical Self Contained 9 = Unitary 10 = VAV Box	Input	32027
MV-11115	Unit Stop Source	Source of the stop command that turned off the equipment.	Always	Read	NA	1 = None 2 = Emergency Stop 3 = Drain Pan Overflow 4 = Local HI 5 = Remote HI 6 = External Auto Stop 7 = Phase Monitor 8 = Emergency Override 9 = Supply Fan Fault 10 = Equipment Shutdown Input 11 = Smoke Detector 12 = Equipment Limit 13 = Sensor Failure	Input	32028

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11116	Emergency Override BAS - Active	Active value for Emergency Override BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array	1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Input	32029
MV-11118	Economizer Decision Method	Used to indicate the method of enabling airside economizing	Outside Air is configured as 0-100%	Read	NA	1 = Absolute Temperature 2 = Relative Temperature 3 = Absolute Enthalpy 4 = Comparative Enthalpy 5 = Differential Dry Bulb	Input	32030
MV-11119	Refrigerant Type	Indicates the type of refrigerant used in the equipment	Always	Read	NA	1 = R-11 2 = R-12 3 = R-22 4 = R-123 5 = R-134a 6 = R-407C 7 = R-410A 8 = R-113 9 = R-114 10 = R-500 11 = R-502 12 = R-404A 13 = R-513A 14 = R-1233zd(E) 15 = R-514A 16 = R-1234ze(E)	Input	32031
MV-11120	Economizer Airside Enable BAS - Active	Active value for Economizer Airside Enable BAS point being used for control.	Outside Air is configured as 0-100%	Read	Setpoint Simple with Priority Array	1 = Disabled 2 = Enabled 3 = Auto	Input	32032

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11121	Heat Cool Mode Request - Active	Active value for Heat Cool Mode Request point being used for control.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is Configured as VVDA	Read	Setpoint Simple with Priority Array	1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Input	32033
MV-11123	Occupancy Status	Indicates the active occupancy mode of the controller	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	NA	1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Input	32035
MV-11125	Occupancy Request Active	Active Occupancy mode being requested of the unit.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array	1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Input	32037
MV-11126	Supply Fan 1 Communication Status	Communication Status of the Modbus Supply Fan 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32038
MV-11127	Supply Fan 2 Communication Status	Communication Status of the Modbus Supply Fan 2	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32039
MV-11128	Gas Heat Ignition Module 1 Communication Status	Communication Status of the Modbus Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32043

Table 7. Multistate values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MV-11130	Emergency Override Status	Indicates the active Emergency Override mode in control of the equipment	Always	Read	NA	1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Input	32042
MV-11133	Stepper Motor Communication Status	Communication Status of the Stepper Motor Inputs and Outputs	Stepper Motor Module Installed and In-Use	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32045
MV-11136	Heating Reset Type	Selectable discharge air heating reset type of outdoor, space, or return air temperature.	System Type is Configured as VVDA and Heat Installed	Write	NA	1 = None 2 = Outdoor air 3 = Zone 4 = Return Air	Holding	42021
MV-11137	Heating Reset Type Status	Discharge air heating reset type status	System Type is Configured as VVDA	Read	NA	1 = None 2 = Outdoor air 3 = Zone 4 = Return Air	Input	32048
MV-11138	Compressor 1 VFD Communication Status	Communication Status of the Modbus Compressor VFD	Efficiency = Ultra High	Read	NA	1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32050

Appendix A: Arbitrations

Standalone Control vs Enable External/BAS Control

The Symbio™ 700 controller allows for two types of control: standalone control and external/BAS control.

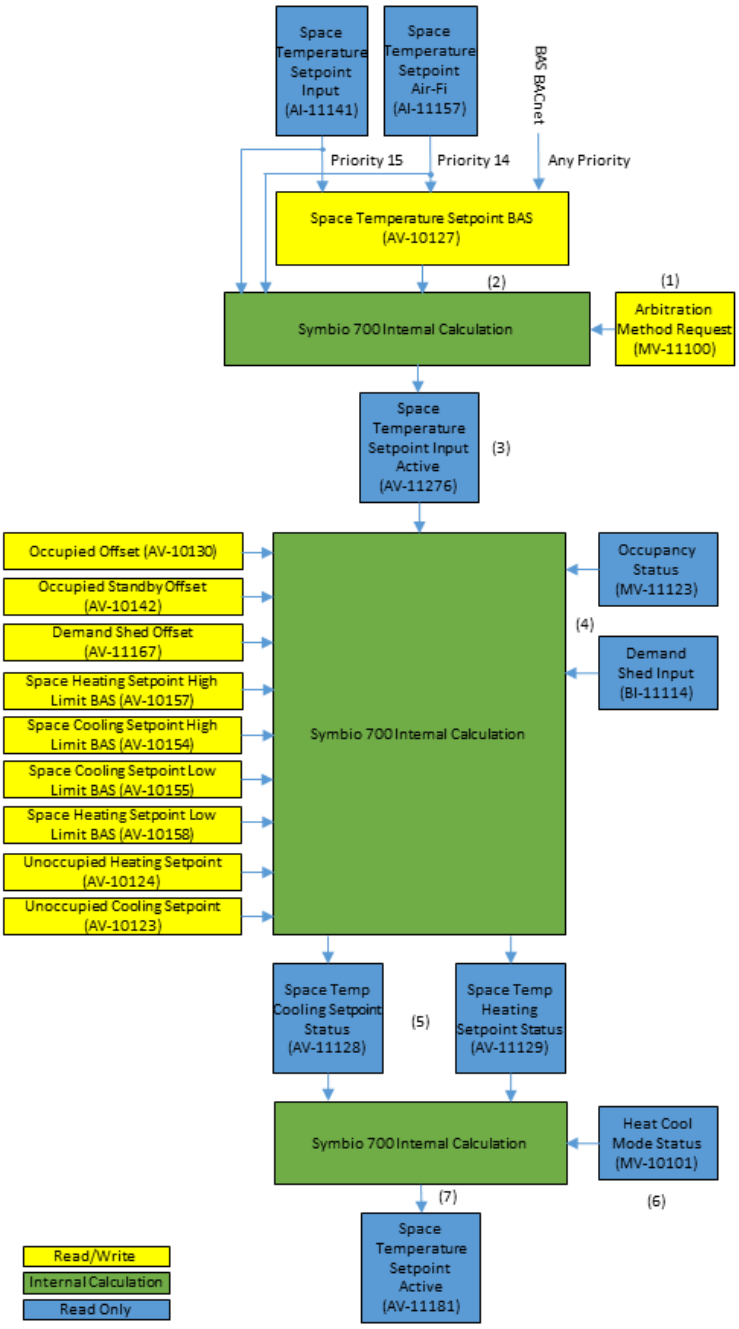
Standalone Control

- The Arbitration Method Request point must be set to **Standalone Control**.
- In Standalone Control, the Symbio™ 700 controller will ignore all BAS input and the only way to control the equipment is through the onboard display or local inputs.
- Standalone Control should only be used in very specific situations as there is limited flexibility on control of the equipment.

Enable External/BAS Control

- The Arbitration Method Request point must be set to **Enable External/BAS Control**.
- In Enable External/BAS Control, the Symbio™ 700 controller will look at all available sources (wired, Air-Fi, BAS, etc) and will determine which option to use based on validity of source. In general if BAS input is not valid, the Symbio™ 700 controller will revert back to Air-Fi or wired inputs for the source.
- Enable External/BAS Control is the default setting for the equipment and is the preferred setup for most situations because of the flexibility it offers.

Space Temperature Setpoint Single Setpoint Method



Single Setpoint Method

The Space Temperature Single Setpoint Arbitration Method is used to determine the correct space temperature setpoint value when you have a single setpoint from various local inputs, wired or wireless, and the potential for a Building Automation System to communicate a value.

There are two methods to determine the Space Temperature Setpoint Active when using a single setpoint. The Symbio™ 700 controller will use the Arbitration Method Request point to determine the method, below is the breakdown of each step.

Standalone Control

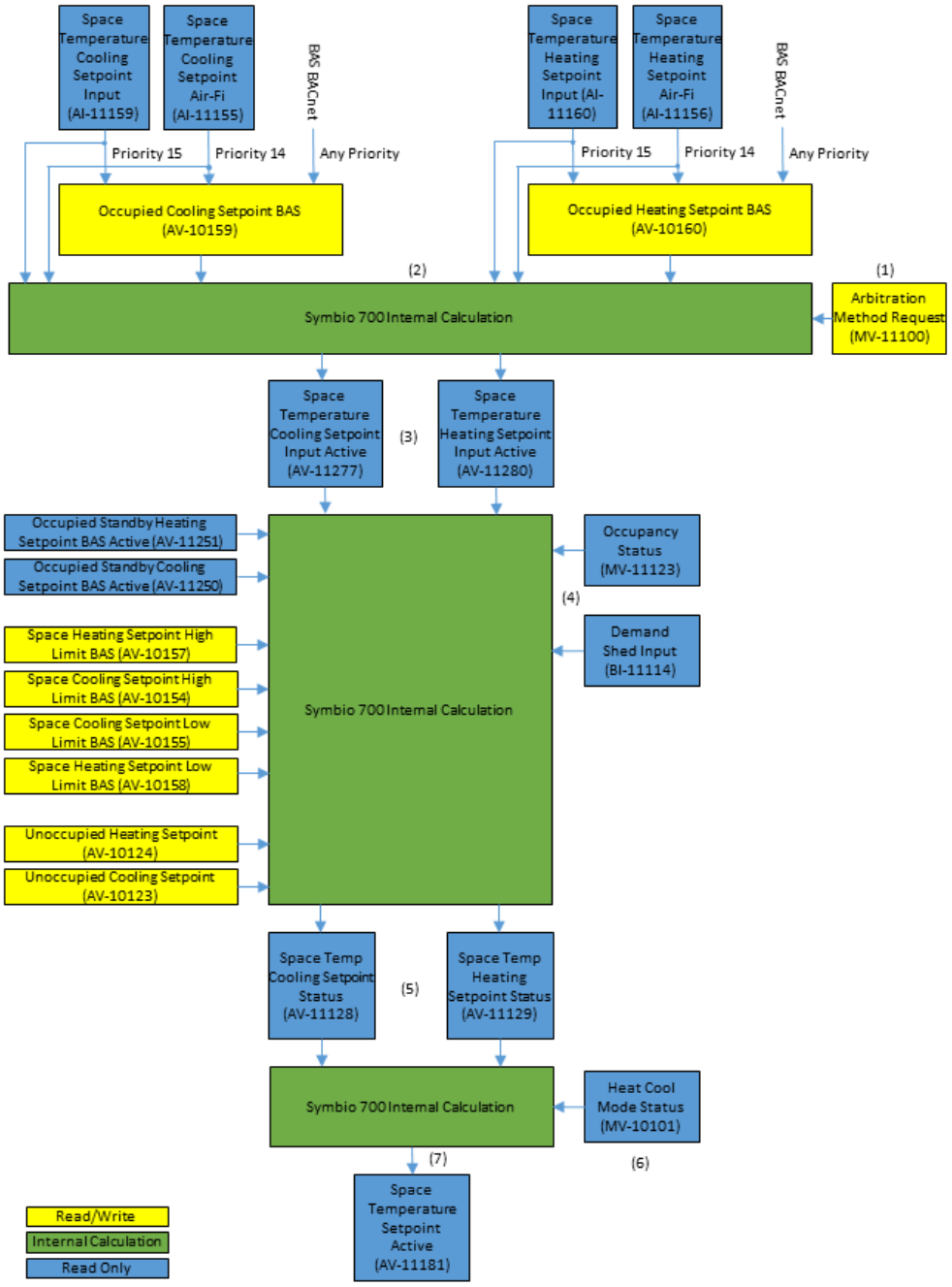
1. The Arbitration Method Request point must be set to Standalone Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. If the Symbio™ 700 controller only has a valid wired sensor input it will use it to determine the active setpoint.
   b. If the Symbio™ 700 controller only has a valid Air-Fi sensor input it will use it to determine the active setpoint.
   c. If the Symbio™ 700 controller has both a valid wired and a valid Air-Fi sensor input it will first use the Air-Fi sensor input to determine the active setpoint. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active setpoint. If both the wired and Air-Fi sensors fail then the Symbio™ 700 controller will use the default setpoint to determine the active setpoint.
   d. The Space Temperature Setpoint BAS point is ignored during Standalone Control.
3. After determining the correct setpoint input to use the Symbio™ 700 controller will write its decision to the Space Temperature Setpoint Input Active point.
4. The Symbio™ 700 controller will then look at the Occupancy Status point and the Demand Shed Input point to determine which offsets to use.
   a. If the Occupancy Status point is Occupied or Occupied Bypass then the Symbio™ 700 will add and subtract the Occupied Offset point amount. If active, the Symbio™ 700 will also add and subtract the Demand Shed Offset Setpoint point amount.
   b. If the Occupancy Status point is Occupied Standby then the Symbio™ 700 will add and subtract the Occupied Standby Offset point amount. If active, the Symbio™ 700 will also add and subtract the Demand Shed Offset Setpoint point amount.
   c. The Symbio™ 700 controller will apply the Space Heating/Cooling Limits to the setpoints.
   d. If the Occupancy Status Point is Unoccupied then the Symbio™ 700 will use the Unoccupied Cooling Setpoint and the Unoccupied Heating Setpoints.
5. After determining the correct Occupancy Status and applying the limits the Symbio™ 700 controller will write the new heating and cooling setpoints to Space Temp Cooling Setpoint Status point and Space Temp Heating Setpoint Status point.
6. The Symbio™ 700 controller will then look at the Heat Cool Mode Status point to determine the correct active setpoint.
   a. If the Heat Cool Mode Status is Heat then the Symbio™ 700 controller will use the Space Temp Heating Setpoint Status.
   b. If the Heat Cool Mode Status is Cool then the Symbio™ 700 controller will use the Space Temp Cooling Setpoint Status.
7. After determining the correct Heat Cool Mode Status the Symbio™ 700 controller will write the correct setpoint to Space Temperature Setpoint Active.

Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at the Space Temperature Setpoint BAS point to determine requested setpoint.
   a. The Space Temperature Setpoint BAS is a BACnet commandable point.
   b. If the Symbio™ 700 controller has a wired setpoint it will show as a priority 15 writing to the Space Temperature Setpoint BAS point. If the Symbio™ 700 controller has an Air-Fi setpoint it will show as a priority 14 writing to the Space Temperature Setpoint BAS point.
   c. In order for the Symbio™ 700 controller to use a communicated setpoint from a Building Automation System, a valid setpoint must be written to the Space Temperature Setpoint BAS point at a higher priority than 14. Writing at a lower priority than 14 will cause the communicated value to be ignored by the Symbio™ 700 controller.

   d. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active setpoint. If both the wired and Air-Fi sensors fail then the Symbio™ 700 controller will use the default setpoint to determine the active setpoint.
   e. When using the Symbio™ 700 Display or Mobile Service Tool to change setpoints, these tools write to the relinquish default values and will not show up in the priority array. The relinquish default value will only be used if no other valid sensor input is available.
3. After determining the correct sensor input to use the Symbio™ 700 controller will write its decision to the Space Temperature Setpoint Input Active point.
4. The Symbio™ 700 controller will then look at the Occupancy Status point and the Demand Shed Input point to determine which offsets to use.
   a. If the Occupancy Status point is Occupied or Occupied Bypass then the Symbio™ 700 will add and subtract the Occupied Offset point amount. If active, the Symbio™ 700 will also add and subtract the Demand Shed Offset Setpoint point amount.
   b. If the Occupancy Status point is Occupied Standby then the Symbio™ 700 will add and subtract the Occupied Standby Offset point amount. If active, the Symbio™ 700 will also add and subtract the Demand Shed Offset Setpoint point amount.
   c. The Symbio™ 700 controller will apply the Space Heating/Cooling Limits to the setpoints.
   d. If the Occupancy Status Point is Unoccupied then the Symbio™ 700 will use the Unoccupied Cooling Setpoint and the Unoccupied Heating Setpoints.
5. After determining the correct Occupancy Status and applying the limits the Symbio™ 700 controller will write the new heating and cooling setpoints to Space Temp Cooling Setpoint Status point and Space Temp Heating Setpoint Status point.
6. The Symbio™ 700 controller will then look at the Heat Cool Mode Status point to determine the correct active setpoint.
   a. If the Heat Cool Mode Status is Heat then the Symbio™ 700 controller will use the Space Temp Heating Setpoint Status.
   b. If the Heat Cool Mode Status is Cool then the Symbio™ 700 controller will use the Space Temp Cooling Setpoint Status.
7. If the Heat Cool Mode Status is Heat then the Symbio™ 700 controller will use the Space Temp Heating Setpoint Status.

Space Temperature Setpoint Dual Setpoint Method



Dual Setpoint Method

The Space Temperature Dual Setpoint Arbitration Method is used to determine the correct space temperature setpoint value when you have a two setpoints from various local inputs, wired or wireless, and the potential for a Building Automation System to communicate two values.

There are two methods to determine the Space Temperature Setpoint Active when using dual setpoints. The Symbio™ 700 controller will use the Arbitration Method Request point to determine the method, below is the breakdown of each step.

Standalone Control

1. The Arbitration Method Request point must be set to Standalone Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. If the Symbio™ 700 controller only has a valid wired sensor input it will use it to determine the active setpoints.
   b. If the Symbio™ 700 controller only has a valid Air-Fi sensor input it will use it to determine the active setpoints.
   c. If the Symbio™ 700 controller has both a valid wired and a valid Air-Fi sensor input it will first use the Air-Fi sensor input to determine the active setpoints. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active setpoint. If both the wired and Air-Fi sensors fail then the Symbio™ 700 controller will use the default setpoint to determine the active setpoint.
   d. The Occupied Cooling/Heating Setpoint BAS points are ignored during Standalone Control.
3. After determining the correct sensor input to use the Symbio™ 700 controller will write its decision to the Space Temperature Cooling/Heating Setpoint Input Active points.
4. The Symbio™ 700 controller will then look at the Occupancy Status point and the Demand Shed Input point to determine which setpoints to use.
   a. If the Occupancy Status point is Occupied or Occupied Bypass then the Symbio™ 700 will use the standard Heating/Cooling Setpoints. If active, the Symbio™ 700 will add and subtract the Demand Shed Offset Setpoint point amount.
   b. If the Occupancy Status point is Occupied Standby then the Symbio™ 700 will use the Occupied Standby Heating/Cooling Setpoints. If active, the Symbio™ 700 will add and subtract the Demand Shed Offset Setpoint point amount.
   c. The Symbio™ 700 controller will apply the Space Heating/Cooling Limits to the setpoints.
   d. If the Occupancy Status Point is Unoccupied then the Symbio™ 700 will use the Unoccupied Cooling Setpoint and the Unoccupied Heating Setpoints.
5. After determining the correct Occupancy Status and applying the limits the Symbio™ 700 controller will write the new heating and cooling setpoints to Space Temp Cooling Setpoint Status point and Space Temp Heating Setpoint Status point.
6. The Symbio™ 700 controller will then look at the Heat Cool Mode Status point to determine the correct active setpoint.
   a. If the Heat Cool Mode Status is Heat then the Symbio™ 700 controller will use the Space Temp Heating Setpoint Status.
   b. If the Heat Cool Mode Status is Cool then the Symbio™ 700 controller will use the Space Temp Cooling Setpoint Status.
7. After determining the correct Heat Cool Mode Status the Symbio™ 700 controller will write the correct setpoint to Space Temperature Setpoint Active.

Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at the Occupied Cooling/Heating Setpoint BAS points to determine requested setpoint.
   a. The Occupied Cooling/Heating Setpoint BAS points are BACnet® commandable point.
   b. If the Symbio™ 700 controller has a wired sensor it will show as a priority 15 writing to the Occupied Cooling/Heating Setpoint BAS points. If the Symbio™ 700 controller has an Air-Fi sensor it will show as a priority 14 writing to the Occupied Cooling/Heating Setpoint BAS points.
   c. In order for the Symbio™ 700 controller to use a communicated setpoint from a Building Automation System, a valid setpoint must be written to the Occupied Cooling/Heating Setpoint BAS points at a higher priority than 14. Writing at a lower priority than 14 will cause the communicated value to be ignored by the Symbio™ 700 controller.

   d. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active setpoint. If both the wired and Air-Fi sensors fail then the Symbio™ 700 controller will use the default setpoint to determine the active setpoint.
   e. When using the Symbio™ 700 Display or Mobile Service Tool to change setpoints, these tools write to the relinquish default values and will not show up in the priority array. The relinquish default value will only be used if no other valid sensor input is available.
3. After determining the correct sensor input to use the Symbio™ 700 controller will write its decision to the Space Temperature Cooling/Heating Setpoint Input Active points.
4. The Symbio™ 700 controller will then look at the Occupancy Status point and the Demand Shed Input point to determine which offsets to use.
   a. If the Occupancy Status point is Occupied or Occupied Bypass then the Symbio™ 700 will use the standard Heating/Cooling Setpoints. If active, the Symbio™ 700 will add and subtract the Demand Shed Offset Setpoint point amount.
   b. If the Occupancy Status point is Occupied Standby then the Symbio™ 700 will use the Occupied Standby Heating/Cooling Setpoints. If active, the Symbio™ 700 will add and subtract the Demand Shed Offset Setpoint point amount.
   c. The Symbio™ 700 controller will apply the Space Heating/Cooling Limits to the setpoints.
   d. If the Occupancy Status Point is Unoccupied then the Symbio™ 700 will use the Unoccupied Cooling Setpoint and the Unoccupied Heating Setpoints.
5. After determining the correct Occupancy Status and applying the limits the Symbio™ 700 controller will write the new heating and cooling setpoints to Space Temp Cooling Setpoint Status point and Space Temp Heating Setpoint Status point.
6. The Symbio™ 700 controller will then look at the Heat Cool Mode Status point to determine the correct active setpoint.
   a. If the Heat Cool Mode Status is Heat then the Symbio™ 700 controller will use the Space Temp Heating Setpoint Status.
   b. If the Heat Cool Mode Status is Cool then the Symbio™ 700 controller will use the Space Temp Cooling Setpoint Status.
7. After determining the correct Heat Cool Mode Status the Symbio™ 700 controller will write the correct setpoint to Space Temperature Setpoint Active.

Occupancy Method

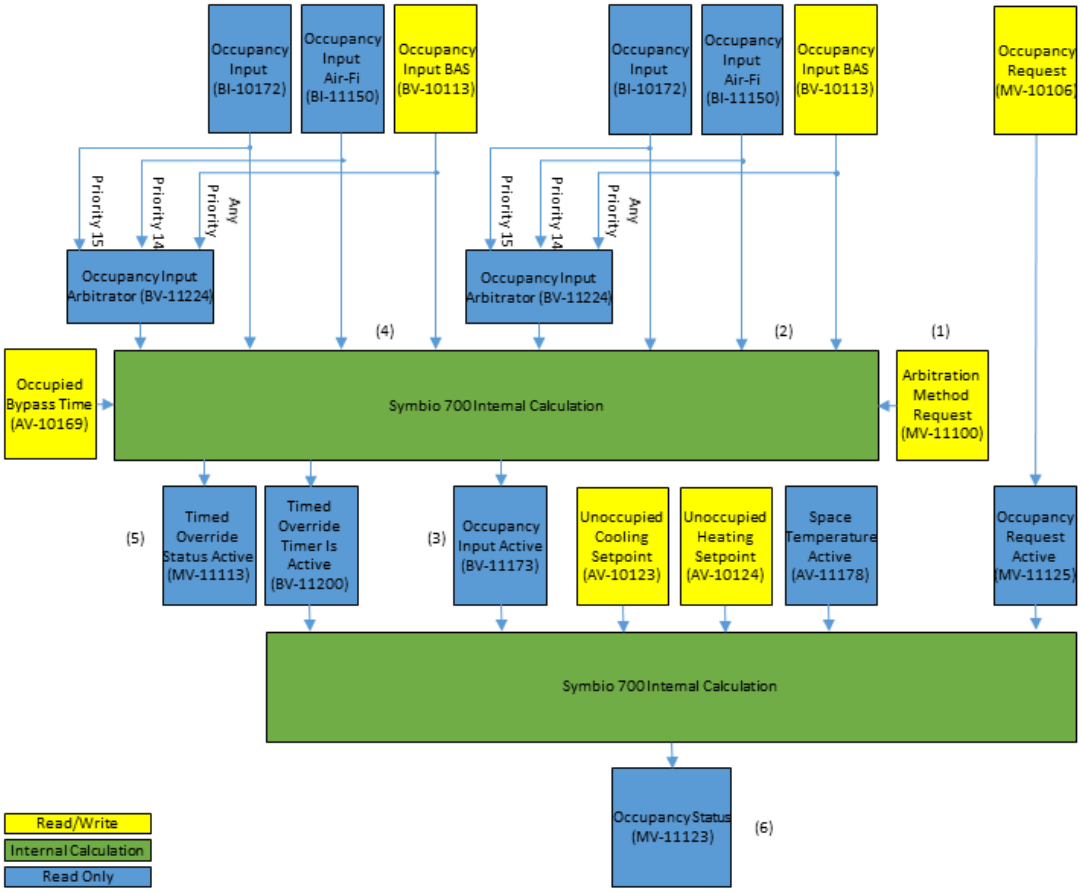


Table 8. Occupancy arbitration

Occupancy Request Active	Occupancy Input Active	Timed Override Timer Is Active	Occupancy Status
Occupied	Occupied	N/A	Occupied
Occupied	Unoccupied	Inactive	Occupied Standby
Occupied	Unoccupied	Active	Occupied Bypass
Unoccupied	N/A	Inactive	Unoccupied
Unoccupied	N/A	Active	Occupied Bypass
Occupied Bypass	Occupied	N/A	Occupied
Occupied Bypass	Unoccupied	Inactive	Occupied Standby
Occupied Bypass	Unoccupied	Active	Occupied Bypass
Occupied Standby	N/A	Inactive	Occupied Standby
Occupied Standby	N/A	Active	Occupied Bypass
Auto	Occupied	N/A	Occupied
Auto	Unoccupied	Inactive	Unoccupied
Auto	Unoccupied	Active	Occupied Bypass

The Occupancy Arbitration Method is used to determine the correct Occupancy Status value when you have local inputs, wired or wireless, and the potential for a Building Automation System to communicate a value.

There are two methods to determine the Occupancy Status. The Symbio™ 700 controller will use the Arbitration Method Request point to determine the method, below is the breakdown of each step.

Standalone Control

1. The Arbitration Method Request point must be set to Standalone Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. The Symbio™ 700 controller will use the wired occupancy input on the Symbio™ 700 controller to determine occupancy if no Air-Fi sensor is configured.
   b. If the Symbio™ 700 controller has both a wired and an Air-Fi sensor input it will first use the Air-Fi sensor input to determine the active occupancy. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active occupancy.
   c. The Occupancy Input BAS and the Occupancy Input Arbitrator points are ignored during Standalone Control.
3. After determining the correct sensor input to use the Symbio™ 700 controller will write its decision to the Occupancy Input Active point.
4. The Symbio™ 700 controller will then look at available inputs and determine if a time override is active.
   a. The Symbio™ 700 controller will use the wired TOV input on the Symbio™ 700 controller to determine TOV if no Air-Fi sensor is configured.
   b. If the Symbio™ 700 controller has both a wired and an Air-Fi sensor input it will first use the Air-Fi sensor input to determine the TOV. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the TOV.
   c. The Timed Override Request and Timed Override Status Arbitrator points are ignored during Standalone Control.
5. After determining the TOV input and applying Occupied Bypass Time the Symbio™ 700 controller will write the TOV status to Timed Override Status Active and Timed Override Timer Is Active points.
6. The Symbio™ 700 controller will then use the three inputs shown in Table 1 along with the Unoccupied Heating/Cooling setpoints to determine the Occupancy Status.

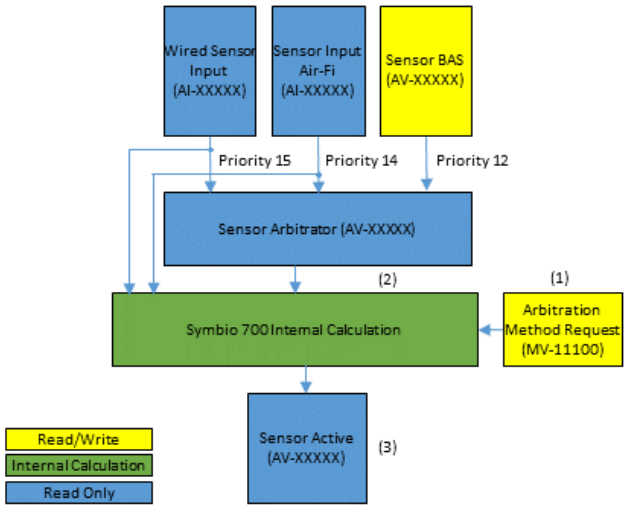
Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. In Enable External/BAS Control the Symbio™ 700 controller will use the Occupancy Input Arbitrator point to determine the active input.
   b. If the Symbio™ 700 controller has a wired sensor it will show as a priority 15 writing to the Occupancy Input Arbitrator point. If the Symbio™ 700 controller has an Air-Fi sensor it will show as a priority 14 writing to the Occupancy Input Arbitrator point.
   c. There are two ways the Symbio™ 700 controller can use a communicated occupancy command from a Building Automation System.
      i. To write a binary occupancy command to the Symbio™ 700 controller the Building Automation System must write a valid command to the Occupancy Input BAS point. The Occupancy Input BAS has a heartbeat and must be written to once every 15 minutes or the point will fail, and the value will be ignored. Once the Occupancy Input BAS point has been written to the value will show up on the Occupancy Input Arbitrator point as a priority 12.
      ii. To write a multistate occupancy command to the Symbio™ 700 controller the Building Automation System must write a valid command to the Occupancy Request point. The Occupancy Request point is a commandable point and does not have a heartbeat.

iii. The Building Automation System only needs to write to either the binary point OR the multistate point, not both.

3. After determining the correct input to use the Symbio™ 700 controller will write its decision to the Occupancy Input Active point.
4. The Symbio™ 700 controller will then look at available inputs and determine if a time override is active.
   a. In Enable External/BAS Control the Symbio™ 700 controller will use the Timed Override Status Arbitrator point to determine the active input.
   b. If the Symbio™ 700 controller has a wired sensor it will show as a priority 15 writing to the Timed Override Status Arbitrator point. If the Symbio™ 700 controller has an Air-Fi sensor it will show as a priority 14 writing to the Timed Override Status Arbitrator point.
   c. In order to use communicated value from a Building Automation System, a valid value must be written to the Time Override Request point. Once the Time Override Request point has been written to the value will show up on the Timed Override Status Arbitrator point as a priority 12.
5. After determining the TOV input and applying Occupied Bypass Time the Symbio™ 700 controller will write the TOV status to Timed Override Status Active and Timed Override Timer Is Active points.
6. The Symbio™ 700 controller will then use the three inputs shown in Table 1 along with the Unoccupied Heating/Cooling setpoints to determine the Occupancy Status.

Sensor Complex Method



The Sensor Complex Arbitration Method is used to determine the correct sensor value when you have local inputs, wired or wireless, and the potential for a Building Automation System to communicate a value. This arbitration method uses a heartbeat on the BAS point to help determine the validity of the communicated value.

Space CO_2

Space Temperature

Space Humidity

Outdoor Air Temperature

Standalone Control

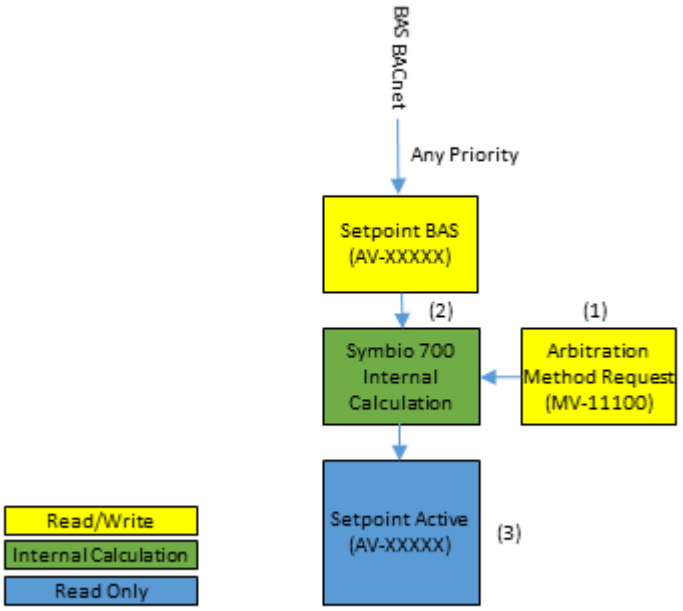
1. The Arbitration Method Request point must be set to Standalone Control.

2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. The Symbio™ 700 controller will use the wired input on the Symbio™ 700 controller to determine the active value if no Air-Fi sensor is configured.
   b. If the Symbio™ 700 controller has both a wired and an Air-Fi sensor input it will first use the Air-Fi sensor input to determine the active value. If the Air-Fi sensor fails or loses communication the Symbio™ 700 controller will use the wired sensor to determine the active value.
   c. The sensor BAS and the sensor Arbitrator points are ignored during Standalone Control.
3. After determining the correct sensor input to use the Symbio™ 700 controller will write its decision to the sensor Active point.

Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. In Enable External/BAS Control the Symbio™ 700 controller will use the sensor Arbitrator point to determine the active input.
   b. If the Symbio™ 700 controller has a wired sensor it will show as a priority 15 writing to the Arbitrator point. If the Symbio™ 700 controller has an Air-Fi sensor it will show as a priority 14 writing to the Arbitrator point.
   c. In order for the Symbio™ 700 controller to use a communicated sensor value from a Building Automation System a valid sensor value must be written to the sensor BAS point. When a valid communicated sensor value is received it will show as a priority 12 writing to the Arbitrator point.
   d. The BAS point must have a valid value communicated at least once every 15 minutes or the point will fail. If the BAS point fails the priority 12 value will be removed from the Arbitrator point, and it will revert back to the next highest priority available.
3. After determining the correct input to use the Symbio™ 700 controller will write its decision to the sensor Active point.

Setpoint Simple Method



The Setpoint Simple Arbitration Method is used to determine the correct setpoint value when you only have the potential for a Building Automation System to communicate a value.

Occupied Standby Cooling Setpoint

Occupied Standby Heating Setpoint

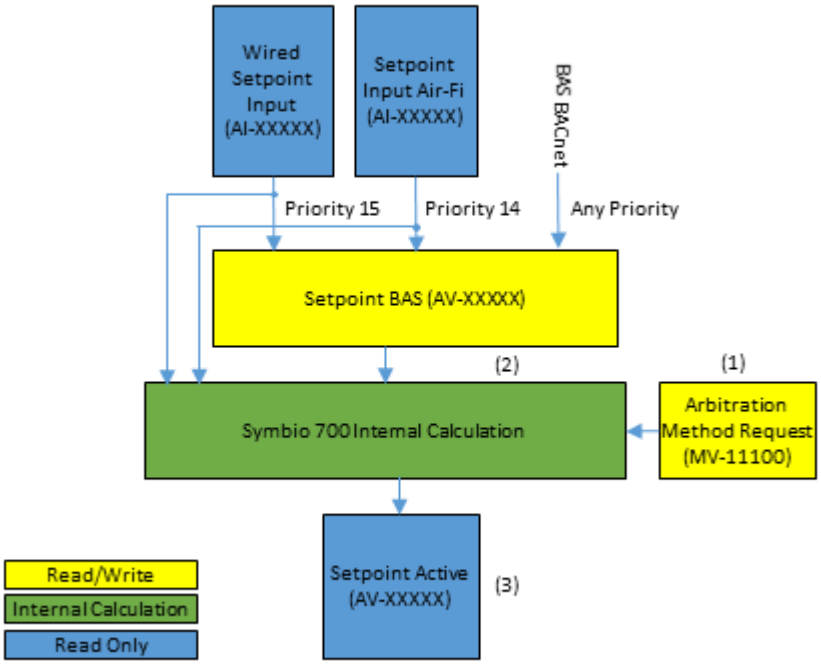
Standalone Control

1. The Arbitration Method Request point must be set to Standalone Control.
2. The Symbio™ 700 controller will then use the relinquish default set for the BAS point as the active value.
   a. The relinquish default is set from the factory and can be changed by using the display on the Symbio™ 700 controller.
3. The Symbio™ 700 will write the relinquish default value to setpoint Active point.

Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. In Enable External/BAS Control the Symbio™ 700 controller will use the setpoint Arbitrator point to determine the active input.
   b. If the Symbio™ 700 controller has a wired setpoint it will show as a priority 15 writing to the Arbitrator point. If the Symbio™ 700 controller has an Air-Fi setpoint it will show as a priority 14 writing to the Arbitrator point.
   c. In order for the Symbio™ 700 controller to use a communicated setpoint value from a Building Automation System a valid setpoint value must be written to the setpoint sensor BAS point. When a valid communicated setpoint value is received it will show as a priority 12 writing to the Arbitrator point.
   d. The BAS point must have a valid value communicated at least once every 15 minutes or the point will fail. If the BAS point fails the priority 12 value will be removed from the Arbitrator point, and it will revert back to the next highest priority available.
3. After determining the correct input to use the Symbio™ 700 controller will write its decision to the setpoint Active point.

Setpoint/Mode Complex Method



The Setpoint/Mode Complex Arbitration Method is used to determine the correct setpoint value when you have local inputs, wired or wireless, and the potential for a Building Automation System to communicate a value.

Demand Limit

Standalone Control

1. The Arbitration Method Request point must be set to Standalone Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. The Symbio™ 700 controller will use the wired input on the Symbio™ 700 controller to determine the active value if no Air-Fi setpoint is configured.
   b. If the Symbio™ 700 controller has both a wired and an Air-Fi setpoint input it will first use the Air-Fi setpoint input to determine the active value. If the Air-Fi setpoint fails or loses communication the Symbio™ 700 controller will use the wired setpoint to determine the active value.
   c. The setpoint BAS is ignored during Standalone Control.
3. After determining the correct setpoint input to use the Symbio™ 700 controller will write its decision to the setpoint Active point.

Enable External/BAS Control

1. The Arbitration Method Request point must be set to Enable External/BAS Control.
2. The Symbio™ 700 controller will then look at available inputs and determine which one to use.
   a. In Enable External/BAS Control the Symbio™ 700 controller will use the setpoint BAS point to determine the active input.
   b. If the Symbio™ 700 controller has a wired setpoint it will show as a priority 15 writing to the Arbitrator point. If the Symbio™ 700 controller has an Air-Fi setpoint it will show as a priority 14 writing to the Arbitrator point.

c. In order for the Symbio™ 700 controller to use a communicated setpoint value from a Building Automation System a valid setpoint value must be written to the setpoint BAS point at a priority higher than 14.

3. After determining the correct input to use the Symbio™ 700 controller will write its decision to the setpoint Active point.

Notes

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BAS-SVP062D-EN 19 Aug 2023
Supersedes BAS-SVP062C-EN (May 2023)