ENGINEERING SUBMITTAL DATA

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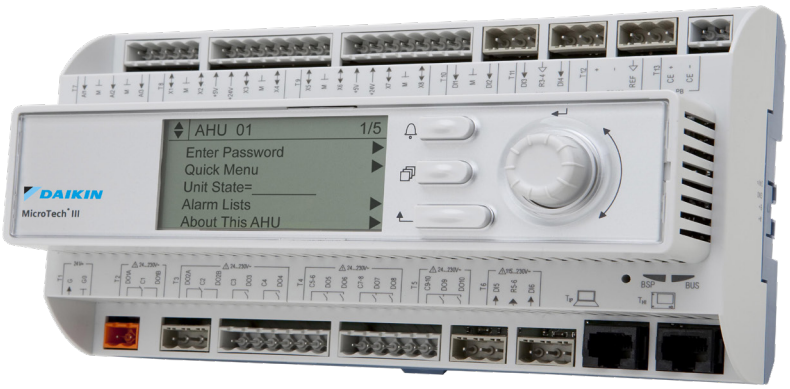
MICROTECH® PACKAGED ROOFTOP, APPLIED ROOFTOP, AND SELF-CONTAINED SYSTEMS UNIT CONTROLLER

NETWORK INTEGRATION GUIDE

BACnet® and LonWorks® Protocol Information
Rebel® Packaged Rooftop with R-410A Refrigerant, Applied Rooftop and Self-Contained Systems with/without R-32 Refrigerant
Models: DPS, MPS, RAH, RCS, RDS, RDT, RFS, RPS, SWP and SWT



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Introduction

Description

This manual describes how to integrate MicroTech® III or MicroTech 4 unit controller applications to a building automation system (BAS). The MicroTech unit controller supports network parameters for the following Daikin Applied® Rooftop and Self-Contained unit models:

MicroTech III/4 Unit Controller Applications
Rebel® Packaged Rooftop, Models DPS and DPH, R-410A Refrigerant Only
RoofPak® Applied Rooftop, Models RPE, RDE, RPS, RDT, RFS, RDS, and RAH with/without R-32 Refrigerant
Self-Contained, Models SWT and SWP with/without R-32 Refrigerant
Maverick® II Commercial Rooftop, Model MPS with/without R-32 Refrigerant

The MicroTech unit controller communicates via BACnet® MS/TP, BACnet IP, or LonWorks® network protocols. Data available to the network includes system setpoints, system status, monitoring, and alarm objects.

NOTE: Network setup and addressing is performed from the unit controller HMI keypad/display. Once commissioned, the unit controller is ready for BAS communication and configuration.

A separate communication module is required. There are three communication module types: BACnet/IP, BACnet MS/TP, or LonWorks applications. LonWorks can be configured for either Space Comfort Control (SCC) or Discharge Air Controller (DAC) profile.

This document is intended for system integrators and engineers familiar with BACnet or LonWorks. Terminology and application details specific to Daikin Applied are explained where appropriate.

Contact the Daikin Applied Controls Customer Support group at 866-462-7829 or Controls@daikinapplied.com for additional assistance, if necessary.

MicroTech Unit Controller Versions

This document supports Rooftop and Self-Contained unit controller applications with MicroTech III and MicroTech 4 unit controller hardware (MicroTech III/4 Unit Controller Applications). Note that the content may not support newer versions of software.

The revision of the application software can be determined from the MicroTech III/4 unit controller HMI main menu path: Version Information\App Version=. The software version can also be read from the Application_Software_Version property of the BACnet Device Object.

Reference Documents

Company	Number	Title	Source
Daikin Applied	OM 920	MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems	www.DaikinApplied.com
	OM 1141	MicroTech Unit Controller for Rebel Commercial Rooftop Systems	
	IM 916	MicroTech Rooftop and Self-Contained Unit Controller BACnet IP Communication Module Installation Manual	
	IM 917	MicroTech Rooftop and Self-Contained Unit Controller BACnet MS/TP Communication Module Installation Manual	
	IM 918	MicroTech Rooftop and Self-Contained Unit Controller LonWorks Communication Module Installation Manual	
American Society of Heating, Refrigeration, and Air-Conditioning Engineers	ANSI/ASHRAE 135-2008	BACnet A Data Communication Protocol for Building Automation and Control Networks	www.ashrae.org
LonMark Interoperability Association	078-0120-01G	LonMark® Layers 1-6 Interoperability Guidelines, Version 3.4	www.lonmark.org
	078-0120-01G	LonMark Application Layer Interoperability Guidelines, Version 3.4	
	8500_10	LonMark Functional Profile: Space Comfort Controller, Version 1.0	
	8600_10	LonMark Functional Profile: Discharge Air Controller, Version 1,0	
Echelon Corporation	078-0156-01G	LonWorks FTT-10A Free Topology Transceiver Users Guide	www.echelon.com

Hazardous Information Messages

DANGER

Danger indicates a hazardous situation, which will result in death or serious injury if not avoided.

⚠ WARNING

Warning indicates a potentially hazardous situations, which can result in property damage, personal injury, or death if not avoided.

⚠ CAUTION

Caution indicates a potentially hazardous situations, which can result in minor injury or equipment damage if not avoided.

NOTICE

Notice indicates practices not related to physical injury.

BACnet Agency Conformance

The MicroTech unit controller supports the American National Standards Institute and American Society of Heating, Refrigeration and Air-Conditioning Engineers (ANSI/ASHRAE) standard 135-2014.

The MicroTech unit controller is tested according to the BACnet Testing Laboratory (BTL) Test Plan. It is designed to meet the requirements of the BACnet Standard as stated in the Protocol Implementation and Conformance Statement (PICS). However, it is not BTL listed. See BACnet PICs.

BACnet Device Object

Object Types

The MicroTech unit controller incorporates standard BACnet object types (i.e., object types defined in the BACnet Standard) that conform to the BACnet Standard. Each object has properties that control unit variables or data points. Some object types occur more than once in the MicroTech unit controller; each occurrence or instance has different properties and controls different unit variables or data points. Each instance is designated with a unique object identifier. Some properties can be adjusted from the network and others can only be interrogated (read-only properties).

See BACnet Data Tables for all BACnet objects available to the network.

Each BACnet compatible device can only have a single BACnet Device Object.

⚠ CAUTION

If another device in the network already has this object identifier, you must change the instance number of one device object, so that all devices in the network have a unique object identifier.

Device Object Properties

The Device Object contains other informative properties as shown in Table 2.

Device Object Identifier

The MicroTech unit controller Device Object_Identifier uniquely specifies the unit within the network. The initial device object instance number is calculated depending on either the production code (IP) or the MAC Address (MS/TP). This number must be unique on the entire BACnet network. The device instance number can be changed via the keypad display. Select Apply Changes under the BACnet MSTP or BACnet IP Set Up Menu for the change to take effect.

Device Object_Name

Each device has a unique Object_Name by default. The Object_Name is POL_908_#####. The ##### represents the Device Instance. If the Device Instance changes, and the "POL_908_" portion of the Object_Name is retained, the Device Name is updated as well.

Network Configuration

There are various parameters involved in setting up the MicroTech unit controller. These parameters are set differently depending on which communication module is ordered and shipped with the unit. Table 1 describes the BACnet addressing parameters needed to establish communication between the unit controller and BACnet network.

Table 1: Communication Parameter Settings

Parameter Name	BACnet IP	BACnet MS/TP
DHCP	**On**	N/A
Actual IP Address	DHCP Enabled	N/A
Actual IP Subnet Mask	DHCP Enabled	N/A
Actual Gateway Address	DHCP Enabled	N/A
Given IP Address[1]	127.0.0.1	N/A
Given IP Subnet Mask[1]	255.255.255.0	N/A
Given Gateway Address[1]	127.0.0.1	N/A
UDP Port Number	47808	NA
MS/TP MAC Address[2]	N/A	18
MS/TP Baud Rate	N/A	38400
Device Instance Number	Variable	Variable
Max APDU Length	1476	480
Device Object Name	POL908_FF2BEE[3]	POL904_AD45EC28[4]
Receive Heartbeat	N/A	N/A
Max Master	N/A	127
Max Info Frames	N/A	1
Term Resistor	N/A	No[5]

Note that the parameters in boldface can be changed using the unit controller keypad display.

1. These addresses are used if DHCP (Dynamic Host Configuration Property) is set to Off. For changes to take effect, use the keypad display and set Apply Changes on the BACnet IP Setup menu to Yes. This causes the power on the unit controller to reset.

2. The MS/TP MAC Address is set via the keypad/display. Set Apply Changes to Yes for changes to take effect.

3. The last 6 digits are the last 6 digits of the MAC address. The MAC address is a printed sticker affixed to the BACnet communication module.

4. The last 8 digits are computed from the production number and date code.

5. Term Resistor is only changeable via the keypad/display. This item can be set to Yes for the first and last unit on the MS/TP network. On all other units, this variable should be set to No (default). *It is important to note that this is a software resistor, and resistance is lost when the unit controller is powered off. For this reason, a physical resistor is recommended.*

BACnet MS/TP

The BACnet MS/TP device address (Media Access Control [MAC] address) of the MicroTech unit controller in a BACnet Master Slave/Token Passing (MS/TP) Local Area Network (LAN) is set using the MicroTech unit controller HMI. Navigate to the BMS Communications\MSTP Set-Up menu to change this value. Set Apply MSTP Chgs to Yes in order for the new address to take effect. This causes the power on the MicroTech unit controller to reset.

BACnet IP

The BACnet/Internet Protocol (BACnet/IP) address consists of the four-octet Internet Protocol address followed by the two-octet UDP (User Datagram Protocol) port number. The BACnet/IP address is a six-octet value analogous to a MAC address. The IP address portion of the BACnet/IP address must be unique in the BACnet/IP network segment. The default UDP port number in the MicroTech unit controller is 47808 (BAC0 in hexadecimal).

The device object contains a Given Internet Protocol Subnet Mask (Default is 255.255.255.0) and a default Given IP address of 127.0.0.1.

The MicroTech unit controller HMI is used to configure BACnet addressing. It displays the current IP address only when the network is connected.

DHCP is the Dynamic Host Configuration Protocol. The DHCP is a network protocol that enables a server to automatically assign an IP Address. DHCP is enabled by default for IP addressing. From the MicroTech unit controller HMI, set to Off if a static IP address is needed.

Table 2: MicroTech Unit Controller Device Object Properties

Property	ID	Default Value	Data Type
Object Identifier	75	device	BACnetObjectIdentifier
Object Name	77	POL_908_ FF2BEE[1] (variable)	Character String
Object Type	79	8	BACnetObjectType
System Status	112		BACnetDeviceStatus
Vendor Name	121	Daikin Applied	Character String
Vendor Identifier	120	3	Unsigned 16
Model Name	70	AHU	Character String
Firmware Revision	44	variable	Character String
Application Software Version	12	variable	Character String
Location	58		Character String
Description	28	MTech III AHU	Character String
Protocol Version	98	1	Unsigned
Protocol Revision	139	6	Unsigned
Protocol Services Supported	97		BACnetServices Supported
Protocol Object Types Supported[2]	96	AI, AO, AV, BI, BO, BV, Cal, Device, MSI, MSO, NC, Sch, MSV	BACnetObjectTypes Supported
Object List	76		Sequence of BACnetObject Identifer
Max APDU Length Accepted	62	1476 (IP) / 480 (MS/TP)	Unsigned 16
Segmentation Supported	107	none	BACnetSegmentation
Max Segments Accepted	167	16	Unsigned
Local Time[3]	57	variable	Time
Local Date[3]	56	variable	Date
UTC Offset	119	-60 (Range: –780 .. 780)	Integer
Daylight Savings Status	24	variable	Boolean
APDU Segment Timeout	10	2000	Unsigned
APDU Timeout	11	6000	Unsigned
Number of APDU Retries	73	3	Unsigned
Device Address Binding	30		Sequence of BACnet AddressBinding
Database Revision	115	1	Unsigned
Active COV Subscriptions	152		List of BACnetCOV Subscriptions

1. For BACnet IP, the last 6 digits are the last 6 digits of the MAC address. The MAC address is printed a sticker affixed to the BACnet communication module. For BACnet MS/TP, the last 8 digit are computed from the production number printed on the bar code label affixed to the side of the BACnet communication module.

2. While the MicroTech Unit Controller supports the entire set of object types, not all object types are used. See Alarms and Events for details.

3. The BACnet communication module and the MicroTech Unit Controller both have their own time clocks. The date and time read via BACnet could differ from the date and time in the unit controller the date or time is changed via the keypad display. The two time clocks re-synchronize approximately every 60-68 minutes and after every power cycle of the unit controller or BACnet communication module.

LonMark Certification

LonMark certification is an official acknowledgement by the LonMark Interoperability Association that a product communicates using the LonTalk protocol and transmits and receives data per a standard LonMark functional profile. The LonWorks communication module conforms to the LonMark Discharge Air Controller functional profile_8610 and is LonMark 3.4 certified. Refer to www.lonmark.org for certification conformance information.

LonMark Files

The LonWorks communication module software translates the LonMark Standard Network Variable Types (SNVTs) and Standard Configuration Property Types (SCPTs) in accordance with the LonMark profiles used on the LonWorks network into the variables and parameters used in the unit controller. These include both resource and device file types.

Device Files

The Device External Interface File (a specially formatted PC text file with an extension (.XIF) is the primary device file type. The XIF and other device files are required for displaying the standard network variables (SNVTs) and configuration properties (SCPTs).

Resource Files

Resource files are custom (user-specific) functional profiles, network variables types (UNVTs), configuration property types (UCPTs), and enumerations. Resource files are required for displaying these UNVT and UCPTs that are not included in the standard device profile. They are available on www.DaikinApplied.com and www.lonmark.org.

External Interface File (XIF)

LonMark guidelines specify exact documentation rules so that proprietary software is not required to commission and configure Lonworks devices. The MicroTech LonWorks communication module is self-documenting so that a LonWorks network management tool can obtain the information needed to connect, configure, and manage the device over the network.

An External Interface File (a specially formatted PC text file with an extension .XIF) is also available so that any network tool can design and configure it prior to installation.

The device XIF and resource files must be downloaded and mapped for network configuration. See www.DaikinApplied.com and www.lonmark.org.

Neuron ID

The basis of the LonWorks communication module is an Echelon Neuron integrated circuit (Neuron chip). Every Neuron chip has a unique 48-bit Neuron ID or physical address. The Neuron ID can be used to address the device on the LonWorks network. The Neuron ID is generally used only during initial installation or for diagnostic purposes. For normal network operation, a device address is used.

Network Addressing

The LonWorks communication module conforms to the LonMark standard for device addressing, which is defined at the time of network configuration. Device addresses have three parts:

1. The Domain ID - designates the domain. Devices must be in the same domain in order to communicate with each other.
2. The Subnet ID - specifies a collection of up to 127 devices that are on a single channel or a set of channels connected by repeaters. There may be up to 255 subnets in a domain.
3. The Node ID - identifies an individual device within the subnet.

LonWorks Commissioning

Pressing the service pin on the LonWorks communication module generates a service pin message, which contains the Neuron ID and the program code identification of the node. A service pin message is a network message that is generated by a node and broadcast on the network. It can be used to commission the LonWorks network. A network configuration tool maps device Neuron IDs to the domain/subnet/node logical addressing scheme when it creates the network image, the logical network addresses and connection information for all devices (nodes) on the network.

Receive Heartbeat

The integrity of some data depends on a valid network connection to maintain current values. Receive Heartbeat variables require a valid network connection if bound. If these variables do not change after a given time, the MicroTech unit controller reverts to local control, and the variables return to their default values. The heartbeat time is set from either the unit controller HMI or the network. The heartbeat time can be overridden by setting the Receive Heartbeat time = 0. However, in doing so, the corresponding controller variable remains at the last valid value upon loss of communication. The list of Receive Heartbeat variables and descriptions can be found in Table 34.

Configuration

As a general rule, the communication module does not require configuration unless advised by the network integrator. The unit controller, along with the communication module, is ready to operate with the default parameter values in the unit controller.

However, be aware that Receive Heartbeat, Max Send Time, and Min Send Time are typical parameters that may need to be changed for your network. They should be modified on an as-needed basis. Maintain default values if possible.

BACnet Data Tables

This section describes the data that is available to the BAS via the BACnet network. Each BACnet object may or may not be available on the unit controller HMI keypad display. Note that it may also be available on more than one keypad menu. Refer to the appropriate unit controller OM for the keypad menu structure. Table 3 - Table 23 BACnet objects apply to all unit types unless otherwise noted. Also see BACnet PICs.

Table 3: Unit Status/Settings

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[5]	Description
Unit State	MSV:15	R	UnitState	1 = Off 2 = Start 3 = Recirc 4 = FanOnly 5 = MinDAT 6 = Htg 7 = Econo 8 = Clg	The current operating mode of the unit.
Daikin Applied AHU Unit Status	MSV:1	R	Daikin AppliedStatus	1 = Enabled 2 = Off Man 3 = Off ManCtrl 4 = Off Net 5 = Off Alarm 6 = Off Fan Retry	The operating status (i.e. Mode) of the unit controller.
Morning Warmup Status4	MSV:49	R	MWUStatus	1 = Unavail 2 = Avail	Indicates if Morning Warmup is active. It is only available in application versions 2506017501 and 2506018201 or newer.
Dehumidification Status	MSV:46	R	DehumStatus	1 = Inactive 2 = Active	Indicates if the dehumidification operation is currently active.
Cooling Status	MSV:2	R	ClgStatus	1 = Enabled 2 = None 3 = Off Amb 4 = Off Alarm 5 = Off Net 6 = Off Man	Indicates if cooling is currently enabled. If cooling is disabled, the reason is indicated.
Heating Status	MSV:4	R	HtgStatus	1 = Enabled 2 = None 3 = Off Amb 4 = Off Alarm3 5 = Off Net 6 = Off Man	Indicates if heating is currently enabled. If heating is disabled, the reason is indicated.
Supplemental Heating Status	MSV:45	R	SuplHtgStatus	1 = Enabled 2 = None 3 = Off Amb 4 = Off Alarm3 5 = Off Net 6 = Off Man	The current status of supplemental heating. Applies only if 1) it is a Rebel unit (DPS, DPH) with heat pump, and 2) the unit is configured with heat. If so, the heating status is determined by the heat pump compressor and the supplemental heating status is determined by the additional heating from the unit.
Economizer Status	MSV:3	R	EconoStatus	1 = Enabled 2 = None 3 = Off Amb 4 = Off Alarm3 5 = Off Net 6 = Off Man 7 = Off Dehum	Indicates if the economizer is currently enabled. If the economizer is disabled, the reason is indicated.
Free Cooling Status	MSV:50	R	FreeClgStatus	1 = Unavail 2 = Avail	Indicates if free cooling is available. It is only available in application versions 2506017501 and 2506018201 or newer.
Cooling Capacity	AV:1	R	ClgCapacity	0-100%	The current percentage of maximum unit cooling capacity. Applies only if the unit is configured for cooling.
Heating Capacity	AV:2	R	HtgCapacity	0-100%	The current percentage of maximum unit heating capacity. Applies only if the unit is configured for heating.
Supplemental Heating Capacity	AV:54	R	SuplHtgCap	0-100%	The current percentage of supplemental heating capacity. Applies only if 1) it is a Rebel unit (DPS, DPH) with heat pump and 2) is configured with heat. If so, the heating capacity comes from the heat pump compressor heat, and the supplemental heating capacity comes from the additional heating provided by the unit.

Table 3: Unit Status/Settings, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Supply Fan Capacity	AI:8	R	FanSpd	0-110%	The current percentage of supply fan capacity. It reads 0% whenever the fan is off. If the unit is configured as constant volume, FanSpd reads 100% when the fan is on. Otherwise, it reads the feedback from the VFD.
Economizer Capacity	AV:15	R	EconCapacity	0-100%	The current percentage of economizer capacity or outdoor air damper position.
Return/Exhaust Fan Capacity	AI:10	R	ExhFanValue	0-100%	The current percentage of return fan or exhaust fan capacity. Applies only to units configured with a return/ exhaust fan.
Emergency Override	MSV:10	W	EmergOverride	1 = Normal 2 = Off Default: 1 (Normal)	Shuts off the unit controller. If it is set to Off, the unit controller cannot start based on a time clock or any other means. Doing so also shuts off a network signal and puts Unit Status = OffNet. The only way to start the unit controller is to change the value to Normal.
Application Mode[1]	MSV:5	W	ApplicCmd	1 = Off 2 = Heat 3 = Cool 4 = Fan Only 5 = Auto 6 = NA Default: 6 (NA)	Sets the unit in an application mode. While it does not "force" the unit into any state, it does disable certain unit operations. For example, an Application Mode of "Cool Only" disables heating, "Heat Only" disables cooling, and "Fan Only" disables heating and cooling. Application Mode has no affect unless Control Mode is set to Auto (Ctrl Mode = Auto). Control Mode is only set at the keypad/display.
Control Temp Source	MSV:39	W	CtlrTempSrc	See Description for details. 1 = RAT 2 = Space 3 = MAT 4 = OAT 5 = None Default: NA	Selects the temperature sensor input to be used for the unit heating/cooling changeover or zone cooling and heating capacity change decisions. For example, if CtrlTempSrc is set to "Return," then the Control Temp parameter reads the same value as the Return Air parameter. When CtlrTempSrc is set to "None" during regular Occupied Operation, the unit uses the discharge air temperature sensor to heat or cool to the cooling discharge air temperature setpoint. Option Descriptions 1 = RAT — Not available on 100% OA Units 3 = MAT — Available on UnitType = SCU and ControlType = DAT only 4 = OAT — Available on ControlType = DAT only 5 = None — Available on ControlType = DAT only
Unit Support	MSV:16	W	UnitSupport	1 = Off (Always Metric) 2 = On Default: 2 (On)	Sets the type of units that are passed from the controller to the BACnet network. If the value is Off, then Metric units are passed. If the value is On, the type of units that are passed depend on how the keypad/display is configured. If the keypad is configured to display English and MSV:16 = 2 (On), then BACnet displays English. Cycle power on the unit controller for this change to take effect.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. This object does not apply to 1ZnVAV units.
3. Off Alarm is not used.
4. This object does not apply to SCC units.
5. Default value does not apply to read-only points.

Table 4: Occupancy

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[3]	Description
Occupancy	MSV:6	R	EffectOccup	1 = Occ 2 = Unocc 3 = TntOvrd	Indicates if the unit is currently in an occupied, unoccupied, or tenant override mode of operation.
Occupancy Mode	MSV:7	W	OccManCmd	1 = Occ 2 = Unocc 3 = TntOvrd 4 = Standby[2] 5 = Auto Default: 5 (Auto)	Sets the unit into a different occupancy mode. The request is typically sent by a wall-mounted occupant-interface module or a supervisory device used to manually control occupancy modes or to override the scheduled occupancy.
Occupancy Scheduler Input[1]	MSV:8	W	CurrentState	1 = Occ 2 = Unocc 3 = TntOvrd[2] 4 = Standby[2] 5 = Auto (NUL) Default: NA	Commands the occupancy function of the unit controller when Occupancy Mode is set to Auto. A scheduler or a supervisory node typically sends the request. Occupancy Scheduler Input contains three parts: Current_state, (required) Next_state (optional) Time_to_next_state (optional) Occupancy Scheduler Input is used in conjunction with Optimal Start. If time_to_next_state is not valid, the unit controller uses an internal calculation to determine when the unit should start. If time_to_next_state is valid, the unit controller uses this time to determine when the unit will start. It is also used with Occupancy Mode to determine the effective occupancy mode. Refer to Occupancy Mode for more information.
	MSV:9		NextState		
	AV:3	W	TimeToNextState	0-65534 Min Default: 65535 (Null)	
Receive Heartbeat	AV:43	W	ReceiveHeartbeat	0-6553.4 Sec Default: 0 Sec	Defines the maximum period of time that elapses after the last update to specified network parameters before the unit controller starts to use its default values. Receive Heartbeat is not supported on unit controller application versions 2506017300 or newer.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. Option is not used.
3. Default value does not apply to read-only points.

Table 5: Temperatures

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[1]	Description
Control Temperature	AI:14	R	ControlTemp	-50°-249.99°F -45.56°-121.11°C	The current control temperature sensor reading. The control temperature sensor is selected with MSV:39, Control Temp Source.
Discharge Air Temperature	AI:1	R	DischAirTemp	-50°-249.99°F -45.56°-121.11°C	The current reading of the unit discharge air temperature sensor.
Return Air Temperature	AI:2	R	RATemp	-20°-199.99°F -28.89°-93.33°C Default: NA	The current reading from the unit return air temperature sensor. Applies only if the unit is configured for a return air sensor.
	AV:45	C	HiRAT		The current reading of the return air sensor. The Present Value of this object is the same as it is for AI:2. This object is only present for intrinsic reporting of the High Return Air Temperature alarm. The unit controller commands this object at priority 1 to avoid the BAS from writing to it and thus disabling the high limit alarm. See Alarm Notification Class (Intrinsic Reporting) - BACnet for additional information.
Space Temperature	AI:3	R	SpaceTemp	0°-150° -17.78°-65.56°C	The current space or zone temperature from the optional space air temperature sensor. Applies only if the unit is configured for a space temperature sensor. *If the optional space temperature sensor is not installed and a BACnet network is not commanding the space temperature, the Space Sensor attribute in the Unit Configuration menu of the keypad/display should be set to "No" to disable the alarm function associated with an open circuit at the space temperature sensor input.*

1. Default value does not apply to read-only points.

Table 5: Temperatures, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Use TStat Setpoints	MSV:51	W	UseTStatSpts	1 = No 2 = Yes Default: NA	When MSV:51 = 2 (Yes), the temperature setpoint can be adjusted via the locally wired wall sensor and the unit ignores BACnet inputs to Occ Htg and Occ Clg setpoints. When MSV:51 = 1 (No), the Occ Htg and Occ Clg setpoints can be adjusted via the keypad or BACnet inputs, and setpoints from the locally wired wall sensor are ignored.
Outdoor Air Temperature	AI:4	R	OutdoorTemp	-50°-150°F -45.56°-65.56°C	The current value of a unit-mounted outdoor air temperature sensor. Applies only if the unit is configured for an outdoor air temperature sensor.
Entering Fan / Leaving Coil Temperature	AI:7	R	EFT_LCT	-83.2°-249.99°F -64°-121.11°C	The current value of the unit entering fan/leaving coil air temperature sensor. Applies only to units configured for an entering fan temperature sensor.
Entering Water Temperature	AI:6	R	CWTemp	-50°-150°F -45.56°-65.56°C	The current entering water temperature from the entering water temperature sensor. Applies only to self-contained units configured with a water condenser.
Mixed Air Temperature	AI:5	R	MATemp	-50°-249.99°F -45.56°-121.11°C	The current mixed air temperature from the mixed air temperature sensor. Applies only to self-contained units configured with a mixed air temperature sensor.
Discharge Line Temperature 1	AI:22	R	DischLn1Temp	-50°-392°F -45.56°-200°C	The current reading of the unit inverter compressor (Comp.1) discharge line refrigerant temperature sensor. Applies only to Rebel (DPS, DPH) units.
Discharge Line Temperature 2	AI:32	R	DischLn2Temp	-50°-392°F -45.56°-200.0°C	The current reading of the unit inverter compressor (Comp.2) discharge line refrigerant temperature sensor. Applies only to Rebel (DPS, DPH) units.
Discharge Line Temperature 3	AI:21	R	DischLn3Temp	-50°-392°F -45.56°-200°C	The current reading of the unit inverter compressor (Comp.3) discharge line refrigerant temperature sensor. Applies only to Rebel (DPS, DPH) units.
Defrost Temperature	AI:23	R	DefrostTemp	-50°-200°F -45.56°-93.33°C	The current reading of the unit defrost temperature sensor. Applies only to Rebel (DPS, DPH) units.
Inverter Compressor Body Temperature	AI:29	R	INVCompTemp	-83.2°-147.2°F -45.56°-65.56°C	The current reading of the Inverter Compressor Body Temperature. Applies only if the Rebel unit is configured with a 12 hp inverter compressor (DPS015).
Indoor Refrigerant Temperature	AI:27	R	IndoorRefTemp	-50°-150°F -45.56°-65.56°C	The current indoor refrigerant temperature from the indoor refrigerant temperature sensor. Applies only if the unit is configured for heat pump operation.
Outdoor Refrigerant Temperature	AI:28	R	OutdoorRefTemp	-50°-150°F -45.56°-65.56°C	The current outdoor refrigerant temperature from the outdoor refrigerant temperature sensor. Applies only if the unit is configured for heat pump operation.
Suction Line Refrigerant Temperature	AI:24	R	SucnRefTemp	-50°-200°F -45.56°-93.33°C	The current reading of the unit suction line refrigerant temperature sensor. Applies only to Rebel (DPS, DPH) units.

1. Default value does not apply to read-only points.

Table 6: Flow Status

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)3	Description
Exhaust Fan Status	BV:1	R	ExhFanState	1 = Off 2 = On	Indicates if the unit controller is commanding the return or exhaust fan to “On.” Applies only to units configured for a return/exhaust fan.
VAV Box Output[1,2]	MSV:14	R	VAVBoxOutput	1 = Heat (Off) 2 = Cool (On)	The VAV box output is provided for interlocking field VAV box operation with the unit heating or cooling. The value = 0 when the unit is in any heating state, Start, or Recirc. The value = 1 when the unit is in any other state. Applies only to units configured with supply fan VFDs.

1. This object does not apply to 1ZnVAV units.
2. This object does not apply to SCC units.
3. Default value does not apply to read-only points.

Table 7: Supply and Return/Exhaust Fan Speed Control

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)4	Description
Supply Air Fan (SAF) Speed Control					
Duct Static Pressure[2,3]	AV:6	R	DuctStatPress	0-5" WC 0-1250 Pa	The current duct static pressure sensor reading. When a unit is equipped with two duct static pressure sensors, it displays the lower of the two sensor readings. Static pressure control is then based on the lower of the two readings. Applies only if the unit supply fan type is configured for a VFD.
Duct Static Pressure Setpoint[2,3]	AV:7	W	DuctStaticSP	0.2-4.0" WC 49.82-996.36 Pa Default: 1" WC / 249 Pa	Sets the Duct Static Pressure Setpoint used to control the discharge air fan VFD. If the Present Value is set beyond the valid limits from the network, the value written from the network is ignored. Applies only if the unit supply fan type is configured for a VFD and Remote Supply Fan Capacity Control Flag (MSV:11) is set to 1 = DSP.
Remote Supply Fan Capacity Control Flag	MSV:11	W	SupFanCtrl	1 = DSP 2 = Speed 3 = 1ZnVAV 4 = BSP 5 = CO_2 6 = CFM Default: 1 (DSP)	Selects the supply fan airflow control used on a unit equipped with a variable volume supply air fan. **Option Descriptions/Notes** 1 = DSP (The supply fan airflow maintains the duct static pressure at the duct static pressure set point. Applies only when the unit is not configured for 1ZnVAV operation).2 = Speed (The supply fan airflow is controlled to a VFD speed set via the Supply Fan Capacity Input). 3 = 1ZnVAV (The supply fan airflow is controlled to maintain the Control Temperature at the Occupied Cooling Setpoint or the Occupied Heating Setpoint depending on the Unit State. Only applies if unit is configured for single zone VAV operation). 4 = BSP (The supply fan airflow maintains the building static pressure at the building static pressure set point. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer). 5 = CO_2 (The supply fan airflow maintains the CO_2 level between adjustable limits. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer). 6 = CFM (The supply fan airflow maintains the CFM level at the Outdoor Air Damper Minimum Position setpoint. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer).
Supply Fan Capacity Input[1]	AV:21	W	SupFanCapNetIn	0-100% Default: 163.835 (Null)	Sets the discharge air VFD speed when the Supply Fan Capacity Control Flag is set to Speed (MSV:11=2) using maximum and minimum limits. If the Present Value is set beyond these limits from the network, the value is ignored and the controller continues to control to the last valid value.
Return/Exhaust Fan Control					
Building Static Pressure	AI:9	R	BldgStatPress	-0.2489 - 0.2489" WC -62 .. 62 Pa	Displays the reading of the current building static pressure sensor.
Building Static Pressure Setpoint	AV:8	W	BldgStaticSP	-0.2489 - 0.2489" WC -62 .. 62 PaC Default: 0.05" WC / 12.5 Pa	Sets the building static pressure setpoint used for controlling the return air or exhaust fan inlet VFD. The VFD is modulated to maintain the building static pressure sensor input at this setpoint. Uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the controller continues to control to the last valid value. Applies only if the unit is configured for a modulating return/exhaust fan.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. This object does not apply to 1ZnVAV units.
3. This object does not apply to SCC units.
4. Default value does not apply to read-only points.

Table 7: Supply and Return/Exhaust Fan Speed Control, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Return/Exhaust Fan Control Method	MSV:12	W	ExhRetFanCtrl	1 = None 2 = Tracking 3 = Building Pressure 4 = Speed 5 = OADamper Default: 2 (Tracking)	Selects the return or exhaust fan airflow control. **Option Descriptions/Notes** 1 = None (No method selected) 2 = Tracking (If the unit is equipped with return fan VFD, the return fan airflow is controlled based on an adjustable tracking relationship between the supply fan and return fan airflow.) 3= Building Pressure (The return or exhaust fan airflow is controlled independently of the supply fan airflow to maintain the building static pressure at a building static pressure setpoint. 4 = Speed (The return or exhaust fan airflow is controlled to a VFD speed setpoint adjusted via the Return Fan Capacity Input. 5 = OADamper (The exhaust fan airflow is controlled independently of the supply fan airflow based on the outdoor air damper position. This parameter does not apply to SCU unit types.
Return Fan Capacity Input[1]	AV:22	W	RetFanCapNetIn	0-100% Default: 163.835 (Null)	Sets the return/exhaust air VFD speed when Return/ Exhaust Fan Control (MSV:12) = Speed (4). Applies only to units configured for a modulating return fan. Uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Exhaust Fan Capacity Input[1]	AV:23	W	ExhFanCapNetIn	0-100% Default: 163.835 (Null)	Overrides the local exhaust fan capacity control. Remote Return/Exhaust Fan Capacity Control Flag (MSV:12) must be set to Speed (4) for the unit controller to use this remote capacity for control. Applies only to units that are configured for modulating exhaust fan or prop exhaust.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. This object does not apply to 1ZnVAV units.
3. This object does not apply to SCC units.
4. Default value does not apply to read-only points.

Table 8: Cooling

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Occupied Cooling Setpoint	AV:9	W	OccCoolSP	0°-100°F -17.78°-37.78°C Default: 72°F / 22.22°C	Sets the Occupied Cooling Setpoint value when it is not controlled by another function. It uses maximum and minimum limits, so if the Present Value is set beyond the acceptable range from the network, the value is ignored and the unit controller continues to control to the last valid value.
Unoccupied Cooling Setpoint	AV:10	W	UnoccCoolSetpt	39.992°-99.986 °F -4.44°-37.77°C Default: 85°F / 29.44°C	Sets the temperature above which the unit starts and provides unoccupied heating (night setup) during unoccupied periods. An optional space temperature sensor is required for unoccupied cooling operation. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Network Discharge Air Cooling Setpoint	AV:13	W	DAClgSetpt	39.992°-100.0°F 4.44°-37.78°C Default: 55°F / 12.78°C	Sets the Network Cooling Discharge Setpoint only when ClgReset = Network. The unit controller internally limits the Present Value that is written between the Min Clg Spt (AV:14) and the Max Clg Spt. Refer to the Cooling Set Up menu on the unit controller keypad/display.
Min Discharge Air Cooling Setpoint	AV:14	W	DefaultDATClgSetpt	39.992°-100.0°F 4.44°-37.78°C Default: 55°F / 12.78°C	Sets the Minimum Discharge Air Cooling Setpoint. It is also changeable via the unit controller keypad/display. The unit controller uses the last valid value it received from either the network or keypad/display.

Table 9: Evaporative Condenser

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[1]	Description
Conductivity	AI:12	R	Conductivity	0-5000	Provides the conductivity of the sump water in an evaporative cooled condenser.

1. Default value does not apply to read-only points.

Table 10: Minimum Outdoor Air Set-up

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[2]	Description
Space CO_2	AI:13	R	SpaceCO2	0-5000 ppm	The current space CO_2 level from the optional space CO_2 sensor. This value reflects the SpaceIAQ Input (if valid) or the value from a locally wired sensor. Applies only if the unit is configured for an airside economizer and Min OA Type is set to IAQ VDC or IAQ mA.
Outdoor Airflow	AV:42	R	OAFlow	0-60007.25 CFM 0-28320 l/s	The amount of outdoor airflow entering the unit. Applies only to units configured for design flow.
Outdoor Airflow Setpoint	AV:53	W	MinOAFlowSpt	0-60007.25 CFM 0-28320 l/s Default: 2000 CFM 943.9 l/s	The Outdoor Air Setpoint applies only to units configured for design flow.
Outdoor Air Damper Minimum Position Input	AV:16	W	MinOAPosNetIn	0-100% Default: NA	Sets the Outdoor Air Damper Minimum Position setpoint. The Minimum Outdoor Air Damper Position Input setpoint uses this value when 1) it is not controlled by another function and 2) when Min OA Pos = Network via the unit controller the keypad/display. The unit controller internally limits the Present Value that is written between the DCV Limit and the Vent Limit in the Min OA Damper menu. Applies only to units configured with an airside economizer.
Space IAQ Input[1]	AV:31	W	SpaceIAQNetIn	0-5000 ppm Default: 32767 (Null)	Indicates the current space CO_2 level from the network. This value takes priority over a locally wired sensor. It is used for minimum OA damper control and only applies if Min OA Type is set to IAQ VDC or IAQ mA.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. Default value does not apply to read-only points.

Table 11: Heating

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Occupied Heating Setpoint	AV:11	W	OccHeatSP	0°-100°F -17.78°-37.78°C Default: 68°F / 20°C	Sets the Occupied Heating Setpoint value when it is not controlled by other function. It uses maximum and minimum limits, so if the Present Value is set beyond the acceptable range, the value is ignored and the unit controller continues to control to the last valid value.
Unoccupied Heating Setpoint	AV:12	W	UnoccHeatSetpt	39.99°-99.98°F -4.44°-37.77°C Default: 55°F / 12.78°C	Sets the temperature above which the unit starts and provides cooling (night setback) during unoccupied periods. An optional space temperature sensor is required for unoccupied cooling operation. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Max Discharge Air Heating Setpoint	AV:18	W	DefaultDATHtgSetpt	40°-140°F 4.4°-60°C Default: 120°F / 48.89°C	Sets the maximum allowable discharge air heating setpoint determined by the discharge air temperature reset function. It is changeable via the unit controller keypad/display. The controller uses the last valid value it last received from either the network or the keypad/display. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Morning Warm-up Heating Setpoint[1]	AV:55	W	DACMWUSpt	40°-100°F 4.4°-37.78°C Default: 70°F / 21.11°C	Defines the morning warm-up heating setpoint when the unit is configured for discharge air temperature control. It does not apply to zone temperature control units (the Occupied Heating Setpoint is used for morning warm-up purposes in zone control units). The unit controller uses the last valid value received from either the network or the keypad/display. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Network Discharge Air Heating Setpoint	AV:17	W	DAHtgSetpt	39.99-140°F 4.44°-60°C Default: 100°F / 37.78°C	Sets the Network Heating Discharge Setpoint and only applies when HtgReset = Network. The unit controller internally limits the Present Value that is written between the Min Htg Spt and the Max Htg Spt (AV:18). See the Heating menu on the unit controller keypad/display.

1. This object does not apply to SCC units.

Table 12: Dehumidification

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[2]	Description
Dehumidification					
Relative Humidity	AI:11	R	SpaceRH	0-100%	The current reading of the optional relative humidity sensor.
Relative Humidity Input[1]	AV:19	W	SpaceRHNetIn	0-100% Default: 163.835% (Null)	Sets the relative humidity from the network. If the network value becomes unreliable, the humidity reverts to the value provided by the attached relative humidity sensor.
Relative Humidity Setpoint	AV:40	W	HumiditySP	0-100% Default: NA	Defines the Relative Humidity Setpoint via the network.
Dew Point Temperature	AV:20	R	SpaceDewPt	-50°-150°F -45.56°-65.56°C	The current Dew Point Temperature value is calculated from the optional relative humidity sensor.
Dew Point Setpoint	AV:41	W	DewpointSP	0-100°F -17.78° - +37.78°C Default: NA	Defines the Dew Point Setpoint via the network. The "Dehum Method = item" on the keypad/display can be changed to DewPt as desired.
Reheat Capacity	AV:44	R	ReheatCapacity	0-100%	Indicates the current percentage of the unit's reheat capacity. Applies only to units configured with cooling.
Dehumidification Set-up					
Minimum Leaving Coil Temperature Dehumidification Setpoint	AV:56	W	MinDehumLCTSpt	-39.99°-100°F 4.44°-37.78°C Default: 44.99°F / 7.22°C	Determines the point where cooling is staged up during dehumidification operation. If the unit is equipped with modulating cooling (such as chilled water or variable speed compressor) this is the point the leaving coil temperature is controlled to during dehumidification operation.
Maximum Leaving Coil Temperature Dehumidification Setpoint	AV:57	W	MaxDehumLCTSpt	-39.99°-100°F 4.44°-37.78°C Default: 51.99°F / 11.11°C	Determines the point where cooling is staged down during dehumidification operation.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. Default value does not apply to read-only points.

Table 13: Energy Recovery

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[1]	Description
Energy Recovery Exhaust Air Temperature	AI:17	R	EREAT	-20°-199.99°F -28.89°-93.33°C Default: NA	The current value of energy recovery wheel exhaust air temperature sensor.
Energy Recovery Leaving Air Temperature	AI:16	R	ERLAT	-50°-249.99°F -45.56°-121.11°C Default: NA	The current value of energy recovery wheel leaving air temperature sensor.
Energy Recovery Wheel Speed	AI:15	R	ERWheelSpd	0-100% Default: NA	The current speed of the energy recovery wheel, expressed as a percentage.
Energy Recovery Wheel Status	MSV:37	R	ERWhlOnOff	1 = Off 2 = On Default: NA	The command status (On or Off) of the energy recovery wheel.

1. Default value does not apply to read-only points.

Table 14: Refrigeration

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[1]	Description
Discharge Refrigerant Pressure	AI:26	R	RefDischP	0-725.2 psi 0-5000 kPa	The current reading of the unit discharge line refrigerant pressure sensor. Applies only to Rebel (DPS, DPH) units.
Discharge Refrigerant Pressure Circuit 1	AI:30	R	C1RefDischP	0-725.2 psi 0-5000 kPa	The current reading from circuit 1 refrigerant discharge pressure sensor.
Discharge Refrigerant Pressure Circuit 2	AI:31	R	C2RefDischP	0-725.2 psi 0-5000 kPa	The current reading from circuit 2 refrigerant discharge pressure sensor.
Suction Refrigerant Pressure	AI:25	R	RefSuctionP	0-725.2 psi 0-5000 kPa	The current reading from refrigerant circuit suction pressure sensor.

1. Default value does not apply to read-only points.

Table 15: Operation Hours

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[2]	Description[1]
Supply Fan Hours	AV:100	W	SupplyFanHrs	0-50000 Hours	The accumulated supply fan hours of operation.
Return/Exhaust Fan Hours	AV:101	W	RF_EFHrs	0-50000 Hours	The accumulated return or exhaust fan hours of operation.
Staged Exhaust 1 Hours	AV:102	W	StgExh1Hrs	0-50000 Hours	The second stage exhaust fan accumulated run hours.
Staged Exhaust 2 Hours	AV:103	W	StgExh2Hrs	0-50000 Hours	The first stage exhaust fan accumulated run hours.
Mechanical Cooling Hours	AV:104	W	MechClgHrs	0-50000 Hours	The accumulated mechanical cooling hours of operation.
Compressor 1 Hours	AV:105	W	Comp1Hrs	0-50000 Hours	The accumulated compressor 1 hours of operation.
Compressor 2 Hours	AV:106	W	Comp2Hrs	0-50000 Hours	The accumulated compressor 2 hours of operation.
Compressor 3 Hours	AV:107	W	Comp3Hrs	0-50000 Hours	The accumulated compressor 3 hours of operation.
Compressor 4 Hours	AV:108	W	Comp4Hrs	0-50000 Hours	The accumulated compressor 4 hours of operation.
Compressor 5 Hours	AV:109	W	Comp5Hrs	0-50000 Hours	The accumulated compressor 5 hours of operation.
Compressor 6 Hours	AV:110	W	Comp6Hrs	0-50000 Hours	The accumulated compressor 6 hours of operation.
Compressor 7 Hours	AV:111	W	Comp7Hrs	0-50000 Hours	The accumulated compressor 7 hours of operation.
Compressor 8 Hours	AV:112	W	Comp8Hrs	0-50000 Hours	The accumulated compressor 8 hours of operation.
Compressor Cooling Hours	AV:113	W	CmpClgHrs	0-50000 Hours	The compressor cooling accumulated run hours. Applies only to Rebel (DPS, DPH) units.
Compressor Heating Hours	AV:114	W	CmpHtgHrs	0-50000 Hours	The compressor heating accumulated run hours. Applies only to Rebel (DPS, DPH) units.
Dehumidification Hours	AV:119	W	DehumHrs	0-50000 Hours	The accumulated dehumidification hours of operation.
Economizer Hours	AV:117	W	EconoHrs	0-50000 Hours	The accumulated economizer hours of operation.
Energy Recovery Wheel Hours	AV:120	W	ERWhlHrs	0-50000 Hours	The accumulated energy recovery wheel hours of operation.
Heating Hours	AV:116	W	HeatingHrs	0-50000 Hours	The accumulated heating hours of operation.
Inverter Compressor Hours	AV:115	W	INVCmpHrs	0-50000 Hours	The accumulated inverter compressor hours of operation. Applies only to Rebel (DPS, DPH) units.
Tenant Override Hours	AV:118	W	TenantORHrs	0-50000 Hours	The accumulated tenant override hours of operation.
Variable Compressor Hours	AV:121	W	VarCmpHrs	0-50000 Hours	The accumulated Variable Compressor hours of operation.
Reheat Hours	AV:122	W	ReheatHrs	0-50000 Hours	The accumulated hours of continuous reheat operation.

[1]Object can be reset via the network.
[2]Default value does not apply operational hour objects.

Table 16: Defrost

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[2]	Description
Defrost State	MSV:47	R	DefrostState	1 = Off 2 = Init 3 = Exec 4 = Term Default: NA	Indicates the unit's current defrost state. 1 = Off 2 = Init (Defrost Initialization) 3 = Exec (Execute Defrost) 4 = Term (Terminate Defrost)

Table 17: BACnet Network Variables

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)[2]	Description
Outdoor Air Temperature Input[1]	AV:29	W	OutdoorTempInput	-50°-150°F -45.56°-65.56°C Default: 327.67 (Null)	Enables the outdoor air temperature to be configured from the network. Write the temperature to this property when using a single temperature sensor to determine the outdoor air temperature for the entire network. Applies only if the unit is configured for an outdoor air temperature sensor, and reverts to the Null value if written out of range.
Space Temperature Input[1]	AV:28	W	SpaceTempInput	0°-150°F -17.78°-65.56°C Default: 327.67 (Null)	The current space or zone temperature network value. If this network value becomes unreliable, the temperature reverts to the space temperature sensor value. Applies only if the unit is configured for a space temperature sensor.
Primary Cool Enable[1]	AV:34	W	CoolEnable	0 = Off (Disabled) 1 = Enable -1 = Null Default: -1 (Null)	Enables or disables the primary cooling. Applies only if 1) the unit is configured for mechanical cooling and 2) when Ctrl Mode = Auto. • If CoolEnable is 0, then the primary cooling is disabled. If it is 1 and CoolEnablePct is 0, the primary cooling is disabled. • If CoolEnable is -1 (null), it is not being controlled by the network. • If CoolEnable is 1 and CoolEnablePct is greater than 0, the primary cooling is enabled. When cooling is enabled, CoolEnablePct reflects the percentage of cooling that is enabled.
	AV:35	W	CoolEnablePct	0-100% Default: 100%	
Primary Heat Enable[1]	AV:36	W	HeatEnable	0 = Off (Disabled) 1 = Enable -1 = Null Default: -1 (Null)	Enables or disables the primary heating. Applies only if 1) the unit is configured for heating and 2) when Ctrl Mode = Auto. • If HeatEnable = 0, then the primary heating is disabled. • If HeatEnable = 1 and HeatEnablePct = 0, the primary heating is disabled. • If HeatEnable = -1 (null), it is not being controlled by the network. • If HeatEnable = 1 and HeatEnablePct is greater than 0, the primary heating is enabled. When heating is enabled, HeatEnablePct reflects the percentage of heating that is enabled.
	AV:37	W	HeatEnablePct	0-100% Default: 100%	
Economizer Enable[1]	AV:32	W	EconEnable	0 = Off (Disabled) 1 = Enable -1 = Null Default: -1	Enables or disables the economizer. Applies only if 1) if the unit is configured for a waterside or airside economizer and 2) when Ctrl Mode = Auto. • If EconEnable = 0, then the economizer is disabled. • If it is 1 and EconEnaPercent is 0, the economizer is disabled. • If EconEnable = -1 (null), it is not being controlled by the network. • If EconEnable = 1 and EconEnablePct is greater than 0, the economizer is enabled and local enable/disable decisions are ignored. *Economizer operation is disabled locally when the unit is in dehumidification, regardless of the network Economizer Enable settings.*
	AV:33	W	EconEnablePct	0-100% Default: 100%	
Waterflow Switch Input[1]	AV:38	W	WaterflowSwitch	-1 = No Flow 0 = No Flow 1 = Flow Default: -1 (No Flow)	Allows the network to set the waterflow status. Applies only to units that are configured for mechanical cooling. The cooling configuration is either individual circuits or dual circuit water condenser, and no head pressure control.
Effective Discharge Air Temperature Setpoint	AV:39	R	EffDATempSP	-83.2°..147.2°F -64°..64°C Default: NA	Reflects the Effective Heating Discharge Temperature Setpoint if the unit is in the heating state. If not, it reflects the Discharge Air Cooling Setpoint when the unit is in any other operating state.
AHU Loc/Net	MSV:38	R	AHULoc/Net	1 = Network 2 = Local Default: 1 (Network)	Indicates if the unit controller is set to use local or network inputs. AHU Loc/Net can only be changed from the keypad/ display (applicable parameters in this table denoted with a "1"). It must be set to Network (1) for most of the writeable network properties to apply.

1. MSV:38 (AHU Loc/Net) must be set to Network (1) for this property to apply. AHU Loc/Net is changeable only via the keypad display.
2. Tenant Override and Standby options are not used.
3. Default value does not apply to read-only points.

Table 18: Unit Configuration

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Unit Type	MSV:111	R	UnitType	1 = RTU 2 = SCU 3 = MPS 4 = DPS/ DAH 5 = DPS_H Default: 1 (RTU)	Defines the AHU model associated with the unit controller. Not all unit types are available in every application. Unit Type is determined based on the construction of the unit and should not be changed. 1=Applied Rooftop (RTU) 2=Self-Contained (SCU) 3=Commercial Rooftop (MPS) 4=Rebel Cool Only (DPS/DAH) 5=Rebel Heat Pump (DPS_H)
Control Type	MSV:112	R	CtrlType	1 = Zone control 2 = DAT control 3 = 1ZnVAV 4 = RefOnly Default: 2 (DAT)	Defines the control logic for the unit. **Description/Notes** DAT = Discharge air temperature control 1ZnVAV = Single-zone VAV control
Cooling Type	MSV:113	R	ClgType	1 = None 2 = Standard Compressorized Clg 3 = Chilled Water 4 = F&BP 5 = Variable Comp Circuit 1 6 = Variable Comp Circuit 2 7 = VRV 8 = VCSV1 9 = VCSV2 10 = Digital Comp 1 Circuit 11 = Digital Comp 2 Circuits Default: 2 = Standard Compressorized Clg	The type of cooling in the unit. Not all options are available in all applications. **Description/Notes** VCSV1 = Variable compressor-circuit 1 with SV1 valve VCSV2 = Variable compressor-circuit 2 with SV1 valve
Compressor Configuration	MSV:114	R	CompCfg	1 = None 2 = Generic Condenser 3 = 2Cmp/2Circ/3Stg 4 = 3Cmp/2Circ/4StgorVar 5 = 3Cmp/3Circ/3Stg_NoWRV 6 = 3Cmp/3Circ/3Stg_WRV 7 = 4Cmp/2Circ/4StgorVar 8 = 4Cmp/4Circ/4Stg_NoWRV 9 = 4Cmp/4Circ/4Stg_WRV 10 = 6Cmp/2Circ/6StgorVar 11 = 6Cmp/6Circ/6Stg_NoWRV 12 = 6Cmp/6Circ/6Stg_WRV 13 = 3Cmp/2Circ/5StgorVar 14 = 4Cmp/2Circ/5or8StgorVar 15 = 8Cmp/4Circ/8Stg 16 = 8Cmp/8Circ/8Stg 17 = 6Cmp/3Circ/6Stg 18 = Not Used 19 = 3 Cmp/3Circ/4Stg 20 = Spare 21 = 1Var/1Circ 22 = Var/1STD/1Circ Default: 7 = 4Cmp/2Circ/4StgorVar	The compressor configuration and compressor staging for the unit. Not all options are available in all application versions or unit types.
Generic Cooling Stages	AV:163	R	GenCondStages	0-8 Default: 8	The number of generic cooling stages. Applies only if the compressor configuration is set to Generic Condenser (2) and is used for remote condenser operation. Does not apply to DPS_H and SCU unit types.
Low Ambient	MSV:115	R	LoAmb	1 = No 2 = Yes Default: 1 (No)	Indicates if Low Ambient control is available. This position has no effect on unit operation.

Table 18: Unit Configuration, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Evap Condenser Control	MSV:116	R	EvapCondCtrl	1 = Std Method 1 2 = Std Method 2 3 = Evap ABB 4 = Evap MD2 5 = Evap MD3 6 = Evap DF 7 = Not Used 8 = EBM 9 = INV 10 = INV w/MicroC OA Coil 11 = Nidec Default: 1 (Std Method 1)	The type of evaporator condenser control configured for the unit. This parameter does not apply to SCU (Self-Contained Unit) models.
Outdoor Air Flow Station	MSV:118	R	OAFlowStation	2 = DF_015-030 (800) 3 = DF_036-042 (802) 4 = DF_045-075 (047) 5 = DF_080-135 (077) 6 = Generic Flow Station 7 = Generic Flow Station with CO_2 Default: 1 (None)	The type of outdoor air flow station installed in the unit. **Option Descriptions/Notes** DF = DesignFlow Generic Flow Station = Field-provided flow station
Damper Type	MSV:117	R	DamperType	1 = None 2 = Single Position 30% 3 = Single Position 100% 4 = Economizer Airside 5 = Economizer Waterside 6 = 100%OA_D3 7 = AirEcon_D3 8 = 30%_D3 9 = EconoAirsideFDD 10 = EconFDDD3 Default: 4 (Economizer Airside)	The style of damper installed in the unit. **Option Descriptions/Notes** 6 = 100% OA damper, D3 gateway 7 = Airside economizer, D3 gateway 8 = 30% OA damper, D3 gateway 9 = Economizer airside fault detection 10 = Economizer fault detection and D3 gateway Options #2, 3, 6 and 8 only apply if Position 1 = 0 (RTU), 2 (MPS), 3 or 4 (DPS) Option #5 only applies if Position 1 = 1 (SCU)
Heating Type	MSV:119	R	HtgType	1 = None 2 = F_BP (face and bypass) 3 = Staged (gas or electric) 4 = Gas3-1 turndown 5 = Gas20-1 turndown 6 = SteamWtr 7 = SCR electric heat 8 = MPSLoGas 9 = MPSHiGas 10=SC30LoG 11=SC30HiG Default: 1 (None)	The type of heating in the unit.
Maximum Heating Stages	AV:164	R	MaxHtgStages	1-8 Default: 1	The number of heating stages in the unit.
Maximum Heat Rise	AV:165	R	MaximumHeatRise	0-100 Default: 100	The maximum heat rise in the unit. Based on a three digit input.
Supply Air Fan Type	MSV:120	R	SAFType	1 = Constant Volume (CAV) 2 = VFD/ABB_BD 3 = VFD/DF_BD 4 = VFD/MD2_BD 5 = VFD/MD3_BD 6 = VFD/MD6_BD 7 = EBMVAV_DD 8 = EBMCAV_DD 9 = ABBVAV_DD 10 = ABBCAV_DD 11 = DeltaVAV_DD 12 = DeltaCAV_DD 13 = AnlgVAV_DD 14 = AnlgCAV_DD 15 = DFVAV_DD 16 = DFCAV_DD Default: 1 (CAV)	The model of supply fan installed in the unit. Not all fan options are available for each unit type.

Table 18: Unit Configuration, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Return Air Fan Type	MSV:121	R	RAFType	1 = CAV 2 = RF_EF VFD/ABB 3 = RF_EF VFD/DF 4 = RF_EF VFD/MD2 5 = RF_EF VFD/MD3 6 = RF_EF VFD/MD6 7 = PrpEx VFD/ABB 8 = PrpEx VFD/DF 9 = PrpEx VFD/MD2 10 = PrpEx VFD/MD3 11 = PrpEx VFD/MD6 12 = None 13 = 1StageExh 14 = 2StageExh 15 = 3StageExh 16 = EBMVAV_DD 17 = EBMCAV_DD 18 = ABBVAV_DD 19 = Not Used 20 = ABBCAV_DD 21 = DeltaVAV_DD 22 = DeltaCAV_DD 23 = AnlgVAV 24 = AnlgCAV 25 = Not Used 26 = DFVAV_DD 27 = DFCAV_DD Default: 1 (CAV)	The model of return air fan installed in the unit. Not all fan options are available for each unit. Does not apply to SCU unit types.
Return/Exhaust Fan Control Method	MSV:12	W	ExhRetFanCtrl	1 = None 2 = Tracking 3 = Building Pressure 4 = Speed 5 = OADamper Default: 2 (Tracking)	Selects the return or exhaust fan airflow control. **Option Descriptions/Notes** 1 = None (No method selected) 2 = Tracking (If the unit is equipped with return fan VFD, the return fan airflow is controlled based on an adjustable tracking relationship between the supply fan and return fan airflow.) 3= Building Pressure (The return or exhaust fan airflow is controlled independently of the supply fan airflow to maintain the building static pressure at a building static pressure setpoint. 4 = Speed (The return or exhaust fan airflow is controlled to a VFD speed setpoint adjusted via the Return Fan Capacity Input. 5 = OADamper (The exhaust fan airflow is controlled independently of the supply fan airflow based on the outdoor air damper position. This parameter does not apply to SCU unit types.
Second Duct Static Pressor Sensor	MSV:122	R	2ndDSPSensor	1 = No 2 = Yes Default: 1 (No)	Indicates if a second duct static pressure sensor installed in the unit. It is determined based on the construction of the unit and should not be changed.
Entering Fan/Leaving Coil Temperature Sensor	MSV:123	R	EFTLCTSnsr	1 = No 2 = Yes Default: 1 (No)	Indicates if there is an entering fan or leaving coil temperature sensor installed in the unit. It is determined based on the construction of the unit and should not be changed.
Energy Recovery	MSV:124	R	EnergyRec	1 = None 2 = CnstSpd 3 = DFVFD 4 = MD2VFD 5 = MD3VFD 6 = ABBVFD 7 = CnstSpdHum Default: 1 (None)	Indicates if there is energy recovery in the unit and what type. It is determined based on the construction of the unit and should not be changed.
Cooling Circuit Type	MSV:125	R	ClgCirType	1 = Individ 2 = 2CircWtr 3 = 2CircAir or 1CircAir Default: 3 (2CircAir)	The type of cooling circuit for the unit. Not all options are available in all applications. It is determined based on the construction of the unit and should not be changed.
Head Pressure Control	MSV:126	R	HdPressCtrl	1 = No 2 = Yes Default: 1 (No)	Indicates if Head Pressure Control is enabled or not. It is determined based on the construction of the unit and should not be changed.

Table 18: Unit Configuration, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Bypass Control	MSV:127	R	BypassCtrl	1 = Slave 2 = Bypass Default: 1 (Slave)	The bypass control logic for a self-contained unit.
Unit Size	AV:166	R	UnitSize	0-999 Default: 050	The unit size in tons of cooling.
Refrigerant Type	MSV:128	R	RefrigType	1 = R22 2 = R407C 3 = 410A 4 = R32 Default: 1 (R22)	The type of refrigerant in the unit.
Reheat Type	MSV:129	R	ReheatType	1 = None 2 = StgHG (staged) 3 = ModHG (modulating) 4 = StdHt (standard unit heat) 5 = ModLSC 6 = HG_LSC Default: 1 (None)	The type of reheat in the unit. Not all methods of reheat are available for all unit types.
Unit Voltage	MSV:130	R	UnitVoltage	1 = 208_60Hz 2 = 230_60Hz 3 = 460_60Hz 4 = 575_60Hz 5 = 208_50Hz 6 = 230_50Hz 7 = 460_50Hz 8 = 575_50Hz Default: 3 (460_60Hz)	The voltage configured for the unit.
Expansion Valve Controller Type	MSV:131	R	EVType	1 = None 2 = EVBSg 3 = EVBDF 4 = MTSag 5 = MTDF 6 = MTSgDF 7 = MTDFSg 8 = MTDFC Default: 1 (None)	The expansion valve controller configured for the unit. Applies to Rebel DPS and DPS_H unit types.

Table 19: Active Alarms

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Alarm Value	AV:27	R	AlarmValue	NA	Allows individual notification of the highest priority active alarm. The value in Table 40 is the largest number in its enumeration that corresponds to an active alarm.[1]
Warning Alarm	AV:24	R	ActiveWarning	NA	Allows individual notification of the highest priority active warning alarm. The value in Table 41 is the largest number in its enumeration that corresponds to an active alarm.[1]
Problem Alarm	AV:25	R	ActiveProblem	NA	Allows individual notification of the highest priority active problem alarm. The value in Table 42 is the largest number in its enumeration that corresponds to an active alarm.[1]
Fault Alarm	AV:26	R	ActiveFault	NA	Allows individual notification of the highest priority active fault alarm. The value in Table 43 is the largest number in its enumeration that corresponds to an active alarm.[1]
Clear Alarms	MSV:13	W	ClearAlarms	1 = None 2 = ClrFlts 3 = ClrPrblms 4 = ClrWrngs 5 = ClrAllAlms Default: 1	Clears all active alarms or all active alarms in a particular alarm class. See Alarms and Events section for more information on clearing BACnet alarms. ***If you choose to clear an alarm using MSV:13, it should be done with intention and precision. This point should not be written to continuously and frequently under any circumstances. The purpose of writing to MSV:13 is to intentionally clear an active alarm.***

[1]Alarm objects set to 0 if no alarms are present. See Alarm Monitoring section for more information.

Table 20: Date/Time/Schedules

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Date	Device	R	Local_Date	NA	Sets the current date in the form of day, month, year, and day of the week. See ANSI/ASHRAE 135-2008 for a complete definition of the data type.
Max Purge Time	AV:58	W	MaxPurgeTime	0-300 Min Default: 0 Min	Activates a preoccupancy purge function period that uses unoccupied economizer operation to pre-cool the space. Setting this to 0 minutes deactivates the function.
Time	Device	W	Local Time	NA	Sets the current time in the form of hours, minutes, seconds, and hundredths of a second. See ANSI/ASHRAE 135-2008 for a complete definition of the data type.

Table 21: Version Information

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Application Version	Device	R	Application_Software_ Version	NA	Reads the Application_Software_Version property, which is the version of application software loaded into the unit controller.

Table 22: Non-Keypad Objects

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Local OA Temperature	AV:5	R	LocalOATemp	-50°-150°F -45.56°-65.56°C Default: NA	The current outdoor air temperature provided by the local outdoor air temperature sensor. Applies only if the unit is configured for an outdoor air temperature sensor.
Local Space Temperature	AV:4	R	LocalSpaceTmp	0°-150°F -17.78°-65.56°C Default: NA	The current space air temperature provided by the local space air temperature sensor. Applies only if the unit is configured for a space temperature sensor.
Network Demand Shed Enable	MSV:48	W	DemandShed	1 = Inactive 2 = Active Default: 1 (Inactive)	Enables the demand shed functionality. For this feature to be active, 1) the DemandShed object in the HtgClg ChgOvr Set-Up keypad/display menu must be set to Enable, and 2) Network Demand Shed Enable must be set to Active. It is only available in application versions 2506017501 and 2506018201 or newer.
Notification Class - Events	NC:4	W	NC4-Events	NA	Generates notifications for event alarms. The Recipient_List[1,2] property conveys a list of one or more recipients to which notifications will be sent. The Ack_ Required property defines whether or not acknowledgment is required for notifications generated due to To-OffNormal, To-Fault, and To-Normal event transitions. The Priority[3] property conveys the priority to be used for event notifications to To-OffNormal, To-Fault and To-Normal events. See Alarm Notification Class (Intrinsic Reporting) - BACnet for details.
Notification Class - Faults	NC:1	W	NC1-Faults	NA	Generates notifications for fault alarms. The Recipient_List Generates notifications for event alarms. The Recipient_List[1,2] property conveys a list of one or more recipients to which notifications will be sent. The Ack_ Required property defines whether or not acknowledgment is required for notifications generated due to To-OffNormal, To-Fault, and To-Normal event transitions. The Priority[3] property conveys the priority to be used for event notifications to To-OffNormal, To-Fault and To-Normal events. See Alarm Notification Class (Intrinsic Reporting) - BACnet for details.

1. If the BACnet front end is unable to subscribe to the recipient_list, it is still possible to subscribe to alarms using the unit controller keypad/display. Navigate to the IP Setup or MS/TP Setup menu and enter the Device Instance of the device to receive the alarms in the “NC Dev 1=” or “NC Dev 2=” entries. Cycle power to the unit controller after changing these properties via the keypad/display.
2. Maximum of 20 recipients at one time.
3. A lower number indicates a higher priority.

Table 22: Non-Keypad Objects, Continued

Point Name	Object Type/ Instance	Read/ Write Access	BACnet Object Name	Range/Default (In Units)	Description
Notification Class - Problems	NC:2	W	NC2-Problems	NA	Generates notifications for event alarms. The Recipient_List[1,2] property conveys a list of one or more recipients to which notifications will be sent. The Ack_ Required property defines whether or not acknowledgment is required for notifications generated due to To-OffNormal, To-Fault, and To-Normal event transitions. The Priority[3] property conveys the priority to be used for event notifications to To-OffNormal, To-Fault and To-Normal events. See Alarm Notification Class (Intrinsic Reporting) - BACnet for details.
Notification Class - Warnings	NC:3	W	NC3-Warnings	NA	Generates notifications for event alarms. The Recipient_List[1,2] property conveys a list of one or more recipients to which notifications will be sent. The Ack_ Required property defines whether or not acknowledgment is required for notifications generated due to To-OffNormal, To-Fault, and To-Normal event transitions. The Priority[3] property conveys the priority to be used for event notifications to To-OffNormal, To-Fault and To-Normal events. See Alarm Notification Class (Intrinsic Reporting) - BACnet for details.

1. If the BACnet front end is unable to subscribe to the recipient_list, it is still possible to subscribe to alarms using the unit controller keypad/display. Navigate to the IP Setup or MS/TP Setup menu and enter the Device Instance of the device to receive the alarms in the “NC Dev 1=” or “NC Dev 2=” entries. Cycle power to the unit controller after changing these properties via the keypad/display.
2. Maximum of 20 recipients at one time.
3. A lower number indicates a higher priority.

BACnet File Objects

BACnet File objects are data files described by the object's properties. They are accessed through File Services. The MicroTech unit controller contains several file objects that may be available via BACnet. Whether or not the objects are available depends on the firmware version of the BACnet communication module attached to the unit controller. The file objects described below are only available with BACnet firmware (BSP) version 9.26 and later. Earlier versions of the BACnet firmware do not support these objects.

Refer to Clause 14 of the BACnet Standard for more information on accessing and implementing File Objects or File Services.

Table 23: BACnet File Objects

File Object	BACnet Object Type	Instance Number	Full Reference Name	File Access Method	Description
BACnet Client Config File	File	1	BACnetClientConfig	Stream-access (1)	Contains the BACnet client configuration. However, the unit controller acts as a server (versus a client), so the BACnet Client Config File does not apply to this application.
BACnet COV Config File		2	BACnetCOVConfig		Contains the BACnet Change of Value (COV) configuration.
Error Log File		3	ErrorLog		The error log file for the BACnet communication module. The information displayed in the error log may vary depending on the BAS.
History Log File		4	HistoryLog		The history log file for the BACnet communication module.
BACnet Event Enrollment Config File		5	BACnetEventEnrollmentConfig		The BACnet Event Enrollment Configuration file of the unit controller. Refer to BACnet Alarm and Event Notification for Event alarm objects.
EDE File		6	EDE-File		The engineering data exchange file, which details the BACnet interface of the unit controller. It describes what points are available and information about each point.
EDE File – State Text		7	EDE-File_StateText		The engineering data exchange file of this controller with state text. This file details the BACnet interface of the unit controller. It describes what points are available and information about each point.
BACnet Notification Class Configuration		8	BACnetNotificationClassConfig		The BACnet Notification Class Configuration of the unit controller. Refer to BACnet Alarm and Event Notification for alarm objects by class. Applies only to BACnet firmware versions 10.26 and newer.
BACnet Dynamic Trend Log Configuration		9	BACnetDynamicTrendlogConfig		The BACnet trend log configuration of the unit controller. This file is not used.

LonWorks Data Tables

This section includes the data that is available to the BAS via the LonWorks network. Each variable may or may not be available on the unit controller HMI keypad display. Note that it may also be available on more than one keypad menu. Refer to the appropriate unit controller OM for the keypad menu structure. Table 24 - Table 37 LonWorks variables apply to all unit types unless otherwise noted.

Table 24: Unit Status/Settings

Point Name	LonWorks Variable	SNVT/UNVT (SNVT/UNVT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Unit State	nvoUnitStatus.Mode	SNVT_hvac_status (112)	N	0 = AUTO 1 = HEAT 3 = COOL 6 = OFF 9 = FAN_ONLY 10 = FREE_COOL 0xFF = NUL	The current unit operating state. This variable covers six other data points: Supply Fan Capacity, Cooling Capacity, Heating Capacity, Reheat Capacity, Economizer Capacity, and In Alarm.
Daikin Applied AHU Unit Status	nvoMcQAHUStatus.Mode	N/A	N	0 = Enabled 1 = Off Man 2 = Off Man Ctrl 3 = Off Net 4 = Off Alarm 5 = Off Fan Retry	The operating status (i.e. Mode) of the unit controller. This variable covers Cooling Status, Heating Status, and Economizer Status data points.
Cooling Status	nvoMcQAHUStatus.ClgStatus	UNVTmcQAHUStatus	N	0 = Enabled 1 = None 2 = Off Ambient 3 = Off Alarm 4 = Off Net 5 = Off Man	Defines the type of cooling in the unit. If cooling is disabled, the reason is indicated.
Heating Status	nvoMcQAHUStatus.HtgStatus	UNVTmcQAHUStatus	N	0 = Enabled 1 = None 2 = Off Ambient 3 = Off Alarm (Not Used) 4 = Off Net 5 = Off Man	Indicates if heating is currently enabled. If heating is disabled, the reason is indicated.
Economizer Status	nvoMcQAHUStatus.EconStatus	UNVTmcQAHUStatus	N	0 = Enabled 1 = None 2 = Off Ambient 3 = Off Alarm (Not Used) 4 = Off Net 5 = Off Man 6 = Off Dehum	Indicates if the economizer is currently enabled. If the economizer is disabled, the reason is indicated.
Cooling Capacity	nvoUnitStatus.cool_output	SNVT_hvac_status (112)	N	0-100%	The current percentage of unit maximum cooling capacity. This variable is a part of the LonWorks Unit Status network variable, which covers six other data points: Unit State, Heating Capacity, Reheat Capacity, Supply Fan Capacity, Economizer Capacity, and In Alarm. Applies only if the unit is configured for cooling. See Unit State.
Heating Capacity	nvoUnitStatus.heat_output_primary	SNVT_hvac_status (112)	N	0-100%	The current percentage of unit maximum heating capacity. This variable is a part of the LonWorks Unit Status network variable, which covers six other data points: Unit State, Supply Fan Capacity, Secondary Heating (Reheat) Capacity, Economizer Capacity, and In Alarm. Applies only to units configured with heating. See Unit State.
Supply Fan Capacity	nvoUnitStatus.fan_output	SNVT_hvac_status (112)	N	0-110%	The current supply fan capacity. This variable is part of the LonWorks Unit Status network variable, which covers six other data points: Unit State, Cooling Capacity, Heating Capacity, Reheat Capacity, Economizer Capacity, and In Alarm. It reads 0% when the fan is off. If the unit is configured as constant volume, it reads 100% when the fan is on. Otherwise, it reads the feedback from the VFD. See Unit State.
Return/Exhaust Fan Status	nvoExhFanStatus	SNVT_switch (95)	N	**Value** 0-100% **State** 0 = Off 1=On -1 (0xFF) = Null	The current return fan or exhaust fan capacity. Applies only to units configured with a return/exhaust fan. This variable has both Value and State properties.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 24: Unit Status/Settings, Continued

Point Name	LonWorks Variable	SNVT/UNVT (SNVT/UNVT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Economizer Capacity	nvoUnitStatus.econ_output	SNVT_hvac_status (112)	N	0-100%	The current economizer capacity or outdoor air damper position. This variable is part of the LonWorks Unit Status network variable, which covers six other data points: Unit State, Cooling Capacity, Heating Capacity, Reheat Capacity, Supply Fan Capacity, and In Alarm. See Unit State.
Emergency Override	nviEmergOverride	SNVT_hvac_emerg (103)	N	0 = NORMAL 4 = SHUTDOWN 0xFF = NUL Default: 0 (NORMAL)	Shuts off the unit controller. If Emergency Override is set = 4 (SHUTDOWN), the unit controller cannot start based on a time clock or any other means. The only way to start the unit controller is to change the value = 0 (NORMAL). If a value other than SHUTDOWN is selected, this variable reverts back to NORMAL.
Application Mode	nviApplicMode	SNVT_hvac_mode (108)	Y	0 = AUTO 1 = HEAT 3 = COOL 6 = OFF 9 = FAN_ONLY 0xFF = NUL Default: NA	Sets the unit in an application mode (Auto, Off, Heat Only, Cool Only, Fan Only, or Dehumidification). Application Mode does not "force" the unit into any state. However, it disables certain unit operations. For example, an Application Mode of "Cool Only" disables heating, "Heat Only" disables cooling, and "Fan Only" disables heating and cooling. Control Mode must be set = Auto for this variable to take effect. Control Mode is only set at the keypad/display.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 25: Occupancy

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description	
Occupancy	nvoEffectOccup	SNVT_occupancy (109)	N	0 = OCCUPIED 1 = UNOCCUPIED 2 = BYPASS* 3 = STANDBY* 0xFF = NUL	Indicates if the unit is currently in an occupied, unoccupied, or tenant override mode of operation. ***Option Descriptions** • BYPASS = Area is temporarily occupied for the bypass period • STANDBY = Area is temporarily unoccupied	
Occupancy Mode	nviOccManCmd	SNVT_occupancy (109)	N	0 = OCCUPIED 1 = UNOCCUPIED 2 = BYPASS* 3 = STANDBY* 0xFF = NUL Default: NA	Sets the unit into a different occupancy mode. The request is typically sent by a wall-mounted occupant-interface module or a supervisory node, which is used to manually control occupancy modes or to override the scheduled occupancy. This input is used with nviOccSchedule to determine the Effective Occupancy mode. ***Option Descriptions** • BYPASS = Area is temporarily occupied for the bypass period • STANDBY = Area is temporarily unoccupied	
Occupancy Scheduler Input	nviOccSchedule	SNVT_tod_event (128)	Y	0 = OCCUPIED 1 = UNOCCUPIED 2 = BYPASS 3 = STANDBY 0xFF = NUL Default: NA	Commands the occupancy function of the unit controller when Occupancy Mode is set to Auto. A scheduler or a supervisory node typically sends the request. SNVT_tod_event contains three parts: current_state, next_state, and time_to_next_state as described below.	
					Reference	**Description**
current_state					Occupancy Scheduler Input (occup_t)	Required. Indicates current scheduled occupancy state.
next_state					Occupancy Scheduler Next (occup_t)	Optional. Indicates next scheduled occupancy state.
time_to_next_state				0-65534 Default: 65535 (Null)	Occupancy Scheduler Time (min)	Optional. Used in conjunction with Optional Start. If time_to_next_state is valid, the unit controller uses this time to determine when the unit will start. If time_to_next_state is not valid, the unit controller uses an internal calculation to determine when the unit should start.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 26: Temperatures

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[3]	Description
Discharge Air Temperature	nvoDischAirTemp	SNVT_temp_p (105)	N	-50°-249.99°F -45.56°-121.11°C	The current reading of the unit discharge air temperature sensor.
Return Air Temperature	nvoRATemp	SNVT_temp_p (105)	N	-20°-199.99°F -28.89°-93.33°C	The current reading from the unit return air temperature sensor. Applies only to units configured for a return air sensor.
Space Temperature	nvoSpaceTemp	SNVT_temp_p (105)	N	0°-150°F -17.78°-65.56°C	The current space or zone temperature from the optional space air temperature sensor. Applies only if the unit is configured for a space temperature sensor. *Note: If the sensor is not installed and the network is not writing to the space temperature, the Space Sensor attribute in the Unit Configuration menu on the keypad/ display should be set to "No" to disable the alarm function associated with an open circuit at the space temperature sensor input.*
Outdoor Air Temperature	nvoOutdoorTemp	SNVT_temp_p (105)	N	-50°-150°F -45.56°-65.56°C	The current value of a unit-mounted outdoor air temperature sensor. Applies only to units configured for an outdoor air temperature sensor.
Entering Fan/Leaving Coil Temp	nvoEFT_LCT	SNVT_temp_p (105)	N	-83.2°-249.99°F -64°-121.11°C	The current value of the unit entering fan/leaving coil air temperature sensor. Applies only to units configured for an entering fan temperature sensor.
Entering Water Temperature	nvoCWTemp	SNVT_temp_p (105)	N	-50°-150°F -45.56°-65.56°C	The current entering water temperature from the entering water temperature sensor. Applies only to self-contained units configured with a water condenser.
Mixed Air Temperature	nvoMATemp[1] nvoMixedAirTemp[2]	SNVT_temp_p (105)	N	-50°-249.99°F -45.56°-121.11°C	The current mixed air temperature from the mixed air temperature sensor. Applies only for self-contained units configured with a mixed air temperature sensor.

1. Variable applies only to DAC units.
2. Variable applies only to SCC units.
3. Default value does not apply to LonWorks network variable outputs (nvos).

Table 27: Flow Summary

Point Name	LonWorks Variable	SNVT/UNVT Type (SNVT/UNVT Index)	Receive Heart-beat	Range/Default (In Units)[2]	Description
VAV Box Output[1]	nvoVAVBoxOut	UNVTvavBoxOutput	N	0 = Heat (Off) 1 = Cool (On)	The VAV box output is provided for interlocking field VAV box operation with the unit heating or cooling. The value = 0 when the unit is in any heating state, Start, or Recirc. The value = 1 when the unit is in any other state. Applies only to units configured with supply fan VFDs.

1. Variable applies only to SCC units.
2. Default value does not apply to LonWorks network variable outputs (nvos).

Table 28: Supply and Return/Exhaust Fan Speed Control

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)	Description
Supply Fan					
Duct Static Pressure[1]	nvoDuctStatPress	SNVT_press_p (113)	N	0-5.0" WC 0-1250 Pa	The current duct static pressure sensor reading. When a unit is equipped with two duct static pressure sensors, the lower of the two is displayed. Static pressure control is then based on the lower value. Applies only if the unit supply fan type is configured for a VFD.
Duct Static Pressure Setpoint[1]	nviDuctStaticSP	SNVT_press_p (113)	N	0.20-4.0" WC 49.82-996.36 Pa Default: 1.0" WC / 249.09 Pa	Sets the Duct Static Pressure Setpoint used to control the discharge air fan VFD. If the Present Value is set beyond the valid limits from the network, the value is ignored. Applies only if the unit supply fan type is configured for a VFD. Note that 131.779" WC / 32767 Pa indicates an invalid value.

1. Variable applies only to DAC units.
2. Default value does not apply to LonWorks network variable outputs (nvos).

Table 28: Supply and Return/Exhaust Fan Speed Control, Continued

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[2]	Description
Remote Supply Fan Capacity Control Flag[1]	nviSupFanCtrl	UNVTsupFanCtrl	N	0 = DSP 1 = Speed 2 = 1ZnVAV 3 = BSP 4 = CO_2 5 = CFM Default: 0 (DSP)	Selects the supply fan airflow control used on a unit equipped with a variable volume supply air fan. **Option Descriptions/Notes** 0 = DSP (The supply fan airflow maintains the duct static pressure at the duct static pressure set point. Applies only when the unit is not configured for 1ZnVAV operation). 1 = Speed (The supply fan airflow is controlled to a VFD speed set via the Supply Fan Capacity Input). 2 = 1ZnVAV (The supply fan airflow is controlled to maintain the Control Temperature at the Occupied Cooling Setpoint or the Occupied Heating Setpoint depending on the Unit State. Only applies if unit is configured for single zone VAV operation). 3 = BSP (The supply fan airflow maintains the building static pressure at the building static pressure set point. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer). 4 = CO_2 (The supply fan airflow maintains the CO_2 level between adjustable limits. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer). 5 = CFM (The supply fan airflow maintains the CFM level at the Outdoor Air Damper Minimum Position setpoint. Applies only when 1) the unit is not configured for 1ZnVAV operation and 2) is configured for 100% OA operation or SCU unit without airside economizer).
Supply Fan Capacity Input[1]	nviSupFanCap	SNVT_lev_percent (81)	Y	0-100% Default: 25%	Sets the discharge air VFD speed when the Supply Fan Capacity Control Flag is set to Speed using maximum and minimum limits. If the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Return/Exhaust Fan					
Building Static Pressure	nvoBldgStatPress	SNVT_press_p (113)	N	-0.25 - 0.245" WC -62 .. 62 Pa	The current building static pressure sensor reading. Applies only to units that have the return/exhaust fan method set to building pressure.
Building Static Pressure Setpoint	nviBldgStaticSP	SNVT_press_p (113)	N	-0.25 - 0.25" WC -62 .. 62 Pa Default: 0.05" WC / 12.5 Pa	Sets the building static pressure setpoint used for controlling the return air or exhaust fan inlet VFD. The VFD is modulated to maintain the building static pressure sensor input at this setpoint. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the controller continues to control to the last valid value. Applies only if the unit is configured for a modulating return/exhaust fan. *Note that 131.779" WC / 32767 Pa indicates an invalid value.*
Remote Return/ Exhaust Fan Capacity Control Flag	nviExhRetFanCtrl	UNVTexhRetFanCtrl	N	0 = None 1 = Tracking 2 = Bldg Press 3 = Speed 4 = OADamper Default: NA	Selects the return or exhaust fan airflow control. **Option Descriptions/Notes** 0 = None (No method selected) 1 = Tracking (If the unit is equipped with return fan VFD, the return fan airflow is controlled based on an adjustable tracking relationship between the supply fan and return fan airflow.) 2 = Building Pressure (The return or exhaust fan airflow is controlled independently of the supply fan airflow to maintain the building static pressure at a building static pressure setpoint. 3 = Speed (The return or exhaust fan airflow is controlled to a VFD speed setpoint adjusted via the Return Fan Capacity Input. 4 = OADamper (The exhaust fan airflow is controlled independently of the supply fan airflow based on the outdoor air damper position. This parameter does not apply to SCU unit types.

1. Variable applies only to DAC units.
2. Default value does not apply to LonWorks network variable outputs (nvos).

Table 28: Supply and Return/Exhaust Fan Speed Control, Continued

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[2]	Description
Return Fan Capacity Input	nviRetFanCap	SNVT_lev_percent (81)	Y	0-100% Default: NA	Sets the return/exhaust air VFD speed when Remote Return/Exhaust Fan Capacity Control Flag = Speed. Applies only to units that are configured for a modulating return fan. Uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Exhaust Fan Capacity Input	nviExhFanCap	SNVT_lev_percent (81)	Y	0-100% Default: NA	Overrides the local exhaust fan capacity control. EF Cap Ctrl must = Speed for the unit controller to use this remote capacity for control. Applies only to units that are configured for modulating exhaust fan or units that are configured for prop exhaust.

1. Variable applies only to DAC units.
2. Default value does not apply to LonWorks network variable outputs (nvos).

Table 29: Cooling

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)	Description
Occupied Cooling Setpoint	nciSetpoints. occupied_cool	SNVT_temp_setpt (106) SCPTsetPnts (60)	N	0°-100°F -17.78°-37.78°C Default: 72°F / 22.22°C	Sets the Occupied Cooling Setpoint value when it is not controlled by another function. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value. This variable is part of a structure that covers three other data points: Unoccupied Cooling Setpoint, Occupied Heating Setpoint, and Unoccupied Heating Setpoint. **Definitions** • Occupied_cool = Occupied Cooling • SetpointUnoccupied_cool • Unoccupied = Cooling Setpoint • Occupied_heat = Occupied Heating Setpoint • Unoccupied_heat = Unoccupied Heating Setpoint
Unoccupied Cooling Setpoint	nciSetpoints. unoccupied_cool	SNVT_temp_setpt (106) SCPTsetPnts (60)	N	39.99°-100°F -4.44°-37.77°C Default: 85°F / 29.44°C	Sets the temperature above which the unit starts and provides unoccupied heating (night setup) during unoccupied periods. An optional space temperature sensor is required for unoccupied cooling operation. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value. This variable is part of a structure that covers three other data points: Occupied Cooling Setpoint, Occupied Heating Setpoint, and Unoccupied Heating Setpoint. **Definitions** • Occupied_cool = Occupied Cooling Setpoint • Unoccupied_cool Unoccupied = Cooling Setpoint • Occupied_heat = Occupied Heating Setpoint • Unoccupied_heat = Unoccupied Heating Setpoint
Discharge Air Cooling Setpoint[1]	nviDACISP	SNVT_temp_p (105)	N	39.99°-100°F 4.44°-37.78°C Default: 55°F / 12.78°C	Sets the Network Cooling Discharge Setpoint only when ClgReset = Network. The unit controller internally limits the Present Value that is written between the Min Clg Spt and the Max Clg Spt. Refer to the Cooling Set Up menu on the unit controller keypad/display.
Minimum Discharge Air Cooling Setpoint[1]	nciDACISP	SNVT_temp_p (105)	N	39.99°-100°F 4.44°-37.78°C Default: 55°F / 12.78°C	Sets the Minimum Discharge Air Cooling Setpoint. This variable is changeable via the network and unit controller keypad/display. The controller uses the last valid value it received from either the network or unit controller.

1. Variable applies only to DAC units.

Table 30: Evaporative Condenser

Point Name	LonWorks Variable	UNVT Type	Receive Heart-beat	Range/Default (In Units)[1]	Description
Conductivity	nvoConductivity	UNVTconductivity	N	0-5000	Provides the conductivity of the water in the sump of an evaporative cooled condenser. Applies only to units with evaporative condensing.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 31: Minimum Outdoor Air Set-up

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Space CO_2	nvoSpaceCO2	SNVT_ppm (29)	N	0-5000 ppm	The current space CO_2 level from the optional space CO_2 sensor. This value reflects nviSpaceIAQ (if valid) or the value from a locally wired sensor if Min OA Type is set to IAQ VDC or IAQ mA. Applies only if 1) the unit is configured for an airside economizer and 2) Min OA Type is set to IAQ VDC or IAQ mA.
Space IAQ Input	nviSpaceIAQ	SNVT_ppm (29)	Y	0-5000 ppm Default: 32767 (Null)	The current space CO_2 level from the network. This value takes priority over a locally wired sensor. It is used for minimum OA damper control. Applies only if Min OA Type is set to IAQ VDC or IAQ mA.
Outdoor Airflow	nvoOAFlow	SNVT_flow (15)	N	0-60007.25 CFM 0-28320 l/s	The amount of outdoor airflow entering the unit. Applies only to units configured for design flow.
Outdoor Air Damper Minimum Position Input	nviOAMinPos	SNVT_lev_percent (81)	N	0-100% Default: NA	Sets the Outdoor Air Damper Minimum Position setpoint. The Minimum Outdoor Air Damper Position Input setpoint uses this value when 1) it is not controlled by another function and 2) when Min OA Pos = Network via the unit controller the keypad/display. The unit controller internally limits the Present Value that is written between the DCV Limit and the Vent Limit in the Min OA Damper menu. Applies only to units configured with an airside economizer.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 32: Heating

Point Name	LonWorks Variable	SNVT/SCPT Type (SNVT/SCPT Index)	Receive Heart-beat	Range/Default (In Units)	Description
Occupied Heating Setpoint	nciSetpoints. occupied_heat	SNVT_temp_setpt (106) SCPTsetPnts (60)	N	0°-100°F -17.78°-37.78°C Default: 68°F / 20°C	The Effective Heating Enable Setpoint relies on the Occupied Heating Setpoint value when it is not controlled by other function. It uses maximum and minimum limits, so if the Present Value is set beyond the acceptable range, the value is ignored and the unit controller continues to control to the last valid value. This variable is a structure that covers three other data points: Occupied Cooling Setpoint, Unoccupied Cooling Setpoint, and Unoccupied Heating Setpoint. **Definitions** • Occupied_heat = Occupied Heating Setpoint • Unoccupied_heat = Unoccupied Heating Setpoint • Occupied_cool = Occupied Cooling Setpoint • Unoccupied_cool Unoccupied = Cooling Setpoint
Unoccupied Heating Setpoint	nciSetpoints. unoccupied_heat	SNVT_temp_setpt (106) SCPTsetPnts (60)	N	40°-100°F -4.44°-37.77°C Default: 55°F / 12.78°C	Sets the temperature above which the unit starts and provides cooling (night setup) during unoccupied periods. An optional space temperature sensor is required for unoccupied cooling operation. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.
Discharge Air Heating Setpoint[1]	nviDAHtSP	SNVT_temp_p (105)	N	40°-140°F 4.4°-60°C Default: 100°F / 37.78°C	Sets the network heating discharge setpoint. Applies only when HtgReset = Network. The unit controller internally limits the Present Value that is written between the Min Htg Spt and the Max Htg Spt in the Heating Set Up menu.
Maximum Discharge Air Heating Setpoint[1]	nciDAHtSP	SNVT_temp_p (105) SCPTdischargeAir HeatingSetpoint (184)	N	40°-140°F 4.4°-60°C Default: 120°F / 48.89°C	Sets the maximum allowable discharge air heating setpoint determined by the discharge air temperature reset function. It is changeable via the Heating Set Up menu. The unit controller uses the last valid value it received from either the network or the unit controller. It uses maximum and minimum limits, so if the Present Value is set beyond these limits from the network, the value is ignored and the unit controller continues to control to the last valid value.

1. Variable applies only to DAC units.

Table 33: Dehumidification

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Relative Humidity	nvoSpaceRH	SNVT_lev_percent (81)	N	0-100%	The current reading of the optional relative humidity sensor or network input.
Relative Humidity Setpoint	nviSpaceDehumSP	SNVT_lev_percent (81)	N	0-100% Default: NA	The network can use this property to set the relative humidity setpoint.
Relative Humidity Input	nviSpaceRH	SNVT_lev_percent (81)	Y	0-100% Default: 163.835% (Null)	Sets the relative humidity from the network. If the network value becomes unreliable, the humidity reverts to the value provided by the attached relative humidity sensor.
Dew Point Temperature	nvoSpaceDewPt	SNVT_temp_p (105)	N	-50°-150°F -45.56° - 65.56°C	The current Dew Point Temperature value is calculated from the optional relative humidity sensor.
Dew Point Setpoint	nviSpaceDewPtSP	SNVT_temp_p (105)	N	0-100°F -17.78° - 37.78°C Default: NA	Defines the Dew Point Setpoint via the network.
Reheat Capacity	nvoUnitStatus	SNVT_hvac_status (112)	N	0-100%	Indicates the current percentage of the unit's reheat capacity (nvoUnitStatus.heat_output_secondary). Reheat Capacity is a part of the Unit Status network variable, which also includes: Unit State, Supply Fan Capacity, Cooling Capacity, Heating Capacity, Economizer Capacity, and In Alarm. See Unit State for details. Applies only to units configured with cooling.

1. Default value does not apply to LonWorks network variable outputs (nvos).

Table 34: LonWorks Set-up

Point Name	LonWorks Variable	SNVT/SCPT Type (SNVT/SCPT Index)	Receive Heart-beat	Range/Default (In Units)	Description
Receive Heartbeat	nciRcvHrtBt	SNVT_time_sec (107) SCPTmaxRcvTime (48)	N	0-6553.4 Sec Default: 0 Sec	Receive Heartbeat defines the maximum amount of time that can elapse (in seconds) before the Receive Heartbeat variables listed below return to their default values if the LonWorks network has not updated them. Note that a value of 0 seconds (default) disables Receive Heartbeat funcitonality. **Receive Heartbeat Variables** nviOccSchedule / nviEconEnable nviApplicCmd / nviExhFanCap nviSupFanCap / nviRetFanCap nviOutdoorTemp / nviCWFlow nviSpaceTemp / nviSpaceIAQ nviPriCoolEnable / nviSpaceRH nviPriHeatEnable
Send Heartbeat	nciSndHrtBt	SNVT_time_sec (107) SCPTmaxSendTime (49)	N	0-6553.4 sec Default: 60 sec	Defines the maximum period of time that elapses before the network variable outputs (nvos) shown below are automatically updated. Note that a value of 0 seconds disables the auto update feature. **Send Heartbeat Variables** nvoMcQAHUStatus / nvoOutdoorTemp nvoUnitStatus / nvoLocalSpaceTmp nvoEffectOccup / nvoLocalOATemp nvoDischAirTemp / nvoEFT_LCT nvoRATemp / nvoDuctStatPress nvoSpaceTemp
Minimum Send Time	nciMinOutTm	SNVT_time_sec (107) SCPTminSendTime (52)	N	0-6553.4 Sec Default: 0 Sec	The minimum period of time between automatic network variable output transmissions. It is used to reduce traffic on the network. The following Send Heartbeat variables are limited by nciMinOutTm if the timer is greater than zero: • nvoMcQAHUStatus • nvoUnitStatus • nvoEffectOccup • nvoDischAirTemp • nvoRATemp • nvoSpaceTemp • nvoOutdoorTemp • nvoLocalSpaceTmp • nvoLocalOATemp • nvoEFT_LCT • nvoDuctStatPress • nvoBldgStatPress • nvoSpaceRH • nvoSpaceDewPt • nvoSpaceCO2 • nvoEffDATempSp • nvoEffectSetpt • nvoExhFanStatus • nvoConductivity • nvoMATemp • nvoCWTemp • nvoOAFlow

TABLE 35: LONWORKS Network Variables

Point Name	LONWORKS Variable	SNVT/SCPT Type (SNVT/SPT Index)	Receive Heart-beat	Range/Default (In Units)	Description
Outdoor Air Temperature Input	nviOutdoorTemp	SNVT_temp_p (105)	Y	-14°-122°F -10°-50°C Default: 327.67 (Null)	Sets the outdoor air temperature that is commanded from the network. Write to this property when only one temperature sensor is being used to determine the outdoor air temperature for the entire network. Applies only if the unit is configured for an outdoor air temperature sensor. Reverts to the Null value if written out of range.
Space Temperature Input	nviSpaceTemp	SNVT_temp_p (105)	Y	14°-122°F -10°-50°C Default: 327.67 (Null)	The current space or zone temperature commanded from the network. If the network input becomes unreliable, the temperature reverts to the value provided by the space temperature sensor. Applies only if the unit is configured for a space temperature sensor.
Primary Cool Enable	nviPriCoolEnable	SNVT_switch (95)	Y	See Description for details. Default: State: -1 Value: 100%	Enables or disables the primary cooling via two properties: State and Value. This variable only applies if 1) the unit is configured for mechanical cooling and 2) when Ctrl Mode = Auto. **State / Value / Description** 0 / NA / Primary cooling is disabled through the network 1 / 0 / Primary cooling is disabled. 1 / >0 (1-100%) / Cooling is enabled. Primary cooling can be controlled through the network. Value = % of cooling enabled when State = 1. -1 (0xFF) / NA / Auto (invalid). Primary cooling is not being controlled by the network.
Primary Heat Enable	nviPriHeatEnable	SNVT_switch (95)	Y	See Description for details. Default: State: -1 Value: 100%	Enables or disables the primary heating via two properties: State and Value. This variable only applies if 1) the unit is configured for heating and 2) when Ctrl Mode = Auto. **State / Value / Description** 0 / NA / Primary heating is disabled through the network. 1 / 0 / Primary heating is disabled through the network. 1 / >0 (1-100%) / Heating is enabled. Primary heating can be controlled through the network. Value = % of heating enabled when State = 1. -1 (0xFF) / NA / Auto (invalid). Primary heating is not being controlled by the network.
Economizer Enable	nviEconEnable	SNVT_switch (95)	Y	See Description for details. Default: State: -1 Value: 100%	Enables or disables the economizer via two properties: State and Value. This variable only applies 1) if the unit is configured for a waterside or airside economizer and 2) when Ctrl Mode = Auto. *Economizer operation is disabled locally when the unit is in dehumidification, regardless of the network Economizer Enable settings.* **State / Value / Description** 0 / NA / Economizer is disabled through the network. 1 / 0 / Economizer is disabled through the network. 1 / >0 (1-100%) / Economizer is enabled. Local enable/disable decisions are ignored. See note above. -1 (0xFF) / NA / Auto (invalid). Economizer is not being controlled by the network.

1. Variable applies only to SCC units.

Table 35: LonWorks Network Variables, Continued

<table>
<tr><th>Point Name</th><th>LonWorks Variable</th><th>SNVT/SCPT Type (SNVT/SPT Index)</th><th>Receive Heart-beat</th><th>Range/Default (In Units)</th><th>Description</th></tr>
<tr><td>Waterflow Switch Input</td><td>nviCWFlow</td><td>SNVT_switch (95)</td><td>Y</td><td>See Description for details.</td><td>Allows the network to set the waterflow status. Applies only to units that are configured for mechanical cooling. The cooling configuration is either individual circuits or dual circuit water condenser, and no head pressure control.
<table>
<tr><th>State</th><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>NA</td><td>Waterflow switch is disabled through the network.</td></tr>
<tr><td>1</td><td>0</td><td>Waterflow switch is disabled through the network.</td></tr>
<tr><td>1</td><td>>0 (1-100%)</td><td>Waterflow switch is enabled through the network.</td></tr>
<tr><td>-1 (0xFF)</td><td>NA</td><td>Auto (invalid). Waterflow switch is not being controlled by the network.</td></tr>
</table></td></tr>
<tr><td>Temperature Setpoint Input</td><td>nviSetpoint</td><td>SNVT_temp_p (105)</td><td>N</td><td>0°-100°F
-17.78°-37.7°C
Default: NA</td><td>LonWorks-only variable that adjusts the Effective Heat Enable and Effective Cool Enable setpoints via the network. A valid value determines the Effective Setpoint Output. A value set greater than 100.0°F or 37.7°C is considered invalid and thus ignored, in which case, Effective Setpoint Output will not respond. This variable does not affect unoccupied setpoints.
If UseTstat Spt on the unit controller keypad/display is set to Yes for an SCC unit, then the space setpoint adjustment on the optional space sensor overrides the Temperature Setpoint Input (nviSetpoint).
• Effective Heat SP = nviSetpoint – 0.5 (Occupied_Cool – Occupied_Heat)
• Effective Cool SP = nviSetpoint + 0.5 (Occupied_Cool – Occupied_Heat)</td></tr>
<tr><td>Effective Enable Setpoint</td><td>nvoEffectSetpt</td><td>SNVT_temp_p (105)</td><td>N</td><td>0°-100°F
-17.78°-37.7°C
Default: NA</td><td>Monitors the unit current controlling setpoint, which depends on the current unit operating state (i.e. cooling or heating) and the Occupied Cooling Setpoint, the Occupied Heating Setpoint, and Temperature Setpoint Input.
If the Temperature Setpoint Input (nviSetpoint) is set to a valid value:
• Effective Cooling Enable Setpoint = Temperature Setpoint Input + ½ (Occupied Cooling Enable Setpoint - Occupied Heating Enable Setpoint)
• Effective Heating Enable Setpoint = Temperature Setpoint Input - ½ (Occupied Cooling Enable Setpoint - Occupied Heating Enable Setpoint)
• The Effective Setpoint Output (nvoEffectSetpt) = Effective Heating Enable Setpoint when the control temperature < Occupied Heating Setpoint + [1/2(Occupied Cooling Enable Setpoint–Occupied Heating Enable Setpoint)].
• The Effective Setpoint Output (nvoEffectSetpt) = Effective Cooing Enable Setpoint when the control temperature > Occupied Cooling Enable Setpoint - [1/2(Occupied Cooling Enable Setpoint - Occupied Heating Enable Setpoint)].
If the Temperature Setpoint Input (nviSetpoint) is set to an invalid value:
• Effective Cooling Enable Setpoint = Occupied Cooling Enable Setpoint
• Effective Heating Enable Setpoint = Occupied Heating Enable Setpoint</td></tr>
<tr><td>HVAC Unit Type Identifier[1]</td><td>nciHvacType</td><td>SNVT_hvac_type (145)
SCPThvacType (169)</td><td>N</td><td>0 = HVT_GENERIC
Default: HVT_ GENERIC (0)</td><td>Indicates the primary application and equipment type for the SCC device. For other SCC object types, the application and equipment type can be determined directly from the object type and corresponding device class within the standard program ID. HVAC Unit Type Identifier can be polled by a tool or an operator interface device to help the user identify the type of equipment. HVAC Unit-Type is set during manufacturing. Equipment Type (HVT_GENERIC) is read-only.</td></tr>
</table>

1. Variable applies only to SCC units.

Table 36: Active Alarms

Point Name	LonWorks Variable	UNVT Type	Receive Heart-beat	Range/Default (In Units)	Description
Alarm Value	nvoUnitStatus	SNVT_hvac_status (112)	N	NA	Allows individual notification of the highest priority active alarm. The value in Table 40 is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no alarms are active. See Alarm Monitoring section for complete details.
Warning Alarm	nvoWarnAlarm	SNVT_Count (8)	N	NA	Allows individual notification of the highest priority active warning alarm. The value in Table 46 is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no warning alarms are active. See Alarm Monitoring section for more information.
Problem Alarm	nvoProbAlarm	SNVT_Count (8)	N	NA	Allows individual notification of the highest priority active problem alarm. The value in Table 47 is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no problem alarms are active. See Alarm Monitoring section for more information.
Fault Alarm	nvoFaultAlarm	SNVT_Count (8)	N	NA	Allows individual notification of the highest priority active fault alarm. The value in Table 48 is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no fault alarms are active. See Alarm Monitoring section for complete details.
Clear Alarms	nviClearAlarms	UNVTclearAlarm	N	0 = None 1 = Clear All Faults 2 = Clear All Problems 3 = Clear All Warnings 4 = Clear All Alarms Default: NA	Clears all active alarms or all active alarms in a particular alarm class. See Alarms and Events section for more information on clearing LonWorks alarms.

Table 37: Non-Keypad Variables

Point Name	LonWorks Variable	SNVT/SCPT Type (SNVT/SCPT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Local OA Temperature	nvoLocalOATemp	SNVT_temp_p (105)	N	-50°-150°F -45.56°-65.56°C	The current outdoor air temperature from the local outdoor air temperature sensor. Applies only if the unit is configured for an outdoor air temperature sensor.
Local Space Temperature	nvoLocalSpaceTmp	SNVT_temp_p (105)	N	0°-150°F -17.78°-65.56°C	The current space air temperature from the local space air temperature sensor. Applies only if the unit is configured for a space temperature sensor.
Effective Discharge Setpoint[2]	nvoEffDATempSp	SNVT_temp_p (105)	N	-83.2°-147.2°F -64°-64°C	Reflects the Effective Heating Discharge Temperature Setpoint if the unit is in the heating state. If not, it reflects the Discharge Air Cooling Setpoint when the unit is in any other operating state.
Object Status	nvoStatus	SNVT_obj_request (92)	N	object_id = 0 - 65,535 invalid_id = 0, 1 invalid_request = 0, 1 report_mask = 0, 1 Default: NA	Reports the status for any functional block on a device. It is also used to report the status of the entire device and all functional blocks on the device. A status update consists of an object ID (the object_id field) and multiple status fields. The object ID is the functional block index as described under nviRequest. If the object ID is zero, the status of the device itself and all functional blocks on the device is reported. The status fields are one-bit bitfields. The only supported status fields are the report_mask, invalid_id, and invalid_request fields; all other status fields are not supported. Refer to www.lonmark.org for the complete SNVT type description.

Point Name	LonWorks Variable	SNVT/SCPT Type (SNVT/SCPT Index)	Receive Heart-beat	Range/Default (In Units)[1]	Description
Object Request	nviRequest	SNVT_obj_status (93)	N	0 = RQ_NORMAL Enable object and remove override 2 = RQ_UPDATE_STATUS Report object status 5 = RQ_REPORT_MASK Report status bit mask -1(0xFF) = OC_NUL Invalid Value Default: NA	Provides the mechanism to request an operation or a mode for a functional block within a device. A request consists of an object ID (the object_id field) and an object request (the object_request field). The object ID is the functional block index for a functional block on the device. The Node Object functional block is index zero. The remaining functional blocks are numbered sequentially, starting with one. Refer to www.lonmark.org for more information on object request structure and supported functions.

1. Default value does not apply to LonWorks network variable outputs (nvos).
2. Variable applies only to DAC units.

Alarms and Events

Network Alarm Monitoring

The MicroTech unit controller has various ways of managing alarms, depending on the network protocol. Alarms can be monitored and cleared using more than one method.

Alarm Classes

Alarms in the unit controller are divided into three classes: Faults, Problems, and Warnings. Fault alarms have the highest priority. Problem alarms have the next priority. Warning alarms have the lowest priority.

The alarms within each class are also prioritized. Each alarm is assigned a priority number from 1-299. Faults (200-299) have a higher priority than Problems (100-199) which have a higher priority than Warnings (1-99).

The alarm priority number is mapped to both LonWorks and BACnet networks. The alarm priority number is set to 0 to indicate no alarm or to the enumeration of the highest priority active alarm.

Warning Alarms

Problem alarms do not cause unit shutdown but do limit operation of the unit in some way. Some of these alarms must be cleared manually, others clear automatically when conditions return to normal. Problem alarms have the next highest priority.

Problem Alarms

Problem alarms have the next highest priority. Problem alarms do not cause unit shutdown but do limit operation of the unit in some way.

Fault Alarms

Faults are conditions that are serious enough to completely shut down the unit. In this case, the Unit Status parameter indicates *OffAlm*. The alarm condition must be corrected and the alarm cleared before unit operation can resume. Fault alarms have the highest priority.

Events

The Event Enrollment object is used to describe an event that might be an error condition. Events indicate that the unit is not operating as expected, and that the unit is responding in an attempt to avoid an alarm condition. Event messages apply only to BACnet networks and are managed through the use of Notification Class objects (Intrinsic Reporting). Events are described in Table 44.

BACnet Alarm Notification

Individual alarm notification is supported through *AlarmValue* (AV:27) The highest priority active alarm can be read directly from the *AlarmValue* object's Present_Value property.

BACnet alarm objects are set to zero if no alarms are active. Alarm objects are read-only. Refer to Table 38 and Table 41 - Table 44 for more information.

Table 38: BACnet Alarm Values

Point Name	BACnet Object Name	Object Type/ Instance	Range	Description
Alarm Value	AlarmValue	AV:27	0-299	Highest priority active alarm. Alarm object = 0 if no alarms are active or to the enumeration of the highest priority active alarm.
Warning Alarm	ActiveWarning	AV:24	0-99	Highest priority active problem alarm.
Problem Alarm	ActiveProblem	AV:25	100-199	Highest priority active warning alarm.
Fault Alarm	ActiveFault	AV:26	200-299	Highest priority active fault alarm.
Clear Alarms	ClearAlarms	MSV:13	1=None 2=ClrFlts 3=ClrPrblms 4=ClrWrngs 5=ClrAllAlms	Clears all active alarms or all active alarms in a particular alarm class. Default = 1 (None)

It is often necessary for event notifications to be sent to multiple destinations or to different destinations based on the time of day or day of week. The controller uses Notification Classes (NC) supported by standard BACnet intrinsic reporting requirements. See table below for descriptions. The Notification Class priority specifies a priority from 0 to 299 (0 being most important, 299 least important).

The MicroTech unit controller can generate event notifications directed to one or more recipients (maximum 20 recipients). There is one notification class object for each class of alarms. Subscribe to the notification class objects in order to use them. The Recipient List property must indicate when and to which device notification should be made.

Notification Class (NC)	BACnet Object Name	Instance Number
NC 1	Faults	1
NC 2	Problems	2
NC 3	Warnings	3
NC 4	Events	4

The Event_Enable property of each object enables and disables the reporting of To-OffNormal, To-Fault, and To-Normal events. For example, if it has been determined that an event is not to be generated when the alarm object returns to a normal state, set the To-Normal bit of the objects Event_Enable property to 0.

Alarm Acknowledgement

In some systems, a device may need to know that someone has seen and responded to the alarm notification. The BACnet object keeps track of the acknowledgement of each of the three event transitions separately. Notification Class

objects have an Ack_Transitions property that determines if acknowledgments have occurred for the To-OffNormal, To-Fault, and To-Normal bit fields. This property cannot be changed. Each one of the states (To-OffNormal, To-Fault, and To-Normal) can require a separate acknowledgement. A Time Stamp is used to identify the event notification that is being acknowledged.

Recipient List Property (Destinations)

The recipient list property (Recipient_List) of the Notification Class object is a list of standard BACnet data type BACnetDestination elements (Table 39). Within each destination (Recipient_List) record is a set of Valid Days of the week and a From Time, To Time, during which the destination is sent a notification. Also specified is the applicable event transition(s) for which the destination is sent a notification.

NOTE: For a specific event transition to reach a recipient, the transition choice has to be selected BOTH in the source object AND in the recipient record.

If the BAS supports intrinsic alarming but is unable to subscribe to the recipient list property of the Notification Class object, the BAS can still receive an alarm notification by adding its Device Instance to the “NC Dev 1=” or “NC Dev 2=” items on the MicroTech unit controller HMI under the BACnet MSTP or BACnet IP Setup menu. Cycle power on the controller for changes to take effect. Once power is cycled, the controller sends out a “Who-Is” command directed at the device. If the device responds, the unit controller sends Unconfirmed Notifications for all alarms that are generated in the application. If the device does not respond to the Who-Is, the unit controller periodically sends out the Who-Is until the device responds.

Table 39: Recipient List Property for Standard Notification Class Objects

Element	Standard BACnet Data Type	Description
Valid Days	BACnetDaysOfWeek	The set of days of the week that the destination may be used between the From Time and the To Time.
From Time, To Time	Time	The window of time (inclusive) when the destination is visible on the days of the week in Valid Days.
Recipient	BACnet Recipient	The destination devices to receive the notification. A maximum of 20 destination devices is supported.
Process Identifier	Unsigned	The handle of a process within the device receiving the event notification.
Issue Confirmed Notification	Boolean	(TRUE) if confirmed notifications are to be sent and (FALSE) if unconfirmed notifications are to be sent.
Transitions	BACnetEventTransitionBits	A set of three flags that indicate the transition (TO-OFFNORMAL, TO-FAULT, and TO-NORMAL) for which this recipient is suitable.

LonWorks Alarm Notification

The highest priority active alarm is indicated by the network variable, *nvo_UnitStatus_in_alarm*.

Separate alarm values are also provided that indicate the highest priority active Warning, Problem, and Fault alarms. It is possible to have multiple active alarms, but only the highest priority is displayed.To monitor alarms by alarm class, read *nvoWarnAlarm*, *nvoProbAlarm*, and *nvoFaultAlarm*. See Table 48 - Table 50 for descriptions of LonWorks Warning, Problem, and Fault alarms.

Refer to Table 40 and the following alarm tables for more information.

Table 40: LonWorks Alarm Variables

Variable Name	LonWorks Variable	SNVT Type/Index	Range	Receive Heart-beat	Description
Alarm Value	nvoUnitStatus_in_alarm	SNVT_hvac_status (112)	0-299	N	Highest priority active alarm. Alarm object = 0 if no alarms are active or indicates the enumeration of the highest priority active alarm.
Problem Alarm	nvoProbAlm		0-99		Highest priority active problem alarm.
Warning Alarm	nvoWarnAlm		100-199		Highest priority active warning alarm.
Fault Alarm	nvoFaultAlm		200-299		Highest priority active fault alarm.
Clear Alarms	nviClearAlarms	UNVTclearAlarm	0=None 1=Clear Faults 2=Clear Problems 3=Clear Warnings 4=Clear All	N	Clears all active alarms or all active alarms in a particular alarm class. Default = 1 (None)

Clearing Alarms

BACnet

Active alarms can be cleared from the BAS via BACnet object *ClearAlms* (MSV:13). This is done by writing to one of the five available options (see Table 19) to a value greater than 1. To clear alarms by alarm class, change the Present_Value property to a 2 to clear all faults, a 3 to clear all problems or a 4 to clear all warnings. Setting this enumeration to a 5 will clear all alarms. After the alarms are cleared, this object returns to None (1).

Writing *ClearAlms* (MSV:13) to an enumeration of 5 continually and frequently may cause the MicroTech controller to send reset messages to the components on the internal communication trunk.

When the BAS inidicates an alarm, it is best to investigate the cause of the alarm and find root cause. If you choose to clear an alarm using MSV:13, it should be done with intention and precision. This point should not be written to continuously and frequently under any circumstances. The purpose of writing to MSV:13 is to intentionally clear an active alarm.

LonWorks

Alarms can be cleared by alarm class using *nviClearAlarms*. To clear alarms in a particular class, set the value of *nviClearAlarms* to the appropriate value:

1 = Clear Faults
2 = Clear Problems
3 = Clear Warnings
4 = Clear All

If the unit is still in the alarm condition, the In Alarm attribute of the Unit Status Network Variable Output (*nvoUnitStatus.in_alarm*) again reads the number corresponding to the highest priority active alarm that still exists.

BACnet Alarm and Events

The following section describes alarm enumerations available to the network. Table 41 shows the available Analog Value for each alarm class. Table 42 describes individual alarm objects with the active alarm value. See BACnet alarm information for each object listed in Table 42. See Table 43 - Table 45 for detailed alarm descriptions. BACnet Event alarm messages are described in Table 47.

With the exception of Binary Value (BVs), alarm objects are read-only. Alarm objects apply to all unit types unless otherwise noted.

NOTICE

BVs are provided for legacy support only and are not available in current versions of unit controller firmware. Writing to BVs is not recommended and should be avoided if possible

Table 41: BACnet Analog Values

Object Type/ Instance	Alarm Object (Present_Value)	BACnet Object Name	Alarm Value Range
AV:24	Warning Alarm	ActiveWarning	0-99
AV:25	Problem Alarm	ActiveProblem	100-199
AV:26	Fault Alarm	ActiveFault	200-299
AV:27	Alarm Value	AlarmValue	All

Table 42: BACnet Alarm Objects by Alarm Number

Active Alarm Number	Description[1]	Active Alarm Number	Description	Active Alarm Number	Description
0	No Active Alarms	128	OAFan Problem	162	High Pressure - Circuit 6 Problem
24	Dirty Filter Warning	130	Low Refrig Charge Problem	163	High Pressure - Circuit 5 Problem
28	Airflow Sw Warning	131	ChargeLossPrb Problem	164	High Pressure - Circuit 4 Problem
32	Conductivity Warning	132	PTS Sensor Problem	165	High Pressure - Circuit 3 Problem
34	Ret/Exh Fan Warning	133	PTD2 Sensor Problem	166	High Pressure - Circuit 2 Problem
40	Low Superheat Warning	134	PTD or PTD1 Sensor Problem	167	High Pressure - Circuit 1 Problem
50	Over Econo Warning	135	IFB Comm Problem	169	Sump Water Level Problem
52	Under Econo Warning	136	Lo Pressure Differential Problem	179	EFT_LCT Problem
54	Excess OA Warning	137	Waterflow Sw Problem	182	Return Air Sensor Problem
56	OAD Stuck Warning	140	Water Regulating Valve Problem	185	Space Sensor Problem
102	IRT Sensor Problem	145	Variable Comp Low Oil Problem	188	OAT Sensor Problem
104	ORT Sensor Problem	148	High INV Comp Body Temp Problem	191	EWT Problem
106	DRT3 Sensor Problem	149	INV Comp Body Temp Sensor Problem	194	MAT Problem
108	DRT2 Sensor Problem	150	4WayValve Problem	197	Freeze Problem
111	DRT1 Sensor Problem	152	Low Pressure - Circuit 8 Problem	199	Heat Fail Problem
114	INV or Variable Comp Problem	153	Low Pressure - Circuit 7 Problem	208	Airflow Fault
115	LoDischP Problem	154	Low Pressure - Circuit 6 Problem	212	Low Discharge Air Temp Fault
116	LoDischSH Problem	155	Low Pressure - Circuit 5 Problem	216	High Discharge Air Temp Fault
117	HiDischSH Problem	156	Low Pressure - Circuit 4 Problem	220	High Return Air Temp Fault
118	MOP Problem	157	Low Pressure - Circuit 3 Problem	224	Duct High Limit Fault
119	DFT Sensor Problem	158	Low Pressure - Circuit 2 Problem	228	Discharge Temp Fault
121	SRT Sensor Problem	159	Low Pressure - Circuit 1 Problem	244	Control Temp Fault
124	High Disch Line Temp Problem	160	High Pressure - Circuit 8 Problem	250	Emergency Stop Fault
126	Exp Valve Problem	161	High Pressure - Circuit 7 Problem	252	Freeze Fault

Table 43: BACnet Warning Alarms

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Airflow Switch Warning	BV:2	AFSwWrn	Manual	Indicates the status of the Airflow Switch Warning alarm (0 = Normal, 1 = Alarm).			
	BI:2	AirFlwWrSw		Indicates the airflow status (Closed (1) or Open (0)). The OffNormal state of this object indicates the Airflow Switch Warning alarm is active.	X		X
Conductivity Warning	BV:3	ConductivityWrn	Manual	Indicates the status of the Conductivity alarm (0 = Normal, 1 = Alarm). Applies only to units configured for evaporative condensing.			
	AI:12	Conductivity		Current value of the conductivity sensor used to measure sump water on the evaporative condenser. It is the object that generates the alarm. The OffNormal state of this object indicates the Conductivity Warning alarm is active.	X		X
Dirty Filter Switch Warning	BV:4	DrtyFltrWrn	Manual	Indicates the status of the Dirty Filter Warning alarm (0 = Normal, 1 = Alarm).			
	BI:3	DirtyFilterSw		Indicates the condition of the dirty filter switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Dirty Filter Warning alarm is active.	X		X
Return / Exhaust Fan Warning	BI:42	Ret/ExhFanWrn	Automatic	An active alarm indicates that there is a problem with the return or exhaust fan operation. The OffNormal state of this object indicates a Return / Exhaust Fan Warning. Applies to units with a VFD or EBM return/ exhaust fan.	X		X
Low Superheat Warning	BI:46	LoSuperHtWrn	Automatic	An active alarm indicates that the suction and discharge superheat values are low. The OffNormal state of this object indicates the Low Superheat Warning alarm is active.	X		X
Over Economizing Warning	BI:61	OverEconoWrn	Automatic	An active alarm indicates that the unit is economizing when it should not be economizing. The OffNormal state of this object indicates the Over Economizing Warning alarm is active. It is only available in application versions 2506017501 and 2506018201 or greater.	X		X
Under Economizing Warning	BI:62	UnderEconoWrn	Automatic	An active alarm indicates that the unit is not economizing when it should be economizing. The OffNormal state of this object indicates the Under Economizing Warning alarm is active. It is only available in application versions 2506017501 and 2506018201 or greater.	X		X
Excess Outdoor Air Warning	BI:63	ExcessOAWrn	Automatic	An active alarm indicates that the unit is delivering excess outdoor air. The OffNormal state of this object indicates the Excess Outdoor Air Warning alarm is active. It is only available in application versions 2506017501 and 2506018201 or greater.	X		X
Outdoor Air Damper Stuck Warning	BI:64	OADStuckWrn	Automatic	An active alarm indicates that the air dampers may be stuck. The OffNormal state of this object indicates the Outdoor Air Damper Stuck Warning alarm is active. It is only available in application versions 2506017501 and 2506018201 or greater.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 44: BACnet Problem Alarms

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
IRT Sensor Problem	AI:27	IndoorRefTemp	Manual	An active alarm indicates the indoor refrigerant temperature (IRT) sensor is not reliable. Applies only to units configured for a return air sensor.		X	X
ORT Sensor Problem	AI:28	OutdoorRefTemp	Manual	An active alarm indicates that the outdoor refrigerant temperature (ORT) sensor is not reliable. Applies only to Rebel units.		X	X
DRT1 Sensor Problem	AI:22	DischLn1Temp	Manual	An active alarm indicates that the inverter compressor discharge refrigerant temperature (DRT1) sensor is not reliable.		X	X
DRT2 Sensor Problem	AI:32	DischLn2Temp	Manual	An active alarm indicates that the inverter compressor discharge refrigerant temperature (DRT2) sensor is not reliable.		X	X
Variable Compressor Problem	BI:47	VarCompPrb	Manual	Current binary status of the Variable Compressor Problem alarm for VFD compressor units. The OffNormal state of this object indicates a Variable Compressor Problem alarm is active.	X		X
Low Discharge Pressure Problem	BI:48	LoDischPPrb	Manual	Current binary status of the Low Discharge Pressure Problem alarm for VFD compressor units. The OffNormal state of this object indicates that the Low Discharge Pressure Problem alarm is active.	X		X
Low Discharge Superheat Problem	BI:49	LoDischSHPrb	Manual	Current binary status of the Low Discharge Superheat Problem alarm for VFD compressor units. The OffNormal state of this object indicates that the Low Discharge Superheat Problem alarm is active.	X		X
High Discharge Superheat Problem	BI:50	HiDischSHPrb	Manual	Current binary status of the High Discharge Superheat Problem alarm for VFD compressor units. The OffNormal state of this object indicates the High Discharge Superheat Problem alarm is active.	X		X
DFT Sensor Problem	AI:23	DefrostTemp	Manual	An active alarm indicates that the defrost temperature (DFT) sensor is not reliable.		X	X
SRT Sensor Problem	AI:24	SucnRefTemp	Manual	An active alarm indicates that the suction refrigerant temperature (SRT) sensor is not reliable. Applies only to Rebel units.		X	X
High Discharge Line Temperature Problem	BI:35	HiDLTempPrb	Manual	Current binary status of the High Discharge Line Temperature Problem alarm for VFD compressor units. The OffNormal state of this object indicates that the High Discharge Line Temperature Problem alarm is active.	X		X
Expansion Valve Problem	BI:40	ExpValvePrb	Manual	Indicates the status of the Expansion Valve Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates that the Expansion Valve Problem alarm is active. Applies only to Rebel units.	X		X
Outdoor Fan Problem	BI:36	OAFanPrb	Manual	Indicates the status of the Outdoor Fan Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates that the Outdoor Fan Problem alarm is active. Applies only to Rebel units.	X		X
Low Refrigerant Charge Problem	BI:37	LoChargePrb	Manual	Indicates the status of the Low Refrigerant Charge Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates that the Low Refrigerant Charge Problem alarm is active. Applies only to Rebel units.	X		X
Charge Loss Problem	BI:41	ChargeLossPrb	Manual	Indicates the status of the Charge Loss Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates that the Charge Loss Problem alarm is active and the refrigerant system charge has been lost. Applies only to Rebel units.	X		X
PTS Sensor Problem	AI:25	RefSuctionP	Manual	An active alarm indicates that the suction refrigerant pressure (PTS) sensor is not reliable. Applies only to Rebel units.		X	X
PTD Sensor Problem	AI:26	RefDischP	Manual	An active alarm indicates that the discharge refrigerant pressure (PTD) sensor is not reliable.		X	X
PTD1 Sensor Problem	AI:30	C1RefDischP	Manual	An active alarm indicates that the circuit 1 discharge refrigerant pressure sensor is not reliable.		X	X
PTD2 Sensor Problem	AI:31	C2RefDischP	Manual	An active alarm indicates that the circuit 2 discharge refrigerant pressure sensor is not reliable.		X	X

Table 44: BACnet Problem Alarms, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
IFB Comm Problem	BI:38	IFBCommPrb	Manual	Indicates the status of the IFB Comm Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates that the IFB Comm Problem alarm is active and that an interruption has occurred between the unit controller and the inverter compressor interface communication board (IFB) board. Applies only to Rebel units.	X		X
Low Pressure Differential Problem	BI:39	LoPressDiffPrb	Manual	Indicates the status of the Low Pressure Differential Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates the Low Pressure Differential Problem alarm is active.	X		X
Variable Compressor Low Oil Problem	BI:51	VcmpOiStatus	Manual	Indicates the status of the Oil Status Switch. Also, the OffNormal state of this object indicates the Variable Compressor Low Oil Problem alarm is active and that the VFD oil boost alarm count has been exceeded.	X		X
High Inverter Compressor Body Temperature Problem	BI:43	HiINVTmpPrb	Manual	Indicates the status of the High Inverter Compressor Body Temperature Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates the High Inverter Compressor Body Temperature Problem alarm is active. Alarm applies only to Rebel units.	X		X
Inverter Compressor Problem	BI:34	INVCompPrb	Manual	Indicates the status of the Inverter Compressor Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates the Inverter Compressor Problem alarm is active and that the inverter compressor body temperature limit has been exceeded. Alarm applies only to Rebel units.	X		X
Freeze Problem	BV:7	FreezePrb	Automatic	Indicates the status of the Freeze Problem alarm (0 = Normal, 1 = Alarm).	X		X
Heat Fail Problem	BV:38	HeatFailPrb	Automatic	Indicates the status of the Heat Fail Problem alarm (0 = Normal, 1 = Alarm).	X		X
High Pressure Problem	BI:32	HiPress1Prb	Manual	Indicates the status of the High Pressure Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates a High Pressure Problem alarm is active and the inverter compressor refrigerant circuit high limits have been exceeded. Alarm applies only to Rebel units.	X		X
High Pressure Circuit 1 Problem	BV:8	HiPressCkt1Prb	Manual	Indicates the status of the High Pressure Circuit 1 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for two or more mechanical cooling circuits.			
	BI:4	HiPress1Sw		Indicates the condition of the High Pressure Circuit 1 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 1 Problem alarm is active.	X		X
High Pressure Circuit 2 Problem	BV:9	HiPressCkt2Prb	Manual	Indicates the status of the High Pressure Circuit 2 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for two or more mechanical cooling circuits.			
	BI:5	HiPress2Sw		Indicates the condition of the High Pressure Circuit 2 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 2 Problem alarm is active.	X		X
High Pressure Circuit 3 Problem	BV:10	HiPressCkt3Prb	Manual	Indicates the status of the High Pressure Circuit 3 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for three or more mechanical cooling circuits.			
	BI:6	HiPress3Sw		Indicates the condition of the High Pressure Circuit 3 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 3 Problem alarm is active.	X		X

Table 44: BACnet Problem Alarms, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
High Pressure Circuit 4 Problem	BV:11	HiPressCkt4Prb	Manual	Indicates the status of the High Pressure Circuit 4 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for four or more mechanical cooling circuits.			
	BI:7	HiPress4Sw		Indicates the condition of the High Pressure Circuit 4 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 4 Problem alarm is active.	X		X
High Pressure Circuit 5 Problem	BV:12	HiPressCkt5Prb	Manual	Indicates the status of the High Pressure Circuit 5 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for five or more mechanical cooling circuits.			
	BI:8	HiPress5Sw		Indicates the condition of the High Pressure Circuit 5 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 5 Problem alarm is active.	X		X
High Pressure Circuit 6 Problem	BV:13	HiPressCkt6Prb	Manual	Indicates the status of the High Pressure Circuit 6 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for six or more mechanical cooling circuits.			
	BI:9	HiPress6Sw		Indicates the condition of the High Pressure Circuit 6 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 6 Problem alarm is active.	X		X
High Pressure Circuit 7 Problem	BV:52	HiPressCkt7Prb	Manual	Indicates the status of the High Pressure Circuit 7 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for seven or more mechanical cooling circuits.			
	BI:26	HiPress7Sw		Indicates the condition of the High Pressure Circuit 7 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 7 Problem alarm is active.	X		X
High Pressure Circuit 8 Problem	BV:53	HiPressCkt8Prb	Manual	Indicates the status of the High Pressure Circuit 8 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for eight or more mechanical cooling circuits.			
	BI:27	HiPress8Sw		Indicates the condition of the High Pressure Circuit 8 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the High Pressure Circuit 8 Problem alarm is active.	X		X
Low Pressure Problem	BI:33	LoPress1Prb	Manual	Indicates the status of the Low Pressure Problem alarm (0 = Normal, 1 = Alarm). The OffNormal state of this object indicates a Low Pressure Problem alarm is active and the inverter compressor refrigerant circuit low limits have been exceeded. Alarm applies only to Rebel units.	X		X
Low Pressure Circuit 1 Problem	BV:14	LoPressCkt1Prb	Automatic	Indicates the status of the Low Pressure Circuit 1 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for two or more mechanical cooling circuits.			
	BI:10	LoPress1Sw		Indicates the condition of the Low Pressure Circuit 1 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 1 Problem alarm is active.	X		X
Low Pressure Circuit 2 Problem	BV:15	LoPressCkt2Prb	Automatic	Indicates the status of the Low Pressure Circuit 2 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for two or more mechanical cooling circuits.			
	BI:11	LoPress2Sw		Indicates the condition of the Low Pressure Circuit 2 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 2 Problem alarm is active.	X		X

Table 44: BACnet Problem Alarms, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Low Pressure Circuit 3 Problem	BV:16	LoPressCkt3Prb	Automatic	Indicates the status of the Low Pressure Circuit 3 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for three or more mechanical cooling circuits.			
	BI:12	LoPress3Sw		Indicates the condition of the Low Pressure Circuit 3 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 3 Problem alarm is active.	X		X
Low Pressure Circuit 4 Problem	BV:17	LoPressCkt4Prb	Automatic	Indicates the status of the Low Pressure Circuit 4 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for four or more mechanical cooling circuits.			
	BI:13	LoPress4Sw		Indicates the condition of the Low Pressure Circuit 4 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 4 Problem alarm is active.	X		X
Low Pressure Circuit 5 Problem	BV:18	LoPressCkt5Prb	Automatic	Indicates the status of the Low Pressure Circuit 5 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for five or more mechanical cooling circuits.			
	BI:14	LoPress5Sw		Indicates the condition of the Low Pressure Circuit 5 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 5 Problem alarm is active.	X		X
Low Pressure Circuit 6 Problem	BV:19	LoPressCkt6Prb	Automatic	Indicates the status of the Low Pressure Circuit 6 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for six or more mechanical cooling circuits.			
	BI:15	LoPress6Sw		Indicates the condition of the Low Pressure Circuit 6 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 6 Problem alarm is active.	X		X
Low Pressure Circuit 7 Problem	BV:50	LoPressCkt7Prb	Automatic	Indicates the status of the Low Pressure Circuit 7 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for seven or more mechanical cooling circuits.			
	BI:24	LoPress7Sw		Indicates the condition of the Low Pressure Circuit 7 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 7 Problem alarm is active.	X		X
MOP Problem	BI:97	MOPPrb	Automatic	Indicates the condition of the maximum over-current protection alarm.	X		X
Low Pressure Circuit 8 Problem	BV:51	LoPressCkt8Prb	Automatic	Indicates the status of the Low Pressure Circuit 8 Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for eight or more mechanical cooling circuits.			
	BI:25	LoPress8Sw		Indicates the condition of the Low Pressure Circuit 8 switch (Closed (1) or Open (0)). The OffNormal state of this object indicates the Low Pressure Circuit 8 Problem alarm is active.	X		X
Entering Fan Temperature/ Leaving Coil Temperature Sensor Problem	BV:5	EFT_LCTPrb	Automatic	Indicates the status of the Entering Fan Temperature/ Leaving Coil Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:7	EFT_LCT		Current value of the entering fan temperature/leaving coil air temperature sensor. It is the object that generates the alarm. Applies only to units configured for an entering fan temperature sensor.		X	X
Entering Water Temperature Sensor Problem	BV:6	EntWtrTmpPrb	Automatic	Indicates the status of the Entering Fan Temperature/ Leaving Coil Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:6	CWTemp		Current value of the entering water temperature (EWT) sensor. It is the object that generates the alarm. Applies only to units configured with an EWT sensor.		X	X

Table 44: BACnet Problem Alarms, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Outdoor Air Temperature Sensor Problem	BV:21	OutdoorTmpPrb	Manual	Indicates the status of the Outdoor Air Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:4	OutdoorTemp		Current value of the unit-mounted outdoor air temperature (OAT) sensor. It is the object that generates the alarm. Alarm applies only to units configured for an OAT sensor.		X	X
Mixed Air Temperature Sensor Problem	BV:20	MixAirTmpPrb	Automatic	Indicates the status of the Mixed Air Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:5	MATemp		Current value of the mixed air temperature from the mixed air temperature (MAT) sensor. It is the object that generates the alarm. Applies only to units configured for a MAT sensor.		X	X
Return Air Temperature Sensor Problem	BV:22	ReturnTmpPrb	Automatic	Indicates the status of the Return Air Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:2	RATemp		Current value of the return air temperature (RAT) sensor. It is the object that generates the alarm. Applies only to units configured for an RAT sensor.	X		X
Space Temperature Sensor Problem	BV:23	SpaceTmpPrb	Automatic	Indicates the status of the Space Temperature Sensor Problem alarm (0 = Normal, 1 = Alarm).			
	AI:3	SpaceTemp		Current value of the space or zone temperature from the locally wired sensor or the network-provided sensor value (if valid). It is the object that generates the alarm. Applies only to units configured for a space temperature sensor.	X		X
Sump Water Level Problem	BV:24	SmpWtrLvlPrb	Manual	Indicates the status of the Sump Water Level Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured with an evaporative condenser.			
	BI:16	SmpWtrLvlSw		Indicates the condition of the sump pump water level switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Sump Water Level Problem alarm is active.	X		X
Waterflow Switch Problem	BV:25	WtrFlowSwPrb	Automatic	Indicates the status of the Waterflow Switch Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured with a waterside condenser and when a lack of water flow is indicated by an open water flow switch or a network signal.			
	BI:17	WtrFlwSw		Indicates the condition of the water flow switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Water Flow Switch Problem alarm is active.	X		X
Water Regulating Valve Problem	BV:26	WtrRegVlvPrb	Manual	Indicates the status of the Water Regulating Valve Problem alarm (0 = Normal, 1 = Alarm). Applies only to units configured for head pressure control.			
	BI:18	WtrRegVlv		Indicates the condition of the water regulating valve ((Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Water Regulating Valve Problem alarm is active.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 45: BACnet Fault Alarms

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Airflow Fault	BV:27	AirflowFlt	Manual	Indicates the status of the Air Flow Fault alarm (0 = Normal, 1 = Alarm).			
	BI:1	AirFlwSw		Indicates the condition of the airflow switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates an Airflow Fault alarm is active.	X		X
Control Temperature Fault	BV:28	ControlTempFlt	Manual	Indicates the status of the Control Temperature Fault alarm (0 = Normal, 1 = Alarm). It is active when the respective sensor is not reliable or when a valid temperature value is not provided via the network.			
	AI:14	ControlTemp		Indicates the current control temperature value. It is the object that generates the alarm.		X	X
Discharge Air Temperature Sensor Fault	BV:29	DischSensorFlt	Manual	Indicates the status of the Discharge Air Temperature (DAT) Sensor Fault alarm (0 = Normal, 1 = Alarm). An active alarm indicates that the DAT sensor is not reliable.			
	AI:1	DischAirTemp		Indicates the current reading of the DAT sensor. It is the object that generates the alarm.	X	X	X
High Discharge Air Temperature Fault	BV:33	HiDischTmpFlt	Manual	An active alarm indicates that the discharge air temperature exceeds the High Discharge Temperature setting.	X		X
Low Discharge Air Temperature Fault	BV:35	LoDischTmpFlt	Manual	An active alarm indicates that the discharge air temperature is below the Low Discharge Temperature setting.			
Duct High Limit Fault	BV:30	DuctHiLmtFlt	Manual	Indicates the status of the Duct High Limit Fault alarm (0 = Normal, 1 = Alarm). Applies only to Variable Air Volume (VAV) units configured for supply fan VFDs.			
	BI:21	DuctHiLmtSw		Indicates the condition of the duct high limit switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Duct High Limit Fault alarm is active.	X		X
Emergency Off Fault	BV:31	EmergencyOffFlt	Manual	Indicates the status of the Emergency Off Fault alarm (0 = Normal, 1 = Alarm).			
	BI:22	EmergencyOffSw		Indicates the condition of the emergency off switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Emergency Off Fault alarm is active.	X		X
Freeze Fault	BV:32	FreezeFault	Manual	Indicates the status of the Freeze Fault alarm (0 = Normal, 1 = Alarm). Applies only to units installed with a waterside economizer, chilled water coil, hot water coil or steam coil and when the freezestat is in the Open position.			
	BI:19	FreezeFltSw		Indicates the condition of the freeze fault switch (Closed (1) or Open (0)). It is the object that generates the alarm. The OffNormal state of this object indicates the Freeze Fault alarm is active.	X		X
High Return Air Temperature Fault	BV:34	HiReturnTmpFlt	Manual	Indicates the status of the High Return Temperature Fault alarm (0 = Normal, 1 = Alarm). Applies only to units configured for a return air (RAT) sensor and when the RAT has exceeded the High Return Temperature limit.			
	AV:45	HiRAT		Indicates the current reading from the return air sensor. It is the object that generates the alarm. The OffNormal state of this object indicates the High Return Air Temperature Fault alarm is active. Also see AV:45 (Table 5).	:X		X

Table 46: BACnet Event Messages

Event Message (Present_Value)	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Cooling High Discharge Pressure Unload Event	BI:52	ClgHPUnldEvnt	Automatic	Indicates the condition of the Cooling High Discharge Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling High Discharge Pressure Unload Event is active.	X		X
Low Discharge Pressure Unload Event	BI:53	LoDschPUnldEvnt	Automatic	Indicates the condition of the Low Discharge Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Low Discharge Pressure Unload Event is active.	X		X
Variable Compressor Emergency Stop Event	BI:54	VarCmpEmrgStopEvnt	Automatic	Indicates the condition of the Variable Compressor Emergency Stop Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Variable Compressor Emergency Stop Event is active.	X		X
High Discharge Line Temperature Unload Event	BI:55	HiDLTmpUnldEvnt	Automatic	Indicates the condition of the High Discharge Line Temperature Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the High Discharge Line Temperature Unload Event is active.	X		X
Low Discharge Superheat Unload Event	BI:56	LoDschSHUnldEvnt	Automatic	Indicates the condition of the Low Discharge Superheat Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Low Discharge Superheat Unload Event is active.	X		X
High Discharge Superheat Unload Event	BI:57	HiDschSHUnldEvnt	Automatic	Indicates the condition of the High Discharge Superheat Unload Event (0 = Inactive, 1 = Active).The OffNormal state of this object indicates the High Discharge Superheat Unload Event is active.	X		X
Reheat Stage Limiting Event	BI:58	RhtStgLmtEvnt	Automatic	Indicates the condition of the Reheat Stage Limiting Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Reheat Stage Limiting Event is active.	X		X
Variable Compressor Oil Boost Event	BI:59	OilBoostEvnt	Automatic	Indicates the condition of the Variable Compressor Oil Boost Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Variable Compressor Oil Boost Event is active.	X		X
Network Demand Shed Event	BI:60	DemandShedEvnt	Automatic	Indicates the condition of the Network Demand Shed Event (0 = Inactive, 1 = Active).The OffNormal state of this object indicates the Network Demand Shed Event is active. It is only available in application versions 2506017501 and 2506018201 or greater.	X		X
Inverter Compressor Request for Standby Event	BI:65	INVReqSBEvnt	Automatic	Indicates the condition of the Inverter Compressor Request for Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor Request for Standby Event is active.	X		X
Heating Low Suction Pressure Unload Event	BI:66	HtgLPUnldEvnt	Automatic	Indicates the condition of the Heating Low Suction Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating Low Suction Pressure Unload Event is active.	X		X
Cooling Low Suction Pressure Unload Event	BI:67	ClgLPUnldEvnt	Automatic	Indicates the condition of the Cooling Low Suction Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling Low Suction Pressure Unload Event is active.	X		X
Heating High Discharge Pressure Unload Event	BI:68	HtgHPUnldEvnt	Automatic	Indicates the condition of the Heating High Discharge Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating High Discharge Pressure Unload Event is active.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 46: BACnet Event Messages, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Heating High Discharge Pressure Protection Event	BI:69	HtgHPProtEvnt	Automatic	Indicates the condition of the Heating High Discharge Pressure Protection Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating High Discharge Pressure Protection Event is active.	X		X
High Compression Ratio Unload Event	BI:70	CmpRatioULEvnt	Automatic	Indicates the condition of the High Compression Ratio Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the High Compression Ratio Unload Event is active.	X		X
Inverter Compressor Board High Fin Temperature Unload Event	BI:71	INVFinTUnldEvnt	Automatic	Indicates the condition of the Inverter Compressor Board High Fin Temperature Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor Board High Fin Temperature Unload Event is active.	X		X
Inverter Compressor Board Unload Request Event	BI:72	INVUnldReqEvnt	Automatic	Indicates the condition of the Inverter Compressor Board Unload Request Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor Board Unload Request Event is active.	X		X
Compressor Disable Standby Event	BI:73	CmpDsblSBEvnt	Automatic	Indicates the condition of the Compressor Disable Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Compressor Disable Standby Event is active.	X		X
Fixed Compressor High Discharge Line Temperature Unload Event	BI:74	Comp3DLTULEvnt	Automatic	Indicates the condition of the Fixed Compressor High Discharge Line Temperature Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Fixed Compressor High Discharge Line Temperature Unload Event is active.	X		X
Inverter Compressor High Current Unload Event	BI:75	INVAmpUnldEvnt	Automatic	Indicates the condition of the Inverter Compressor High Current Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor High Current Unload Event is active.	X		X
Cooling Low Differential Pressure Unload Event	BI:76	ClgDPUnldEvnt	Automatic	Indicates the condition of the Cooling Low Differential Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling Low Differential Pressure Unload Event is active.	X		X
Heating Low Differential Pressure Unload Event	BI:77	HtgDPUnldEvnt	Automatic	Indicates the condition of the Heating Low Differential Pressure Unload Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating Low Differential Pressure Unload Event is active.	X		X
Cooling High Discharge Pressure Standby Event	BI:78	ClgHPSBEvnt	Automatic	Indicates the condition of the Cooling High Discharge Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling High Discharge Pressure Standby Event is active.	X		X
Heating Low Suction Pressure Standby Event	BI:79	HtgLPSBEvnt	Automatic	Indicates the condition of the Heating Low Suction Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating Low Suction Pressure Standby Event is active.	X		X
Cooling Low Suction Pressure Standby Event	BI:80	ClgLPSBEvnt	Automatic	Indicates the condition of the Cooling Low Suction Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling Low Suction Pressure Standby Event is active.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 46: BACnet Event Messages, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description[1]	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Heating High Discharge Pressure Standby Event	BI:81	HtgHPSBEvnt	Automatic	Indicates the condition of the Heating High Discharge Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating High Discharge Pressure Standby Event is active.	X		X
Inverter Compressor High Discharge Line Temperature Standby Event	BI:82	INVDLTSBEvnt	Automatic	Indicates the condition of the Inverter Compressor High Discharge Line Temperature Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor High Discharge Line Temperature Standby Event is active.	X		X
Cooling Low Differential Pressure Standby Event	BI:83	ClgDPSBEvnt	Automatic	Indicates the condition of the Cooling Low Differential Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Cooling Low Differential Pressure Standby Event is active.	X		X
Heating Low Differential Pressure Standby Event	BI:84	HtgDPSBEvnt	Automatic	Indicates the condition of the Heating Low Differential Pressure Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Heating Low Differential Pressure Standby Event is active.	X		X
Outdoor Fan Problem Standby Event	BI:85	OAFanSBEvnt	Automatic	Indicates the condition of the Outdoor Fan Problem Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Outdoor Fan Problem Standby Event is active.	X		X
High Compressor Body Temperature Standby Event	BI:86	INVCmpTSBEvnt	Automatic	Indicates the condition of the High Compressor Body Temperature Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the High Compressor Body Temperature Standby Event is active.	X		X
Outdoor Fan Board Request for Standby Event	BI:87	OFReqSBEvnt	Automatic	Indicates the condition of the Outdoor Fan Board Request for Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Outdoor Fan Board Request for Standby Event is active.	X		X
Variable Compressor Oil Balance Event	BI:88	OilBalanceEvnt	Automatic	Indicates the condition of the Variable Compressor Oil Boost Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Variable Compressor Oil Boost Event is active.	X		X
Inverter Compressor Standby Event	BI:89	INVCmpSBEvnt	Automatic	Indicates the condition of the Inverter Compressor Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Inverter Compressor Standby Event is active.	X		X
Variable Compressor Low Oil Boost Event	BI:90	LoOilBoostEvnt	Automatic	Indicates the condition of the Variable Compressor Low Oil Boost Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Variable Compressor Low Oil Boost Event is active.	X		X
Variable Compressor High Oil Boost Event	BI:91	HiOilBoostEvnt	Automatic	Indicates the condition of the Variable Compressor High Oil Boost Event (0 = Inactive, 1 = Active).The OffNormal state of this object indicates the Variable Compressor High Oil Boost Event is active.	X		X
Event Sync Standby Event	BI:92	EVSyncSBEvnt	Automatic	Indicates the condition of the Event Sync Standby Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates the Event Synch Standby Event is active.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 46: BACnet Event Messages, Continued

Alarm Message	Object Type/ Instance	BACnet Object Name	Clear	Description1	Event_Enable (Default)		
					To-OffNormal	To-Fault	To-Normal
Cooling High Suction Pressure Unloading Event	BI:94	ClgHiTeULEvnt	Automatic	Indicates the current binary status of the Cooling High Suction Pressure Unloading control event (0 = Inactive, 1 = Active). Applies to DPS units. The OffNormal state of this object indicates the Cooling High Suction Pressure Unloading Event is active.	X		X
Oil Injection Event	BI:95	OilInjectionEvnt	Automatic	Indicates the condition of the Oil Injection control event (0 = Inactive, 1 = Active). Applies to MPS and RTU units with variable-speed compressors. The OffNormal state of this object indicates the Oil Injection Event is active.	X		X
MOP Protection Event	BI:96	MOPEvnt	Automatic	Indicates the condition of the Maximum Over-Current Protection Event (0 = Inactive, 1 = Active). The OffNormal state of this object indicates that MOP is active.	X		X

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

LonWorks Alarms

Table 47 lists the alarms that can be monitored by using the In Alarm attribute of the Unit Status network variable output, *nvoUnitStatus_in_alarm*. Detailed information for alarm objects are described in the Alarm Class, Table 48 - Table 50.

The Active Alarm Number refers to the active alarm value. It is set to zero if no alarms are active. Alarm values apply to all unit types unless otherwise noted. Alarms are read-only.

Table 47: LonWorks Alarm Values Available via Unit Status

Variable Name	LonWorks Variable	SNVT Index	SNVT Type	Description
Unit Status	nvoUnitStatus_in_alarm	112	SNVT_hvac_status	Allows individual notification of the highest priority active alarm. The value in the table below is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no alarms are active.

Active Alarm Number	Description[1]	Active Alarm Number	Description[1]	Active Alarm Number	Description
0	No Active Alarms	130	Low Refrig Charge Problem	163	High Pressure - Circuit 5 Problem
24	Dirty Filter Warning	131	ChargeLossPrb Problem	164	High Pressure - Circuit 4 Problem
28	Airflow Sw Warning	132	PTS Sensor Problem	165	High Pressure - Circuit 3 Problem
32	Conductivity Warning	133	PTD2 Sensor Problem	166	High Pressure - Circuit 2 Problem
34	Ret/Exh Fan Warning	134	PTD or PTD1 Sensor Problem	167	High Pressure - Circuit 1 Problem
40	Low Superheat Warning	135	IFB Comm Problem	169	Sump Water Level Problem
50	Over Econo Warning	136	Lo Pressure Differential Problem	179	EFT_LCT Problem
52	Under Econo Warning	137	Waterflow Sw Problem	182	Return Air Sensor Problem
54	Excess OA Warning	140	Water Regulating Valve Problem	185	Space Sensor Problem
56	OAD Stuck Warning	145	Variable Comp Low Oil Problem	188	OAT Sensor Problem
102	IRT Sensor Problem	148	High INV Comp Body Temp Problem	191	EWT Problem
104	ORT Sensor Problem	149	INV Comp Body Temp Sensor Problem	194	MAT Problem
106	DRT3 Sensor Problem	150	4WayValve Problem	197	Freeze Problem
108	DRT2 Sensor Problem	152	Low Pressure - Circuit 8 Problem	199	Heat Fail Problem
111	DRT1 Sensor Problem	153	Low Pressure - Circuit 7 Problem	208	Airflow Fault
114	INV or Variable Comp Problem	154	Low Pressure - Circuit 6 Problem	212	Low Discharge Air Temp Fault
115	LoDischP Problem	155	Low Pressure - Circuit 5 Problem	216	High Discharge Air Temp Fault
116	LoDischSH Problem	156	Low Pressure - Circuit 4 Problem	220	High Return Air Temp Fault
117	HiDischSH Problem	157	Low Pressure - Circuit 3 Problem	224	Duct High Limit Fault
119	DFT Sensor Problem	158	Low Pressure - Circuit 2 Problem	228	Discharge Temp Fault
121	SRT Sensor Problem	159	Low Pressure - Circuit 1 Problem	244	Control Temp Fault
124	High Disch Line Temp Problem	160	High Pressure - Circuit 8 Problem	250	Emergency Stop Fault
126	Exp Valve Problem	161	High Pressure - Circuit 7 Problem	252	Freeze Fault
128	OAFan Problem	162	High Pressure - Circuit 6 Problem		

1. Alarm range: 0 = Normal (Not Acitve), 1 = In Alarm (Active).

Table 48: LonWorks Warning Alarms

Variable Name	LonWorks Variable	SNVT Index	SNVT Type	Description
Warning Alarm	nvoWarnAlarm	8	SNVT_Count	Allows individual notification of the highest priority active warning alarm. The value in the table below is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no warning alarms are active.

Active Alarm Value	Alarm Message	Clear	Description[1]
0			No Active Alarms
24	Dirty Filter Warning	Manual	An active alarm indicates that the filter switch input is in the Open position.
28	Airflow Switch Warning	Manual	An active alarm indicates that the airflow switch is in the Flow (Closed) position and the supply fan is off for more than 30 minutes.
32	Conductivity Warning	Manual	An active alarm indicates that the conductivity valve is above the alarm setpoint value. Applies only to units configured for evaporative condensing.
34	Return / Exhaust Fan Warning	Automatic	An active alarm indicates that there is a problem with the return or exhaust fan operation. Applies to units with a VFD or EBM return/exhaust fan.
40	Low Superheat Warning	Automatic	An active alarm indicates that the suction and discharge superheat values have been unusually low for 30 minutes during normal compressor operation.
50	Over Economizing Warning	Automatic	An active alarm indicates that the unit is economizing when it should not be economizing. It is only available in application versions 2506017501 and 2506018201 or greater.
52	Under Economizing Warning	Automatic	An active alarm indicates that the unit is not economizing when it should be economizing. It is only available in application versions 2506017501 and 2506018201 or greater.
54	Excess Outdoor Air Warning	Automatic	An active alarm indicates that the unit is delivering excess outdoor air. It is only available in application versions 2506017501 and 2506018201 or greater.
56	Outdoor Air Damper Stuck Warning	Automatic	An active alarm indicates that the air dampers may be stuck and are not modulating. It is only available in application versions 2506017501 and 2506018201 or greater.

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 49: LonWorks Problem Alarms

Variable Name	LonWorks Variable	SNVT Index	SNVT Type	Description
Warning Alarm	nvoProbAlarm	8	SNVT_Count	Allows individual notification of the highest priority active problem alarm. The value in the table below is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no problem alarms are active.

Active Alarm Value	Alarm Message	Clear	Description[1]
0			No Active Alarms
102	IRT Sensor Problem	Manual	Indicates that the Return Temperature Problem alarm is active because the indoor refrigerant temperature (IRT) sensor is not reliable. Applies only to units configured for a return air sensor.
104	ORT Sensor Problem	Manual	An active alarm indicates that the outdoor refrigerant temperature (ORT) sensor is not reliable. Applies only to Rebel units.
106	DRT3 Sensor Problem	Manual	An active alarm indicates that the inverter compressor discharge refrigerant temperature (DRT3) sensor is not reliable.
108	DRT2 Sensor Problem	Manual	An active alarm indicates that the inverter compressor discharge refrigerant temperature (DRT2) sensor is not reliable.
111	DRT1 Sensor Problem	Manual	An active alarm indicates that the inverter compressor discharge refrigerant temperature (DRT1) sensor is not reliable.
114	Variable Compressor Problem	Manual	Indicates the condition of the Variable Compressor Problem alarm.
114	Inverter Compressor Problem	Manual	An active alarm indicates that the inverter (INV) compressor is not reliable. Applies only to Rebel units.
115	Low Discharge Pressure Problem	Manual	Indicates the status of the Low Discharge Pressure Problem alarm for VFD compressor units.
116	Low Discharge Superheat Problem	Manual	Indicates the status of the Low Discharge Superheat Problem alarm for VFD compressor units.
117	High Discharge Superheat Problem	Manual	Indicates the status of the High Discharge Superheat Problem alarm for VFD compressor units.
119	DFT Sensor Problem	Manual	An active alarm indicates that the defrost temperature (DFT) sensor is not reliable.
121	SRT Sensor Problem	Manual	An active alarm indicates that the suction line temperature (SRT) sensor is not reliable.

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 49: LonWorks Problem Alarms, Continued

Active Alarm Value	Alarm Message	Clear	Description[1]
124	High Discharge Line Temperature Problem	Manual	Indicates the status of the High Discharge Line Temperature Problem alarm for VFD compressor units.
126	Expansion Valve Problem	Manual	An active alarm indicates there is a problem with either the indoor or outdoor expansion valve control. Applies only to Rebel units.
128	Outdoor Fan Problem	Manual	An active alarm indicates there is a problem with the outdoor air fan control. Applies only to Rebel units.
130	Low Refrigerant Charge Problem	Manual	An active alarms indicates the refrigerant system is low on charge. Applies only to Rebel units.
131	Charge Loss Problem	Manual	An active alarm indicates that the refrigerant system charge has been completely lost. Applies only to Rebel units.
132	PTS Sensor Problem	Manual	An active alarm indicates that the suction refrigerant pressure (PTS) sensor is not reliable. Applies only to Rebel units.
134	PTD Sensor Problem	Manual	An active alarm indicates that the discharge refrigerant pressure (PTD) sensor is not reliable.
134	PTD1 Sensor Problem	Manual	An active alarm indicates that the circuit 1 discharge refrigerant pressure sensor is not reliable.
133	PTD2 Sensor Problem	Manual	An active alarm indicates that the circuit 2 discharge refrigerant pressure sensor is not reliable.
135	IFB Comm Problem	Manual	An active alarm indicates that a communication interruption has occurred between the unit controller and the inverter compressor interface communication board (IFB). Applies only to Rebel units.
136	Low Pressure Differential Problem	Manual	Alarm is active when the difference between the refrigerant circuit high side (PTD) and low side (PTS) remains below the acceptable pressure level when the compressor(s) is at full capacity.
137	Waterflow Switch Problem	Automatic	Indicates that the Waterflow Switch Problem alarm is active. Applies only to units configured with a waterside condenser and when a lack of water flow is indicated by an open water flow switch or a network signal.
140	Water Regulating Valve Problem	Manual	Indicates that the Water Regulating Valve Problem alarm is active. Applies only to units configured for head pressure control.
145	Variable Compressor Low Oil Problem	Manual	Indicates that the Variable Compressor Low Oil Problem alarm is active.
148	High Inverter Compressor Body Temperature Problem	Manual	An active alarm indicates that the inverter compressor body temperature limit has been exceeded. Applies only to Rebel units.
149	INV Compressor Body Temperature Sensor Problem	Manual	An active alarm indicates that the inverter compressor body temperature sensor is not reliable.
159	Low Pressure – Circuit 1	Automatic	An active alarm indicates that the Low Press SW1 input is in the Open position. Applies only to units configured for two or more mechanical cooling circuits.
158	Low Pressure – Circuit 2	Automatic	An active alarm indicates that the Low Press SW2 input is in the Open position. Applies only to units configured for two or more mechanical cooling circuits.
157	Low Pressure – Circuit 3	Automatic	An active alarm indicates that the Low Press SW3 input is in the Open position. Applies only to units configured for three or more mechanical cooling circuits.
156	Low Pressure – Circuit 4	Automatic	An active alarm indicates that the Low Press SW4 input is in the Open position. Applies only to units configured for four or more mechanical cooling circuits.
155	Low Pressure – Circuit 5	Automatic	An active alarms indicates that the Low Press SW5 input is in the Open position. Applies only to units configured for five or more mechanical cooling circuits.
154	Low Pressure – Circuit 6	Automatic	An active alarm indicates that the Low Press SW6input is in the Open position. Applies only to units configured for six or more mechanical cooling circuits.
153	Low Pressure – Circuit 7	Automatic	An active alarm indicates that the Low Press SW7 input is in the Open position. Applies only to units configured for seven or more mechanical cooling circuits.
152	Low Pressure – Circuit 8	Automatic	An active alarm indicates that the Low Press SW8 input input is in the Open position. Applies only to units configured for eight or more mechanical cooling circuits.
167	High Pressure – Circuit 1	Manual	An active alarm indicates that the High Pressure switch SW1 input is in the Open position. Applies only to units configured for two or more mechanical cooling circuits.
166	High Pressure – Circuit 2	Manual	An active alarm indicates that the High Pressure switch SW2 input is in the Open position. Applies only to units configured for two or more mechanical cooling circuits.
165	High Pressure – Circuit 3	Manual	An active alarm indicates that the High Pressure switch SW3 input is in the Open position. Applies only to units configured for three or more mechanical cooling circuits.
164	High Pressure – Circuit 4	Manual	An active alarm indicates that the High Pressure switch SW4 input is in the Open position. Applies only to units configured for four or more mechanical cooling circuits.
163	High Pressure – Circuit 5	Manual	An active alarm indicates that the High Pressure switch SW5 input is in the Open position. Applies only to units configured for five or more mechanical cooling circuits.
162	High Pressure – Circuit 6	Manual	An active alarm indicates that the High Pressure switch SW6 input is in the Open position. Applies only to units configured for six or more mechanical cooling circuits.
161	High Pressure – Circuit 7	Manual	An active alarm indicates that the High Pressure switch SW7 input is in the Open position. Applies only to units configured for seven or more mechanical cooling circuits.
160	High Pressure – Circuit 8	Manual	An active alarm indicates that the High Pressure switch SW8 input is in the Open position. Applies only to units configured for eight or more mechanical cooling circuits.

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 49: LonWorks Problem Alarms, Continued

Active Alarm Value	Alarm Message	Clear	Description[1]
169	Sump Water Level Problem	Manual	Indicates the status of the Sump Water level Problem alarm. Applies only to units configured with an evaporative condenser.
179	Entering Fan / Leaving Coil Temperature Sensor Problem	Automatic	An active alarm indicates that the entering fan temperature/leaving coil temperature sensor is not reliable. Applies only to units configured for an entering fan temperature sensor.
182	Return Air Temperature Sensor Problem	Automatic	An active alarm indicates that the return air sensor (RAT) is not reliable. Applies only to units configured for a RAT sensor.
185	Space Temperature Sensor Problem	Automatic	An active alarm indicates that the space temperature sensor is not reliable or that a valid space temperature value is not provided via the network. Applies only to units configured for a space temperature sensor.
188	Outdoor Air Temperature Sensor Problem	Automatic	An active alarm indicates that the outdoor air temperature (OAT) sensor is not reliable or that a valid temperature value is not provided via the network. Alarm applies only to units configured for an OAT sensor.
191	Entering Water Temp Sensor Problem	Automatic	An active alarm indicates that the entering water temperature (EWT) sensor is not reliable. Applies only to units configured with an EWT sensor.
194	Mixed Air Temp Problem	Manual	An active alarm indicates that the mixed air temperature (MAT) sensor is not reliable. Applies only to units configured for a MAT sensor.
197	Freeze Problem	Automatic	Indicates that the Freeze Problem alarm is active and that the freezestat is in the Open position.
199	Heat Fail Problem	Automatic	Indicates that the Heat Fail Problem alarm is active.

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Table 50: LonWorks Fault Alarms

Variable Name	LonWorks Variable	SNVT Index	SNVT Type	Description
Fault Alarm	nvoFaultAlarm	8	SNVT_Count	Allows individual notification of the highest priority active fault alarm. The value in the table below is the largest number in its enumeration that corresponds to an active alarm. This object is set to zero if no fault alarms are active.

Active Alarm Value	Alarm Message	Clear	Description[1]
0			No Active Alarms
208	Airflow Fault	Manual	Indicates that the The Airflow Fault alarm is active and that the airflow switch is in the Open position.
212	Low Discharge Air Temperature Fault	Manual	An active alarm indicates that the discharge air temperature is below the Low Discharge Temperature setting.
216	High Discharge Air Temperature Fault	Manual	An active alarm indicates that the discharge air temperature exceeds the High Discharge Temperature setting.
220	High Return Air Temperature Fault	Manual	Indicates that the High Return Temperature Fault alarm is active. Applies only to units configured for a return air (RAT) sensor and when the RAT has exceeded the High Return Temperature limit.
224	Duct High Limit Fault	Manual	Indicates that the Duct High Limit Fault alarm is active. Applies only to Variable Air Volume (VAV) units configured for supply fan VFDs.
228	Discharge Air Temperature Sensor Fault	Manual	An active alarm indicates that the Discharge Air Temperature (DAT) sensor is not reliable.
244	Control Temperature Fault	Manual	Indicates that the Control Temperature Fault alarm is active when the respective sensor is not reliable or when a valid temperature value is not provided via the network.
250	Emergency Off Fault	Manual	Indicates that the Emergency Off Fault alarm is active and that the emergency off input is in the Open position.
252	Freeze Fault	Manual	Indicates that the Freeze Fault alarm is active. Applies only to units installed with a waterside economizer, chilled water coil, hot water coil or steam coil and when the freezestat is in the Open position.

[1]Refer to OM 920, MicroTech Unit Controller for Commercial Rooftop, Applied Rooftop and Self-Contained Systems for additional descriptions about alarm generation (www.DaikinApplied.com).

Device Management

BACnet

The following functions are specific to the BACnet device (i.e. BACnet communication module). These functions are used for maintenance and testing. A network management tool such as VTS is typically used to issue the network commands.

DeviceCommunicationControl - Disable

The purpose of this command is to reduce network traffic for diagnostic testing of the BACnet network. When the BACnet communication module receives a network command to Disable communications, it stops passing information to the network. It is possible to specify an optional length of time that communication is suspended. The unit continues to operate during the Disabled state.

DeviceCommunicationControl - Enable

When the BACnet communication module receives a network command to Enable communications, unit controller communication to the BACnet network is restored.

ReinitializeDevice (Reset)

When the BACnet communication module BACnet Communication Module is capable of receiving a network ReinitializeDevice command to reboot itself (cold start or warm start). The functionality of a cold and warm start are the same and simply reboot the BACnet communication module. No password is required.

LonWorks

The following functions are specific to the LonWorks device (i.e. LonWorks communication module). These functions are used for maintenance and testing. A network management tool such as Echelon's LonMaker® is typically used to issue the network commands.

Offline

When the LonWorks communication module receives a network command to go Offline, the unit controller continues to operate but communication is suspended except for network management messages.

Online

When the LonWorks communication module receives a network command to go Online, LonWorks network messaging is restored.

Reset

When the LonWorks communication module receives a network command Reset command, it performs the following:

1. Send a command to the unit controller to perform a warm reset, maintaining non-volatile memory.
2. Reset the Neuron processor.

Wink

The wink function is not supported.

BACnet PICs

MicroTech Applied Rooftop Unit Controller

This section contains the Protocol Implementation Conformance Statement (PICS) for the MicroTech Unit Controller of Daikin Applied as required by ANSI/ASHRAE Standard 135-2008, BACnet: A Data Communication Protocol for Building Automation and Control Networks.

Date	October 2024
Vendor Name	Daikin Applied
Product Name	Unit Controller
Product Model Number	AHU
Application Software Version Rooftop and Self-Contained Models RDE, RPS, RDT, RFS, RDS, RAH, SWT, SWP Maverick II, Model MPS	2506038103
Application Software Version Rebel Packaged Rooftop, Models DPS, DPH	2506039103
Application Software Version Rebel Packaged Rooftop, Models DPS, DPH (Refrigerant Only)	
Firmware Revision	11.58
BACnet Protocol Revision	Version 1 Revision 10

Product Description

The MicroTech Unit Controller with BACnet IP or MS/TP communication module integrates a Rebel Packaged Rooftop, Applied Rooftop, Self-Contained unit, and Maverick II Commercial Rooftop application into a BACnet network.

The unit controller provides normal temperature, static pressure and ventilation control and alarm monitoring with alarm-specific component shutdown in critical system conditions. Access to temperatures, pressures, operating states, alarm messages, control parameters and schedules is available through the unit controller menu display (HMI) and the BACnet control network.

BACnet Standardized Device Profile (Annex L)

☐	BACnet Advanced Workstation	(B-AWS)
☐	BACnet Operator Workstation	(B-OWS)
☐	BACnet Operator Display	(B-OD)
☒	BACnet Building Controller	(B-BC)
☐	BACnet Advanced Application Controller	(B-AAC)
☐	BACnet Application Specific Controller	(B-ASC)
☐	BACnet Smart Sensor	(B-SS)
☐	BACnet Smart Actuator	(B-SA)

BACnet Interoperability Building Blocks Supported

Data Sharing

☒	Data Sharing – Read Property-A	DS-RP-A
☒	Data Sharing – Read Property-B	DS-RP-B
☒	Data Sharing – Read Property Multiple-A	DS-RPM-A
☒	Data Sharing – Read Property Multiple-B	DS-RPM-B
☒	Data Sharing – Write Property-A	DS-WP-A
☒	Data Sharing – Write Property-B	DS-WP-B
☒	Data Sharing – Write Property Multiple-B	DS-WPM-B
☒	Data Sharing – Change of Value -A	DS-COV-A
☒	Data Sharing – Change of Value -B	DS-COV-B

Alarm and Event Management

☒	Alarm and Event – Notification Internal-B	AE-N-I-B
☒	Alarm and Event – ACK-B	AE-ACK-B
☒	Alarm and Event – Alarm Summary-B	AE-ASUM-B
☒	Alarm and Event – Enrollment Summary-B	AE-ESUM-B
☒	Alarm and Event – Information-B	AE-INFO-B

Device management

☒	Device Management – Dynamic Device Binding-A	DM-DDB-A
☒	Device Management – Dynamic Device Binding-B	DM-DDB-B
☒	Device Management – Dynamic Object Binding-B	DM-DOB-B
☒	Device Management – Device Communication Control-B	DM-DCC-B
☒	Device Management – Time Synchronization-B	DM-TS-B
☒	Device Management – UTC Time Synchronization-B	DM-UTC-B
☒	Device Management – Reinitialize Device-B	DM-RD-B
☒	Device Management – Backup and Restore-B	DM-BR-B
☒	Device Management – Object Creation and Deletion-B	DM-OCD-B

Scheduling

Scheduling – Internal-B	SCHED-I-B
Scheduling – External-B	SCHED-E-B

Trending

Trending – Viewing and Modifying Internal-B	T-VMT-I-B
Trending – Automated Trend Retrieval-B	T-ATR-B

Segmentation Capability

☒	Able to transmit segmented messages	Window size	4 for IP and 1 for MS/TP
☒	Able to receive segmented messages	Window size	4 for IP and 1 for MS/TP

Data Link Layer Options

☒	BACnet IP, (Annex J)	-
☒	BACnet IP, (Annex J), Foreign Device	-
☐	ISO 8802-3, Ethernet (Clause 7)	-
☐	ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)	-
☐	ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s)	-
☒	MS/TP master (Clause 9), baud rate(s)	9600 19200 38400 57600 76800 115200
☐	MS/TP slave (Clause 9), baud rate(s)	9600 19200 38400 57600 76800 115200
☐	Point-To-Point, EIA 232 (Clause 10), baud rate(s)	38400
☐	Point-To-Point, modem, (Clause 10), baud rate(s)	38400
☐	LonTalk, (Clause 11), medium	TP/FT-10
☐	Other	-

Device Address Binding

Is static device binding supported?	☐ Yes	☒ No

Networking Options

□	Router, Clause 6 (remote management functionality/BACnet PTP)		
□	Annex H, BACnet Tunneling Router over IP		
□	BACnet/IP Broadcast Management Device (BBMD) Number of BDT entries: 10 Number of FDT entries: 10		
-	Does the BBMD support registrations by foreign devices?	oo Yes	□ No

Character Sets Supported

NOTE: Support for multiple character sets does not imply they can be supported simultaneously.

☒ UTF-8	☐ IBM / Microsoft DBCS	☒ ISO 8859-1
☒ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS C 6226

Standard Object Types Supported

Analog Inputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	R[1]	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Units	R	-
Min_Pres_Value	R	-
Max_Pres_Value	R	-
COV_Increment	W[2]	-
Time_Delay	R	-
Notification_Class	R	-
High_Limit	R	-
Low_Limit	R	-
Deadband	R	-
Limit_Enable	W[3]	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

[1] Present_Value is not commandable or writeable.
[2] Changes to this property do not take effect until the power is cycled on the unit controller.
[3] This property is writeable via BACnet. However, it reverts to the unit controller value if the object is setup for Intrinsic Reporting. This is a safety feature so the network cannot disable alarms from occurring.

Analog Outputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Units	R	-
Min_Pres_Value	R	-
Max_Pres_Value	R	-
Priority_Array	R	-
Relinquish_Default	W	-
COV_Increment	W[1]	-
Time_Delay	R	-
Notification_Class	R	-
High_Limit	R	-
Low_Limit	R	-

Analog Outputs, Continued

Properties	Readable / Writable	Range restrictions
Deadband	R	-
Limit_Enable	W	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

[1] Changes to this property do not take effect until the power is cycled on the unit controller.

Analog Values

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W[1,3]	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Units	R	-
Priority_Array	R	-
Relinquish_Default	W	-
COV_Increment	W[2]	-
Time_Delay	R	-
Notification_Class	R	-
High_Limit	R	-
Low_Limit	R	-
Deadband	R	-
Limit_Enable	W	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

[1] Present_Value is not commandable or writeable.
[2] Changes to this property do not take effect until the power is cycled on the unit controller.
[3] Priority 1 is reserved for the commandable objects application. BACnet writes at priority 1 will fail.

Binary Inputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	R[1]	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-

Binary Inputs, Continued

Properties	Readable / Writable	Range restrictions
Polarity	R	-
Inactive_Text	R	-
Active_Text	R	-
Elapsed_Active_Time	W	Only 0
Time_Of_Active_Time_Reset	R	-
Time_Delay	R	-
Notification_Class	R	-
Alarm_Value	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

Binary Outputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R[1]	-
Out_Of_Service	W	-
Polarity	W	-
Inactive_Text	R	-
Active_Text	R	-
Elapsed_Active_Time	W	Only 0
Time_Of_Active_Time_Reset	R	-
Priority_Array	R	-
Relinquish_Default	W	-
Time_Delay	R	-
Notification_Class	R	-
Feedback_Value	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

Binary Values

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W[1,2]	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Inactive_Text	R	-
Active_Text	R	-
Elapsed_Active_Time	W	Only 0
Time_Of_Active_Time_Reset	R	-
Priority_Array	R	-
Relinquish_Default	W	-
Notification_Class	R	-
Alarm_Value	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

[1] Present_Value is not commandable or writeable.
[2] Priority 5 is reserved for the commandable objects application. BACnet writes at priority 5 will fail.

Multistate Inputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	R	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Number_Of_States	R	-
State_Text	R	-
Time_Delay	R	-
Notification_Class	R	-
Alarm_Values	R	-
Fault_Values	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

Multistate Outputs

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Number_Of_States	R	-
State_Text	R	-
Priority_Array	R	-
Relinquish_Default	W	-
Time_Delay	R	-
Notification_Class	R	-
Feedback_Value	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-

Multistate Values

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W[1]	-
Description	R	-
Status_Flags	R	-
Event_State	R	-
Reliability	R	-
Out_Of_Service	R	-
Number_Of_States	R	-
State_Text	R	-
Priority_Array	R	-
Relinquish_Default	W	-
Time_Delay	R	-
Notification_Class	R	-
Alarm_Values	R	-
Fault_Values	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-
Event_State	R	-
Out_Of_Service	R	-
Number_Of_States	R	-
State_Text	R	-
Property_List	R	-

[1] Present_Value is not commandable or writeable.

Device

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
System_Status	R	-
Vendor_Name	R	-
Vendor_Identifier	R	-
Model_Name	R	-
Firmware_Revision	R	-
Application_Software_Version	R	-
Location	R	-
Description	R	-
Protocol_Version	R	1
Protocol_Revision	R	14
Protocol_Services_Supported	R	-
Protocol_Object_Types_ Supported	R	-
Object_List	R	-
Max_APDU_Length_Accepted	W	50..1476, 50..480
Segmentation_Supported	W	-
Max_Segments_Accepted	W	2..16
Local_Time	R	-
Local_Date	R	-
UTC_Offset	W	-
Daylight_Savings_Status	R	-
APDU_Segment_Timeout	W	500..65535
APDU_Timeout	W	1000..65535
Number_Of_APDU_Retries	W	-
Max_Master (MS/TP only)	W	1-127
Max_Info_Frames (MS/TP only)	W	1-32
Device_Address_Binding	R	-
Database_Revision	R	-
Configuration_Files	R	-
Last_Restore_Time	R	-
Backup_Failure_Timeout	W	-
Active_COV_Subscriptions	R	-
Last_Restart_Reason	R	-
Time_Of_Device_Restart	R	-
Restart_Notification_Recipients	W	-
Property_List	R	-

Event Enrollment

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	W	-
Object_Type	R	-
Event_Type	R	-
Notify_Type	W	-
Event_Parameters	W	Change-Of-State, Change-Of-Value, Out-Of-Range only
Object_Property_Reference	W	-
Event_State	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notification_Class	W	-
Event_Time_Stamps	R	-
Property_List	R	-
Event_Detection_Enable	R	-
Status_Flags	R	-
Reliability	R	-

File

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Description	R	-
File_Type	R	-
File_Size	R	-
Modification_Date	R	-
Archive	W	-
Read_Only	R	-
File_Access_Method	R	-
Property_List	R	-

Notification Class

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Description	R	-
Notification_Class	R	-
Priority	W	-
Ack_Required	W	-
Recipient_List	W	Max. 20
Property_List	R	-

Trend Log

Properties	Readable / Writable	Range restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Description	R	-
Enable	W	-
Start_Time	W	-
Stop_Time	W	-
Log_DeviceObjectProperty	W	-
Log_Interval	W	-
Client_COV_Increment	W	-
Stop_When_Full	W	-
Buffer_Size	R	-
Log_Buffer	R	-
Record_Count	W	-
Total_Record_Count	R	-
Notification_Threshold	W	-
Records_Since_Notification	R	-
Last_Notify_Record	R	-
Event_State	R	-
Notification_Class	R	-
Event_Enable	W	-
Acked_Transitions	R	-
Notify_Type	R	-
Event_Time_Stamps	R	-
Logging_Type	W	-
Status_Flags	R	-
Property_List	R	-
Event_Detection_Enable	R	-

Revision History

Revision	Date	Changes
ED 15112	September 2008	Preliminary release.
ED 15112-1	October 2008	Added 2 notification class objects to BACnet. There are now a total of 3 objects (faults, problems & warnings).
ED 15112-2	January 2009	Changed Networking Options section of the Protocol Information Conformance Statement (PICS). The BBMD does support registration by foreign devices. This was previously marked no. Changed the enumeration for the Water Regulating Valve object from 0=Open and 1=Closed to 0=normal and 1=alarm.
ED 15112-3	March 2009	Changed Standard Object Types Supported section of the PICS. Present Value, Priority Array were removed from the optional list for Binary Outputs. These properties are required. Removed Alarm Value from the optional list for Binary Outputs. This is not a property of this object. Also removed Priority Array from Binary Inputs. This is not a property of this object. Modified the optional properties for Multi-state Input. Modified the optional properties for Multi-state Output.
ED 15112-4	November 2009	Added Maverick II (MPS) model. Modified keypad navigation per new global standard. Updated points affected by removal of BACnet heartbeat function (changed points from commandable to writable and removed reference to writing at priority 8). Added the following points: Heat Fail 199, Heat Fail Problem BV, ERDAT (AV), EREhht (AV), ERWhlOnOff (MV), ERWheelSpd (AV), Min OA Flw Spt (AV).
ED 15112-5	December 2009	Changed ER Discharge Air Temp & ER Exhaust Air Temp BACnet object types from AV to AI. Updated firmware version from 2506017300 to 2506017301 in Software Revision and PICs sections.
ED 15112-6	February 2010	Changed ER Wheel Speed BACnet object types from AV15 to AI15. Removed reference to energy recovery from Return Fan Capacity Input & Exhaust Fan Capacity Input (Detailed Data Information section). Changed Application Mode enumerations in detailed data section. Updated PICS to include software v2506017302.
ED 15112-7	June 2010	Changed nvoUnitStatus_inAlarm_ to nvo WarnAlarm, nvoProbAlarm, and nvoFaultAlarm in detailed data section. Updated software revision to v2506017304. Removed references to S7 switch on fig. 4.
ED 15112-8	February 2011	Added Control Temp Source (MSV 39) to BACnet. This is available in application 2506017306. Added DAC checkbox to Relative Humidity Input on the BACnet Standard Objects Table. Added Low/High Pressure Circuit Switch 7 and 8, added Low/ High Pressure Circuit 7 and 8 Problem, changed Sump Pump Switch to Sump Pump Water Level Switch, changed Sump Pump Fail Problem to Sump Water Level Problem.
ED 15112-9	April 2012	Specified in the Space Temperature Input section that the range of the network space temperature is different for BACnet and LonWorks. Specified LonWorks invalid value for Build Static Pressure Setpoint and Duct Static Pressure Setpoint. Updated BACnet and LonWorks Data Point Tables and detailed data sections for the following: added Morning Warm-up Heating Setpoint, changed Zone Temp to Htg/Clg C for network access, removed MRNG WRMUP from Unit State (LON only), changed Sump Pump Water Level Fail to Problem Alarm, Renamed ER DAT= and ER ExhT= to ER LAT= and ER EAT added Rebel model DPS, changed AV53 in detailed data section from read-only to read-write. Updated Daikin logo and references.
ED 15112-10	May 2012	Clarified Application Mode description. Spelling corrections.
ED 15112-11	July 2012	Corrections to data points by model type – Table 4. Updated PICS for new application/firmware versions.
ED 15112-12	March 2014	Added Dehumidification Status and Ret/Exh Fan Warning. Modified Remote Supply Fan Capacity Control Flag to add the following enumerations: BSP, CO2 and CFM. Added: Defrost State, Inverter Compressor Body Temperature, High Inverter Comp Body Temp problem, Inverter Comp Body Temp Sensor Problem, Max Purge Time, Min & Max Leaving Coil Temperature Dehumidification Setpoints. Added datapoints, alarms and events to support variable compressors. Updated Daikin Applied logo and references
ED 15112-13	July 2014	Added the following points to BACnet: Network Demand Shed Enable (MSV 48), Morning Warmup Status (MSV 49), Free Cooling Status (MSV50), Network Demand Shed Event (BI 60), Over Economizing Warning (BI 61), Under Economizing Warning (BI 62, Excess Outdoor Air Warning (BI 63), Outdoor Air Damper Stuck Warning (BI 64), New Events (BI 65-87). Modified the description for Economizer Enable. If the network is enabling or disabling the economizer, it overrides local enable/ disable decisions. However, if the unit is in dehumidification, the network settings of Economizer Enable are ignored and the economizer will be disabled. These points are available in application versions 2506017501 and 2506018201 or greater.
ED 15112-14	January 2016	Added the following points to BACnet: Low Oil Boost Event (BI 90), High Oil Boost Event (BI 91), Oil Balance Event (BI 88) Configuration points. These are BACnet-only points. Not available via LON. The Oil Boost Event (BI59) was obsoleted in applications that have the new Low/High Oil Boost Events (BI 90 & BI 91).
ED 15112-15	October 2016	Updated software references to 2506017512 and 2506018213 and BSP version to 10.34. Added Rebel model DPH. Added description in main data table and detailed data points section to indicate that Primary Heat Enable, Primary Cool Enable, and Economizer Enable objects apply only when Ctrl Mode=Auto. Formatting and branding updates.
ED 15112-16	November 2018	Moved Detailed Data Information to BACnet and LON data tables. Separated Alarm points and moved to Alarm section at the end. Added Appendix B with full points list and keypad menu paths. Updates to formatting and removal of redundant information. Added UseTStat Setpoint (MSV 51), removed enumerations from Relative Humidity that did not apply. Added Relinquish Default to BV writeable properties in PICS. Added values 7 and 8 to MSV:113. Added MOP Problem and Event alarms.
ED 15112-17	March 2019	Added Cooling Hi Suction Pressure Unloading Event (BI: 94) and Oil Injection Event (BI 95). Updated Table of Contents.
ED 15112-18	July 2019	Formatting changes
ED 15112-19	November 2020	Fixed alarm enumeration 212 in Table 40 from “High” to “Low” Discharge Air Temp Fault. Added text to Clear Alarms (MSV:13) in Table 19 and BACnet Clearing Alarms section cautioning against multiple writes.
ED 15112-20	June 2023	Corrected the LonWorks Warning, Problem, and Fault alarm variables type to SNVT_Count (8). Other formatting updates. Updated software part numbers in PICs; also removed Acked_Transitions and Event_Enable as Binary Value writeable properties (they are read-only). Changed MicroTech III to MicroTech unit controller branding on cover page and all references throughout.
ED 15112-21	October 2024	Added MSV:119 Heating Type options 10=SC30LoGas and 11=SC30HiGas. Added support for MPS application with R-32. Added AV:122 Reheat Hours). Made a number of corrections to Unit Configuration parameters (Table 18) to match HMI menu items. Clarified refrigerants supported by model types on cover page.

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