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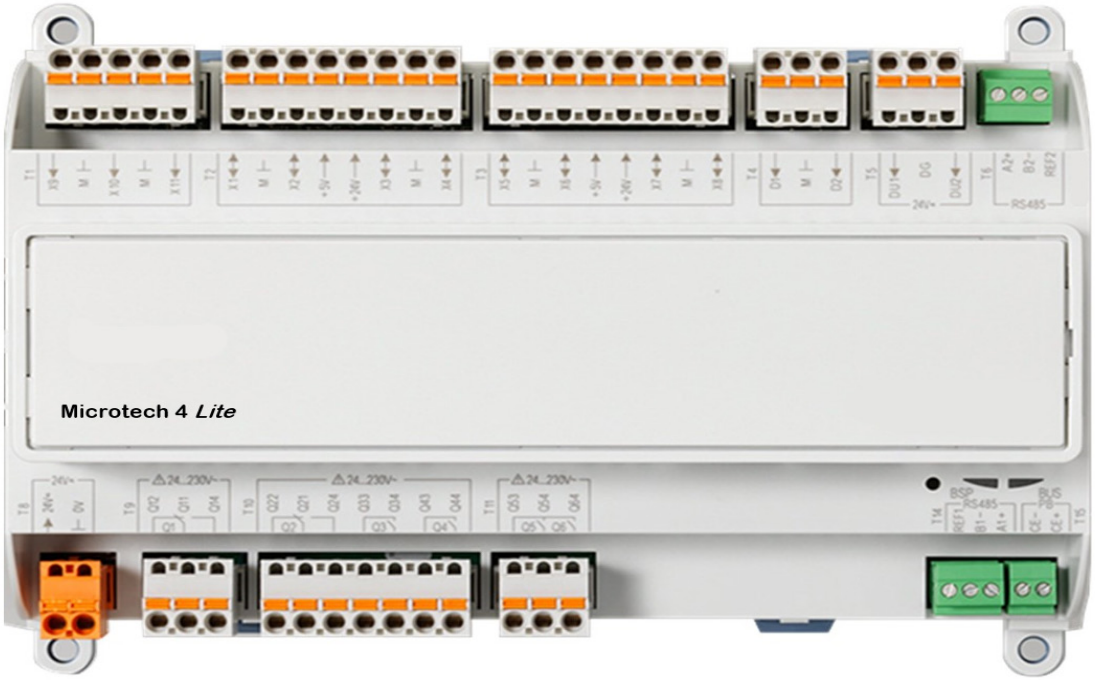
MICROTECH® 4 LITE NETWORK INTEGRATION

BACNET® MS/TP PROTOCOL

PreciseLine® Light Air Handlers
Models BCV, BCA, BCH with R-410A or R-32 Refrigerant
600 to 10,000 CFM



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Introduction

This manual provides instructions for integrating the MicroTech® 4 PreciseLine® unit controller with a Building Automation System (BAS) using the BACnet® MS/TP network protocol.

This manual is intended for BAS integrators, service technicians, commissioning agents, and controls engineers responsible for configuring, commissioning, and maintaining BAS communications.

It is assumed that the user is familiar with the BACnet protocol standard and integration.

Product Description

The MicroTech 4 (MicroTech) is the dedicated unit controller for Daikin Applied PreciseLine Light Air Handlers. The MicroTech controller supports building automation system (BAS) network communication with native BACnet MS/TP capability.

BACnet objects are accessible to the network after the unit has been set up for MS/TP communications via the remote interface keypad display. BACnet parameters include setpoints, system status, monitoring, and alarm objects.

Application

Software

This document supports the latest version of software for the MicroTech unit controller and all previous versions of the PreciseLine unit controller application software.

The application software version is available from the MicroTech remote interface (remote HMI) under the ‘About This AHU’ menu. It can also be read from the Application_Software_Version property of the BACnet Device Object.

Firmware

This document supports MicroTech unit controller BSP (Board Support Package) versions 11.64 and newer.

The MicroTech unit controller application software version is available from the remote HMI under the ‘About This AHU’ menu.

The MicroTech unit controller parameter objects are accessible from either the controller HMI or BAS. Not all objects are accessible from each interface.

Hazard Identification

⚠ 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.

NOTE: Indicates important details or clarifying statements for information presented.

Reference Documents

Title	Number	Company	Source
MicroTech PreciseLine Light Air Handler Controller	OM 1357	Daikin Applied	www.DaikinApplied.com
BACnet A Data Communication Protocol for Building Automation and Control Networks	ANSI/ASHRAE 135-2014	American Society of Heating, Refrigeration, and Air-Conditioning Engineers	www.ashrae.org

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 section more information.

BACnet Device Object

BACnet Objects

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 define 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).

The MicroTech unit controller follows the standard BACnet convention for prioritizing data points using the Present_Value property (current value) of each object and is automatically set to the highest priority level. The Present_Value is writeable if it is commandable or if Out_Of_Service is set to TRUE as determined by each object type (AI, AV, MSV, BI, Device). Refer to the table notes included in BACnet PICS.

All BACnet objects available to the network are found in the BACnet Data Points tables.

Device Object Properties

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.

The Device Object contains other informative properties as shown in Table 1.

Table 1: Device Object Properties

Property	Identifier	Default Value	Data Type
Object Identifier	75	Device	BACnetObjectIdentifier
Object Name	77	PL AHU_##### (Variable)	Character String
Object Type	79	8	BACnetObjectType
System Status	112	0	BACnetDeviceStatus
Vendor Name	121	Daikin	Character String
Vendor Identifier	120	3	Unsigned 16
Model Name	70	Climatix POL546	Character String
Firmware Revision	44	Variable	Character String
Application Software Version	12	Variable	Character String
Location	58	Unsupported Property	Character String
Description	28	Blank[2]	Character String
Protocol Version	98	1	Unsigned
Protocol Revision	139	15	Unsigned
Protocol Services Supported	97	-	Unsigned
Protocol Object Types Supported[1]	96	AI, AV, BI, Device, MSV	BACnetObjectTypes Supported
Object List	76	-	Sequence of BACnet ObjectIdentifer
Max APDU Length Accepted	62	480	Unsigned 16
Segmentation Supported	107	None	BACnetSegmentation
Max Segments Accepted	167	4	Unsigned
Local Time	57	Variable	Time
Local Date	56	Variable	Date
UTC Offset	119	-360 (Range: -780...780)	Integer
Daylight Savings Status	24	Variable	Boolean
APDU Segment Timeout	10	5000	Unsigned
APDU Timeout	11	6000	Unsigned
Number of APDU Retries	73	3	Unsigned
Device Address Binding	30	-	Sequence of BACnet AddressBinding
Database Revision	115	Variable	Unsigned
Active COV Subscriptions	152	-	List of BACnetCOV Subscriptions

[1]While the MicroTech controller supports the entire set of object types, not all object types are used.
[2]Changeable via the remote user interface.

Device Object Identifier

The Device Object_Identifier uniquely specifies the unit within the network. The initial device object instance number is calculated based on the Device Instance from the unit controller application. This number must be unique on the entire BACnet network. The device instance number can be changed via the keypad display. Set Apply Changes from No to Yes under the BACnet MSTP 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 PL AHU_#####. The ##### represents the Device Instance. If the Device Instance changes, and the “PL_AHU_” portion of the Object_Name is retained, the Device Name is updated as well.

Network Addressing and Configuration

The MicroTech unit controller uses standard BACnet addressing parameters for network communication.

Other than Unit Support, addressing values can only be set or changed from the remote interface display. Follow these steps to set up and configure BACnet:

1. Connect the BACnet network to the T14 BACnet MS/TP port on the unit controller.
2. Connect the remote interface to the T_H port on the unit controller.
3. Login as a Manager level user (Table 2).

   NOTE: T13 is the room sensor

Table 2: Remote User Interface Password Levels

Access Level	Password Level	Access Type	Password
User	NA	User Read Only	NA
User (Lowest)	6	User Read/Write	5321
Manager	4	Setup Read/Write	2526
Technician (Highest)	2	Service Read/Write	6363

4. From the remote interface keypad/display main menu, scroll down and select the **Unit Maintenance\BACnet MSTP Set-Up** menu.
5. Configure the desired parameters as described in Table 3.
6. Set Apply Changes from No to Yes so that the unit controller recognizes the changes. This causes the unit controller to reset and the updates to take effect.

Table 3: BACnet MS/TP Network Addressing Parameters

Description	Parameter Name	Default Value	Range
Device Name	MSTPDevName	PL AHU_23	-
Device Instance	MSTPDevInst	23	0-4194302
MAC Address	MSTPMACAddr	18	0-127
Baud Rate	MSTPBaudRate	38400	9600 19200 38400 76800
Max Master	MSTPMaxMasters	127	1-127
Max Info Frames	MSTPMaxInfoFr	10	1-32
Unit Support	MSTPUnitSupport	English	English/ SI
Max APDU Length	-	480	-

BACnet Data Points

Table 4 - Table 8 describe the BACnet points available to the network from the MicroTech unit controller.

All BACnet points available to the BAS remain at the last valid value upon loss of communication. If the network input value is invalid, the unit controller reverts to a default value. In the case of network sensor inputs, it reverts to the corresponding local sensor input when installed.

Use the remote user interface to configure the BACnet network addressing parameters as described in the previous section.

Refer to the MicroTech PreciseLine Unit Controller, OM 1357 for all HMI menu options available (www.DaikinApplied.com).

Table 4: Analog Inputs

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default[3]	Description[2,3]
Discharge Air Temperature	AI:1	aiDAT	R	-40-212°F -40-100°C	-	The current temperature reading from the required discharge air temperature (DAT) sensor input. Standard on all units.
Return Air Temperature	AI:2	aiRAT	R	-40-212°F -40-100°C	-	The current temperature reading from the required return air temperature (RAT) sensor input. Standard on all units.
Outdoor Air Temperature	AI:3	aiOAT	R	-40-212°F -40-100°C	-	The current temperature reading from the required outdoor air temperature (OAT) sensor input. Standard on all units.
Entering Water/Leaving Coil Temperature	AI:5	aiEwtLct	R	-40-212°F -40-100°C	-	The current temperature reading from the required entering water (EWT) or leaving coil temperature (LCT) sensor input. Applies when a sensor is installed and the unit is configured for one of the sensor inputs.
Space Relative Humidity	AI:6	aiSpaceHum	R	0-100%	-	The current reading from the optional space relative humidity sensor input. Applies when a sensor is installed and the unit is configured for this input.[1]
Return Air Relative Humidity	AI:7	aiRetHum	R	0-100%	-	The current reading from the required return air humidity sensor input.[1] Standard on all units.
Outdoor Air Relative Humidity	AI:8	aiOutHum	R	0-100%	-	The current reading from the optional outdoor air humidity sensor input. Applies when a sensor is installed and the unit is configured for this input.[1]
Space CO_2	AI:9	aiSpaceCO2	R	0-3000 ppm	-	The current reading from the optional space CO_2 sensor. Applies when a sensor is installed and the unit is configured for this input.[1] The sensor is required for demand controlled ventilation.
Duct Static Pressure	AI:10	aiDSP	R	0-5 in.w.c 0-12.7 cm	-	The current reading from the duct static pressure sensor input. Applies when unit is configured for DSP control.
Space Temperature	AI:11	RSSpaceTemp	R	-40-212°F -40-100°C	-	The current reading from the required room sensor space temperature input.
Energy Recovery Leaving Wheel Temperature	AI:12	aiErLWT	R	-58-392°F -50-200°C	32767[3]	The current value of the energy recovery leaving wheel temperature sensor.
Energy Recovery Entering Wheel Temperature	AI:13	aiErEWT	R	-58-392°F -50-200°C	32767[3]	The current value of the energy recovery entering wheel temperature sensor.

[1]There are three available inputs for humidity sensors. The unit controller comes with a factory-installed return humidity sensor. It also supports up to two additional factory or field-installed humidity and/or outdoor air humidity sensors.
[2]See Alarms section for alarm object details.
[3]If the sensor is not installed, configured, or communicating properly with the controller, BACnet displays the invalid (Null) value of 32767.

Table 5: Binary Inputs

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Freeze Stat	BI:1	biFreezeStatus	R	0= FREEZE 1= NORMAL	0=FREEZE	The freezestat input status. When a unit detects a freeze condition, the contact opens and an alarm is generated.[1]
Dirty Filter	BI:2	biChgFilter	R	0=NORM_OPEN 1=NORM_CLOSED	0=NORM_ OPEN	The filter switch input status. When the filter is dirty, the switch closes and generates an alarm indicating a filter change is required.[1]
Emergency Stop	BI:3	biEmergencyStop	R	0=STOP 1=RUN	0=STOP	The emergency stop input status. When conditions trigger the emergency switch-open (Stop), the unit de-energizes, shuts down and an alarm is generated.[1]
Outdoor Air Damper End Switch	BI:4	biOadEndSwitch	R	0=NORM_OPEN 1=NORM_CLOSED	0=NORM_ OPEN	The outdoor air damper end switch input status. [1]
Blocked Condensate	BI:5	biBlockedCond	R	0=WET 1=DRY	0=WET	The condensate blocked input status[1].
Air Flow Status	BI:6	biAirFlowStatus	R	0=NO_FLOW 1=FLOW	0= NO_FLOW	The air flow input status.[1]
Energy Recovery Change Filter	BI:44	biErChgFilter	R	0=NORM_OPEN 1=NORM_CLOSED	0=NORM_ OPEN	Input that indicates if the energy recover filter switch is in a normally open or normally closed position.

[1]See Alarms section for a description of binary inputs (not listed here) that support BACnet alarm objects.

Table 6: Character String (VRV Error Codes)

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
VRV D-Kit Error 1	CS:1	DkitErrorHexCode1	R	0x00 0xFF	0x00	Displays the active hexadecimal error codes received from up to four VRV D-Kits. Applies to units configured for 410-A (DKit) systems. Contact a local Daikin AC representative for technical and service support. Refer to VRV Kit Communication and Configuration section in the Service Information section and also Daikin Service VRV Error Code Sheet.
VRV D-Kit Error 2	CS:2	DkitErrorHexCode2	R	0x00 0xFF	0x00	
VRV D-Kit Error 3	CS:3	DkitErrorHexCode3	R	0x00 0xFF	0x00	
VRV D-Kit Error 4	CS:4	DkitErrorHexCode4	R	0x00 0xFF	0x00	
VRV EV Kit Error 1	CS:5	EvKitErrHexCode1	R	0x00 0xFF	0x00	Displays the active hexadecimal error codes received from up to four VRV EV kits. Applies to units configured for R-32 (EVkit) systems. Contact a local Daikin AC representative for technical and service support. Refer to VRV Kit Communication and Configuration section in the Service Information section and also Daikin Service VRV Error Code Sheet.
VRV EV Kit Error 2	CS:6	EvKitErrHexCode2	R	0x00 0xFF	0x00	
VRV EV Kit Error 3	CS:7	EvKitErrHexCode3	R	0x00 0xFF	0x00	
VRV EV Kit Error 4	CS:8	EvKitErrHexCode4	R	0x00 0xFF	0x00	

Table 7: MultiState Values

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
BACnet Units of Measurement	MSV:1	MSTPUnitSupport	R/W	1=Si 2=English	1=English	Sets the type of units (English or Metric) passed from the unit controller to the BACnet network.
Clear Alarms	MSV:3	ClearAlms	R/W	1=No 2=Clrflts 3=Clrprblms 4=Clrwrngs 5=Clrallalms	1=No	Clears all active alarms or all active alarms by alarm class (problems, warnings, or faults).
Unit State	MSV:4	UnitState	R	1=OFF 2=HEAT 3=COOL 4=ECONO 5=ECONO_COOL 6=DEHUMID 7=FANONLY 8=OVERRIDE	1=OFF	The current operating mode of the unit.

Table 7: MultiState Values, Continued

Point Name	Object Type/ Instance	BACNET OBJECT NAME	READ/ WRITE	RANGE (IN UNITS)	Default	Description
Application Mode	MSV:5	AppModeSel	R/W	1=AUTO 2=HEAT 3=COOL 4=FANONLY 5=OFF	5=OFF	Network or remote user interface input for unit 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" disables heating, "Heat" disables cooling, and "Fan Only" disables heating and cooling. The unit controller uses the last valid input it receives, regardless of the source.
Effective Occupancy	MSV:6	EffOcc	R	1=OCCUPIED 2=UNOCCUPIED 3=BYPASS 4=STANDBY	1=Occupied	Network or remote user interface input for unit occupancy mode. The effective occupancy is determined based on inputs from occupancy bypass override, occupancy scheduler, an internal schedule, and/or an occupancy sensor.
Network Occupancy Command	MSV:7	NetOccOrSel	R/W	1=OCCUPIED 2=UNOCCUPIED 3=BYPASS 4=STANDBY 5=NULL	1=Occupied	Network input command for unit occupancy mode. The network occupancy command overrides the local keypad/display. Reverts to its default value upon unit controller reset.
Occupancy Command	MSV:8	KeyOccOrSel	R/W	1=OCCUPIED 2=UNOCCUPIED 3=BYPASS 4=STANDBY 5=AUTO	5=Auto	Input command for unit occupancy mode, provided from either the network or remote user interface.
Network Occupancy Schedule	MSV:9	NetOccSchedStat	R/W	1=OCCUPIED 2=UNOCCUPIED 3=STANDBY 4=NULL	1=Occupied	Network occupancy schedule input that commands the unit to the desired occupancy mode. MSV:9 is recommended for use with standard occupancy control. Applies when Occ Mode is set to Auto from the user interface. Reverts to its default value upon unit controller reset.
Occupancy Schedule Status	MSV:10	IntSchedStat	R	1=NULL 2=UNOCCUPIED 3=OCCUPIED	1=Null	Status of the internal occupancy schedule. Applies to single event, holiday, and daily occupancy schedules.
Exhaust Fan Enable	MSV:11	ExhFnEnSel	R/W	1=DISABLED 2=ENABLED	2=Enabled	Disables exhaust fan operation.
Dehumidification Type	MSV:12	DhumMethodSel	R/W	1=REL_HUM 2=DEWPT	1=Rel_hum	Selects the control setpoint for dehumidification. 1=REL_HUM: Relative humidity 2=DEWPT: Dewpoint Note that dehumidification is not available when the unit is in heating or cooling mode.
Economizer OAD End Switch Calibration Enable	MSV:13	EconEndSwCalibCmd	R/W	1=NO 2=YES	1=No	Allows the unit controller to perform economizer outdoor air damper end switch calibration. Available only when the Econo FDD parameter for unit configuration is Enabled from the controller keypad/display.[1]
Economizer Control Strategy Select	MSV:14	EconStrategySel	R/W	1=NONE 2=OAT 3=ENTHALPY_OUT 4=TEMP_ DIFF 5=ENTHALPY_DIFF	1=None	Selects the economizer control strategy. 1=NONE: The economizer is not configured. 2=OAT: The economizer controls to the outdoor air temperature sensor setpoint. 3=ENTHALPY_OUT: The economizer controls to the calculated outdoor air enthalpy setpoint. 4=TEMP_ DIFF: The economizer is enabled when the difference between the outdoor air temperature is below the indoor air temperature by more than the temperature differential set by the remote user interface. 5=ENTHALPY_DIFF: The economizer is enabled when the calculated outdoor air enthalpy is below the calculated indoor air enthalpy by more than the differential configuration parameter set from the remote user interface.
Return Air Damper Scaling	MSV:15	RADmprSclgSel	R/W	1=LINEAR 2=SQUARED	1=Linear	Determines the relationship between the return air damper voltage output and return air damper % capacity.

Table 7: MultiState Values, Continued

Point Name	Object Type/ Instance	BACNET OBJECT NAME	READ/ WRITE	RANGE (IN UNITS)	Default	Description
Outdoor Air Damper Scaling	MSV:16	OADScalingSel	R/W	1=LINEAR 2=SQUARED	1=Linear	Determines the relationship between the outdoor air damper voltage output and economizer % capacity.
OA Outdoor Air Lockout Enable	MSV:17	OATLckoutSel	R/W	1=DISABLED 2=ENABLED	1=Disabled	Enables the outdoor air lockout function. When enabled, the unit forces the outdoor air damper closed when the outdoor air temperature is too cold and drops below the outdoor air lockout setpoint.
Filter Change Select	MSV:18	FilterChgSel	R/W	1=NONE 2=RUNTIME 3=BINARY_INPUT 4=BOTH	1=None	Configures the controller to send a dirty filter notification using one of these options: 1=NONE: No notification will be sent from the controller. 2=RUNTIME: Notification is sent based on the total amount of time that the fan has been running since the last change filter notice. 3=BINARY_INPUT: Notification is sent based on the unit controller digital input. 4=BOTH: Notification is sent based on either the fan run time or a digital input.
Heating Stage 1	MSV:19	boHtgStg1	R	1=OFF 2=On	1=OFF	The heating stage 1 binary output status.
Heating Stage 2	MSV:20	boHtgStg2	R	1=OFF 2=On	1=OFF	The heating stage 2 binary output status.
Heating Stage 3	MSV:21	boHtgStg3	R	1=OFF 2=On	1=OFF	The heating stage 3 binary output status.
Heating Stage 4	MSV:22	boHtgStg4	R	1=OFF 2=On	1=OFF	The heating stage 4 binary output status.
Cooling State 1	MSV:23	boClgStg1	R	1=OFF 2=On	1=OFF	The cooling stage 1 binary output status.
Cooling State 2	MSV:24	boClgStg2	R	1=OFF 2=On	1=OFF	The cooling stage 2 binary output status.
Cooling State 3	MSV:25	boClgStg3	R	1=OFF 2=On	1=OFF	The cooling stage 3 binary output status.
Cooling State 4	MSV:26	boClgStg4	R	1=OFF 2=On	1=OFF	The cooling stage 4 binary output status.
Supply Fan Enable	MSV:27	boSupFanEn	R	1=DISABLED 2=ENABLED	1=DISABLED	The supply fan binary output status.
Exhaust Fan Enable	MSV:28	boExhFanEn	R	1=DISABLED 2=ENABLED	1=DISABLED	The exhaust fan binary output status.
VAV Box Enable	MSV:29	boVAVBoxEn	R	1=DISABLED 2=ENABLED	1=DISABLED	The variable air volume (VAV) box binary output status.
Economizer Enable	MSV:36	NetEconEn	R/W	1=DISABLED 2=ENABLED 3=NULL	3= NULL	Allows the network to enable or disable economizer operation. The network overrides the local keypad/display setting. When set to Enabled, the unit automatically enters economizing. Reverts back to default (Null) value upon unit controller reset.
Cool Enable	MSV:37	NetClgEn	R/W	1=DISABLED 2=ENABLED 3=NULL	3= NULL	Allows network to enable or disable cooling operation. The network overrides the local keypad/display setting. When set to Enabled, the unit automatically enters cooling. Reverts back to default (Null) value upon unit controller reset.
Heat Enable	MSV:38	NetHtgEn	R/W	1=DISABLED 2=ENABLED 3=NULL	3= NULL	Allows network to enable or disable heating operation. When set to Enabled, the unit automatically enters heating. Reverts back to default (Null) value upon unit controller reset.
Dehumidification Enable	MSV:39	NetDehumEn	R/W	1=DISABLED 2=ENABLED 3=NULL	3= NULL	Allows network to enable or disable dehumidification operation. When set to Enabled, the unit automatically enters dehumidification. Reverts back to default (Null) value upon unit controller reset.

Table 7: MultiState Values, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Fan Cycling Select	MSV:40	FnCyclingSel	R/W	1=ON 2=CYCLE	1=ON	Sets the fan cycling strategy. 1=ON: Configures the supply fan to always be on when the unit is in an occupied state. 2=CYCLE: Configures the supply fan to cycle on and off with demand when the unit is in an occupied state.
Lead Compressor Select Method	MSV:41	LeadCmpSel	R/W	1=RUN_HOURS 2=COMP1	1=RUN_ HOURS	Selects the compressor staging method used to satisfy the cooling demand. 1=RUN_HOURS: The compressor with the lowest total runtime is energized first. 2=COMP1: The compressors are energized in numerical order (Cool to 1, Cool to 2...)
VRV D-Kit System Error 1	MSV:42	MbRErrorSys1	R	1=OFF 2=Warning 3=Alarm 4=Error	1=Off	Indicates an error with one of the four VRV outdoor unit D-Kits.[2] The unit controller uses this parameter to generate an alarm when input is not 1=OFF.
VRV D-Kit System Error 2	MSV:43	MbRErrorSys2				
VRV D-Kit System Error 3	MSV:44	MbRErrorSys3				
VRV D-Kit System Error 4	MSV:45	MbRErrorSys4				
A2L Refrigerant Configuration	MSV:46	RefrigerantCfgType	R	None=0 R410a=1 R32=2 R454b=3	None=0	Displays refrigerant type when unit is configured with an A2L mitigation board.
A2L Sensor Configuration	MSV:47	A2LNumSensors	R	0-3	0	Indicates number of installed A2L leak detection sensors used for monitoring and mitigation control.
EV Kit System Error 1	MSV:48	EvRErrorSys1	R	1=OFF 2=Warning 3=Alarm 4=Error	1=Off	Provides the input received from up to four VRV EV kit system 1-4 error codes.[2] The unit controller uses this parameter to generate an alarm when input is not 0=OFF. Alarm conditions are represented by dedicated MSV/BI objects.
EV Kit System Error 2	MSV:49	EvRErrorSys2				
EV Kit System Error 3	MSV:50	EvRErrorSys3				
EV Kit System Error 4	MSV:51	EvRErrorSys4				
EV Overall Compressor Read	MSV:52	EvRComp	R	1=Off 2=On	1=Off	Indicates EV kit compressor operating state (ON/OFF) for runtime verification and BAS control coordination.
EV Compressor 1 Read	MSV:53	EvRComp1	R	1=Off 2=On	1=Off	Indicates the ON/OFF status of EV Compressor 1; used for monitoring compressor operation.
EV Compressor 2 Read	MSV:54	EvRComp2	R	1=Off 2=On	1=Off	Indicates the ON/OFF status of EV Compressor 2; used for monitoring compressor operation.
EV Compressor 3 Read	MSV:55	EvRComp3	R	1=Off 2=On	1=Off	Indicates the ON/OFF status of EV Compressor 3; used for monitoring compressor operation.
EV Compressor 4 Read	MSV:56	EvRComp4	R	1=Off 2=On	1=Off	Indicates the ON/OFF status of EV Compressor 4; used for monitoring compressor operation.
EV Overall Defrost	MSV:57	EvRDefrost	R	1=Off 2=On	1=Off	Overall defrost mode status for the EV system (active/inactive); used to identify when system capacity may be reduced due to defrost.
EV Defrost - Compressor 1	MSV:58	EvRDefrost1	R	1=Off 2=On	1=Off	Defrost status for EV Circuit/Compressor 1; used for circuit-level diagnostics.
EV Defrost - Compressor 2	MSV:59	EvRDefrost2	R	1=Off 2=On	1=Off	Defrost status for EV Circuit/Compressor 2; used for circuit-level diagnostics.
EV Defrost - Compressor 3	MSV:60	EvRDefrost3	R	1=Off 2=On	1=Off	Defrost status for EV Circuit/Compressor 3; used for circuit-level diagnostics.
EV Defrost - Compressor 4	MSV:61	EvRDefrost4	R	1=Off 2=On	1=Off	Defrost status for EV Circuit/Compressor 4; used for circuit-level diagnostics.
EV Overall Fan Request	MSV:62	EvRFanReq	R	1=Off 2=On	1=Off	Indicates aggregated fan request for the evaporator fan system is commanded to run; represents overall airflow demand.
EV Fan Request 1	MSV:63	EvRFanReq1	R	1=Off 2=On	1=Off	Indicates fan request status for compressor stage/circuit 1 operation.
EV Fan Request 2	MSV:64	EvRFanReq2	R	1=Off 2=On	1=Off	Indicates fan request status for compressor stage/circuit 2 operation.
EV Fan Request 3	MSV:65	EvRFanReq3	R	1=Off 2=On	1=Off	Indicates fan request status for compressor stage/circuit 3 operation.
EV Fan Request 4	MSV:66	EvRFanReq4	R	1=Off 2=On	1=Off	Indicates fan request status for compressor stage/circuit 4 operation.

Table 7: MultiState Values, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
EV DX Coil Request Write	MSV:67	EvWDxCoilReq	R	1=Off 2=On	1=Off	Indicates the command to enable or disable the DX cooling coil. Used by the BAS to request mechanical cooling operation.
EV Operational Mode Write	MSV:68	EvWDxOpMode	R	1=Cooling 2=Heating 3=Fan 4=Auto	1=Cooling	Indicates commanded operating mode (e.g., cooling, heating, fan, auto) of the evaporator system.
EV Fan Status Write	MSV:69	ErWFanStatus	R	1=Off 2=On	1=Off	Indicates the commanded fan status (run/stop). Point is used to directly control or confirm EV fan operation.
EV Fan Refrigerant Leak Status	MSV:70	EvWRefrigLeak	R	1=Abnormal 2=Normal	1=Abnormal	Indicates EV refrigerant leak status and if conditions are normal/abnormal.
EV RH Coil Request Write	MSV:71	EvWRhCoilReq	R	1=Off 2=On	1=Off	Indicates if the command to enable EV reheat (RH) coil is requested. It is used for humidity control and dehumidification reheat demand.
EV Stop/Drive Status	MSV:72	EvWStopDrive	R	1=Stop 2=Drive	1=Stop	Indicates whether the EV system is stopped or is running.

[1]Designed to meet Title 24 economizer standard standards for FDD (fault detection and diagnostics.)
[2]Up to four D-Kits (410A) can be installed on an outdoor unit with controller. D-Kit systems include: D-Kit, D-Kit with 1-stage compressor preheat, D-Kit with 4-stage compressor preheat, or D-Kit with SCR electric preheat.

Table 8: Analog Values for Temperature and System Setpoints

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Effective Space Humidity	AV:1	EffSpaceHum	R	0-100%	32767 (Null)[1]	The space humidity value provided by the network input, NetSpaceHum (AV:24). Otherwise, it reflects the local space humidity sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not connected, configured, or is out of range. The network parameter takes priority over the sensor input.
Effective Space CO_2	AV:2	EffSpaceCO2	R	0-3000 ppm	32767 (Null)[1]	The space CO_2 value provided by the network input, NetSpaceCO2 (AV:22). Otherwise, it reflects the optional space CO_2 sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not connected, configured, or is out of range. The network parameter takes priority over the sensor input.
Effective Space Temperature	AV:3	EffSpaceTemp	R	-40-212°F -40-100°C	32767 (Null)[1]	The space temperature value provided by the network input, NetSpaceTemp (AV:8). Otherwise, it reflects the analog input or space temperature sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not configured or is out of range. The network parameter takes priority over the sensor input.
Control Temperature	AV:4	ControlTemp	R/W	-40-212°F -40-100°C	32767 (Null)[1]	The effective control temperature strategy. Reflects one of the following inputs: space temperature, return air temperature, space/return air average, or outside air temperature.
Effective Leaving Coil Temperature	AV:5	EffLCT	R	-40-212°F -40-100°C	32767 (Null)[1]	Reflects the current leaving coil temperature value provided by the network input. Otherwise, it reflects the LCT sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not connected, configured, or is out of range. The network parameter takes priority over the sensor input.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Effective Entering Water Temperature	AV:6	EffEWT	R	-40-212°F -40-100°C	32767 (Null)[1]	Reflects the entering water temperature value provided by the network input, NetEWT (AV:9). Otherwise, it reflects the entering water temperature sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not connected, configured, or is out of range. The network parameter takes priority over the sensor input.
Effective Outdoor Air Temperature	AV:7	EffOAT	R	-40-212°F -40-100°C	32767 (Null)[1]	Reflects the outdoor air temperature value provided by the network input, NetOAT (AV:10). Otherwise, it reflects the OAT sensor input (including any calibration offsets) if installed. The analog input displays 32767 (invalid) if the sensor is not connected, configured, or is out of range. The network parameter takes priority over the sensor input.
Network Space Temperature	AV:8	NetSpaceTemp	R/W	-40-212°F -40-100°C	32767 (Null)[1]	The network space temperature input value. If an input is not provided from the network, the temperature reverts to the local sensor value.
Network Entering Water Temperature	AV:9	NetEWT	R/W	-40-212°F -40-100°C	32767 (Null)[1]	The network entering water temperature input value. If an input is not provided from the network, the temperature reverts to the local sensor value.
Network Outdoor Air Temperature	AV:10	NetOAT	R/W	-40-212°F -40-100°C	32767 (Null)[1]	The network outdoor air temperature input value. If an input is not provided from the network, the temperature reverts to the local sensor value.
Occupied Cooling Setpoint	AV:11	OccClgSp	R/W	50-95°F 10-35°C	75°F 23.9°C	Space temperature setpoint that determines when the unit enters cooling mode. Applies when the effective occupancy is occupied.[4]
Occupied Heating Setpoint	AV:12	OccHtgSp	R/W	50-95°F 10-35°C	70°F 21.1°C	Space temperature setpoint that determines when the unit enters heating mode. Applies when the effective occupancy is occupied.[4]
Occupied Off Differential Setpoint	AV:13	OccOffDifSp	R/W	1-5°F 0.56-2.78°C	1°F 0.56°C	The temperature differential that determines when cooling or heating is no longer needed. Applies when the unit is in either occupied or standby mode.
Standby Cooling Setpoint	AV:14	StandbyClgSp	R/W	50-95°F 10-35°C	77°F 25°C	Space temperature setpoint that determines when the unit enters standby mode. Applies when the effective occupancy is in standby.
Standby Heating Setpoint	AV:15	StandbyHtgSp	R/W	50-95°F 10-35°C	66°F 18.9°C	Temperature heating setpoint when the unit is in standby mode.
Unoccupied Cooling Setpoint	AV:16	UnoccClgSp	R/W	50-95°F 10-35°C	85°F 29.4°C	Space temperature setpoint that determines when the unit starts up and provides cooling (night setup) during unoccupied periods.[4]
Unoccupied Heating Setpoint	AV:17	UnoccHtgSp	R/W	50-95°F 10-35°C	60°F 15.6°C	Space temperature setpoint that determines when the unit starts up and provides heating (night setup) during unoccupied periods.[4]
Unoccupied Off Differential Setpoint	AV:18	UnoccOffDifSp	R/W	1-5°F 0.56-2.78°C	1°F 0.56°C	Temperature setpoint differential that determines when cooling or heating is no longer needed when the unit is in unoccupied mode.
Discharge Air Temperature Heating Setpoint	AV:19	HtgDATSp	R/W	75-120°F 23.9-48.9°C	80°F 26.7°C	Temperature setpoint that modulates heating capacity when the unit is controlling the discharge air temperature. When the supply fan control strategy (cpSupFanCtrlSel) is set to either DSP or SZ_VAV and variable heating is available, the unit controls DAT. The unit does not control DAT when supply fan control is constant speed (CONST_SPEED).
Discharge Air Temperature Cooling Setpoint	AV:20	ClgDATSp	R/W	45-75°F 7.2-23.9°C	55°F 12.8°C	Temperature setpoint that modulates cooling capacity when the unit is controlling the discharge air temperature. When the supply fan control strategy (cpSupFanCtrlSel) is set to either DSP or SZ_VAV and variable cooling is available, the unit controls DAT. The unit does not control DAT when supply fan control is constant speed (CONST_SPEED).
Network Space CO2	AV:22	NetSpaceCO2	R/W	0-3000 ppm	32767 (Null)[1]	The space CO_2 input provided by the network. This value takes priority over a field wired CO_2 sensor. It is used for minimum OA economizer damper demand control ventilation.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Effective Outdoor Humidity	AV:23	EffOutHum	R	0-100%	32767 (Null)[1,5]	Reflects the effective outdoor air relative humidity input value from the outdoor air humidity sensor.
Network Space Humidity	AV:24	NetSpaceHum	R/W	0-100%	32767 (Null)[1]	The space relative humidity input provided by the network. This value takes priority over a field wired sensor. If the network value becomes unreliable, the space humidity defaults to the local sensor input.
Network Outdoor Humidity	AV:25	NetOutHum	R/W	0-100%	32767 (Null)[1]	The outdoor relative humidity input provided by the network. This value takes priority over a field wired sensor. If the network value becomes unreliable, it reflects the outdoor air sensor input.
Duct Static Pressure Setpoint	AV:26	DSPSp	R/W	0-5 in.w.c 0-12.7 cm	1.0 in.w.c 2.54 cm	The DSP setpoint for supply fan control.
Duct Static Pressure Deadband	AV:27	DspDB	R/W	0-5 in.w.c 0-12.7 cm	0.1 in.w.c 0.635 cm	Configures the supply fan duct static pressure deadband. The deadband is the fixed range limit on each side of the control setpoint value. Applies to units when supply fan is configured for either duct static pressure or single zone VAV. The unit controller relies on the PI loop to modulate discharge air temperature in order to maintain the DSP setpoint.
Duct Static Pressure Gain	AV:28	DspGain	R/W	0-255	0.1	Adjusts the "gain" value of the PI loop control function used to control the duct static pressure value. Applies when the unit is configured for DSP supply fan control.
Duct Static Pressure Project Ahead Time	AV:29	DspPAT	R/W	0-600 sec	60 sec	Sets the amount of time it takes for the supply air fan duct static pressure to reach a steady state. The "project ahead time" is used for supply air fan PI loop calibration.
Duct Static Pressure Sampling Period	AV:30	DspPeriod	R/W	1-600 sec	5 sec	Adjusts the period of time for which the supply air fan DSP is sampled between speed changes. The sample time must be long enough to allow the static pressure to get very close to steady state before another calculation is made.
Duct Static Pressure Max Change	AV:31	DspMaxChg	R/W	0-100%	5%	Sets the maximum increase or decrease (either positive or negative value) that is added to the current supply fan speed. Used when the duct pressure control setpoint is outside of the deadband and the minimum DspPeriod time has passed since the last speed change.
Single Zone VAV Deadband	AV:32	SzVavDB	R/W	0-5°F 0-2.78°C	1°F 0.56°C	Sets the supply fan deadband value. The deadband is the fixed range limit on each side of the control setpoint value. Applies when unit is configured for 1ZnVAV (single zone VAV) supply fan control.
Single Zone VAV Gain	AV:33	SzVavGain	R/W	0-255	2	Adjusts the “gain” value that the PI loop function uses to control supply fan speed. Applies when unit is configured for 1ZnVAV (single zone VAV) supply fan control.
Single Zone VAV Project Ahead Time	AV:34	SzVavPAT	R/W	0-600 sec	400 sec	Sets the amount of time it takes for the supply fan to reach a steady state. The PI loop function uses the “project ahead time” to control the supply fan speed. Applies when unit is configured for 1ZnVAV (single zone VAV) supply fan control.
Single Zone VAV Sampling Period	AV:35	SzVavPeriod	R/W	1-600 sec	60 sec	Sets the amount of sampling time the PI loop function uses to control supply fan speed. Applies when unit is configured for 1ZnVAV (single zone VAV) supply fan control.
Single Zone VAV Max Change	AV:36	SzVavMaxChg	R/W	0-100%	10%	Sets the maximum increase or decrease (either positive or negative value) used by the PI loop function to control supply fan speed. Applies when unit is configured for 1ZnVAV (single zone VAV) supply fan control.
Duct Static Pressure High Alarm	AV:37	DSPHighAlarmSetpt	R/W	2-5 in.w.c 5.1-12.7 cm	4.5 in.w.c 11.4 cm	Setpoint at which the unit controller provides a high duct static pressure alarm to the network.
Supply Fan Constant Speed	AV:39	SupFnCnstSpdSp	R/W	20-100%	75%	Sets the operating speed for the supply fan in constant speed control.
Supply Fan Minimum Speed	AV:40	SupFnMinSpdSp	R/W	20-100%	20%	Sets the minimum supply fan speed control signal regardless of operating mode.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Supply Fan Maximum Speed	AV:41	SupFnMxSpdSp	R/W	20-100%	100%	Sets the maximum supply fan speed control signal regardless of operating mode.
Supply Fan Dehumidification Speed	AV:42	SupFnDhumSpfSp	R/W	20-100%	50%	Sets the operating speed for the constant supply fan when the unit is in dehumidification mode.
Heating Valve Deadband	AV:44	HtgVlvDBSp	R/W	1-10°F 0.56-5.56°C	1°F 0.56°C	Sets the discharge air temperature deadband setpoint used for heating valve modulation. The deadband is the fixed range limit on each side of the control setpoint.
Heating Valve Sampling Period	AV:45	HtgVlvPeriodSp	R/W	1-600 sec	60 sec	Sets the sampling time used in the PI loop control function that modulates the heating valve setpoint value.
Heating Valve Gain	AV:46	HtgVlvGnSp	R/W	0-255	1.5	Adjusts the "gain" portion of the PI loop control function used to control the heating valve setpoint value.
Heating Valve Project Ahead Time	AV:47	HtgVlvPATSp	R/W	0-600 sec	90 sec	Sets the amount of time it takes for heating valve to reach a steady state. The “project ahead time” is used in the heating PI control function.
Heating Valve Max Change	AV:48	HtgVlvMxChgSp	R/W	0-100%	10%	Sets the maximum increase or decrease (either positive or negative value) of compressor heating used in the PI loop control function.
Cooling Valve Deadband	AV:49	ClgVlvDBSp	R/W	1-10°F 0.56-5.56°C	1°F 0.56°C	Sets the deadband value for cooling configurations. The deadband is the fixed range limit on each side of the cooling value control setpoint.
Cooling Valve Sampling Period	AV:50	ClgVlvPeriodSp	R/W	1-600 sec	20 sec	Sets the sampling time used in the PI loop control function that modulates the cooling valve setpoint value.
Cooling Valve Gain	AV:51	ClgVlvGnSp	R/W	0-255	1	Adjusts the "gain" portion of the PI loop control function used to control the cooling valve setpoint value.
Cooling Valve Project Ahead Time	AV:52	ClgVlvPATSp	R/W	0-600 sec	40 sec	Sets the amount of time it takes for the cooling valve to reach a steady state. The “project ahead time” is used in the cooling valve PI loop control function.
Cooling Valve Max Change	AV:53	ClgVlvMxChgSp	R/W	0-100%	15%	Sets the maximum increase or decrease (either positive or negative value) of the cooling valve used in the PI loop control function.
Compressor Minimum On Time	AV:54	CmpMnOnTmSp	R/W	60-600 sec	180 sec	The minimum amount of time the compressor must be energized before it can be de-energized.
Compressor Minimum Off Time	AV:55	CmpMnOffTmSp	R/W	300-600 sec	360 sec	The minimum amount of time the compressor must remain de-energized before it can be energized.
Compressor Cooling Timer	AV:56	ClgIStgTmrSp	R/W	0-600 sec	0 sec	Sets the amount of time between compressor cooling stages.
Electric Heat Interstage Timer	AV:58	HtgIStgTmrSp	R/W	0-600 sec	0 sec	Sets the amount of time between compressor heating stages.
Outdoor Air Damper Closed Position	AV:61	DmprClsdEndSwSp	R/W	0-100%	0%	Sets the outdoor air damper end switch closed position.[6]
Outdoor Air Damper Open Position	AV:62	DmprOpnEndSwSp	R/W	0-100%	100%	Sets the outdoor air damper end switch open position.[6]
Minimum Outdoor Air Damper Differential	AV:63	MnDmprSwDiffSp	R/W	0-50%	1%	Sets the differential above which the damper end switch indicates the damper is fully closed. This differential is calculated during OAD calibration.[3] Available only when the unit configuration parameter, Econo FDD5, is set to Enabled from the controller keypad/display.[6] Contact Daikin Applied Controls Customer Support at 866-462-7829 or CtltechsupportDaikinapplied.com. Also refer to MicroTech PreciseLine OM 1357 for more information.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Maximum Outdoor Air Damper Differential	AV:64	MxDmprSwDiffSp	R/W	0-50%	1%	Sets the differential below which the damper end switch indicates the damper is fully open. This differential is calculated during OAD calibration.[3] Available only when the unit configuration parameter, Econo FDD5, is set to Enabled from the controller keypad/display.[6] Contact Daikin Applied Controls Customer Support at 866-462-7829 or Ctltechsupport@daikinapplied.com. Also refer to MicroTech PreciseLine OM 1357 for more information.
Economizer High Limit	AV:65	EconHighLimitSp	R/W	50-100°F 10-37.8°C	75°F 23.9°C	Temperature setpoint that determines when the economizer is providing too much outdoor air (when it is attempting to maintain a minimum outdoor air setpoint) and is therefore over-economizing.
Economizer Low Limit	AV:66	EconLowLimitSp	R/W	50-100°F 10-37.8°C	70°F 21.1°C	Temperature setpoint that determines when the economizer is not providing enough outdoor air (when it is attempting to bring in the maximum amount of outdoor air) and is therefore under-economizing.
Outdoor Air Damper Minimum Position	AV:67	OADMinSp	R/W	0-100%	20%	Minimum outdoor air damper position allowed when an outdoor air damper is configured and the fan is running.[6]
Outdoor Air Damper Maximum Position	AV:68	OADMaxSp	R/W	0-100%	100%	Maximum outdoor air damper position allowed when an outdoor air damper is configured and the fan is running.[6]
Economizer Outdoor Air Temperature	AV:69	EconOutTmpSp	R/W	0-100°F -17.78-37.8°C	70°F 21.1°C	Disables the economizer when the outdoor air temperature is above this setpoint.
Economizer Outdoor Air Enthalpy	AV:70	OutAirEnthSp	R/W	5-50 BTU 1.5-15 Wh	28 BTU 8.2 Wh	Enables the economizer when the calculated outdoor air enthalpy is at or below this setpoint. Applies to units configured for outdoor enthalpy economizer control.
Economizer Temperature Differential	AV:71	EconTmpDiffSp	R/W	1-10°F -17.2 - -12.2°C	2°F -16.7°C	Enables the economizer for cooling when the OAT is at or below the control temperature minus the outdoor/indoor temperature differential setpoint. Also disables the economizer when the OAT is at or above the control temperature. Apples to dry bulb economizers that use a temperature differential strategy.
Economizer Enthalpy Differential	AV:72	EconEnthDiffSp	R/W	1-10 BTU 0.29-2.9 Wh	2 BTU 0.59 Wh	Enables the economizer for cooling when the outdoor air enthalpy is at or below the indoor air enthalpy minus the indoor/outdoor air enthalpy differential setpoint. Also disables the economizer when the outdoor air enthalpy is at or above the indoor air enthalpy. Apples to economizers that use an enthalpy differential strategy.
Outdoor Air Temperature Lockout	AV:73	OATLckoutTmpSp	R/W	25-60°F -3.9-15.6°C	36°F 2.2°C	Disables the unit when the outdoor air temperature drops below this setpoint and when the lockout functionality is enabled.
Outdoor Air Damper CO_2 Minimum Position	AV:74	MnCO2Sp	R/W	0-3000 ppm	500 ppm	Sets the minimum outdoor air damper position when the CO_2 ppm is at or below this setpoint.
Outdoor Air Damper CO_2 Maximum Position	AV:75	MxCO2Sp	R/W	0-3000 ppm	2000 ppm	Sets the maximum outdoor air damper position when the CO_2 ppm is at or above this setpoint.
Indoor Relative Humidity Setpoint	AV:76	RelHumSp	R/W	20-100%	60%	The indoor relative humidity setpoint used to determine when dehumidification is required
Indoor Relative Humidity Differential	AV:77	RelHumDiffSp	R/W	1-10%	5%	Indoor relative humidity differential used to determine when the unit should exit the dehumidification mode.
Indoor Dewpoint Setpoint	AV:78	DewptSp	R/W	45-70F° 7.2-21.1°C	55°F 12.8°C	The indoor dewpoint temperature setpoint used to determine when dehumidification is required.
Indoor Dewpoint Differential	AV:79	DewptDiffSp	R/W	1-10°F -17.2 - -12.2°C	2°F -16.7°C	Indoor dewpoint differential used to determine when the unit should exit the dehumidification mode.
Leaving Coil Temperature Setpoint	AV:80	LCTSp	R/W	42-70°F 5.6-21.1°C	55°F 12.8°C	The current effective leaving coil setpoint when dehumidification is active. This setpoint applies only if the unit is equipped with modulating cooling (such as chilled water or variable speed compressor) and the reheat type is not None.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Discharge Air Temperature Dehumidification Setpoint	AV:81	DhumDATSp	R/W	55-80°F 12.8-26.7°C	70°F 21.1°C	Sets the discharge air temperature reheat setpoint when the unit is in dehumidification mode.
Minimum Exhaust Fan Speed	AV:82	ExhFnSupFnMnSp	R/W	5-100%	5%	Minimum exhaust fan speed when supply fan is at minimum speed.
Maximum Exhaust Fan Speed	AV:83	ExhFnSupFnMxSp	R/W	20-100%	100%	Maximum exhaust fan speed when supply fan is at maximum speed.
Exhaust Fan Constant Speed	AV:84	ExhFnCnstSpdSp	R/W	0-100%	75%	Exhaust fan constant speed when supply fan is configured for constant speed.
Fiter Run Time	AV:85	FilterRuntime	R/W	0-300000 Hours	0 Hours	Total amount of time that the fan has been running since the last dirty filter reset occurred. Can be reset once filter is changed.
Supply Fan Run Time	AV:86	SupFanRuntime	R/W	0-300000 Hours	0 Hours	Total amount of time that the supply fan has been running. Can be reset after a new fan has been installed or replaced.
Exhaust Fan Run Time	AV:87	ExhFanRuntime	R/W	0-300000 Hours	0 Hours	Total amount of time that the exhaust fan has been running. Can be reset after a new fan has been installed or replaced.
Compressor 1 Runtime	AV:88	Cmp1Runtime	R/W	0-300000 Hours	0 Hours	Total amount of time that compressor 1 has been running. Can be reset in the event that the compressor is replaced.
Compressor 2 Runtime	AV:89	Cmp2Runtime	R/W	0-300000 Hours	0 Hours	Total amount of time that compressor 2 has been running. Can be reset in the event that the compressor is replaced.
Compressor 3 Run Time	AV:90	Cmp3Runtime	R/W	0-300000 Hours	0 Hours	Total amount of time that compressor 3 has been running. Can be reset in the event that the compressor is replaced.
Compressor 4 Runtime	AV:91	Cmp4Runtime	R/W	0-300000 Hours	0 Hours	Total amount of time that compressor 4 has been running. Can be reset in the event that the compressor is replaced.
Compressor 1 Starts	AV:92	Cmp1Starts	R/W	0-300000	0	Total number of times that compressor 1 has been started. Can be reset in the event that the compressor is replaced.
Compressor 2 Starts	AV:93	Cmp2Starts	R/W	0-300000	0	Total number of times that compressor 2 has been started. Can be reset in the event that the compressor is replaced.
Compressor 3 Starts	AV:94	Cmp3Starts	R/W	0-300000	0	Total number of times that compressor 3 has been started. Can be reset in the event that the compressor is replaced.
Compressor 4 Starts	AV:95	Cmp4Starts	R/W	0-300000	0	Total number of times that compressor 4 has been started. Can be reset in the event that the compressor is replaced.
Filter Change Hours	AV:96	ChgFilterTmSp	R/W	360-4320 Hours	1440 Hours	The number of hours the fan can run before a filter change is needed. A warning alarm is generated when the run time has exceeded this setpoint.
Outside Air Damper	AV:98	aoOADamper	R	0-10 VDC (0-100%)	-	The analog output signal used for outdoor air damper control. Indicates OAD is open at 10 VDC (100%).[2]
Return Air Damper	AV:99	aoReturnAirDamper	R	0-10 VDC (0-100%)	-	Reflects the analog output signal used for return air damper control. Indicates return air damper is closed at 10 VDC (100%).
Supply Fan Speed	AV:100	aoSupFanSpd	R	0-10 VDC (0-100%)	-	Reflects the analog output signal used for supply fan speed control.[2]
Exhaust Fan Speed	AV:101	aoExhFanSpd	R	0-10 VDC (0-100%)	-	Reflects the analog output signal used for exhaust fan speed control.[2]
Heating Valve and Electric Heat	AV:102	aoHtgVlvSCR	R	0-10 VDC (0-100%)	-	Reflects the hot water valve analog output for heating capacity. When needed, the unit switches to supplemental electric heat. Applies to units with modulating electric heat (SCR).[2]
Cooling and Changeover Valve	AV:103	aoClgVlv	R	0-10 VDC (0-100%)	-	Reflects the voltage output that drives the chilled water valve to meet desired cooling capacity.[2]
Room Sensor Occupied Heating Setpoint	AV:104	RSOccHtgSp	R	50-95°F 10-35°C	32767 (Null)[1]	Reflects the room sensor heating temperature setpoint. Applies when space is occupied and control temperature source is set to space.
Room Sensor Occupied Cooling Setpoint	AV:105	RSOccClgSp	R	50-95°F 10-35°C	32767 (Null)[1]	Reflects the room sensor heating temperature setpoint. Applies when space is unoccupied and control temperature source is set to space.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Active Heating Setpoint	AV:106	HtgSp	R	50-95°F 10-35°C	32767 (Null)[1]	Reflects the active heating temperature setpoint.
Active Cooling Setpoint	AV:107	ClgSp	R	50-95°F 10-35°C	32767 (Null)[1]	Reflects the active cooling temperature setpoint.
Minimum DAT Temperature Setpoint	AV:108	MinDATTempSp	R/W	0-60°F -17.8-15.6°C	50°F 10°C	The minimum discharge air temperature setpoint. When the DAT is below this setpoint, MinDAT is enabled after the timer expires.
Minimum DAT Temperature Timer Setpoint	AV:109	MinDATTmrSp	R/W	0-600 sec	90 sec	Minimum discharge air temperature timer setpoint. This is the amount of time the unit must wait before it enters MinDAT. The timer starts after it is below the minimum DAT temperature setpoint (MinDATTempSp).
Previous Alarm	AV:112	PreviousAlarm	R	0-299	0	Reflects the previous highest priority active alarm.
Cooling Deadband	AV:113	CmpDBSp	R/W	1-10°F -17.2 - -12.2°C	1°F -17.2°C	Sets the discharge air temperature deadband value for compressor modulation, which is used during calibration. The deadband is the fixed range limit on each side of the DAT control setpoint.
Cooling Sampling Period	AV:114	CmpPeriodSp	R/W	1-600 sec	10 sec	Sets the amount of sampling time used with the compressor PI control function.
Cooling Gain	AV:115	CmpGnSp	R/W	0-255 in 0-647.7 cm	1 in 2.54 cm	Adjusts the "gain" value of the compressor PI loop control function.
Cooling Project Ahead Time	AV:116	CmpPATSp	R/W	0-600 sec	100 sec	Sets the amount of time it takes for compressor cooling to reach a steady state. The “project ahead time” is used in the cooling PI control function.
Cooling Max Change Setpoint	AV:117	CmpMxChgSp	R/W	0-10°F	1°F	Sets the maximum increase or decrease (either positive or negative value) of compressor cooling used in the PI control function.
Network Supply Fan Speed	AV:118	NetSupFanSpd	R/W	0-100%	32767 (Null)[1]	Supply fan speed input provided by the network.
Electric Heat Deadband	AV:119	ElHtgDBSp	R/W	1-10°F -17.2 - -12.2°C	1°F -17.2°C	Sets the deadband value for 2-4 stage electric heat configurations. The deadband is the fixed range limit on each side of the electric heat control setpoint value.
Electric Heat Sampling Period	AV:120	ElHtgPeriodSp	R/W	1-600 sec	10 sec	Sets the amount of sampling time used with the electric heating PI control function.
Electric Heat Gain	AV:121	ElHtgGnSp	R/W	0-255 in 0-647.7 cm	1 in 2.54 cm	Adjusts the "gain" value of the electric heating PI loop control function.
Electric Heat Project Ahead Time	AV:122	ElHtgPATSp	R/W	0-600 sec	100 sec	Sets the amount of time it takes for electric heat to reach a steady state. The “project ahead time” is used in the electric heating PI control function.
Electric Heat Max Change Setpoint	AV:123	ElHtgMxChgSp	R/W	0-10	1	Sets the maximum increase or decrease (either positive or negative value) of electric heat used in the PI control function.
Fault Alarm	AV:124	ActiveFault	R	0-299	0	Highest priority active fault alarm.
Problem Alarm	AV:125	ActiveProb	R	0-199	0	Highest priority active problem alarm.
Warning Alarm	AV:126	ActiveWarn	R	0-99	0	Highest priority active warning alarm.
Current Alarm	AV:127	ActiveAlarm	R	0-299	0	Highest priority active alarm. Alarm object = 0 if no alarms are active.
VRV D-Kit Error Detail 1	AV:128	MbRErrorDetail1: D-Kit Error Detail 1	R	0-63	0	Indicates a Modbus code error from one of the VRV D-Kits[7]. Contact a local Daikin AC representative for technical and service support. See table note 7 and Service Information at the end of ths document for VRV system error code information.
VRV D-Kit Error Detail 2	AV:129	MbRErrorDetail2: D-Kit Error Detail 2	R	0-63	0	
VRV D-Kit Error Detail 3	AV:130	MbRErrorDetail3: D-Kit Error Detail 3	R	0-63	0	
VRV D-Kit Error Detail 4	AV:131	MbRErrorDetail4: D-Kit Error Detail 4	R	0-63	0	
Energy Recovery Wheel Run Time	AV:132	ErwRuntime	R/W	0-300000 Hours	0 Hours	The total amount of time that the energy recovery wheel has been running.
Energy Recovery Preheat Run Time	AV:133	ErPhRuntime	R/W	0-300000 Hours	0 Hours	The total amount of time that energy recovery preheat has been running.
Energy Recovery Filter Run Time	AV:134	ErFilterRuntime	R/W	0-300000 Hours	0 Hours	The total amount of time that the exhaust fan has been running during energy recovery.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
Energy Recovery Wheel Capacity	AV:135	ErCapacity	R	0-100%	32767	Energy recovery wheel rotation speed as reflected by the wheel speed analog output.
Return Air Dewpoint	AV:136	DewptRA	R	0-100°F -17.8-37.7°C	32°F 0°C	The return air dewpoint calculation determined by return air temperature and return air humidity values.
Outdoor Air Dewpoint	AV:137	DewptOut	R	0-100°F -17.8-37.7°C	32°F 0°C	The outside air dewpoint determined by outside air temperature and outside air humidity values.
Energy Recovery Wheel Capacity	AV:138	ErPhCapacity	R	0-100%	0%	The energy recovery preheat capacity expressed in percent.
Outdoor Air Damper PID Deadband Setpoint	AV:139	OadcDBSp	R/W	1-10°F 0.56-5.56°C	1°F 0.56°C	Sets the deadband for the outdoor air damper PID control output. Applies when the unit is in Economizer mode.
Outdoor Air Damper PID Cycle Period Setpoint	AV:140	OadcPeriodSp	R/W	1-600 sec	30 sec	Sets the period of time that the PID control logic uses to evaluate and determine the outdoor air damper output.
Outdoor Air Damper PID Gain Setpoint	AV:141	OadcGainSp	R/W	0-255	10	Adjusts the gain value the PID loop control uses to regulate the position of the outdoor air damper.
Outdoor Air Damper Project Ahead Time Setpoint	AV:142	OadcPATSp	R/W	0-600 sec	60 sec	Adjusts the project ahead time, or delay between the output and the actual response time, of the outdoor air damper PID loop control output.
Outdoor Air Damper Maximum Change Setpoint	AV:143	OadcMxChgSp	R/W	0-100%	10%	Sets the maximum amount of change desired for the outdoor air damper PID control output.
VRV EV Kit Error Detail 1	AV:144	EvErrDetail1	R	0-999	0	Indicates a Modbus code error from one of the four VRV EV kits[7]. Contact a local Daikin AC representative for technical and service support. See table note 7 and Service Information at the end of ths document for VRV system error code information.
VRV EV Kit Error Detail 2	AV:145	EvErrDetail2	R	0-999	0	
VRV EV Kit Error Detail 3	AV:146	EvErrDetail3	R	0-999	0	
VRV EV Kit Error Detail 4	AV:147	EvErrDetail4	R	0-999	0	
EV Discharge Air Temperature 1	AV:148	EvRDAT1	R	-20-60°C	32°F 0°C	EV discharge air temperature for circuit 1 (cooling air leaving coil).
EV Discharge Air Temperature 2	AV:149	EvRDAT2	R	-20-60°C	32°F 0°C	EV discharge air temperature for circuit 2.
EV Discharge Air Temperature 3	AV:150	EvRDAT3	R	-20-60°C	32°F 0°C	EV discharge air temperature for circuit 3.
EV Discharge Air Temperature 4	AV:151	EvRDAT4	R	-20-60°C	32°F 0°C	EV discharge air temperature for circuit 4.
EV RH Gas Temperature 1	AV:152	EvRRhGasTemp1	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV reheat gas temperature for circuit 1 (reheat coil condition).
EV RH Gas Temperature 2	AV:153	EvRRhGasTemp2	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV reheat gas temperature for circuit 2.
EV RH Gas Temperature 3	AV:154	EvRRhGasTemp3	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV reheat gas temperature for circut 3.
EV RH Gas Temperature 4	AV:155	EvRRhGasTemp4	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV reheat gas temperature for circut 4.
EV DX Valve Flow Ratio 1	AV:156	EvRDxEVlvFlowRa1	R	0-1%	0.1%	EV DX valve position ratio for circuit 1 (0 =closed to 1=full flow).
EV DX Valve Flow Ratio 2	AV:157	EvRDxEVlvFlowRa2	R	0-1%	0.1%	EV DX valve position ratio for circuit 2.
EV DX Valve Flow Ratio 3	AV:158	EvRDxEVlvFlowRa3	R	0-1%	0.1%	EV DX valve position ratio for circuit 3.
EV DX Valve Flow Ratio 4	AV:159	EvRDxEVlvFlowRa4	R	0-1%	0.1%	EV DX valve position ratio for circuit 4.
EV DX Gas Temperature 1	AV:160	EvRDxGasTemp1	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX refrigerant gas temperature for circuit 1 (hot gas).
EV DX Gas Temperature 2	AV:161	EvRDxGasTemp2	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX gas temperature for circuit 2.
EV DX Gas Temperature 3	AV:162	EvRDxGasTemp3	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX gas temperature for circuit 3.
EV DX Gas Temperature 4	AV:163	EvRDxGasTemp4	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX gas temperature for circuit 4.
EV DX Liquid Temperature 1	AV:164	EvRDxLiqTemp1	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX liquid refrigerant temperature for circuit 1.
EV DX Liquid Temperature 2	AV:165	EvRDxLiqTemp2	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX liquid refrigerant temperature for circuit 2.
EV DX Liquid Temperature 3	AV:166	EvRDxLiqTemp3	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX liquid refrigerant temperature for circuit 3.
EV DX Liquid Temperature 4	AV:167	EvRDxLiqTemp4	R	-198-262°F -127.9-127.9°C	32°F 0°C	EV DX liquid refrigerant temperature for circuit 4.

Table 8: Analog Values for Temperature and System Setpoints, Continued

Point Name	Object Type/ Instance	BACnet Object Name	Read/ Write	Range (In Units)	Default	Description
EV Error Code 1	AV:168	EvRErrorCode1	R	0-255	0	EV active fault code for circuit 1.[7]
EV RH Valve Flow Ratio 3	AV:174	EvRRhEVlvFlowRa3	R	0-1%	0.1%	EV reheat valve position ratio for circuit 3.
EV Error Code 2	AV:169	EvRErrorCode2	R	0-255	0	EV active fault code for circuit 2.[7]
EV Error Code 3	AV:170	EvRErrorCode3	R	0-255	0	EV active fault code for circuit 3.[7]
EV Error Code 4	AV:171	EvRErrorCode4	R	0-255	0	EV active fault code for circuit 4.[7]
EV RH Valve Flow Ratio 1	AV:172	EvRRhEVlvFlowRa1	R	0-1%	0.1%	EV reheat valve position ratio for circuit 1.
EV RH Valve Flow Ratio 2	AV:173	EvRRhEVlvFlowRa2	R	0-1%	0.1%	EV reheat valve position ratio for circuit 2.
EV RH Valve Flow Ratio 4	AV:175	EvRRhEVlvFlowRa4	R	0-1%	0.1%	EV reheat valve position ratio for circuit 4.
EV RH Liquid Temperature 1	AV:176	EvRRhLiqTemp1	R	-127.9-127.9°C	32°F 0°C	EV reheat liquid refrigerant temperature for circuit 1.
EV RH Liquid Temperature 2	AV:177	EvRRhLiqTemp2	R	-127.9-127.9°C	32°F 0°C	EV reheat liquid refrigerant temperature for circuit 2.
EV RH Liquid Temperature 3	AV:178	EvRRhLiqTemp3	R	-127.9-127.9°C	32°F 0°C	EV reheat liquid refrigerant temperature for circuit 3.
EV RH Liquid Temperature 4	AV:179	EvRRhLiqTemp4	R	-127.9-127.9°C	32°F 0°C	EV reheat liquid refrigerant temperature for circuit 4.
EV Read Suction Air Temperature	AV:180	EvRSuctionAirTemp	R	-4-140°F -20-60°C	32°F 0°C	The suction air temperature provided by the EV system.
EV Write Discharge Air Temperature	AV:181	EvWDAT	R	-4-140°F -20-60°C	32°F 0°C	The commanded discharge air temperature setpoint used for EV system control.
EV Write Dewpoint Target	AV:182	EvWDatTarget	R	-4-140°F -20-60°C	32°F 0°C	The commanded dewpoint or discharge air temperature target setpoint used for EV system control.
EV Write Dewpoint Target Difference	AV:183	EvWDewptTargetDiff	R	23-41°F -5-5°C	32°F 0°C 32767 (Invalid)*	The allowable deviation from the dewpoint target setpoint used for EV system control. *Note that default is 32767 (Invalid) when no Reheat is applied.
DX Coil Compressor Off Delay Setpoint	AV:184	CompfanOffDly	R/W	0-600 sec	0 sec	Specifies the amount of time the supply fan remains operating after the DX coil compressor is turned off. Applies to VRV-410A or a VRV-R32 units.

[1]The network value indicates 32767 (null or invalid) upon power-up or when network value is not in use.

[2] 0 VDC = 100% closed, 10 VDC = 100% open

[3] The outdoor air damper end switch input supports Title 24 economizer standard standards for FDD (fault detection and diagnostics.) Requires calibration by a qualified technician. The calibration sequence starts with a command position, at which the switches open and close at the closed and open ends of the damper modulation range. This function is a manually initiated sequence that strikes the dampers fully open, then fully closed, and detects the changes of state of the switch input and records the points where changes occur. Applies when the Unit State is Off and starting with the end switch input in the closed position and when the Calibrate OAD parameter is set from No to Yes from the remote user interface.

[4] The effective occupied/unoccupied setpoint values can be set from a network parameter, an analog input, or from an optional remote room sensor. When power is applied to the controller, the network value defaults to an invalid value of 32767 if not configured or receiving a command. A room sensor must be installed or the network value is invalid. The network value takes priority over the analog input, which takes priority over the room sensor.

[5] Effective values are provided by the BACnet network, analog input, or room sensor. The effective value set by the network takes priority. On power-up, the network value defaults to 32767 (Invalid). Also note that if an optional sensor is not installed, the effective value is invalid, even when a network value is provided.

[6] Supports Title 24 economizer standards for FDD (fault detection and diagnostics.)

[7]For interpretation of VRV fault codes reported by D-Kit and EV-Kits, refer to the Daikin VRV Error Code Guide. Error codes originate from the VRV equipment and are not generated by the PreciseLine controller. Common BAS-related faults include communication faults (U4, U7), equipment mismatch faults (UA), and commissioning faults (UF). Also see Daikin Service VRV Error Code Sheet.

Alarms

This section describes alarm, problem, warning, and fault information available from the MicroTech unit controller via BACnet. Alarms are generated by internal control logic to protect equipment and maintain safe operation. Depending on severity, alarms may restrict unit operation, limit specific functions, or force the unit to an Off state.

Active alarms may prevent BAS commanded values from taking effect.

Alarms can be monitored and cleared using more than one method. The cause of the alarm should be investigated and eliminated before the unit or any disabled equipment in it is placed back into service.

Alarm priority and classification determine how the unit responds as described here.

Alarm Types

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.

Fault Alarms

Faults are conditions that are serious enough to completely shut down the unit. The alarm condition must be corrected and the alarm cleared before unit operation can resume. Fault alarms have the highest priority.

Problem 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-normal. Problem alarms have the next highest priority.

Warning Alarms

Warnings are conditions that should be addressed, but do not limit operation in any way. Some of these alarms must be cleared manually, others will clear automatically when conditions return to normal. Warning alarms have the lowest priority.

Alarm Notification

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 highest priority active alarm is reported through the Active Alarm object (AV:127). This represents the highest-priority active condition at the time of the request. The highest priority alarm by Fault, Problem and Warning type can be read directly from the ActiveAlarm object's Present_Value property. Only one highest priority alarm is displayed at a time.

BACnet alarm objects are set to zero if no alarms are active. Alarm objects are read-only.

A 30-alarm history is available from the remote user interface. It includes when each alarm has occurred and when it was cleared.

Refer to Table 9 and Alarm Tables section for details.

BACnet Notification Classes

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 255 (0 being most important, 255 least important).

The 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

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 this event acknowledgment.

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. Within each destination (Recipient_List) record is a set of Valid Days of the week (Monday - Sunday) and a From Time and To Time, during which the destination is sent a notification. Also specified is the applicable event transition(s) (To-OffNormal, To-Fault, and To-Normal) for which the destination is sent a notification.

NOTE: For a specific event transition (To-OffNormal, To-Fault, and To-Normal) to reach a recipient, the transition choice has to be selected BOTH in the source object AND in the destination (recipient) record.

Refer to ASHRAE 135-2014 Section 13-Alarm and Event Services for more information.

Clearing Alarms

Alarm clearing restores normal operation only if the condition that generated the alarm has been resolved. Unit alarm reset and clearing has three methods, depending on each alarm:

Manual

Once the alarm has occurred, the controller remains in the alarm state until the alarm has been cleared from BAS, unit controller keypad, the integrated thermostat sensor (if installed), or by cycling power to the controller.

Alarms can be cleared via BACnet object ClearAlms (MSV:3) (Table 9). All active alarms are cleared automatically when power is cycled to the unit controller. If conditions that triggered the alarm are still present after a power cycle, the active alarm is re-initiated with a new date/time stamp.

NOTE: When the BAS indicates an alarm, it is best to investigate what has triggered the alarm and determine root cause. The purpose of writing to MSV:3 is to intentionally clear an active alarm. For best performance, do not continuously write to this point.

Automatic

The alarm clears once the alarm conditions have been resolved with no action necessary.

Intelligent Reset

The unit controller supports Intelligent alarm reset by clearing re-settable alarms the first two times they occur within a 7-day period. It then triggers a lock-out on third fault alarm that must be cleared manually.

A higher alarm number indicates a higher priority alarm. The alarms that support this feature display “Intel” in the Clear column of the alarm tables.

Table 9: BACnet Alarm Objects

Point Name	BACnet Object Name	Object Type/ Instance	Range	Description
Active Alarm	ActiveAlarm	AV:127	0-299	Highest priority active alarm along with a time stamp indicating when it occurred or None if there is no active alarm.
Warning Alarm	ActiveWarn	AV:126	1-99	Highest priority active warning alarm. When one or more faults are detected, they are sorted according to priority.
Problem Alarm	ActiveProb	AV:125	100-199	Highest priority active problem alarm. When one or more faults are detected, they are sorted according to priority.
Fault Alarm	ActiveFault	AV:124	200-299	Highest priority active fault alarm. When one or more faults are detected, they are sorted according to priority.
Previous Alarm	PreviousAlarm	AV:112	0-299	Reflects the previous highest priority active alarm. A value of 0 means that either there has not been a second alarm, or the current alarm is toggling between alarm and no alarm.
Clear Alarms	ClearAlms	MSV:3	1=No 2=ClrFlts 3=ClrPrblms 4=ClrWrngs 5=ClrAllAlms	Clears all active alarms or all active alarms in a particular alarm class. Default = 1 (None)

Alarm Tables

The following section describes alarms available to the network. Table 10 displays all alarms by priority, highest to lowest. Table 11 - Table 13 contain descriptions for fault, problem and warning alarms. When one or more alarms are detected in each class, they are sorted according to priority. Alarms can be monitored and cleared as described in the previous section. Available alarms depend on unit configuration. Alarms are read-only.

Refer to the MicroTech PreciseLine unit controller OM 1357 (www.DaikinApplied.com) for full alarm descriptions.

Table 10: Alarms by Priority

Alarm Number	Priority	Name	Description	Type	Clear
230	1	ControlModelFltAlm	Control Model Fault Alarm	Fault	Automatic
225	2	FreezeFltAlm	Freeze Fault Alarm	Fault	Manual
220	3	EmergStopFltAlm	Emergency Stop Fault Alarm	Fault	Automatic
219	4	VrvDKitCommFltAlm	Unit to VRV Lost Modbus Communication	Fault	Automatic
218	5	VrvDKitOutdoorUnitFltAlm	VRV D-Kit Outdoor Unit Fault Alarm	Fault	Automatic
217	6	ConfigFltAlm	Configuration Fault Alarm	Fault	Automatic
216	7	EUTSensFltAlm	Entering Unit Temp Sensor Fault Alarm	Fault	Automatic
215	8	CtrlTempFltAlm	Control Temp Fault Alarm	Fault	Manual
213	9	DATLowFltAlm	Discharge Air Temp Low Fault Alarm	Fault	Manual
212	10	DATHighFltAlm	Discharge Air Temp High Fault Alarm	Fault	Manual
210	11	AirFlwStatFltAlm	Airflow Status Fault Alarm	Fault	Intel[1]
209	12	VrvDKitRhConnFltAlm	VRV D-Kit Rh Connection Fault Alarm	Fault	Automatic
208	13	VrvDKitDxConnFltAlm	VRV D-Kit Dx Connection Fault Alarm	Fault	Automatic
207	14	EUTLowFltAlm	Entering Unit Temp Low Fault Alarm	Fault	Manual
205	15	DATSensFltAlm	Discharge Air Temp Sensor Fault Alarm	Fault	Automatic
195	16	VrvDefrostPrbAlm	VRV Defrost Problem Alarm	Problem	Automatic
190	17	A2LLeakPrbAlm	A2L Leak Problem Alarm	Problem	Manual
188	18	BlockdCndPrbAlm	Blocked Condensate Problem Alarm	Problem	Automatic
177	19	OASzSpcSensPrbAlm	OA/SZVav Space Temp Sensor Problem Alarm	Problem	Automatic
175	20	SpcSensPrbAlm	Space Temp Sensor Problem Alarm	Problem	Automatic
165	21	DSPSensPrbAlm	Duct Static Pressure Sensor Problem Alarm	Problem	Automatic
160	22	EWTPrbAlm	Entering Water Temp Sensor Problem Alarm	Problem	Automatic
158	23	A2LSensorPrbAlm	A2L Sensor Failure Problem Alarm	Problem	Automatic
157	24	A2LCommLossPrbAlm	A2L Comm Failure Problem Alarm	Problem	Automatic
155	25	EWTInadqtPrbAlm	Entering Water Temp Inadequate Problem Alarm	Problem	Automatic
150	26	OATSensPrbAlm	Outdoor Air Temp Sensor Problem Alarm	Problem	Automatic
149	27	RAHumPrbAlm	Energy Recovery Return Air Humidity Problem Alarm	Problem	Automatic
148	28	ErLWTPrbAlm	Energy Wheel Leaving Wheel Temperature Problem Alarm	Problem	Automatic
147	29	ErWhlExhPrbAlm Problem	Energy Recovery Wheel Exhaust Temperature Problem Alarm	Problem	Automatic
145	30	CO2SensPrbAlm	CO_2 Sensor Problem Alarm	Problem	Automatic
140	31	OutHumSensPrbAlm	Outdoor Humidity Sensor Problem Alarm	Problem	Automatic
135	32	DhumDATLoPrbAlm	Dehumidification DAT Low Problem Alarm	Problem	Automatic
130	33	SpcHumSensPrbAlm	Space Humidity Sensor Problem Alarm	Problem	Automatic
125	34	RATSensPrbAlm	Return Air Temp Sensor Problem Alarm	Problem	Automatic
120	35	LCTSensPrbAlm	Leaving Coil Temp Sensor Problem Alarm	Problem	Automatic
45	36	OADStuckWrnAlm	Outdoor Air Damper Stuck Warning Alarm	Warning	Automatic
40	37	ExcessOutAirWrnAlm	Excess Outdoor Air Warning Alarm	Warning	Automatic
35	38	UnderEconWrnAlm	Under Economizing Warning Alarm	Warning	Automatic
30	39	OverEconWrnAlm	Over Economizing Warning Alarm	Warning	Automatic
25	40	DSPAlertWrnAlm	Duct Static Pressure Alert Warning Alarm	Warning	Automatic
20	41	FinalFilterWrnAlm	Final Filter Warning Alarm	Warning	Automatic
15	42	PreFilterWrnAlm	Energy Recovery Pre-Filter Warning Alarm	Warning	Automatic
5	43	ErWheelWrnAlm	Modbus Wheel Feedback Warning Alarm	Warning	Automatic

[1] Intel = Intelligent Reset. The alarm clears automatically up to two times during a seven-day period. If the alarm occurs a third time during the seven day period, it requires a manual clear through the unit remote user interface, room sensor, or the network.

Table 11: Fault Alarms

Alarm (AV:124 and AV:127)	Object Type/ Instance	BACnet Object Name	Clear	Event_Enable (Default)			Description[3]
				To-OffNormal	To-Fault	To-Normal	
Emergency Stop 220	BI:7	EmergStopFltAlm	Automatic	X		X	Alarm is activated when the EmergencyStop input is STOP.[1]
Freeze Alarm 225	BI:8	FreezeFltAlm	Manual	X		X	The freeze alarm input has detected a freeze condition.[1]
Control Temp Fail 215	BI:9	CtrlTempFltAlm	Manual	X		X	Both the return air temperature and the space temperature senor inputs are either invalid/out of range value and are therefore unreliable.
Airflow Status Alert 210	BI:10	AirFlwStatFltAlm	Intel[2]	X		X	The airflow switch alert indicates insufficient supply air flow available for proper unit operation. Applies when the unit is configured for air flow sensing, the air flow status input indicates "No Flow," and the supply fan timer delay setpoint has been exceeded.
Discharge Air Temp Sensor Fail 205	BI:11	DATSensFltAlm	Automatic	X		X	The discharge air temperature sensor input is invalid or out of range. Alarm applies when the unit is configured for duct static pressure or VAV control.[4]
Control Model Fail 230	BI:30	ControlModelFltAlm	Automatic	X		X	There application software is not compatible with the unit controller hardware. Contact Daikin Applied Controls Customer Support at 866-462-7829 or Ctltechsupport@daikinapplied.com to acquire the correct software.
VRV D-Kit Outdoor Unit Fail 218	BI:31	VrvDKitOutdoorUnitFltAlm	Automatic	X		X	The D-Kit VRV outdoor unit has received an error code from one of the internal D-Kit systems. An alarm occurs if there is any Warning, Alarm, or other error detected.
VRV D-Kit DX Connection Fail 208	BI:32	VrvDKitDxConnFltAlm	Automatic	X		X	Indicates one of these two conditions has occurred: 1) No DX connection between the D-Kit VRV and the unit controller is detected within five minutes of startup. 2) The DX connection was lost for five minutes.
VRV D-Kit RH Connection Fail 209	BI:33	VrvDKitRhConnFltAlm	Automatic	X		X	Indicates one of these two conditions has occurred: 1) No RH connection between the D-Kit VRV and the unit controller is detected within five minutes of startup. 2) The RH connection was lost for five minutes.
VRV Configuration Fail 217	BI:36	ConfigFltAlm	Automatic	X		X	The unit controller/VRV configuration is not supported.
VRV D-Kit Modbus Communication Fail 219	BI:38	VrvDKitCommFltAlm	Automatic	X		X	Communication between the MicroTech unit controller and the VRV compressor controller has been lost for five consecutive minutes.
DAT Low Temperature Fail 213	BI:39	DATLowFltAlm	Automatic	X		X	The discharge air temperature is below the DAT low limit setpoint.
DAT High Temperature Fail 212	BI:40	DATHighFltAlm	Automatic	X		X	The discharge air temperature is above the DAT high limit setpoint.
Entering Unit Temperature Sensor Fail 216	BI:41	EUTSensFltAlm	Automatic	X		X	No valid entering unit temperature is provided from any of the VRV sensors.
Entering Unit Temperature Low Fail 207	BI:42	EUTLowFltAlm	Automatic	X		X	The entering unit temperature is below the allowable setpoint. Applies to VRV D-kits only.

[1] An active alarm causes all valves and dampers to close as well as disables compressors, fans, electric heat (if applicable) and any VAVs.
[2] Intel = Intelligent Reset. The alarm clears automatically up to two times during a seven-day period. If the alarm occurs a third time during the seven day period, it requires a manual clear through the unit keypad, room sensor, or the network.
[3] Normal = 0, In Alarm = 1
[4] Open or short-circuited = 0, Closed = 1

Table 12: Problem Alarms

Alarm (AV:125)	Object Type/ Instance	BACnet Object Name	Clear	Event_Enable (Default)			Description[2]
				To-OffNormal	To-Fault	To-Normal	
Blocked Condensate 188	BI:12	BlockdCndPrbAlm	Automatic	X		X	The condensate overflow blocked input indicates a wet condition for more than 60 seconds. Applies when unit is in cooling or dehumidification.
Space Temperature Sensor Fail 175	BI:13	SpcSensPrbAlm	Automatic	X		X	The space sensor input is not providing a valid value or has become unreliable. Alarm clears automatically when the sensor becomes reliable.
Duct Static Pressure Sensor Fail 165	BI:14	DSPSensPrbAlm	Automatic	X		X	The duct static pressure sensor input is not within the allowable range for longer than the alarm delay default of 60 seconds. Alarm clears automatically when the sensor becomes reliable.
Entering Water Temperature Sensor Fail 160	BI:15	EWTPrbAlm	Automatic	X		X	The entering water temperature/leaving coil temperature sensor input is either out of range or is invalid. Applies to 2-pipe units configured with a heating/cooling valve. Alarm clears automatically when sensor input is reliable.
Entering Water Temperature Sensor Inadequate 155	BI:16	EWTInadqtPrbAlm	Automatic	X		X	The entering water temperature timer has expired and the input provided is outside of either the heating or cooling control temperature range. Alarm clears automatically when the temperature input returns to an adequate condition.
Outdoor Air Temperature Sensor Fail 150	BI:17	OATSensPrbAlm	Automatic	X		X	The OAT sensor is present and either shorted or opened for longer than the alarm delay default of 30 seconds. Alarm clears automatically when the sensor becomes reliable.
CO2 Sensor Fail 145	BI:18	CO2SensPrbAlm	Automatic	X		X	The CO_2 sensor is present and either shorted or opened for longer than the alarm delay default of 30 seconds. Alarm clears automatically when the sensor becomes reliable.
Outdoor Air Humidity Sensor Fail 140	BI:19	OutHumSensPrbAlm	Automatic	X		X	The OA humidity sensor is present and either shorted or opened for longer than the alarm delay default of 30 seconds. Alarm clears automatically when the sensor becomes reliable.
Dehumidification DAT Low 135	BI:20	DhumDATLoPrbAlm	Automatic	X		X	The discharge air temperature input is below the dehumidification discharge air temperature setpoint for more than five minutes. Applies when unit is in dehumidification and heating is at 100%.
Space Humidity Sensor Fail 130	BI:21	SpcHumSensPrbAlm	Automatic	X		X	The space humidity sensor is present and either shorted or opened for longer than the temperature alarm delay default of 30 seconds. Alarm clears automatically when the sensor becomes reliable.
Return Air Temp Sensor Fail 125	BI:22	RATSensPrbAlm	Automatic	X		X	The return air temperature sensor is present and either shorted or opened for longer than the temperature alarm delay default of 30 seconds. Alarm clears automatically when the sensor becomes reliable.
Leaving Coil Temp Sensor Fail 120	BI:23	LCTSensPrbAlm	Automatic	X		X	The entering water temperature/leaving coil temperature sensor input is either out of range or is invalid. This disables dehumidification. Alarm automatically clears when sensor indicates conditions have returned to normal.
VRV in Defrost 195	BI:34	VrvDefrostPrbAlm	Automatic	X		X	One or more of the four possible VRV compressors is in defrost mode.
OA/SZ VAV Space Temperature Sensor Fail 177	BI:43	OASzSpcSensPrbAlm	Automatic	X		X	The space temperature sensor input is either out of range or is invalid. Applies when unit is configured for outdoor air and fan type is single zone VAV. Alarm automatically clears when sensor indicates conditions have returned to normal.

Table 12: Problem Alarms, Continued

Alarm (AV:125)	Object Type/ Instance	BACnet Object Name	Clear	Event_Enable (Default)			Description[2]
				To-OffNormal	To-Fault	To-Normal	
Return Air Humidity Fail 149	BI:45	RAHumPrbAlm	Automatic	X		X	The return air humidity sensor is providing an unreliable value. Applies to units configured for energy recovery.
Energy Recovery Leaving Wheel Temperature Fail 148	BI:46	ErLWTPrbAlm	Automatic	X		X	The energy recovery wheel leaving temperature is unreliable.[2]
Energy Recovery Exhaust Wheel Temp Fail 147	BI:47	ErWhlExhPrbAlm	Automatic	X		X	The energy recovery wheel exhaust temperature is unreliable.
A2L Leak Alarm 190	BI:50	A2LLeakPrbAlm	Manual	X		X	An active alarm indicates that one or more of the sensors has detected a refrigerant concentration level above the desired threshold default of 15%.[3]
A2L Sensor Fail Alarm 158	BI:51	A2LSensorPrbAlm	Automatic	X		X	An active alarm indicates that there was a sensor failure or an A2L configuration error.[3]
A2L Comm Loss Alarm 157	BI:52	A2LCommLossPrbAlm	Automatic	X		X	An active alarm indicates a communication error between the unit controller and the A2L board.[3]

[1] Intel indicates that the alarm supports intelligent reset. The alarm clears automatically up to two times during a seven-day period. If the alarm occurs a third time during the seven day period, it requires a manual clear through the unit keypad, room sensor, or the network.
[2] Normally open = 0, Normally closed = 1, Default: Normally open = 0.

Table 13: Warning Alarms

Alarm (AV:126)	Object Type/ Instance	BACnet Object Name	Clear	Event_Enable (Default)			Description[1]
				To-OffNormal	To-Fault	To-Normal	
Duct Static Pressure Alert 25	BI:24	DSPAlertWrnAlm	Automatic	X		X	The duct static pressure is outside the setpoint range.
Over Economizing Warning 30	BI:25	OverEconWrnAlm	Automatic	X		X	The unit is economizing when it should not be economizing.[2]
Final Filter Warning 20	BI:26	FinalFilterWrnAlrm	Automatic	X		X	The main (final) filter alarm input indicates the filter is dirty or the timer has expired.[3]
Under Economizing Warning 35	BI:27	UnderEconWrnAlm	Automatic	X		X	The unit is not economizing when it should be economizing.[2]
Excess Outdoor Air Warning 40	BI:28	ExcessOutAirWrnAlm	Automatic	X		X	The unit is delivering excess outdoor air.[2]
Outdoor Air Damper Stuck 45	BI:29	OADStuckWrnAlm	Automatic	X		X	The outdoor air dampers may be stuck.[2]
Energy Recovery Wheel Warning 5	BI:48	ErWheelWrnAlm	Automatic	X		X	The energy recovery wheel is not functioning as expected.[3]
Energy Recovery Pre-Filter Warning 15	BI:49	PreFilterWrnAlrm	Automatic	X		X	The energy recovery/exhaust change (pre-filter) alarm input indicates the filter is dirty or the timer has expired.[3]

[1] Normal = 0, In Alarm = 1
[2] Normally open = 0, Normally closed = 1, Default: Normally open = 0
[3] Active = 1, Inactive = 0, Default: Inactive = 0

BACnet PICS Protocol Implementation Conformance Statement

MicroTech PreciseLine Air Handler Unit Controller

This section contains the Protocol Implementation Conformance Statement (PICS) for the MicroTech Unit Controller by Daikin Applied as required by ANSI/ASHRAE Standard 135-2014, BACnet: A Data Communication Protocol for Building Automation and Control Networks.

Date	August 2026
Vendor Name	Daikin Applied
Product Name	MT4 PreciseLine
Product Model Number	MT4 Lite AHU
Application Software Version	2507490204
Firmware Revision	11.64
BACnet Protocol Version	1
BACnet Protocol Revision	15

Product Description

The MicroTech Unit Controller with native BACnet MS/TP is designed to operate the PreciseLine Air Handler and integrate it into a BACnet building automation system.

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 remote interface keypad display and the BACnet control network.

BACnet Standardized Device Profile

☐	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-B	DS-RP-B
Data Sharing – Read Property Multiple-B	DS-RPM-B
Data Sharing – Write Property-B	DS-WP-B
Data Sharing – Write Property Multiple-B	DS-WPM-B
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-transmit segmented messages	Window size	1 for MS/TP
☒	Able-receive segmented messages	Window size	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)	-
☒	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

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

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?	☒ Yes	☐ No

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	Read/Write	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	-
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	Read/Write	Range Restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W[1,3]	-
Description	R	-
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	Read/Write	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	-
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	Read/Write	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	-

Multistate Values

Properties	Read/Write	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	-

[1] Present_Value is not commandable or writeable.

CharacterString Values

Properties	Read/Write	Range Restrictions
Object_Identifier	R	-
Object_Name	R	-
Object_Type	R	-
Present_Value	W[1]	-
Out_Of_Service	W	-
Description	R	-
Status_Flags	R	-
Property_List	R	-

[1] Present_Value is not commandable or writeable.

Notification Class

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

Device

Properties	Read/Write	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	-
Description	W	-
Location	Unsupported	-
Protocol_Version	R	1
Protocol_Revision	R	15
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	-
Active_COV_Subscriptions	R	-

Service Information

Troubleshooting

The following procedures may be used to diagnose communication and controller operation issues before replacing hardware or modifying BAS programming.

Symptom	Possible Cause	Action
Controller not visible on BACnet MS/TP network	Incorrect MAC address	Verify MAC address configured in HMI and ensure address is unique on network
Controller not visible on BACnet MS/TP network	Baud rate mismatch	Verify controller baud rate matches BAS trunk baud rate
Controller not visible on BACnet MS/TP network	AHU Loc/Net set to Local	Set AHU Loc/Net = Network
BAS cannot discover controller	Duplicate Device Instance	Verify BACnet Device Instance is unique
Intermittent communication	Missing or incorrect network termination	Verify EOL resistors installed at both ends of MS/TP trunk
Intermittent communication	Wiring polarity reversed	Verify RS-485 polarity throughout network
Intermittent communication	Excessive electrical noise	Inspect grounding, shield continuity, and cable routing
Network points read but cannot be written	Unit configured for Local control	Set AHU Loc/Net = Network
Network commands ignored	Invalid operating mode or active alarm	Review Unit Status and Active Alarm objects
Unit operating unexpectedly	Invalid sensor input	Verify temperature, humidity, pressure, and airflow sensors

BACnet Configuration

Verify controller configuration from the HMI:

- AHU Loc/Net = Network
- MAC Address - verify that no duplicate MAC addresses exist
- Baud Rate - verify the unit controller baud rate setting matches the network baud rate. Device Instance
- Max Master - verify the Max Masters is set correctly and that all devices have the same value.
- Device Instance - verify no duplicate devices on the network.

Network Wiring

- Check for loose connections and that devices are plugged in properly.
- Confirm RS-485 polarity.
- Confirm end-of-line resistors are installed at trunk ends.
- Check that the MS/TP network is wired as a true daisy chain.
- Verify if there are any 3-wire (plus shield) devices on this network.
- Confirm the shield is continuous throughout the entire MS/TP trunk and grounded at only one point.
- Confirm LED activity (refer to the following LED descriptions table)
- Confirm if the network has an IP to MS/TP router.

BACnet Communications

- BACnet discovery is enabled
- BAS polling rate is reasonable
- Confirm LED activity (refer to LED descriptions below)

Unit Controller LED Activity

LED	State	Description	Action
Power	Off	No controller power	Verify transformer and controller power
	Solid Green	Controller powered and operating normally	None
Status	Slow Flash Green	Controller initializing	Allow initialization to complete
	Fast Flash Green	Normal controller operation	None
	Solid Red	Controller fault detected	Review active alarms
Network	Off	No network communication	Verify wiring and addressing
	Flashing Green	BACnet messages detected	Normal operation
	Solid Green	Network online	Normal operation
	Red	Communication fault	Verify network configuration

VRV Kit Communication and Configuration

This section describes troubleshooting for units configured with VRV (D-Kit and EV-Kit) systems.

Symptom	Possible Cause	Action
VRV Communication Fault Alarm	Loss of Modbus communications with D-Kit or EV-Kit	Verify wiring, power, addressing, and kit status LEDs
VRV Outdoor Unit Alarm	Outdoor unit fault present	Review Daikin VRV diagnostics
VRV DX/RH Connection Alarm	Communication between controller and kit interrupted	Verify communication wiring and kit configuration
Configuration Fault Alarm	Invalid unit configuration detected by the controller. Includes cooling, heating, dehumidification, electric preheat or VRV options (i.e ConfigIndex=0)	Verify unit configuration options are viable and confirm that the ConfigIndex is valid (i.e. ConfigIndex≠0)

Refer to the MicroTech PreciseLine Operation Manual, OM 1357 for unit controller operation and configuration alarm details.

VRV Error Codes

The VRV D-Kit and EV-Kit error code objects indicate faults detected by VRV equipment and reported to the PreciseLine unit controller. These faults originate from the VRV system and do not necessarily indicate a fault within the controller itself.

BACnet Objects

- CS:1–CS:4 = VRV D-Kit Error Hex Codes
- CS:5–CS:8 = VRV EV-Kit Error Hex Codes
- AV:128–AV:131 = VRV D-Kit Error Detail
- AV:144–AV:147 = VRV EV-Kit Error Detail

Descriptions for ‘gdsardrdcommon issues detected by VRV systems are described below.

Common VRV Fault Codes

VRV Kit Error Code	Description	Action
U4	Indoor-to-outdoor communication fault	Verify D-Kit/EV-Kit wiring, addressing, power, and communications.
U7	Outdoor-unit communication fault	Verify communication wiring between VRV outdoor units and accessories.
UA	Improper indoor/outdoor equipment combination or mismatch	Verify VRV equipment selection and controller configuration.
UF	System not commissioned / check operation not completed	Verify VRV startup and commissioning procedures were completed.
U0	Refrigerant shortage or refrigerant circuit issue	Contact qualified VRV service personnel.
E3	High-pressure protection fault	Check airflow, coil condition, and VRV outdoor unit operation.
E4	Low-pressure protection fault	Verify refrigerant system operation and sensor status.
E7	Outdoor fan motor fault	Verify VRV outdoor fan operation.
L5	Inverter overcurrent fault	Contact qualified VRV service personnel.
P1	Power supply imbalance/open phase	Verify incoming power quality and phase condition.

Technical Support

For additional assistance, Contact Daikin Applied Controls Customer Support at 866-462-7829 or Ctltechsupport@daikinapplied.com.

Revision History

Revision	Date	Changes
ED 19126	June 2023	Initial release
ED 19126-1	October 2023	Corrected a number of BACnet data point table default values and R/W access. Added ControlModelFltAlm. Fixed AV range values. Formatting updates to table headings. Table 7 Corrections include: Added AV:75 MxCO2Ap, AV:47 HtgVlvPATSp, AV:48 HtgVlvMxChgSp, AV:49 ClgVlvDBSp; corrected ranges for AV:44, AV:79, AV:65, AV:66 AV:69, AV:71, AV:113, AV:119 and changed default to 15% for AV:53. Corrected the Location object property to Unsupported and Description object property to writeable via the remote user interface (Table 1 and PICs, Device Properties.)
ED 19126-2	July 2024	Added AV:112 Previous Alarm, MSV:42-MSV:45, AV:128-131 and BI:31-BI:43 to support VRV D-Kit options. Updated PICS to reflect v2.0 application firmware and BSP. Added AV:4 Control Temp. Changed BI:20 alarm to Automatic clear.
ED 19126-3	October 2025	Added Energy Recovery and Outdoor Air Damper PID setpoiints (AV:139-AV:143) to Table 8. Other general updates for BACnet objects and alarms related to energy recovery. Also added support for VRV DKit error modes.
ED 19126-4	August 2026	Added support for PreciseLine software app v2.04 (2507490204) VRV EV kits.Includes AV:144-AV:183 for EV kits, CS5:-CS:8, MSV:48-MSV:72 and alarm objects. Other updates include A2L (BI: 50-52 Problem Alarms), new Service Information section and improved Error Code descriptions. Removed Read, Write, COV “A” Properties from PICS-BIBBS Data Sharing table. These are not supported. Added AV:184.Added Notification Class (NC) table in PICs and new Notification Classes section in Alarms. Corrected AV:80, AV:79 and AV:108 and AV:140 ranges. Added Description to PICs Analog Value table - supported properties.

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