

MICROTECH[®] VISION[®] AND SKYLINE[®] EC FAN ARRAY CONTROLLER

NETWORK INTEGRATION GUIDE

Vision and Skyline EC Fan Array Controller
BACnet[®] MS/TP and BACnet IP Network Protocols
Models CAH, CAC, OAH, OAC



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Introduction

This manual describes how to integrate the MicroTech® 4 fan array controller to a BAS (building automation system) for network communication and control.

Product Description

MicroTech 4 is the dedicated fan controller for Vision® and Skyline® air handler EC fan array systems using the Premium controls option. The MicroTech fan controller accepts a setpoint command from the local MicroTech controller HMI, a remote controller signal, or a BAS depending on the unit control configuration. Local fan array inputs/outputs then control the fan array based on the configuration selected for the application. All fans in the array are driven by the MicroTech fan controller to run at the same speed to achieve the commanded setpoint condition.

The EC fans are controlled by the MicroTech unit controller via an internal RS-485 bus (port 1) built into the controller using the Modbus protocol. The MicroTech fan controller passes fan array data to the network and, if configured as such, can be controlled via BACnet to coordinate operation of the fan array with a BAS network. It supports system setpoints, control, monitoring, and alarm objects with onboard BACnet MS/TP RS-485 bus (port 2) and BACnet IP capability.

BACnet addressing and commissioning is performed from the MicroTech controller local or remote HMI. This step is required before BAS integration and configuration.

This document is intended for system integrators and engineers familiar with the BACnet protocol. Contact the Daikin Applied Controls Customer Support group at (844-521-3928 or AAHTechsupport@daikinapplied.com for additional assistance.

Software Version

This document supports the latest version of the MicroTech fan controller application and all subsequent versions. However, if the software is a later version, some of the information in this document may not completely describe the application.

The revision of the application software can be determined from the MicroTech fan controller HMI under the 'About This Unit' menu. The software version can also be read from the Application_Software_Version property of the Device Object.

Hazardous Information Messages



WARNING

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



CAUTION

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

NOTICE

Notice indicates practices not related to physical injury.

Reference Documents

Title	Number	Company	Source
Vision/Skyline MicroTech 4 ECM Fan Controller Operations Manual	OM 1329	Daikin Applied	www.DaikinApplied.com
BACnet A Data Communication Protocol for Building Automation and Control Networks	ANSI/ASHRAE 135-2012	American Society of Heating, Refrigeration, and Air-Conditioning Engineers	www.ashrae.org

BACnet Agency Conformance

The MicroTech fan controller is defined as a BACnet Application Specific Controller (B-ASC) device. This means it supports standard, interoperable BACnet objects and services. Integrators can discover, read, and command the points using any BACnet-compliant BAS.

The controller supports the American National Standards Institute and American Society of Heating, Refrigeration and Air-Conditioning Engineers (ANSI/ASHRAE) standard 135-2012. It 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 of this document for details.

BACnet Objects


The MicroTech fan 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; 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 fan 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 writable if it is commandable or if the Out_Of_Service property value is set to TRUE, as determined by each object type (AI, AO, AV, BI, etc). Typically the Out_Of_Service property value is not commandable and is not allowed to be changed. For details on how the controller application supports object property values, refer to the table notes included in the [BACnet PICS](#) section at the end of this document.

Also see [BACnet Data Points](#) and [Alarms](#) sections for all BACnet objects available to the network.

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, 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	ID	Default Value	Data Type
Object Identifier	75	Device	BACnetObjectIdentifier
Object Name	77	MT4_DFA_#### (Variable)	Character String
Object Type	79	8	BACnetObjectType
System Status	112		BACnetDeviceStatus
Vendor Name	121	Daikin Applied	Character String
Vendor Identifier	120	3	Unsigned 16
Model Name	70	MT4_DFA_EC	Character String
Firmware Revision	44	Variable	Character String
Application Software Version	12	Variable	Character String
Description	28	Vision ECM Fan	Character String
Protocol Version	98	1	Unsigned
Protocol Revision	139	15	Unsigned
Protocol Services Supported	97		BACnetServices Supported
Protocol Object Types Supported ¹	96	AI, AO, AV, BI, BO, BV, CSV, Device, MSV, MSI, MSO, ACC, DPV, DIV, PIV	BACnetObjectTypes Supported
Object List	76		Sequence of BACnetObjectIdentifier
Max APDU Length Accepted	62	480	Unsigned 16
Segmentation Supported	107	None	BACnetSegmentation
Max Segments Accepted	167	1	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 BACnetAddressBinding
Database Revision	115	Variable	Unsigned
Active COV Subscriptions	152		List of BACnet COV Subscriptions

¹While the controller supports the entire set of object types, not all object types are implemented in the MicroTech fan controller application.

Device Object Identifier

The Device Object_Identifier uniquely specifies the unit within the network. The initial device object instance number is calculated depending on either the production code (IP) or the MAC Address (MS/TP). This number must be unique on the entire BACnet network. The device instance number can be changed via the MicroTech fan controller HMI display.

Set "Save Config" to "Yes" in the BACnet MSTP or BACnet IP Set Up Menu for the change to take effect.

Device Object_Name

Each device has a unique Object_Name by default. The Object_Name is MT4_DFA_#####. The ##### represents the Device Instance. If the Device Instance changes, and the MT4_DFA_ portion of the Object_Name is retained, the Device Name is updated as well.

BACnet Device Management

The following functions are specific to the internal BACnet device. These functions are used for maintenance and testing. A network management tool, such as VTS, is typically used to issue the network commands.

DeviceCommunicationControl - Disable

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

DeviceCommunicationControl - Enable

When the MicroTech fan controller receives a network command to Enable communications, fan array communication to the BACnet network is restored.

EC Fan Array Unit Control Using BACnet

Passive monitoring of the MicroTech fan controller via BACnet is possible when the EC Fan Array Demand Source is configured to be HMI, 0-10VDC, or 4-20mA.

Active control of the MicroTech fan controller via BACnet is possible when the EC Fan Array Demand Source is configured to be BACnet.

Refer to the Vision/Skyline EC Fan Controller Operations Manual (OM 1329) for further information on configuring the EC Fan Array Demand Source input on the MicroTech fan controller local HMI display.

BAS Configuration

Setting up Minimum BACnet Addressing Parameters

There are certain parameters involved in setting up the MicroTech fan controller for either BACnet MS/TP or BACnet IP communications (Table 2). The bold parameters can be changed using the HMI display menu. Any default values (as applicable) are also shown in boldface. See the Vision/Skyline EC Fan Controller Operations Manual (OM 1329) (www.DaikinApplied.com) for details.

Table 2: Communication Parameter Settings

Parameter Name	BACnet MS/TP	BACnet IP
Device Object Name	MT4_DFA_#### "####" is the Device Instance Number	MT4_DFA_#### "####" is the Device Instance Number
Device Instance Number²	####, default is the last 4 digits of the MT4 controller SN	####, default is the last 4 digits of the MT4 controller SN
DHCP	NA	Off/On
Actual IP Address	NA	DHCP Enabled
Actual IP Subnet Mask	NA	DHCP Enabled
Actual Gateway Address	NA	DHCP Enabled
Given IP Address¹	NA	Default=192.168.1.42
Given IP Subnet Mask¹	NA	Default=255.255.255.0
Given Gateway Address¹	NA	Default = 192.168.1.1
UDP Port Number	NA	Default = 47808
MS/TP MAC Address²	Default = 18	NA
MS/TP Baud Rate	Default = 38400	NA
Max APDU Length	480	1476
Receive Heartbeat	NA	NA
Max Master	Default = 127	NA
Max Info Frames	Default = 10	NA
BACnet IP (Enable)	NA	Active/Passive
BACnet Over RS485	Active/Passive	NA

¹These addresses are used if DHCP (Dynamic Host Configuration Property) is set to Off. For changes to take effect, use the HMI display and set "Save Config" on the BACnet Setup menu to "Yes." This causes the power on the MicroTech fan controller to reset.

²The Device Instance Number is set via the HMI display. Set "Save Config" to "Yes" on the BACnet Setup menu for changes to take effect. This causes power on the MicroTech fan controller to reset.

BACnet MS/TP Device Address (RS-485 Port 2)

The BACnet MS/TP device address is set using the MicroTech fan controller HMI display menu.

From the HMI main menu, navigate to the BAS Communications\BACnet MS/TP Set-Up menu to change this value. Set MSTP Address and then set "Save Config" to "Yes" in order for the new address to take effect. This causes the power on the MicroTech fan controller to reset.

BACnet IP Device Address (Ethernet Port)

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

The device object contains a Given Internet Protocol Subnet Mask (Default is 255.255.255.0) and a default Given IP address of 192.168.1.42. The MicroTech fan controller supports DHCP (Dynamic Host Configuration Protocol) IP addressing, which is disabled by default.

From the HMI main menu, navigate to the BAS Communications\BACnet IP Set-Up menu to change the Device Instance Number and to enable DHCP, if applicable

BACnet Data Points

This section describes the MicroTech fan controller network parameters exposed to BACnet. The supported BACnet object types include: Multistate Variables (MSV), Analog Values (AV), Analog Inputs (AI), Binary Inputs (BI), Binary Values (BV), and Character String Values (CSV) object types. In addition to the general data tables, a select group of network points are available for optional monitoring and unit configuration options.

Table 3 - Table 11 describe the points supported by the MicroTech fan controller via BACnet MS/TP and BACnet IP protocols. See the Alarms section for alarm objects, notification, and clearing. For active control over BACnet, the MicroTech fan controller's "Demand Source" parameter must be locally configured for "BACnet", otherwise those BACnet

data points are not available.

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

The MicroTech fan controller HMI display is used to configure BACnet addressing parameters in order to establish network communication. See the Vision/Skyline EC Fan Array Controller Operations Manual (OM 1329) (www.DaikinApplied.com) for all HMI menu options available. Also refer to the BACnet PICs section for object types and properties supported.

Table 3: BACnet Analog Input (AI) I/O Data Points

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Fan Speed Demand Input	Demand Input	AI:1	R	0-100%	NA	Displays the fan speed commanded input value from an external source when the fan array configuration is set to Demand Source=0-10VDC or 4-20mA. An alarm is generated if the demand input is not valid or not within the acceptable range. Also see Unit Alarm Info (CSV:2). Note: This only applies and is available when the Control Method=RPM.
Duct Static Differential Pressure Sensor	DSP Pressure	AI:2	R	0.0-10.5384 inches wc 0.0-2625.0 Pa ¹ See Table Note	NA	Displays the duct static pressure sensor input value used to control the fan array in DSP Control Mode. Also see Duct Static Pressure Setpoint (AV:9). An alarm is generated if the duct static pressure input is not valid or is not within the acceptable range. Also see Unit Alarm Info (CSV:2).
CFM Differential Pressure Sensor	CFM Pressure	AI:3	R	0.0-40.9573 inches wc 0.0-10202.0 Pa ¹ See Table Note	NA	Displays the CFM differential pressure sensor input value used to display airflow and to control the air fan array in CFM Control Mode. Also see CFM Setpoint (AV:10). An alarm is generated if the CFM pressure input is not valid or is not within the acceptable range. Also see Unit Alarm Info (CSV:2). Note: This only applies when the fan array configuration is CFMSnsrType=VDC/mA.

¹Units are in "inches of water column" (US) or "Pa" (SI or CA).

Table 4: BACnet Digital Binary Input (BI) I/O Data Points

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Fire Alarm Input	Fire Mode Input	BI:1	R	1=On 0=Off	Off	Displays the fire alarm input status. 1=On indicates no fire alarm warning is present. 0=Off indicates a fire alarm warning is present. Applies when an optional fire alarm sensor is installed and when the Fire Alarm is enabled: <i>Fire En</i> is configured to Yes = Enabled from the HMI display. Also see Unit Alarm Info (CSV:2) and Alarm Table 8 for more details.
Interlock Switch Input	Interlock Input	BI:2	R	1=On 0=Off	Off	Displays the interlock switch status. Disables fan array operation until the circuit is closed (On). 0=Off indicates interlock switch is in open position. Fans are disabled. 1=On indicates interlock switch is in closed position. Fans are enabled and allowed to run. Applies when Interlock is enabled: <i>IntLck En</i> is configured to Yes = Enabled from the HMI display. Also see Unit Alarm Info (CSV:2).

Table 4: BACnet Digital Binary Input (BI) I/O Data Points, Continued

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Safety (Emergency Switch) Input	Safety Input	BI:3	R	1=On 0=Off	Off	Displays the safety (emergency) switch status. Disables fan array operation until the circuit is closed (On). This allows an external contact to emergency stop the fan array. 1=On indicates Safety Input switch is in closed position. Fans are enabled and allowed to run. 0=Off indicates Safety Input switch is in open position. Fans are disabled. Applies when Safety Input Switch is enabled: <i>Safety EN</i> is configured to Yes = Enabled from the HMI display. Also see Unit Alarm Info (CSV:2) and Alarm Table 8 for more details.
Start-Stop (On-Off) Input	Array ON/OFF	BI:4	R	1=On 0=Off	Off	Displays the array on/off switch status. Disables fan array operation until the circuit is closed (On). This allows an external contact to start-stop the fan array. 1=On indicates Array On/Off switch is in closed position. Fans are enabled and allowed to run. 0=Off indicates Array On/Off switch is in open position. Fans are disabled. Applies when On/Off Input is enabled: <i>Array ONOFF EN</i> is configured to Yes = Enabled from the HMI display.

Table 5: BACnet Character String Value (CSV) Data Points – Unit Information

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Unit Device Name	Unit Name	CSV:1	R/W	Any 14 alpha-numeric characters are supported	Vision Skyline	Assigns a unique BACnet identifier (device name) for each fan in the array. Up to 14 alpha-numeric characters are supported.
Unit Alarm Information	Unit Alarm Info	CSV:2	R	Dynamically changing string value See Description	No Alarm	Reflects the alarms generated by the MicroTech fan controller alarm object. Alarms are displayed by highest to lowest priority. Also refer to the Alarms section for more details. <ul style="list-style-type: none"> <i>Fire Alarm</i>: Indicates that the fan array is operating with the fire mode warning alarm active. When the fire alarm input is enabled and the fire alarm input is open (Off) position, the alarm is active (on). <i>Safety Alarm</i>: Indicates that the external safety (emergency switch) input is open (Off) position, and the alarm is active (on). The fan array does not operate under this condition. <i>Fan #X Alarm</i>: Indicates that fan (#1-20) currently is in an alarm condition. The X refers to the fan ID that fails first in case of a multi-fan failure event. <i>Sensor Error</i>: Indicates one of the sensor inputs or the demand input is out of range or not functioning as expected. <i>INTLK Alarm</i>: Indicates that the fan interlock digital input signal has not been received (turned on) within the allowable time range after the Running (RO2) output has turned on. Only applies when the Interlock input is enabled in the fan array configuration. The fan array does not operate under this condition. <i>DSP Alarm</i>: Is a warning alarm that indicates that the DSP sensor is not functioning properly or is out of range of the DSP Setpoint by the allowable deadband after a given time delay. <i>No Alarm</i>: No unit alarm is currently active.
Unit Serial Number	Unit SN	CSV:3	R/W	Any 13 alpha-numeric characters are supported	FBOU123456789	Assigns a unique BACnet identifier (unit serial number) for each fan array. Up to 13 alpha-numeric characters are supported.

Table 6: BACnet Analog Value (AV) Data Points – Setpoint, Monitoring, and Feedback Variables

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Fan Speed Setpoint Output	AO1 RPM	AV:1	R	0-120%	0	Fan tracking output used to control a secondary fan array. Displays the command speed value of the analog output AO1 (X2) as a percent. Analog output AO1 is based on the Demand Setpoint (%). For example: AO1 (X2-RPM Out) is displayed as 0-100% = 2-10VDC.
Air Flow CFM Output	AO2 CFM	AV:2	R	0-120%	0	Air flow sensor analog input (X4) value scaled and converted to represent air flow volume relative to the Max Airflow of all fans running at Max RPM. It represents the value sent to the Analog Output AO2 (X5) as a percent and displays the relative CFM air flow measurement of analog output AO2 (X5) in percent. For example: AO2 (X5-CFM Out) is displayed as 0-100% = 0-10 VDC.
Fan Speed Command	FanSpdCmd	AV:3	R	0-100%	0	Displays the commanded fan speed value sent to the fan motors over Modbus.
Average Fan Speed	AvgFanSpd	AV:4	R	0-5050 RPM	NA	Displays the average speed of all fans in the array.
Total Fan Power	TotalFanPwr	AV:5	R	0.0-10,000.0 kW	NA	Displays the total power usage (in kW) of all fans in the array. Note: This object's value is unitless.
Fan Speed Actual Command	FanSpdActCmd	AV:6	R	0-100%	NA	Actual average fan speed command (%) of all fans (On and Off) in the array.
Fan Number	FanNumber	AV:7	R	1-20 Fans	4	Displays the number of fans running in the array.
Total Airflow	TotalAirFl	AV:8	R	0-1,842,267 ft ³ /min (US) 0-1,842,248 ft ³ /min (CA) 0-3,130,000 m ³ /hr (SI)	NA	Displays the total airflow of the fan array.
Duct Static Pressure Setpoint ¹	DSPSP	AV:9	R/W	0.0-10.0 inches wc (US) 0.0-2,500.0 Pa (SI & CA)	0	Sets the duct static pressure setpoint that the controller is attempting to maintain. Applies when Control Mode = DSP and the DSP sensor is installed and functioning properly. If the value is set beyond the allowable range from the network, it is ignored, and the controller continues to control to the last valid value. The allowable setpoint value range is determined by the MaxDSP setting as configured for the DSP Sensor. This actual max setpoint value used in the controller might be less than the value that the network is allowed to right to the controller. Any value entered above that lower limiting value in the controller will equate to a 100% capacity DemandSP of the array (AV:11). Changes made to the Duct Static Pressure Setpoint or Demand Setpoint (AV:11) automatically synchronize the other value. Note: Control Method must be DSP.
Airflow Setpoint ¹	CFMSP	AV:10	R/W	0-1,842,267 CFM (US) 0-1,842,250 CFM (CA) 0-3,130,000 m ³ /hr (SI)	0	Sets the airflow setpoint value when configured for CFM control. The controller capacity modulates to maintain this value when the unit is equipped with a fan airflow measuring system and when the Control Mode (MSV:12) is configured for CFM. If the value is set beyond the allowable range from the network, it is ignored, and the controller continues to control to the last valid value. The allowable valid value limit is determined by the MaxAirFlow@MaxRPM value of the array. Any value entered above that limiting value will equate to a 100% capacity DemandSP of the array (AV:11). Changes made to either the Airflow Setpoint (AV:10) or the Demand Setpoint (AV:11) will automatically synchronize the other value. Note: Control Method must be CFM.

Table 6: BACnet Analog Value (AV) Data Points – Setpoint, Monitoring, and Feedback Variables, Continued

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Demand Setpoint ¹	Demand SP	AV:11	R/W	0-100%	0	Sets the fan array demand setpoint (speed, CFM, or DSP) in percent. This represents the main capacity setpoint of the array. This is active if the Control Source is set for BACnet and the Control Mode is set for RPM, CFM, or DSP. Changes to this value automatically synchronize the RPMSP (AV:15), CFMSP (AV:10), or DSPSP (AV:9) setpoint values, as applicable.
Max RPM	MaxRPM	AV:12	R	0-5050 RPM	NA	Displays the maximum fan speed. This value provides the basis of the scaling factor representing the 0-100% RPM fan drive command.
Air Flow Nominal	Air Flow	AV:14	R	0-1,842,267 CFM (US) 0-1,842,248 CFM (CA) 0-3,130,000 m ³ /hr (SI)	NA	Displays the nominal or maximum calculated air flow possible from the fan array. Items such as fan type, fan size, number of fans and altitude contribute to the calculation of this value.
Fan Speed RPM Setpoint	RPMSp	AV:15	R/W	0-5040 RPM	0	Sets the fan speed setpoint (in RPM) at which the fan(s) are commanded to run. Applies to fixed speed fan applications where the Control Mode is set to RPM and the Demand Source is set to BACnet. Changes made to the Demand Setpoint (AV:11), in percent, automatically synchronize the Fan Speed RPM Setpoint to the correct RPM value and vice versa. Any RPM setpoint value entered above the limiting RPM value, which is represented by 100% capacity (MaxRPM), equates to a 100% capacity DemandSP (AV:11). Note: The HMI displays the RPM Setpoint as a percentage (0–100%) of MinRPM - MaxRPM.
Secondary Fan Speed Offset ¹	TrckSpdOffsetSP	AV:16	R/W	0-1000 RPM	0	Sets the secondary fan speed offset value. It is used to modulate capacity in fan tracking applications in order to maintain the desired offset between the primary (master) array and the secondary (slave) fan arrays. Applies when Fan Tracking is configured as the Control Method Configuration for this fan array, making it a secondary (slave) fan array that tracks an external primary (master) output signal. Note: The actual offset value is limited by MaxRPM. Any network value written above this limit equates to 100% of the DemandSP capacity.
Fan 1-20 Speed	Fan1Spd - Fan20Spd	AV:101-120	R	0-6000 RPM	NA	Displays the current actual speed of individual fans #1-20 in the array. Applies when that fan number (FanX) is configured as active. Fans are controlled to the same speed by an internal Modbus communication command.

¹DSP, CFM, and Fan Tracking Control Modes are not supported in MicroTech fan controller application versions 2.0 and earlier. HMI/BACnet Setpoint Control for the DSP and CFM Control Methods is supported in MicroTech fan controller application version 2.1 and later. Analog Demand Input control for the DSP and CFM Control Methods and Fan Tracking Control Mode are not supported in MicroTech fan controller application version 2.1.

Table 7: BACnet Multi-State Variable (MSV) Data Points - Operating Modes and Configuration

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Unit Mode	UnitMode	MSV:1	R	1=Off 2=Normal 3=Manual ¹ 4=Manual Off	Normal	Displays the current operating state of the fan array. 1=Off (Control Mode is set to Off). 2=Normal (Control Mode = Auto) Manual mode must be set to Normal. 3=Manual ¹ (Manual Mode = Manual) Control mode is overwritten via the HMI display. Only manual control of unit allowed. 4=Manual Off (Manual Mode = Off) Unit start is prevented under all control modes. ¹ Note: Manual Mode allows user to override the fan array speed and physical outputs from the HMI display. This setting is not retained through a power cycle. The Unit Mode reverts back to Normal upon controller restart. When saving the fan array configuration parameters via the HMI display, the Control Mode should be set to Off to prevent unexpected startup of the unit.
Fan Ready to Run Output	RO1 Ready	MSV:2	R	1=Off 2=On	Off	Displays the fan array Ready To Run (RO1) relay output status. 2=On indicates fan array is ready to run.
Fan Array Alarm Output	RO3 Alarm	MSV:3	R	1=Off 2=On	Off	Displays the fan array Alarm (RO3) relay output status. 2=On indicates an alarm condition exists.
Fan Run Status Output	RO2 Running	MSV:4	R	1=Off 2=On	Off	Displays the fan array Running (RO2) relay output status. 2=On indicates the fan array is currently in operation and running.
Demand Source	DmdSrc	MSV:5	R	1=0-10 VDC ³ 2=4-20mA ³ 3=BACnet 4=HMI	0-10 VDC	Displays the demand input signal (source) used for modulating the fan speed control setpoint.
Adaptive Speed	AdaptiveSpd	MSV:6	R	1=No 2=Yes	No	Indicates the ability to maintain air flow rate in the event of a fan shut down by allowing the remaining active fans to increase speed (up to the MaxRPM setting) in order to compensate for the inactive fan(s).
Fire Alarm Input Enable	FireAlmEnable	MSV:7	R	1=FireAlm Disabled 2=FireAlm Enabled	Disabled	Indicates if the fire alarm input is enabled or not. When enabled, the fire alarm warning activates when an external contact is open. ² Applies when an optional fire monitoring system is installed and the fan array is configured for monitoring the fire alarm input. The <i>Fire EN</i> input configuration must be set to Yes in the Config Array HMI menu screen for this to apply.
Interlock Input Enable	InterlockEnable	MSV:8	R	1=Interlock Switch Disabled 2=Interlock Switch Enabled	Disabled	Indicates if the interlock switch input is enabled or not. When enabled, the interlock input delays fan operation until the external interlock contact is closed. ² Applies when <i>IntLck EN</i> input configuration is set to Yes in the Config Array HMI menu screen.
Safety Alarm Input Enable	SafetyInputEnable	MSV:9	R	1=AlmIn Disabled 2=AlmIn Enabled	Disabled	Indicates if the external safety alarm input is enabled or not. When enabled, the safety alarm input stops fan operation with an alarm until the safety contact is closed. ² Applies when the <i>Safety EN</i> input configuration is set to Yes in the Config Array HMI menu screen.
On/Off (Start-Stop) Input Enable	StartSiglEnEff	MSV:10	R	1=Start Switch Disabled 2=Start Switch Enabled	Disabled	Indicates if the external on/off input is enabled or not. When enabled, this input allows the fan array operation to be controlled on or off with an external contact closure. ² Applies when the <i>OnOff EN</i> input configuration is set to Yes in the Config Array HMI menu screen.

Table 7: BACnet Multi-State Variable (MSV) Data Points - Operating Modes and Configuration, Continued

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Control Mode	CtrlModeCfg	MSV:12	R	1= Dmd RPM 2= Dmd CFM 3= Dmd DuctP 4=Fan Tracking ³	Dmd RPM	Displays the control mode method selected for the fan array. 1= <i>Dmd RPM</i> : Modulates the fan array capacity based on fan speed. Demand signal is determined by the control demand source. When configured for BACnet, the fan speed value can also be set as a percent. See Demand Setpoint (AV:11). 2= <i>Dmd CFM</i> : Modulates the array fan speeds to maintain the airflow (CFM) setpoint based on an external pressure sensor. See Airflow Setpoint, CFMSP (AV:10). 3= <i>Dmd DuctP</i> : Modulates the array fan speeds to maintain a duct static pressure setpoint based on an external pressure sensor. See Duct Static Pressure Setpoint (AV:9). 4= <i>Fan Tracking</i> ³ : Fan tracking allows the speed of this secondary (slave) fan array to be controlled based on the 0-10VDC output signal of the external primary (master) fan array.
Unit State	UnitState	MSV:13	R	1=Off 2=Ready 3=Running 4=Manual ¹ 5=Alarm 6=Emergency Warning 7=Emergency Alarm 8=Run with Alarm 9=Off with Alarm 10=DmdSigLow ³	Off	Displays the operating state of the fan array. 1= <i>Off</i> : The fan array is off and not ready to operate. The control mode could be turned off. 2= <i>Ready</i> : The ready relay output contact on the controller is closed, indicating that the fan array is ready to run. 3= <i>Running</i> : The fan array running relay output is closed; indicating it is currently in operation. 4= <i>Manual</i> ¹ : The fan array is currently in manual (direct) control mode from the HMI display. 5= <i>Alarm</i> : The alarm output contact on the controller is closed, indicating there are one or more active alarms. 6= <i>Emergency Warning</i> : The fan array is running with an active Emergency Alarm Warning. Applies only for an active fire alarm warning. 7= <i>Emergency Alarm</i> : The fan array has been shut down due to an active safety (emergency) input alarm. 8= <i>Run with Alarm</i> : The fan array continues to operate in the Run mode while an alarm is currently active. 9= <i>Off with Alarm</i> : The fan array is not running due to an alarm condition other than the Safety (Emergency) Alarm. One possible cause may be a faulty or unreliable sensor. 10= <i>DmdSigLow</i> ³ : The Demand analog input signal is too low to command the unit. Currently, this only applies to the RPM Control Mode. ³
DSP Alarm	DSPAIm	MSV:14	R	1=Off 2=On	Off	Displays the status of the Duct Static Pressure (Press Alm) Fault. Applies when Control Method is set to DSP from the Config Array HMI display menu.
Interlock Alarm	InterlockAlm	MSV:15	R	1=Off 2=On	Off	Displays the status of the Interlock (IntLckAlm) Fault. Applies when Interlock is Enabled with <i>IntLck EN</i> set to Yes from the Config Array HMI display menu. Note: Fan array operation is disabled when the Interlock switch is enabled and the Interlock switch is open (input is Off).
Unit Control Mode HMI	UnitCtrlModeHMI	MSV:16	R	1=Off 2=Auto	Off	Displays the fan array Control Mode as set on the HMI display main menu.
BACnet Units of Measurement	BNUnitSystem	MSV:18	R/W	1=SI 2=US 3=CA	US	Aligns the fan array controller data with the desired units of measurement across the BACnet network. Change this setting from either the HMI display or via BACnet. 1=SI (International System of Units/Metric) 2=US (English) 3=CA (Canadian)

Table 7: BACnet Multi-State Variable (MSV) Data Points - Operating Modes and Configuration, Continued

Point Name	BACnet Object Name	Object Type/ Instance	Read/ Write Access	Range (In Units)	Default	Description
Clear Alarms	ClearAlarms	MSV:20	R/W	1=No 2=Yes	No	Clears all active alarms that can be reset when set to Yes. Applies to alarms that require a manual reset in order to deactivate.
Manual Mode	ManualMode	MSV:21	R	1=Off 2=Normal 3=Manual ¹	Normal	Displays the current operating state of the fan array as selected locally in the HMI display Manual Mode menu: 1=Off: Fan array is turned off and is inoperable. In this state, the fan array is effectively locked out from control via the HMI display or BACnet interface. 2=Normal: Fan array is operating in the Normal mode of operation. It can be started and controlled via the HMI display or the BACnet interface. 3=Manual ¹ : Fan array can only be started and controlled locally via the HMI display Manual Control menu. Note: Manual Mode enables fan array control via the HMI display during initial start-up or for troubleshooting. After 60 minutes of being in Manual Mode, the controller automatically reverts back to the Normal mode of operation.
Unit Control Mode	UnitCtrlMode	MSV:23	R/W	1=Off 2=Auto	Auto	When the fan array is set to Auto on the HMI display and BACnet is enabled, this object can be used to toggle Unit Control Mode between Auto and Off. Applies when the fan array Demand Source configuration is set to BACnet in the Config Array HMI display menu. Note: If Control Mode is set to Off on the HMI display, it overrides any BACnet control to Off.

¹Manual mode is not intended for extended operation beyond initial start-up and troubleshooting. After 60 minutes, the controller automatically reverts to and resumes normal operation.

²Contact Open/Closed Definition:

Closed (Input - On) = Enabled. Contact is in the closed position and turns the input on.

Open (Input - Off) = Disabled. Contact is in the open position and turns the input off.

³This function is not supported by DSP, CFM, and Fan Tracking Control Methods in MicroTech fan controller application version 2.1 and earlier.

Alarms

Alarms provide the user with information about abnormal conditions that affect unit operation. The cause of the alarm should be investigated and eliminated before the unit or any disabled equipment in it is placed back into service.

NOTE: Alarms are read-only.

Alarm Class Types

Alarms in the MicroTech fan controller are divided into three class types:

Faults, Problems, and Warnings. Fault alarms have the highest priority. Problem alarms have the next priority. Warning alarms have the lowest priority. The alarms within each class are also prioritized. Note: Some alarms can transition between class types depending on how and when the alarm occurs.

Fault Alarms

Fault Alarms are conditions that are serious enough to partially or completely shut down the unit or fans. In this case, the Unit State status parameter displays *Off with Alarm* or indicates the specific alarm. The alarm condition must be corrected and cleared before unit operation can resume. Fault alarms have the highest priority.

Problem Alarms

Problem Alarms are conditions that are not serious enough to partially or completely shut down the unit or fans but may limit their operation in some way. Most of these alarms are for informational purposes only, unless certain conditions may arise. In this case, the Unit State status parameter displays *Run with Alarm* when the unit is running or indicates the specific alarm. Most of these alarms clear automatically when conditions return to normal, but some may need to be cleared manually after conditions return to normal. Problem alarms have the second highest priority.

Warning Alarms

Warning Alarms are conditions that should be addressed but do not limit unit or fan operation in any way. These alarms are for informational purposes only. In this case, the Unit State status parameter displays *Run with Alarm* or indicates the specific alarm. These alarms clear automatically when conditions return to normal. Warning alarms have the lowest priority.

Alarm Notification

The MicroTech fan controller uses the unit object CSV:2 (Table 5) to identify the currently active highest priority alarm. It also supports two unit binary input object alarms, BI:1 and BI:3 (Table 4 and Table 8) and two unit binary value object alarms, BV:1 and BV:2 (Table 8).

Each of the configured fans (1-20) also has its own multistate variable object to identify the specific fan fault (MSV:101-MSV:120). Each configured fan (1-20) is also supported by three binary value object alarms: BV:11-BV:20, BV:51-BV:70, and BV:101-BV:120 (Table 9 - Table 11).

Alarm Clearing

To reset all currently active clearable alarms from the BACnet network, change the Present_Value property of *Clear Alarm* multistate variable object (MSV:20) to a 2=Yes. After three seconds, this object returns to 1=No.

All active alarms are cleared automatically when power is cycled to the MicroTech fan controller. If the conditions that triggered the alarm are still present after a power cycle, these active alarms are re-initiated with a new date/time stamp.

NOTE: Alarms can also be cleared from the MicroTech fan controller HMI display.

Alarm Data Point Tables

The following tables describe the alarm objects available to the BACnet network. Alarms can be monitored and cleared as described in the previous section. Not all alarms are available for every application and will vary for every unit configuration.

See the MicroTech 4 Vision/Skyline EC Fan Array Controller Operations Manual (OM 1329) for full alarm descriptions.

NOTE: All alarm data point objects are read only.

Table 8 describes all unit alarms. It includes binary input objects (as previously described) from Table 4.

Table 8: BACnet Binary Input (BI) and Binary Value (BV) Alarms: Unit Alarm Descriptions

Alarm Point Name	BACnet Object Name	Object Type/ Instance	Range (Alarm Indication)	Clear	Description
Fire Alarm Warning	Fire Mode Input	BI:1	1 = On 0 = Off	Automatic	Indicates the fire alarm input warning status. 1=On indicates no fire alarm warning is present. 0=Off indicates a fire alarm warning is present. Applies only when an optional fire sensor is installed and when the Fire Alarm Input is enabled in the fan array configuration.
Safety (Emergency Sw) Alarm	Safety Input	BI:3	1 = On 0 = Off	Automatic	Indicates the safety (emergency switch) alarm status. 1=On indicates Safety Switch is in closed position and no alarm is present. Fan array is enabled to run. 0=Off indicates Safety Switch is in the open position and alarm is present. Fan array is disabled. Applies only when the Safety (Emergency Switch) input is enabled in the fan array configuration.
Interlock Alarm	InterlockFlt	BV:1	1 = On 0 = Off	Manual/Auto	Indicates that the fan array is ready to run, but the Interlock digital input DI1 (when enabled in array configuration) has not turned on to enable the fans to run within the defined alarm time delay. <i>Automatic Clear:</i> Fan array is running and the interlock switch input turns on for 10 seconds. <i>Manual Clear:</i> Alarm is active and the interlock input and fan array are both turned off.
DSP Alarm	DSPFlt	BV:2	1 = On 0 = Off	Automatic	Indicates that the DSP sensor reading (when enabled) is below or above the DSP Setpoint by the alarm deadband setting for 90 seconds when the fan array is running.

Table 9 reflects the alarms generated by each individual Delta fan configured in the array. Each group of fan alarm objects apply when the fan is configured with a unique BACnet identifier object (CSV:1) for each Delta fan number. For MSV data points, only the enumeration values are displayed via BACnet or on the HMI display. MSV alarms are listed by highest to lowest priority.

Table 9: BACnet Binary Value (BV) and Multi-State Variable (MSV) Alarm Data Point Descriptions – Delta Fans

Delta Fan Alarm Point Name (Fan 1-20)	BACnet Object Name (Fan 1-20)	Object Type/ Instance	Range (In Units)	Clear	Description
Fan1-20 Comm Error	Fan1ComErr - Fan20ComErr	BV:11 - BV:30	1 = Flt 0 = OK	Automatic	Indicates the Modbus communications status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 Fault Status	Fan1Flt - Fan20Flt	BV:51 - BV:70	1 = Flt 0 = OK	Automatic	Indicates the current fault status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 RPM Alarm Status	Fan1RPMAlm - Fan20RPMAlm	BV:101 - BV:120	1 = Flt 0 = OK	Automatic	Indicates the current status of the Incorrect Fan Speed (RPM) Alarm of fan 1-20. Note: Only configured number of fans are available.

Table 9: BACnet Binary Value (BV) and Multi-State Variable (MSV) Alarm Data Point Descriptions – Delta Fans, Continued

Delta Fan Alarm Point Name (Fan 1-20)	BACnet Object Name (Fan 1-20)	Object Type/ Instance	Range (In Units)	Clear	Description
Fan 1-20 Alarm Code	Fan1AlmCode - Fan20AlmCode	MSV:101 - MSV:120	1=Offline 2=Hall 3=OC 4=ACOV 5=ACUV 6=EEPROM 7=POC 8=PL 9=OV 10=UV 11=Lock 12=OT 13=RRP 14=RPMErr 15=Online	Automatic	Indicates the current status of fan 1-20. 1=Offline: The fan is not communicating to the controller. 2=Hall: Hall sensor error. 3=OC: There is an over-current condition on the DCbus. 4=ACOV: Supply VAC High: The incoming voltage to the controller has exceeded the maximum value allowed. 5=ACUV: Supply VAC low. The incoming voltage to the controller is below the minimum value allowed. 6=EEPROM: EEPROM read/write error. 7=POC: DCbus peak over current condition has occurred. 8=PL: Incoming 3-Phase AC phase loss. 9=OV: There is an over-voltage condition on the DCbus. 10=UV: There is an under-voltage condition on the DCbus. 11=Lock: Fan rotor locked condition. Could be a physical obstruction in the motor impellers or failed bearing. 12=OT: There is an over-temperature condition in the internal electronics of the fan drive. 13=RRP: (RRP/RRW) Fan rotating in reverse direction. 14=RPMErr: The difference between the fan speed setpoint command and actual fan speed has exceeded the threshold value (default difference = 300 RPM). 15=Online: Fan is communicating to the controller. Note: Only configured number of fans are available.

Table 10 reflects the alarms generated by each individual EBM fan configured in the array. Each group of fan alarm objects apply when the fan is configured with a unique BACnet identifier object (CSV:1) for each EBM fan number. For MSV data points, only the enumeration values are displayed via BACnet or on the HMI display. MSV alarms are listed by highest to lowest priority.

Table 10: BACnet Binary Value (BV) and Multi-State Variable (MSV) Alarm Data Point Descriptions – EBM Fans

EBM Fan Alarm Point Name (Fan 1-20)	BACnet Object Name (Fan 1-20)	Object Type/ Instance	Range (In Units)	Clear	Description
Fan1-20 Comm Error	Fan1ComErr - Fan20ComErr	BV:11 - BV:30	1 = Flt 0 = OK	Automatic	Indicates the Modbus communications status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 Fault Status	Fan1Flt - Fan20Flt	BV:51 - BV:70	1 = Flt 0 = OK	Automatic	Indicates the current fault status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 RPM Alarm Status	Fan1RPMAIm - Fan20RPMAIm	BV:101 - BV:120	1 = Flt 0 = OK	Automatic	Indicates the current status of the Incorrect Fan Speed (RPM) Alarm of fan 1-20. Note: Only configured number of fans are available.
Fan 1-20 Alarm Code	Fan1AlmCode - Fan20AlmCode	MSV:101 - MSV:120	1=Offline 2=HLL 3=TFEI 4=TFM 5=TFE 6=BLK 7=SKF 8=PHA 9=UzL 10=UzH 11=UeL 12=UeH 13=nLim 14=RLC 15=RPMErr 16=Online	Automatic	Indicates the current status of fan 1-20. 1=Offline: The fan is not communicating to the controller. 2=HLL: Hall sensor error. 3=TFEI: There is an over-temperature condition in the internal electronics of the fan drive. 4=TFM: Fan motor over temperature condition exists. 5=TFE: Drive output stage over temperature condition. 6=BLK: Fan rotor locked condition. Could be a physical obstruction in the motor impellers or failed bearing. 7=SKF: Internal fan drive comm error between master controller and slave controller. 8= PHA: Incoming 3-Phase AC power failure. 9=UzL: DCbus (DC-Link) under voltage. 10=UzH: DCbus (DC-Link) over voltage. 11=UeL: Incoming line voltage to drive low. 12=UeH: Incoming line voltage to drive high. 13=nLim: Over speed limit exceeded. 14=RLC: Rotor position sensor calibration error. 15=RPMErr: The difference between the fan speed setpoint command and actual fan speed has exceeded the threshold value (default difference = 300 RPM). 16=Online: Fan is communicating to the controller. Note: Only configured number of fans are available.

Table 11 reflects the alarms generated by each individual Infinitem fan configured in the array. Each group of fan alarm objects apply when the fan is configured with a unique BACnet identifier object (CSV:1) for each Infinitem fan number. For

MSV data points, only the enumeration values are displayed via BACnet or on the HMI display. MSV alarms are listed by highest to lowest priority.

Table 11: BACnet Binary Value (BV) and Multi-State Variable (MSV) Alarm Data Point Descriptions – Infinitem Fans

Infinitem Fan Alarm Point Name (Fan 1-20)	BACnet Object Name (Fan 1-20)	Object Type/ Instance	Range (In Units)	Clear	Description
Fan1-20 Comm Error	Fan1ComErr - Fan20ComErr	BV:11 - BV:30	1 = Flt 0 = OK	Automatic	Indicates the Modbus communications status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 Fault Status	Fan1Flt - Fan20Flt	BV:51 - BV:70	1 = Flt 0 = OK	Automatic	Indicates the current fault status of fan 1-20. Note: Only configured number of fans are available.
Fan1-20 RPM Alarm Status	Fan1RPMAIm - Fan20RPMAIm	BV:101 - BV:120	1 = Flt 0 = OK	Automatic	Indicates the current status of the Incorrect Fan Speed (RPM) Alarm of fan 1-20. Note: Only configured number of fans are available.
Fan 1-20 Alarm Code	Fan1AlmCode - Fan20AlmCode	MSV:101 - MSV:120	1=Offln 2=DCOC 3=OC 4=VPh 5=MtrPD 6=UART 7=IPh 8=GDUV 9=DCOV 10=DCUV 11=Lock 12=OT 13=GD 14=RPMEr 15=Online	Automatic	Indicates the current status of fan 1-20. 1=Offln: The fan is not communicating to the controller. 2=DCOC: DCbus over current. 3=OC: Stator over current. 4=VPh: Drive input voltage phase imbalance condition. 5=MtrPD: Bad Mtr paramater in firmware or motor disabled by DI Interlock switch input to drive (when enabled). 6= UART: UART comm error. 7=IPh: Drive input current phase imbalance condition. 8=GDUV: Drive gate driver low voltage condition. 9=DCOV: DCbus over voltage. 10=DCUV: DCbus under voltage. 11=Lock: Fan rotor locked condition. Could be a physical obstruction in the motor impellers or failed bearing. 12=OT: Drive Stator temperature too high. 13=GD: Drive gate driver general fault. 14=RPMEr: The difference between the fan speed setpoint command and actual fan speed has exceeded the threshold value (default difference=300 RPM). 15=Online: Fan is communicating to the controller. Note: Only configured number of fans are available.

BACnet PICS

MicroTech 4 Vision/Skyline EC Fan Array Controller

This section contains the Protocol Implementation Conformance Statement (PICS) for the MicroTech 4 fan (unit) controller from Daikin Applied as required by ANSI/ASHRAE Standard 135-2012, BACnet: A Data Communication Protocol for Building Automation and Control Networks.

Date	August 2025
Vendor Name	Daikin Applied
Product Name	Vision Skyline EC Fan Array
Product Model Number	MT4_DFA_FC
Application Software Version	2506990201 and later
Firmware (BSP) Revision	11.58
BACnet Protocol Version	1
BACnet Protocol Revision	15

Product Description

The MicroTech 4 Vision EC fan array controller with native BACnet (MS/TP and BACnet IP) is designed to operate the Vision/Skyline air handling unit fan array and integrate it into a BAS.

The MicroTech fan controller application provides the BAS the means to monitor, supervise, and control the modular fan array. It enables the air handler to operate as supply fans, exhaust/return fans, operate in tandem, or in coordination with other equipment.

The MicroTech fan controller provides the actual control of the EC fan array using sensors, I/O, setpoints, operating states, internal Modbus control of fans, and alarm monitoring of safety and critical system conditions.

Access to fan array control parameters is available from the MicroTech fan controller HMI display and through select parameters available via the BACnet network.

BACnet Standardized Device Profiles Supported (Annex L)

<input type="checkbox"/>	BACnet Advanced Workstation	(B-AWS)
<input type="checkbox"/>	BACnet Operator Workstation	(B-OWS)
<input type="checkbox"/>	BACnet Operator Display	(B-OD)
<input type="checkbox"/>	BACnet Building Controller	(B-BC)
<input type="checkbox"/>	BACnet Advanced Application Controller	(B-AAC)
<input checked="" type="checkbox"/>	BACnet Application Specific Controller	(B-ASC)
<input type="checkbox"/>	BACnet Smart Sensor	(B-SS)
<input type="checkbox"/>	BACnet Smart Actuator	(B-SA)

BACnet Interoperability Building Blocks Supported (Annex K)

Data Sharing

<input type="checkbox"/>	Data Sharing-Read Property-A	(DS-RP-A)
<input checked="" type="checkbox"/>	Data Sharing-Read Property-B	(DS-RP-B)
<input type="checkbox"/>	Data Sharing-Read Property Multiple-A	(DS-RPM-A)
<input type="checkbox"/>	Data Sharing-Read Property Multiple-B	(DS-RPM-B)
<input type="checkbox"/>	Data Sharing-Write Property-A	(DS-WP-A)
<input checked="" type="checkbox"/>	Data Sharing-Write Property-B	(DS-WP-B)
<input type="checkbox"/>	Data Sharing-Write Property Multiple-A	(DS-WPM-A)
<input type="checkbox"/>	Data Sharing-Write Property Multiple-B	(DS-WPM-B)
<input type="checkbox"/>	Data Sharing-Change of Value-A	(DS-COV-A)
<input type="checkbox"/>	Data Sharing-Change of Value-B	(DS-COV-B)
<input type="checkbox"/>	Data Sharing-Change of Value Property- A	(DS-COVP-A)
<input type="checkbox"/>	Data Sharing-Change of Value Property-B	(DS-COVP-B)
<input type="checkbox"/>	Data Sharing-Change of Value Unsolicited-A	(DS-COVU-A)
<input type="checkbox"/>	Data Sharing-Change of Value Unsolicited-B	(DS-COVU-B)
<input type="checkbox"/>	Data Sharing-View-A	(DS-V-A)
<input type="checkbox"/>	Data Sharing-Advanced View-A	(DS-AV-A)
<input type="checkbox"/>	Data Sharing – Modify-A	(DS-M-A)
<input type="checkbox"/>	Data Sharing-Advanced Modify-A	(DS-AM-A)

Alarm and Event Management

<input type="checkbox"/>	Alarm and Event-Notification-A	(AE-N-A)
<input type="checkbox"/>	Alarm and Event-Notification Internal-B	(AE-N-I-B)
<input type="checkbox"/>	Alarm and Event-Notification External-B	(AE-N-E-B)
<input type="checkbox"/>	Alarm and Event-ACK-A	(AE-ACK-A)
<input type="checkbox"/>	Alarm and Event-ACK-B	(AE-ACK-B)
<input type="checkbox"/>	Alarm and Event-Alarm Summary-B	(AE-ASUM-B)
<input type="checkbox"/>	Alarm and Event-Enrollment Summary-B	(AE-ESUM-B)
<input type="checkbox"/>	Alarm and Event-Information-B	(AE-INFO-B)
<input type="checkbox"/>	Alarm and Event-Life Safety-A	(AE-LS-A)
<input type="checkbox"/>	Alarm and Event-Life Safety-B	(AE-LS-B)
<input type="checkbox"/>	Alarm and Event-View Notifications-A	(AE-VN-A)
<input type="checkbox"/>	Alarm and Event-Advanced View Notifications-A	(AE-AVN-A)
<input type="checkbox"/>	Alarm and Event-View and Modify-A	(AE-VM-A)
<input type="checkbox"/>	Alarm and Event-Advanced View and Modify-A	(AE-AVM-A)
<input type="checkbox"/>	Alarm and Event-Alarm Summary View-A	(AE-AS-A)
<input type="checkbox"/>	Alarm and Event-Event Log View-A	(AE-ELV-A)
<input type="checkbox"/>	Alarm and Event-Event Log View and Modify-A	(AE-ELVM-A)
<input type="checkbox"/>	Alarm and Event-Event Log Internal-B	(AE-EL-I-B)
<input type="checkbox"/>	Alarm and Event-Event Log External-B	(AE-EL-E-B)
<input type="checkbox"/>	Alarm and Event-Alarm Summary-A	(AE-ASUM-A)
<input type="checkbox"/>	Alarm and Event-Enrollment Summary-A	(AE-ESUM-A)
<input type="checkbox"/>	Alarm and Event-Information-A	(AE-INFO-A)

Scheduling and Historical/Deprecated BIBBs

<input type="checkbox"/>	Scheduling-Internal-B	(SCHED-I-B)
<input type="checkbox"/>	Scheduling-External-B	(SCHED-E-B)
<input type="checkbox"/>	Scheduling-Advanced View Modify-A	(SCHED-AVM-A)
<input type="checkbox"/>	Scheduling-View Modify-A	(SCHED-VM-A)
<input type="checkbox"/>	Scheduling-Weekly Schedule-A	(SCHED-WS-A)
<input type="checkbox"/>	Scheduling-Weekly Schedule Internal-B	(SCHED-WS-I-B)
<input type="checkbox"/>	Scheduling-Readable-B	(SCHED-R-B)
<input type="checkbox"/>	Scheduling-A	(SCHED-A)

Trending and Historical/Deprecated BIBBs

<input type="checkbox"/>	Trending-Viewing and Modifying Trends-A	(T-VMT-A)
<input type="checkbox"/>	Trending-Viewing and Modifying Internal-B	(T-VMT-I-B)
<input type="checkbox"/>	Trending-Viewing and Modifying External-B	(T-VMT-E-B)
<input type="checkbox"/>	Trending-Viewing and Modifying Multiple Values-A	(T-VMMV-A)
<input type="checkbox"/>	Viewing and Modifying Multiple Values Internal-B	(T-VMMV-I-B)
<input type="checkbox"/>	Viewing and Modifying Multiple Values External-B	(T-VMMV-E-B)
<input type="checkbox"/>	Trending-Automated Multiple Value Retrieval-A	(T-AMVR-A)
<input type="checkbox"/>	Trending-Automated Multiple Value Retrieval-B	(T-AMVR-B)
<input type="checkbox"/>	Trending-View-A	(T-V-A)
<input type="checkbox"/>	Trending-Advanced View and Modify-A	(T-AVM-A)
<input type="checkbox"/>	Trending-Archival-A	(T-A-A)
<input type="checkbox"/>	Trending-Automated Trend Retrieval-A	(T-ATR-A)
<input type="checkbox"/>	Trending-Automated Trend Retrieval-B	(T-ATR-B)

Device Management

<input type="checkbox"/>	Device Management-Dynamic Device Binding-A	(DM-DDB-A)
<input checked="" type="checkbox"/>	Device Management-Dynamic Device Binding-B	(DM-DDB-B)
<input type="checkbox"/>	Device Management-Dynamic Object Binding-A	(DM-DOB-A)
<input checked="" type="checkbox"/>	Device Management-Dynamic Object Binding-B	(DM-DOB-B)
<input type="checkbox"/>	Device Management-Device Communication Control-A	(DM-DCC-A)
<input checked="" type="checkbox"/>	Device Management-Device Communication Control-B	(DM-DCC-B)
<input type="checkbox"/>	Device Management-Private Transfer-A	(DM-PT-A)
<input type="checkbox"/>	Device Management-Private Transfer-B	(DM-PT-B)
<input type="checkbox"/>	Device Management-Text Message-A	(DM-TM-A)
<input type="checkbox"/>	Device Management-Text Message-B	(DM-TM-B)
<input type="checkbox"/>	Device Management-Time Synchronization-A	(DM-TS-A)
<input checked="" type="checkbox"/>	Device Management-Time Synchronization-B	(DM-TS-B)
<input type="checkbox"/>	Device Management-UTC Time Synchronization-A	(DM-UTC-A)
<input checked="" type="checkbox"/>	Device Management-UTC Time Synchronization-B	(DM-UTC-B)
<input type="checkbox"/>	Device Management-Reinitialize Device-A	(DM-RD-A)
<input type="checkbox"/>	Device Management-Reinitialize Device-B	(DM-RD-B)
<input type="checkbox"/>	Device Management-Backup and Restore-A	(DM-BR-A)

<input type="checkbox"/>	Device Management-Backup and Restore-B	(DM-BR-B)
<input type="checkbox"/>	Device Management-Restart-A	(DM-R-A)
<input type="checkbox"/>	Device Management-Restart-B	(DM-R-B)
<input type="checkbox"/>	Device Management-List Manipulation-A	(DM-LM-A)
<input type="checkbox"/>	Device Management-List Manipulation-B	(DM-LM-B)
<input type="checkbox"/>	Device Management-Object Creation and Deletion-A	(DM-OCD-A)
<input type="checkbox"/>	Device Management-Object Creation and Deletion-B	(DM-OCD-B)
<input type="checkbox"/>	Device Management-Virtual Terminal-A	(DM-VT-A)
<input type="checkbox"/>	Device Management-Virtual Terminal-B	(DM-VT-B)
<input type="checkbox"/>	Device Management-Automatic Network Mapping-A	(DM-ANM-A)
<input type="checkbox"/>	Device Management-Automatic Device Mapping-A	(DM-ADM-A)
<input type="checkbox"/>	Device Management-Automatic Time Synchronization-A	(DM-ATS-A)
<input type="checkbox"/>	Device Management-Manual Time Synchronization-A	(DM-MTS-A)

Network Management

<input type="checkbox"/>	Network Management-Connection Establishment-A	(NM-CE-A)
<input type="checkbox"/>	Network Management-Connection Establishment-B	(NM-CE-B)
<input type="checkbox"/>	Network Management-Router Configuration-A	(NM-RC-A)
<input type="checkbox"/>	Network Management-Router Configuration-B	(NM-RC-B)

Network Management Options

<input type="checkbox"/>	Router, Clause 6 (remote management functionality/BACnet PTP)
<input type="checkbox"/>	Annex H, BACnet Tunneling Router over IP
<input type="checkbox"/>	BACnet/IP Broadcast Management Device (BBMD) Number of BDT entries: 10 Number of FDT entries: 10
-	Does BBMD support registrations by foreign devices? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Data Link Layer Options

<input checked="" type="checkbox"/>	BACnet IP, (Annex J)	-
<input checked="" type="checkbox"/>	BACnet IP, (Annex J), Foreign Device	-
<input type="checkbox"/>	ISO 8802-3, Ethernet (Clause 7)	-
<input type="checkbox"/>	ANSI/ATA 878 .1, 2 .5 Mb. ARCNET (Clause 8)	-
<input type="checkbox"/>	ANSI/ATA 878 .1, RS-485 ARCNET (Clause 8) baud rate(s)	-
<input checked="" type="checkbox"/>	MS/TP master (Clause 9), baud rate(s)	9600 19200 38400 57600 76800 115200
<input checked="" type="checkbox"/>	MS/TP slave (Clause 9), baud rate(s)	9600 19200 38400 57600 76800 115200
<input type="checkbox"/>	Point-To-Point, EIA 232 (Clause 10), baud rate(s)	38400
<input type="checkbox"/>	Point-To-Point, modem, (Clause 10), baud rate(s)	38400
<input type="checkbox"/>	LonTalk, (Clause 11), medium	TP/FT-10
<input type="checkbox"/>	Other	-

Device Address Binding

Is static device binding supported?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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Segmentation Capability

<input checked="" type="checkbox"/>	Able to transmit segmented messages	Window size	1 for MS/TP
<input checked="" type="checkbox"/>	Able to receive segmented messages	Window size	1 for MS/TP

Character Sets Supported

<input checked="" type="checkbox"/> UTF-8 (or ANSI X3.4)	<input type="checkbox"/> IBM / Microsoft DBCS	<input type="checkbox"/> ISO 8859-1
<input type="checkbox"/> ISO 10646 (UCS-2)	<input type="checkbox"/> ISO 10646 (UCS-4)	<input type="checkbox"/> JIS C 6226

Note: Support for multiple character sets does not imply that they can all be supported simultaneously.

Standard Object Types and Properties Supported

<input checked="" type="checkbox"/>	Analog Input	<input checked="" type="checkbox"/>	Analog Output	<input checked="" type="checkbox"/>	Analog Value
<input checked="" type="checkbox"/>	Binary Input	<input checked="" type="checkbox"/>	Binary Output	<input checked="" type="checkbox"/>	Binary Value
<input type="checkbox"/>	Calendar	<input type="checkbox"/>	Command	<input checked="" type="checkbox"/>	Device
<input type="checkbox"/>	Event Enrollment	<input type="checkbox"/>	File	<input type="checkbox"/>	Group
<input type="checkbox"/>	Loop	<input checked="" type="checkbox"/>	Multi-State Input	<input checked="" type="checkbox"/>	Multi-State Output
<input type="checkbox"/>	Notification Class	<input type="checkbox"/>	Program	<input type="checkbox"/>	Schedule
<input type="checkbox"/>	Averaging	<input checked="" type="checkbox"/>	Multi-State Value	<input type="checkbox"/>	Trend Log
<input type="checkbox"/>	Life Safety Point	<input type="checkbox"/>	Life Safety Zone	<input checked="" type="checkbox"/>	Accumulator
<input type="checkbox"/>	Pulse Converter	<input type="checkbox"/>	Event Log	<input type="checkbox"/>	Global Group
<input type="checkbox"/>	Trend Log Multiple	<input type="checkbox"/>	Load Control	<input type="checkbox"/>	Structured View
<input type="checkbox"/>	Access Door	<input type="checkbox"/>	Unassigned	<input type="checkbox"/>	Access Credential
<input type="checkbox"/>	Access Point	<input type="checkbox"/>	Access Rights	<input type="checkbox"/>	Access User
<input type="checkbox"/>	Access Zone	<input type="checkbox"/>	Credential Data Input	<input type="checkbox"/>	Network Security
<input type="checkbox"/>	Bitstring Value	<input checked="" type="checkbox"/>	Character String Value	<input type="checkbox"/>	Octet String Value
<input checked="" type="checkbox"/>	Datetime Pattern Value	<input type="checkbox"/>	Datetime Value	<input type="checkbox"/>	Integer Value
<input type="checkbox"/>	Large Analog Value	<input checked="" type="checkbox"/>	Positive Integer Value	<input type="checkbox"/>	Time Pattern Value
<input type="checkbox"/>	Time Value	<input type="checkbox"/>	Date Pattern Value	<input type="checkbox"/>	Date Value

Note: No object types listed can be created or deleted dynamically, even if they are supported (indicated by checkbox).

Analog Inputs

Properties	Supported	Readable/Writable	Range Restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R	-
Out_Of_Service	<input checked="" type="checkbox"/>	R	-
Update_Interval	<input type="checkbox"/>		-
Units	<input checked="" type="checkbox"/>	R	-
Min_Pres_Value	<input checked="" type="checkbox"/>	R	-
Max_Pres_Value	<input checked="" type="checkbox"/>	R	-
Resolution	<input type="checkbox"/>		-
COV_Increment	<input type="checkbox"/>		-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
High_Limit	<input type="checkbox"/>		-
Low_Limit	<input type="checkbox"/>		-
Deadband	<input type="checkbox"/>		-
Limit_Enable	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable.

Analog Outputs

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R	-
Out_Of_Service	<input checked="" type="checkbox"/>	R	-
Units	<input checked="" type="checkbox"/>	R	-
Min_Pres_Value	<input checked="" type="checkbox"/>	R	-
Max_Pres_Value	<input checked="" type="checkbox"/>	R	-
Resolution	<input type="checkbox"/>		-
Priority_Array	<input checked="" type="checkbox"/>	R	-
Relinquish_Default	<input checked="" type="checkbox"/>	W	-
COV_Increment	<input type="checkbox"/>		-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
High_Limit	<input type="checkbox"/>		-
Low_Limit	<input type="checkbox"/>		-
Deadband	<input type="checkbox"/>		-
Limit_Enable	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

Analog Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W ^{1,2}	-
Description	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ³	-
Out_Of_Service	<input checked="" type="checkbox"/>	R	-
Units	<input checked="" type="checkbox"/>	R	-
Priority_Array	<input checked="" type="checkbox"/>	R ³	-
Relinquish_Default	<input checked="" type="checkbox"/>	W ³	-
COV_Increment	<input type="checkbox"/>		-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
High_Limit	<input type="checkbox"/>		-
Low_Limit	<input type="checkbox"/>		-
Deadband	<input type="checkbox"/>		-
Limit_Enable	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable.

²Priority 1 is reserved for the commandable objects application. BACnet writes at priority 1 will fail without changing the value.

³This property is not supported in "Analog Value – Variant 2" objects.

Binary Inputs

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R	-
Out_Of_Service	<input checked="" type="checkbox"/>	R	-
Polarity	<input checked="" type="checkbox"/>	R	-
Inactive_Text	<input checked="" type="checkbox"/>	R	-
Active_Text	<input checked="" type="checkbox"/>	R	-
Change_Of_State_Time	<input type="checkbox"/>		-
Change_Of_State_Count	<input type="checkbox"/>		-
Time_Of_State_Count_Reset	<input type="checkbox"/>		-
Elapsed_Active_Time	<input checked="" type="checkbox"/>	W	Only 0
Time_Of_Active_Time_Reset	<input checked="" type="checkbox"/>	R	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Alarm_Value	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-

Properties	Supported	Readable / Writable	Range restrictions
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable.

Binary Outputs

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ¹	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ²	-
Polarity	<input checked="" type="checkbox"/>	R ²	-
Inactive_Text	<input checked="" type="checkbox"/>	R	-
Active_Text	<input checked="" type="checkbox"/>	R	-
Change_Of_State_Time	<input type="checkbox"/>		-
Change_Of_State_Count	<input type="checkbox"/>		-
Time_Of_State_Count_Reset	<input type="checkbox"/>		-
Elapsed_Active_Time	<input checked="" type="checkbox"/>	W	Only 0
Time_Of_Active_Time_Reset	<input checked="" type="checkbox"/>	R	-
Minimum_Off_Time	<input type="checkbox"/>		-
Minimum_On_Time	<input type="checkbox"/>		-
Priority_Array	<input checked="" type="checkbox"/>	R	-
Relinquish_Default	<input checked="" type="checkbox"/>	W	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Feedback_Value	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Reliability" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Binary Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W ^{1,2}	-
Description	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ³	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ⁴	-
Inactive_Text	<input checked="" type="checkbox"/>	R	-
Active_Text	<input checked="" type="checkbox"/>	R	-
Change_Of_State_Time	<input type="checkbox"/>		-
Change_Of_State_Count	<input type="checkbox"/>		-
Time_Of_State_Count_Reset	<input type="checkbox"/>		-
Elapsed_Active_Time	<input checked="" type="checkbox"/>	W	Only 0
Time_Of_Active_Time_Reset	<input checked="" type="checkbox"/>	R	-
Minimum_Off_Time	<input type="checkbox"/>		-
Minimum_On_Time	<input type="checkbox"/>		-
Priority_Array	<input checked="" type="checkbox"/>	R	-
Relinquish_Default	<input checked="" type="checkbox"/>	W	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Alarm_Value	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writable.

²Priority 1 is reserved for the commandable objects application. BACnet writes at priority 1 will fail without changing the value.

³Object "Reliability" property value is not commandable or writable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

⁴This property is normally writable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Multistate Inputs

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ²	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ³	-
Number_Of_States	<input checked="" type="checkbox"/>	R	-
State_Text	<input checked="" type="checkbox"/>	R	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Alarm_Values	<input type="checkbox"/>		-
Fault_Values	<input type="checkbox"/>		-

Properties	Supported	Readable / Writable	Range restrictions
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²Object "Reliability" property value is not commandable or writable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

³This property is normally writable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Multistate Outputs

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ¹	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ²	-
Number_Of_States	<input checked="" type="checkbox"/>	R	-
State_Text	<input checked="" type="checkbox"/>	R	-
Priority_Array	<input checked="" type="checkbox"/>	R	-
Relinquish_Default	<input checked="" type="checkbox"/>	W	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Feedback_Value	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Reliability" property value is not commandable or writable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²This property is normally writable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Multistate Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Description	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/> ⁴	R ^{2,4}	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ³	-
Number_Of_States	<input checked="" type="checkbox"/>	R	-
State_Text	<input checked="" type="checkbox"/>	R	-
Priority_Array	<input checked="" type="checkbox"/> ⁴	R ⁴	-
Relinquish_Default	<input checked="" type="checkbox"/> ⁴	W ⁴	-
Time_Delay	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Alarm_Values	<input type="checkbox"/>		-
Fault_Values	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²Object "Reliability" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

³This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

⁴This property is not supported for "Multistate Value – Variant 2" objects.

Character String Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ²	-
Description	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Positive Integer Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ²	-
Description	<input checked="" type="checkbox"/>	R	-
Units	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Accumulator

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	R ¹	-
Description	<input checked="" type="checkbox"/>	R	-
Device_Type	<input type="checkbox"/>		-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Event_State	<input checked="" type="checkbox"/>	R	-
Reliability	<input checked="" type="checkbox"/>	R ²	-
Out_Of_Service	<input checked="" type="checkbox"/>	R ³	-
Scale	<input checked="" type="checkbox"/>	W	-
Units	<input checked="" type="checkbox"/>	R	-
Prescale	<input checked="" type="checkbox"/>	R	-
Max_Pres_Value	<input checked="" type="checkbox"/>	R	-
Value_Change_Time	<input checked="" type="checkbox"/>	R	-
Value_Before_Change	<input checked="" type="checkbox"/>	R	-
Value_Set	<input checked="" type="checkbox"/>	W	-
Logging_Record	<input type="checkbox"/>		-
Logging_Object	<input type="checkbox"/>		-
Pulse_Rate	<input type="checkbox"/>		-
High_Limit	<input type="checkbox"/>		-
Low_Limit	<input type="checkbox"/>		-
Limit_Monitoring_Interval	<input type="checkbox"/>		-
Notification_Class	<input type="checkbox"/>		-
Time_Delay	<input type="checkbox"/>		-
Limit_Enable	<input type="checkbox"/>		-
Event_Enable	<input type="checkbox"/>		-
Acked_Transitions	<input type="checkbox"/>		-
Notify_Type	<input type="checkbox"/>		-
Event_Time_Stamps	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹Object "Present_Value" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

²Object "Reliability" property value is not commandable or writeable because "Out_Of_Service" property value is not allowed to be changed via BACnet.

³This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

DateTime Pattern Values

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R	-
Object_Name	<input checked="" type="checkbox"/>	R	-
Object_Type	<input checked="" type="checkbox"/>	R	-
Present_Value	<input checked="" type="checkbox"/>	W	-
Description	<input checked="" type="checkbox"/>	R	-
Status_Flags	<input checked="" type="checkbox"/>	R	-
Property_List	<input checked="" type="checkbox"/>	R	-

Device

Properties	Supported	Readable / Writable	Range restrictions
Object_Identifier	<input checked="" type="checkbox"/>	R ¹	-
Object_Name	<input checked="" type="checkbox"/>	R ¹	-
Object_Type	<input checked="" type="checkbox"/>	R	-
System_Status	<input checked="" type="checkbox"/>	R	-
Vendor_Name	<input checked="" type="checkbox"/>	R	-
Vendor_Identifier	<input checked="" type="checkbox"/>	R	-
Model_Name	<input checked="" type="checkbox"/>	R	-
Firmware_Revision	<input checked="" type="checkbox"/>	R	-
Application_Software_Version	<input checked="" type="checkbox"/>	R	-
Location	<input type="checkbox"/>		-
Description	<input checked="" type="checkbox"/>	R	-
Protocol_Version	<input checked="" type="checkbox"/>	R	1
Protocol_Revision	<input checked="" type="checkbox"/>	R	15
Protocol_Services_Supported	<input checked="" type="checkbox"/>	R	-
Protocol_Object_Types_Supported	<input checked="" type="checkbox"/>	R	-
Object_List	<input checked="" type="checkbox"/>	R	-
Structured_Object_List	<input type="checkbox"/>		-
Max_APDU_Length_Accepted	<input checked="" type="checkbox"/>	W	MS/TP: 50..480 IP: 50..1024
Segmentation_Supported	<input checked="" type="checkbox"/>	W	-
Max_Segments_Accepted	<input checked="" type="checkbox"/>	W	2..16
VT_Classes_Supported	<input type="checkbox"/>		-
Active_VT_Sessions	<input type="checkbox"/>		-
Local_Time	<input checked="" type="checkbox"/>	R	-
Local_Date	<input checked="" type="checkbox"/>	R	-
UTC_Offset	<input checked="" type="checkbox"/>	W	-
Daylight_Savings_Status	<input checked="" type="checkbox"/>	R	-
APDU_Segment_Timeout	<input checked="" type="checkbox"/>	W	500..65535
APDU_Timeout	<input checked="" type="checkbox"/>	W	1000..65535
Number_Of_APDU_Retries	<input checked="" type="checkbox"/>	W	0..65535
List_Of_Session_Keys	<input type="checkbox"/>		-
Time_Synchronization_Recipients	<input type="checkbox"/>		-
Max_Master (MS/TP only)	<input checked="" type="checkbox"/>	W	1..127
Max_Info_Frames (MS/TP only)	<input checked="" type="checkbox"/>	W	1..32
Device_Address_Binding	<input checked="" type="checkbox"/>	R	-
DataBASe_Revision	<input checked="" type="checkbox"/>	R	-
Configuration_Files	<input type="checkbox"/>		-
Last_Restore_Time	<input type="checkbox"/>		-
Backup_Failure_Timeout	<input type="checkbox"/>		-
Backup_Preparation_Time	<input type="checkbox"/>		-
Restore_Preparation_Time	<input type="checkbox"/>		-
Restore_Completion_Time	<input type="checkbox"/>		-
Backup_And_Restore_State	<input type="checkbox"/>		-

Properties	Supported	Readable / Writable	Range restrictions
Active_COV_Subscriptions	<input type="checkbox"/>		-
Slave_Proxy_Enable	<input type="checkbox"/>		-
Manual_Slave_Address_Binding	<input type="checkbox"/>		-
Auto_Slave_Discovery	<input type="checkbox"/>		-
Slave_Address_Binding	<input type="checkbox"/>		-
Last_Restart_Reason	<input type="checkbox"/>		-
Time_Of_Device_Restart	<input type="checkbox"/>		-
Restart_Notification_Recipients	<input type="checkbox"/>		-
UTC_Time_Synchronization_Recipients	<input type="checkbox"/>		-
Time_Synchroization_Interval	<input type="checkbox"/>		-
Align_Intervals	<input type="checkbox"/>		-
Interval_Offset	<input type="checkbox"/>		-
Profile_Name	<input type="checkbox"/>		-
Property_List	<input checked="" type="checkbox"/>	R	-

¹This property is normally writeable but has been disabled from being changed via BACnet by the MicroTech fan controller application.

Revision History

Revision	Date	Changes
ED 19122	April 2023	Initial release
ED 19122-1	September 2023	Updated PICS: changed Device Profile to BACnet Advanced Application Controller, BAA-C and changed Device location and description to writeable. Corrected BO:1 and BO:5 object names.
ED19122-2	July 2024	Significant changes to Data Points and Alarm sections for Control Mode code and addition of EBM fans. Changed BO objects to MSV object types. Removed MSV:23 UnitCtrlModeBN. Fixed all BI ranges to 1=On, 0=Off. Reformatted PICs to application-specific object property types supported; updated Product Name and current BSP 11.58. Corrected ControlMode, UnitMode and CtrlModeCfg parameter descriptions. Corrected MSV:1-MSV:6 and Table 7- Delta Fan ranges. Added Delta alarm code 13. Corrected AV:8 and AV:13 descriptions.
ED19122-3	October 2025	Major update to format and to BACnet Data Points, Alarm, and PIC Sections. Updates support MicroTech fan controller application v2.01. Includes addition of Infinitem Fan BACnet data points.
ED 19122-4	April 2026	Minor formatting changes. Corrected PICs Binary and Multistate Outputs tables for supported vs not supported points.

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