

EcoStruxure™ BMS

MP Series Controllers



MP-C, MP-V

- The EcoStruxure BMS has been designed to strictly comply with the ASHRAE BACnet standard.
- BACnet enables integration between devices designed for a wide variety of applications.
- Natively supports BACnet.
- This Protocol Implementation Conformance Statement (PICS) document details the BACnet Interoperability Building Blocks that are supported in the EcoStruxure BMS.

Protocol Implementation Conformance Statement

Date	July 2018
Vendor name	Schneider Electric
Vendor ID	10
Website	www.schneider-electric.com/buildings

Product name	MP Series Controller
Product model number	MP-C, MP-V
Application software version	1.0

Firmware revision	1.0
Base ASHRAE standard	135-2010
BACnet Protocol version	1
BACnet Protocol revision	12

Product description

The MP Series controllers are native BACnet/IP devices with onboard inputs and outputs.

The models are functionally similar but have different input and output capabilities. See [MP-C and MP-V Matrix Table](#)

Note: Requires EcoStruxure Building Operation Workstation P/N SXWSWORK00001 and SXWSWORK00002 for user interface.

Device Profile Support

Controller Profile

BACnet Building Controller (B-BC)	
BACnet Advanced Application Controller (B-AAC)	X
BACnet Application Specific Controller (B-ASC)	
BACnet Smart Actuator (B-SA)	
BACnet Smart Sensor (B-SS)	

Operator Profile

BACnet Advanced Operator Workstation (B-AWS)	
BACnet Operator Workstation (B-OWS)	
BACnet Operator Display (B-OD)	

Segmentation Capability

Segmentation	Supported	Window Size
Able to transmit segmented messages	X	1
Able to receive segmented messages	X	1

Data Link Layer and Routing Options

Data Link	Supported	Data Rates	Router for Data Link
BACnet/IP	X	Hardware dependent	
Ethernet - ISO 8802_3			
MS/TP slave			
Zigbee			
ARCnet - ANSI/ATA 878.1			
RS-485 ANSI/ATA 878.1			
LonTalk TP/FT - 10			
LonTalk/IP			
Point-to-Point EIA 232			
Point-to-Point - modem			

Other Networking Options

Networking Option	Supported
Static Device Binding Supported	
Annex H, BACnet Tunneling Router over IP	
BACnet Broadcast Management Device (BBMD)	
BBMD supports registration by foreign device	
Device support registration as foreign device	X

Character Sets Supported

Character Sets	Supported
ISO 8859-1	
ISO 10646 (UCS-2)	
ISO 10646 (UCS-4)	
ISO 10646 (UTF-8)	X
IBM/Microsoft DBCS	
JIS C 6226	

Note: For messages received in UTF-8 encoding, responses are transmitted with the narrowest character set for optimal interoperability.

BACnet Interoperability Building Blocks (BIBBs) Support

Data Sharing

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DS-RP-A	ReadProperty-A	x	x	x	x					x
DS-RP-B	ReadProperty-B	x	x	x	x	x	x	x	x	x
DS-RPM-A	ReadPropertyMultiple-A	x	x		x					
DS-RPM-B	ReadPropertyMultiple-B				x	x				x
DS-WP-A	WriteProperty-A	x	x	x	x					x
DS-WP-B	WriteProperty-B				x	x	x	x		x
DS-WPM-A	WritePropertyMultiple-A	x	x							
DS-WPM-B	WritePropertyMultiple-B				x	x				x
DS-COV-A	COV-A									x
DS-COV-B	COV-B									x
DS-COVP-A	COVP-A									
DS-COVP-B	COVP-B									
DS-COVU-A	COV-Unsolicited-A									
DS-COVU-B	COV-Unsolicited-B									
DS-V-A	View-A		x	x						
DS-M-A	Modify-A		x	x						
DS-AV-A	Advanced View-A	x								
DS-AM-A	Advanced Modify-A	x								

BACnet Interoperability Building Blocks (BIBBs) Support

Alarms and Events

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OVS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
AE-N-A	Notification-A	x	x							
AE-N-I-B	Notification Internal-B				x	x				x
AE-N-E-B	Notification External-B									
AE-ACK-A	ACK-A	x	x							
AE-ACK-B	ACK-B				x	x				x
AE-ASUM-A	Summary-A									
AE-ASUM-B	Alarm Summary-B									
AE-ESUM-A	Enrollment Summary-A									
AE-ESUM-B	Enrollment Summary-B				x					
AE-INFO-A	Information-A									
AE-INFO-B	Information-B				x	x				x
AE-LS-A	LifeSafety-A									
AE-LS-B	LifeSafety-B									
AE-AS-A	Alarm Summary-A	x	x							
AE-VN-A	View Notification-A		x	x						
AE-VM-A	View Modify-A		x							
AE-AVM-A	Advanced View Modify-A	x								
AE-AVN-A	Advanced View Notifications-A	x								
AE-ELVM-A	Event Log View and Modify-A	x ¹								

¹ Not required for devices claiming conformance to a protocol revision less than 7.

BACnet Interoperability Building Blocks (BIBBs) Support

Schedules

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
SCHED-I-B	Scheduling - Internal-B					x				x
SCHED-E-B	Scheduling - External-B				x					
SCH-VM-A	Scheduling - View Modify		x							
SCH-AVM-A	Scheduling - Advanced View Modify	x								
SCHED-WS-A	Scheduling - Weekly Schedule-A									
SCHED-WS-I-B	Scheduling Weekly Schedule Internal-B									
SCHED-R-B	Scheduling - Readonly-B									

Note: The SCHED-A BACnet interoperability building block was removed from the BACnet Standard.

Trends

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
T-VMT-I-B	Viewing and Modifying Trends Internal-B				x					x
T-VMT-E-B	Viewing and Modifying Trends External-B									
T-ATR-A	Automated Trend Retrieval-A									
T-ATR-B	Automated Trend Retrieval-B				x					x
T-V-A	View-A		x							
T-A-A	Archiving-A									
T-AVM-A	Advanced View and Modify-A	x								

Note: The T-VMT-A BACnet interoperability building block was removed from the BACnet Standard.

BACnet Interoperability Building Blocks (BIBBs) Support

Device Management

BIBB	Description	BACnet Standard								Product Conformance
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	
DM-DDB-A	Dynamic Device Binding-A	x		x	x					x
DM-DDB-B	Dynamic Device Binding-B	x		x	x	x	x	x ¹	x ¹	x
DM-DOB-A	Dynamic Object Binding-A									
DM-DOB-B	Dynamic Object Binding-B	x		x	x	x	x	x ¹	x ¹	x
DM-DCC-A	DeviceCommunication Control-A	x								
DM-DCC-B	DeviceCommunication Control-B				x	x	x			x
DM-TM-A	Text Message-A									
DM-TM-B	Text Message-B									
DM-TS-A	TimeSynchronization-A									
DM-TS-B	TimeSynchronization-B				x	x	x			x
DM-UTC-A	UTCTimeSynchronization-A									
DM-UTC-B	UTCTimeSynchronization-B				x	x				
DM-RD-A	ReinitializeDevice-A	x								
DM-RD-B	ReinitializeDevice-B				x	x	x			x
DM-BR-A	Backup and Restore-A									
DM-BR-B	Backup and Restore-B									
DM-R-A	Restart-A									
DM-R-B	Restart-B									
DM-LM-A	List Manipulation-A									
DM-LM-B	List Manipulation-B									
DM-OCD-A	Object Creation and Deletion-A	x								
DM-OCD-B	Object Creation and Deletion-B									x

BACnet Interoperability Building Blocks (BIBBs) Support

Device Management (continued)

BIBB	Description	BACnet Standard							Product Conformance	
		B-AWS	B-OVS	B-OD	B-BC	B-AAC	B-ASC	B-SA		B-SS
DM-VT-A	Virtual Terminal-A									
DM-VT-B	Virtual Terminal-B									
DM-ANM-A	Automatic Network Mapping-A	x								
DM-ADM-A	Automatic Device Mapping-A	x								
DM-ATS-A	Automatic Time Synchronization									
DM-MTS-A	Manual Time Synchronization-A	x	x							

¹ Not required if the device is a BACnet MS/TP slave.

BACnet Interoperability Building Blocks (BIBBs) Support

Network Management

BIBB	Description	BACnet Standard							Product Conformance	
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA		B-SS
NM-CE-A	Connection Establishment-A									
NM-CE-B	Connection Establishment-B									
NM-RC-A	Router Configuration-A									
NM-RC-B	Router Configuration-B									

Supported BACnet Object Types

ID	Description	BACnet Standard							Product Conformance			
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported	Creatable	Deletable
0	Analog Input ¹	P	P ²							X	X	X
1	Analog Output ³	P	P							X	X	X
2	Analog Value ⁴	P	P							X	X	X
3	Binary Input ⁵	P	P							X	X	X
4	Binary Output ⁶	P	P							X	X	X
5	Binary Value ⁷	P	P							X	X	X
6	Calendar	P	P							X	X	X
40	CharacterString Value	P	P							X	X	X
44	DateTime Value	P	P							X	X	X
8	Device	X	X	X	X	X	X	X	X	X		
9	Event Enrollment	P	P							X	X	X
10	File	P								X	X	X
12	Loop	P	P							X	X	X
13	Multi-state Input ⁸	P	P							X	X	X
14	Multi-state Output ⁹	P	P							X	X	X
19	Multi-state Value	P	P							X	X	X
15	Notification Class	P	P							X	X	X
16	Program	P	P							X	X	X
17	Schedule	P	P							X	X	X
20	Trend Log	P	P							X	X	X

¹ Creatable and Deletable are not supported for the following Analog Input - Variant Types: CO2, Humidity, Temperature, and Velocity Pressure. They are supported for the Airflow Input, Current Input, Counter Input, Resistive Input, RTD Temperature Input, Temperature Input, and Voltage Input Variant Types.

² P indicates "Proxy Only," which means that the object is only supported by WorkStation.

³ Creatable and Deletable are not supported for the Analog Output - Damper Command Variant Type. They are supported for the Current Output, Damper Output, Digital Pulsed Output, PulseWidthModulated, Tristate Pulsed Output, and Voltage Output Variant Types.

⁴ Creatable and Deletable are not supported for these Analog Value - Variant Types: Flow Setpoint, Analog Reheat, Box Flow, Discharge Air Temp, and Effective Reheat Command.

⁵ Creatable and Deletable are not supported for the Binary Input - Occupancy Variant Type. They are supported for the Digital Input Variant Type.

⁶ Creatable and Deletable are supported for the Binary Output - Digital Output Variant Type.

⁷ Creatable and Deletable are not supported for the Binary Value - Digital Reheat and Fan Operation Variant Types.

⁸ Creatable and Deletable are supported for the Multistate Input - Supervised Input Variant Type.

⁹ Creatable and Deletable are supported for the Multistate Output - Tristate Output Variant Type.

Supported BACnet Proprietary Object Types

ID	Description	BACnet Standard								Product Conformance		
		B-AWS	B-OWS	B-OD	B-BC	B-AAC	B-ASC	B-SA	B-SS	Supported	Creatable	Deletable
	Script Function - Object Type 128											
	IP Network Settings - Object Type 129											
	Room Unit - Object Type 130											
	Room Unit Display - Object Type 131											
	VAV Object - Object Type 132											
	Flow Balance Data - Object Type 133											
	Settings - Object Type 134											

Analog Input (Standard Object)

BACnet Standard Analog Input				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ¹			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
118	update-interval			O	Update interval		
117	units	R			Unit	R	W
69	min-pres-value				Minimum value	R	W
65	max-pres-value				Maximum value	R	W
106	resolution			O	Resolution		
22	cov-increment			O ²	COV increment	R	W
113	time-delay			O ³	Time delay		
17	notification-class			O ³	BACnet notification		
45	high-limit			O ³	Upper limit		
59	low-limit			O ³	Lower limit		
25	deadband			O ³	Deadband		
52	limit-enable			O ³	Limit enable		
35	event-enable			O ³	Event enable		
0	acked-transitions			O ³	Acknowledged transitions		
72	notify-type			O ³	Notify type		
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time		

Analog Input (Standard Object continued)

BACnet Standard Analog Input					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ⁴			
168	profile-name			O		R	W

¹ This property is required to be writable when out-of-service is TRUE.

² These properties are required if, and shall be present only if, the object supports COV reporting.

³ These properties are required if the object supports intrinsic reporting.

⁴ This property, if present, is required to be read-only.

Analog Input (Airflow Input Variant)

BACnet Proprietary Properties Analog Input - Airflow Input				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1609	digital filter	boolean	digital filter	Y
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1626	value offset	real	offset	Y
1631	terminal	characterstring	N/A	Y

Analog Input (CO2 Variant)

BACnet Proprietary Properties Analog Input - CO2				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1631	terminal reference	characterstring	N/A	
1757	calibration mode	enumerated	calibration offset	Y
1759	parent ID	object identifier	N/A	
1760	sensor hardware present	boolean	N/A	

Analog Input (Counter Input Variant)

BACnet Proprietary Properties Analog Input - Counter Input				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1631	terminal reference	characterstring	N/A	
1634	reset counter	boolean	reset counter	Y

Analog Input (Current Input Variant)

BACnet Proprietary Properties Analog Input - Current Input				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	N/A	
1609	digital filter	boolean	digital filter	Y
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1626	value offset	real	offset	Y
1631	terminal	characterstring	terminal	Y

Analog Input (Humidity Variant)

BACnet Proprietary Properties Analog Input - Humidity				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1631	terminal reference	charaterstring	N/A	
1756	calibration offset	real	calibration offset	
1759	parent ID	object identifier	N/A	
1760	sensor hardware present	boolean	N/A	

Analog Input (Resistive Input Variant)

BACnet Proprietary Property Analog Input - Resistive Input				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	N/A	
1609	digital filter	boolean	digital filter	Y
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1626	value offset	real	offset	Y
1631	terminal reference	characterstring	terminal	Y

Analog Input (RTD Temperature Input Variant)

BACnet Proprietary Property Analog Input - RTD Temperature Input				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1609	digital filter	boolean	digital filter	Y
1622	RTD type	unsigned	sensor type	
1626	value offset	real	offset	Y
1631	terminal reference	characterstring	terminal	Y

Analog Input (Temperature Variant)

BACnet Proprietary Properties Analog Input - Temperature				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1631	terminal reference	characterstring	N/A	
1756	calibration offset	real	calibration offset	Y
1759	parent ID	object identifier	N/A	
1760	sensor hardware present	boolean	N/A	

Analog Input (Velocity Pressure Variant)

BACnet Proprietary Properties Analog Input - Velocity Pressure				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1609	digital filter	boolean	digital filter	Y
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1626	value offset	real	offset	Y
1631	terminal	characterstring	N/A	Y

Analog Input (Voltage Input Variant)

BACnet Proprietary Properties Analog Input - Voltage Input				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	electrical type	
1609	digital filter	boolean	digital filter	Y
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1626	value offset	real	offset	Y
1631	terminal reference	characterstring	terminal	Y

Analog Output (Standard Object)

BACnet Standard Analog Output				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value		W		Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability				Reliability	R	
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
69	min-pres-value				Minimum value	R	W
65	max-pres-value				Maximim value	R	W
106	resolution			O	Resolution		
87	priority-array	R			Command Priority Levels	R	
104	relinquish-default	R			Relinquish default	R	W
22	cov-increment			O ¹	COV increment	R	W
113	time-delay			O ²	Time delay		
17	notification-class			O ²	BACnet notification		
45	high-limit			O ²	Upper limit		
59	low-limit			O ²	Lower limit		
25	deadband			O ²	Deadband		
52	limit-enable			O ²	Limit enable		
35	event-enable			O ²	Event enable		
0	acked-transitions			O ²	Acknowledged transitions		
72	notify-type			O ²	Notify type		
130	event-time-stamps			O ²	To-off-normal time To-fault time To-normal time		

Analog Output (Standard Object continued)

BACnet Standard Analog Output					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ³			
168	profile-name			O		R	W

¹ These properties are required if, and shall be present only if, the object supports COV reporting.

² These properties are required if the object supports intrinsic reporting.

³ This property, if present, is required to be read-only.

Analog Output (Current Output Variant)

BACnet Proprietary Properties Analog Output - Current Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	

Analog Output (Damper Command Variant)

BACnet Proprietary Properties Analog Output - Damper Command				
Prop ID	Property description	Data type	Internal property name	Writable
1625	damper position	real	damper position (%)	
1882	output polarity	enumerated	N/A	
1883	damper recalibrate	boolean	recalibrate	

Analog Output (Damper Output Variant)

BACnet Proprietary Properties Analog Output - Damper Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1625	damper position	real	damper position (%)	
1631	terminal	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command	unsigned	active command priority	
1882	output polarity	enumerated	polarity	Y
1883	damper recalibrate	boolean	recalibrate	Y

Analog Output (Digital Pulsed Output Variant)

BACnet Proprietary Properties Analog Output - Digital Pulsed Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	
1882	output polarity	enumerated	polarity	Y

Analog Output (PulseWidthModulatedOutput Variant)

BACnet Proprietary Properties Analog Output - PulseWidthModulatedOutput				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1619	PWM period	unsigned	period (s)	Y
1631	terminal reference	characterstring	terminal	Y
1632	PWM duty cycle	boolean	N/A	
1633	PWM min pulse width	unsigned	PWM minimum pulse (s)	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	
1882	output polarity	enumerated	polarity	Y

Analog Output (Tristate Pulsed Output Variant)

BACnet Proprietary Properties Analog Output - Tristate Pulsed Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	
1882	output polarity	enumerated	polarity	Y

Analog Output (Voltage Output Variant)

BACnet Proprietary Properties Analog Output - Voltage Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1624	autoconversion	list of real	electrical scale top electrical scale bottom engineering scale top engineering scale bottom	Y
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	

Analog Value (Standard Object)

BACnet Standard Analog Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ⁴			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
81	out-of-service	R			Out of service	R	W
117	units	R			Unit	R	W
87	priority-array			O ¹	Command Priority Levels	R	
104	relinquish-default			O ¹	Relinquish default	R	W
22	cov-increment			O ²	COV increment	R	W
113	time-delay			O ³	Time delay	R	W
17	notification-class			O ³	BACnet notification	R	W
45	high-limit			O ³	Upper limit	R	W
59	low-limit			O ³	Lower limit	R	W
25	deadband			O ³	Deadband	R	W
52	limit-enable			O ³	Limit enable	R	W
35	event-enable			O ³	Event enable	R	W
0	acked-transitions			O ³	Acknowledged transitions	R	
72	notify-type			O ³	Notify type	R	W
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time	R	

Analog Value (continued)

BACnet Standard Analog Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ⁵			
168	profile-name			O		R	W

¹ These properties are required if, and shall be present only if, Present_Value is commandable.

² These properties are required if, and shall be present only if, the object supports COV reporting.

³ These properties are required if the object supports intrinsic reporting.

⁴ If Present_Value is commandable, then it is required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

⁸ If this property is present, then the Reliability property shall be present.

Analog Value (continued)

BACnet Proprietary Property Analog Value				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Analog Value (Analog Reheat Variant)

BACnet Proprietary Properties Analog Value - Analog Reheat				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Analog Value (Box Flow Variant)

BACnet Proprietary Properties Analog Value - Box Flow				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Analog Value (Discharge Air Temp Variant)

BACnet Proprietary Properties Analog Value - Discharge Air Temp				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Analog Value (EcoStruxure BMS Consumer Variant)

BACnet Proprietary Properties Analog Value - EcoStruxure BMS Consumer				
Prop ID	Property description	Data type	Internal property name	Writable
1850	MPX poll interval	unsigned	poll interval	Y
1852	MPX subscription type	enumerated	subscription type	Y
1853	MPX input binding reference	object property reference	input binding reference	Y

Analog Value (EcoStruxure BMS Producer Variant)

BACnet Proprietary Properties Analog Value - EcoStruxure BMS Producer				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	Y
1851	MPX write interval	unsigned	guaranteed write interval	Y
1854	list of output binding	device object property reference	output binding references	Y
1855	priority for outbound binding	unsigned	default priority for writing	Y

Analog Value (Effective Reheat Command Variant)

BACnet Proprietary Properties Analog Value - Effective Reheat Command				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Analog Value (Flow Setpoint Variant)

BACnet Proprietary Properties Analog Value - Flow Setpoint				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Binary Input (Standard Object)

BACnet Standard Binary Input				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ¹			Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability				Reliability	R	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O ²	Inactive text	R	W
4	active-text			O ²	Active text	R	W
16	change-of-state-time			O ³	Change of state time		
15	change-of-state-count			O ³	Change of state count		
115	time-of-state-count-reset			O ³	Time of state count reset		
33	elapsed-active-time			O ⁴	Elapsed active time		
114	time-of-active-time-reset			O ⁴	Time of active time reset		
113	time-delay			O ⁵	Time delay		
17	notification-class			O ⁵	BACnet notification		
6	alarm-value			O ⁵	Alarm value		
35	event-enable			O ⁵	Event enable		
0	acked-transitions			O ⁵	Acknowledged transitions		
72	notify-type			O ⁵	Notify type		
130	event-time-stamps			O ⁵	To-off-normal time To-fault time To-normal time		

Binary Input (Standard Object continued)

BACnet Standard Binary Input		SmartX Device							
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts					O ⁶			
168	profile-name					O		R	W

¹ This property is required to be writable when out-of-service is TRUE.

² If one of the optional properties Inactive_Text or Active_Text, is present, then both properties shall be present.

³ If one of the optional properties, Change_Of_State_Time, Change_Of_State_Count, or Time_Of_State_Count_Reset, is present, then all of these properties shall be present.

⁴ If one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.

⁵ These properties are required if the object supports intrinsic reporting.

⁶ This property, if present, is required to be read-only.

Binary Input (Digital Input Variant)

BACnet Proprietary Properties Binary Input - Digital Input				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1631	terminal reference	characterstring	terminal	Y

Binary Input (Occupancy Variant)

BACnet Proprietary Properties Binary Input - Occupancy				
Prop ID	Property description	Data type	Internal property name	Writable
1601	electrical type	characterstring	N/A	
1631	terminal reference	characterstring	N/A	
1758	sensitivity	unsigned	sensitivity	Y
1759	parent ID	object identifier	N/A	
1760	sensor hardware present	boolean	N/A	

Binary Output (Standard Object)

BACnet Standard Binary Output				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value		W		Value	R	W
28	description			O	Description	R	W
31	device-type			O	Device type		
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability				Reliability	R	
81	out-of-service	R			Out of service	R	W
84	polarity	R			Polarity	R	W
46	inactive-text			O ¹	Inactive text	R	W
4	active-text			O ¹	Active text	R	W
16	change-of-state-time			O ²	Change of state time		
15	change-of-state-count			O ²	Change of state count		
115	time-of-state-count-reset			O ²	Time of state count reset		
33	elapsed-active-time			O ³	Elapsed active time		
114	time-of-active-time-reset			O ³	Time of active time reset		
66	minimum-off-time			O	Minimum off time		
67	minimum-on-time			O	Minimum on time		
87	priority-array	R			Command Priority Levels	R	
104	relinquish-default	R			Relinquish default	R	W
113	time-delay			O ⁴	Time delay		
17	notification-class			O ⁴	BACnet notification		
40	feedback-value			O ⁴	Feedback value		
35	event-enable			O ⁴	Event enable		
0	acked-transitions			O ⁴	Acknowledged transitions		

Binary Output (Standard Object - continued)

BACnet Standard Binary Output				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
72	notify-type			O ⁴	Notify type		
130	event-time-stamps			O ⁴	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁵			
168	profile-name			O		R	W

¹ If one of the optional properties Inactive_Text or Active_Text is present, then both of these properties shall be present.

² If one of the optional properties Change_Of_State_Time, Change_Of_State_Count, or Time_Of_State_Count_Reset is present, then all of these properties shall be present.

³ If one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.

⁴ These properties are required if the object supports intrinsic reporting.

⁵ This property, if present, is required to be read-only.

Binary Output (Digital Output Variant)

BACnet Proprietary Properties Binary Output - Digital Output				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	

Binary Value (Standard Object)

BACnet Standard Binary Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ¹			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability		
81	out-of-service	R			Out of service	R	W
46	inactive-text			O ²	Inactive text	R	W
4	active-text			O ²	Active text	R	W
16	change-of-state-time			O ³	Change of state time		
15	change-of-state-count			O ³	Change of state count		
115	time-of-state-count-reset			O ³	Time of state count reset		
33	elapsed-active-time			O ⁴	Elapsed active time		
114	time-of-active-time-reset			O ⁴	Time of active time reset		
66	minimum-off-time			O	Minimum off time		
67	minimum-on-time			O	Minimum on time		
87	priority-array			O ⁵	Command Priority Levels	R	
104	relinquish-default			O ⁵	Relinquish default	R	W
113	time-delay			O ⁶	Time delay	R	W
17	notification-class			O ⁶	BACnet notification	R	W
6	alarm-value			O ⁶	Alarm value	R	W
35	event-enable			O ⁶	Event enable	R	W
0	acked-transitions			O ⁶	Acknowledged transitions	R	
72	notify-type			O ⁶	Notify type	R	W
130	event-time-stamps			O ⁶	To-off-normal time To-fault time To-normal time	R	

Binary Value (Standard Object - continued)

BACnet Standard Binary Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
351	event-message-texts			O ⁷			
168	profile-name			O		R	W

- ¹ If Present_Value is commandable, then it is required to be writable. This property is required to be writable when Out_Of_Service is TRUE.
- ² If one of the optional properties Inactive_Text or Active_Text is present, then both properties shall be present.
- ³ If one of the optional properties Change_Of_State_Time, Change_Of_State_Count, or Time_Of_State_Count_Reset is present, then all of these properties shall be present.
- ⁴ If one of the optional properties Elapsed_Active_Time or Time_Of_Active_Time_Reset is present, then both of these properties shall be present.
- ⁵ These properties are required if, and shall be present only if, Present_Value is commandable.
- ⁶ These properties are required if the object supports intrinsic reporting.
- ⁷ This property, if present, is required to be read-only.

Binary Value (continued)

BACnet Proprietary Property Binary Value				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Binary Value (Digital Reheat Variant)

BACnet Proprietary Properties Binary Value - Digital Reheat				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Binary Value (EcoStruxure BMS Consumer Variant)

BACnet Proprietary Properties Binary Value - EcoStruxure BMS Consumer				
Prop ID	Property description	Data type	Internal property name	Writable
1850	MPX poll interval	unsigned	poll interval	Y
1852	MPX subscription type	enumerated	subscription type	Y
1853	MPX input binding reference	object property reference	input binding reference	Y
1856	COV interval	unsigned	COV interval	Y

Binary Value (EcoStruxure BMS Producer Variant)

BACnet Proprietary Properties Binary Value - EcoStruxure BMS Producer				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	
1851	MPX write interval	unsigned	guaranteed write interval	Y
1854	list of output binding	device object property reference	output binding references	Y
1855	priority for outbound binding	unsigned	default priority for writing	Y

Binary Value (Fan Operation Variant)

BACnet Proprietary Properties Binary Value - Fan Operation				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	

Calendar (Standard Object)

BACnet Standard Calendar				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
46	present-value	R			Value	R	
4	date-list	R				R	W
168	profile-name			O		R	W

CharacterString Value (Standard Object)

BACnet Standard String				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O ³	Event state		
103	reliability			O	Reliability		
81	out-of-service			O	Out of service	R	W
87	priority-array			O ²	Command Priority Levels		
104	relinquish-default			O ²	Relinquish default		
113	time-delay			O ³	Time delay		
7	alarm-values			O ³	Is alarm value		
39	fault-values			O	Is fault value		
35	event-enable			O ³	Event enable		
0	acked-transitions			O ³	Acknowledged transitions		
72	notify-type			O ³	Notify type		
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁴	Event message texts		

CharacterString Value (Standard Object - continued)

BACnet Standard String		SmartX Device							
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
168	profile-name					O		R	W

¹ If present-value is commandable, then it required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

² These properties are required if, and shall be present only if, Present_Value is commandable.

³ These properties are required if the object supports intrinsic reporting.

⁴ This property, if present, is required to be read-only.

DateTime Value (Standard Object)

BACnet Standard DateTime Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
85	present-value	R ¹			Value	R	W
111	status-flags	R			Status flags	R	
36	event-state			O	Event state		
103	reliability			O	Reliability		
81	out-of-service			O	Out of service	R	W
87	priority-array			O ²	Command Priority Levels		
104	relinquish-default			O ²	Relinquish default		
344	Is-UTC			O	Is UTC		
168	profile-name			O		R	W

¹ If Present_Value is commandable, then it is required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

² If Present_Value is commandable, then both of these properties shall be present.

Device (Standard Object)

BACnet Standard Device					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
112	system-status	R			System status	R	
121	vendor-name	R			Vendor name	R	
120	vendor-identifier	R			Vendor identifier	R	
70	model-name	R			Model name	R	
44	firmware-revision	R			Firmware revision	R	
12	application-software-version	R			Application software version	R	
58	location			O	Location	R	W
28	description			O	Description	R	W
98	protocol-version	R			Protocol version	R	
139	protocol-revision	R			Protocol revision	R	
97	protocol-services-supported	R			Services supported	R	
96	protocol-object-types-supported	R			Object types supported	R	
76	object-list	R			View objects in Application folder	R	
209	structured-object-list			O			
62	max-apdu-length-accepted	R			Maximum APDU length accepted	R	
107	segmentation-supported	R			Segmentation supported	R	
167	max-segments-accepted			O ¹	Maximum segments accepted	R	
122	vt-classes-supported			O ²			
5	active-vt-sessions			O ²			
57	local-time			O ^{3,4,15}	Local time	R	
56	local-date			O ^{3,4,15}	Local date	R	
119	utc-offset			O ⁴	UTC offset (min)		
24	daylight-savings-status			O ⁴	Daylight savings		
10	apdu-segment-timeout			O ¹	APDU segment timeout	R	W

Device (Standard Object - continued)

BACnet Standard Device				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
11	apdu-timeout	R			APDU timeout	R	W
73	number-of-apdu-retries	R			Number of APDU retries	R	W
55	list-of-session-keys			O			
116	time-synchronization-recipients			O ⁵	Time synchronization recipients		
64	max-master			O ⁶	Maximum master		
63	max-info-frames			O ⁶	Maximum information frames		
30	device-address-binding	R			View properties of bound devices in Hardware folder.	R	
155	database-revision	R			Database revision	R	
154	configuration-files			O ⁷	Backup configuration files		
157	last-restore-time			O ⁷	Last restore time		
153	backup-failure-timeout			O ⁸	Backup failure timeout		
339	backup-preparation-time	R		O	Backup preparation time		
341	restore-preparation-time	R		O	Restore preparation time		
340	restore-completion-time	R		O	Restore completion time		
338	backup-and-restore-state	R		O ⁷	Backup and restore state		
152	active-cov-subscriptions			O ⁹	Active COV subscriptions	R	
172	slave-proxy-enable			O ¹⁰			
170	manual-slave-address-binding			O ^{10,12}			
169	auto-slave-discovery			O ^{10,11}			
171	slave-address-binding			O ^{10,12}			
196	last-restart-session			O ¹³			
203	time-of-device-restart			O ¹³			
202	restart-notification-recipients			O			

Device (Standard Object - continued)

BACnet Standard Device				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
206	utc-time-synchronization-recipients			O ⁵			
204	time-synchronization-interval			O ¹⁴			
193	align-intervals			O ¹⁴			
195	interval-offset			O ¹⁴			
168	profile-name			O	Profile name	R	

¹ These properties are required if, and shall be present only if, segmentation of any kind is supported.

² These properties are required if, and shall be present only if, the VT Services are supported.

³ If the device supports the execution of the TimeSynchronization service, then these properties shall be present.

⁴ If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.

⁵ If present, this property shall be writable.

⁶ These properties are required if the device is an MS/TP master node.

⁷ These properties are required if, and shall be present only if, the device supports execution of the the backup and restore procedures.

⁸ This property is required if, and shall be present only if, the device supports the backup and restore procedures. If present, the property shall be writable.

⁹ This property is required if, and shall be present only if, the device supports the execution of either the SubscribeCOV or SubscribeCOVProperty service.

¹⁰ This property is required if, and shall be present only if, the device is capable of being a Slave-Proxy device.

¹¹ This property is required if, and shall be present only if, the device is capable of being Slave-Proxy device that implements automatic discovery of slaves.

¹² This property shall be writable if the device is directly connected to an MS/TP network.

¹³ These properties are required if the device supports the restart procedure as described in Clause 19.3.

¹⁴ These properties are required if, and shall be present only if, Time_Synchronization_Recipients or UTC_Time_Synchronization_Recipients is present. If present, these properties shall be writable.

¹⁵ These properties shall be present if the device is capable of tracking date and time.

Notes:

- Number_Of_APDU_Retries is restricted to the range 0..255.

Device (continued)

BACnet Proprietary Properties Device				
Prop ID	Property description	Data type	Internal property name	Writable
517	infinity system path	unsigned	N/A	
1639	MPX serial number	characterstring	serial number	
1706	MPX host server ID	signed integer	host server identifier	
1707	MPX host name	characterstring	host server name	Y
1708	MPX host status	enumerated	host server status	
1709	MPX Script engine revision	characterstring	Script engine revision	
1710	MPX function block engine revision	characterstring	function block engine revision	
1711	MPX application revision	characterstring	application revision	
1712	MPX flash erase count	unsigned	N/A	
1798	MPX freemem	unsigned	N/A	
1799	MPX IO comm error count	unsigned	N/A	
1857	MPX inactive firmware revision	characterstring	inactive firmware revision	
1858	MPX firmware activation time	datetime	firmware activation time	
1859	MPX upgrade status	unsigned	upgrade status	
1860	MPX restart count	unsigned	N/A	

Event Enrollment (Standard Object)

BACnet Standard Event Enrollment					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
37	event-type	R			Alarm Type	R	
72	notify-type	R			Notify type	R	W
83	event-parameters	R			Alarm Trigger	R	W
78	object-property-reference	R			Monitored variable	R	W
36	event-state	R			Event state	R	
35	event-enable	R			Event enable	R	W
0	acked-transitions	R			Acknowledged transitions	R	
17	notification-class	R			BACnet notification	R	W
130	event-time-stamps	R			To-off-normal time To-fault time To-normal time	R	
351	event-message-texts			O ¹			
168	profile-name			O		R	W

¹ This property, if present, shall be read-only.

Notes:

- Event_Type limited to Change_Of_State, Change_Of_Value, Floating_Limit, Out_Of_Range and Buffer Ready.
- Object_Property_Reference must reference Present_Value of point in same controller.

Event Enrollment (continued)

BACnet Proprietary Property Event Enrollment				
Prop ID	Property description	Data type	Internal property name	Writable
1637	units	enumerated	unit	Y
1638	interval value	any	N/A	
1824	signal evaluation	boolean	N/A	
1825	alarm state	enumerated	alarm state	
1828	alarm SP value	any	N/A	

Loop (Standard Object)

BACnet Standard Loop					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ⁷			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O ⁷	Reliability	R	
81	out-of-service	R			Out of service	R	W
118	update-interval			O	Update interval (ms)	R	W
82	output units	R			Unit	R	W
60	manipulated-variable-reference	R			Manipulated variable reference	R	W
19	controlled-variable-reference	R			Controlled variable reference	R	W
21	controlled-variable-value	R			Controlled variable value	R	
20	controlled-variable-units	R			Unit	R	W
109	setpoint-reference	R			Setpoint reference	R	W
108	setpoint	R			Setpoint	R	W
2	action	R			Action	R	W
93	proportional-constant			O ¹	Proportional constant	R	W
94	proportional-constant-units			O ¹	Unit	R	W
49	integral-constant			O ²	Integral constant	R	W
50	integral-constant-units			O ²	Unit	R	W
26	derivative-constant			O ³	Derivative constant	R	W
27	derivative-constant-units			O ³	Unit	R	W
14	bias			O	Bias	R	W
61	maximum-output			O	Maximum output	R	W
68	minimum-output			O	Minimum output	R	W
88	priority-for-writing	R			Priority for writing	R	
22	cov-increment			O ⁴	COV increment		

Loop (continued)

BACnet Standard Loop				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
113	time-delay			O ⁵	Time delay (s)		
17	notification-class			O ⁵	BACnet notification		
34	error-limit			O ⁵	Error limit		
25	deadband			O ⁵	Deadband		
35	event-enable			O ⁵	Event enable		
0	acked-transitions			O ⁵	Acknowledged transitions		
72	notify-type			O ⁵	Notify type		
130	event-time-stamps			O ⁵	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁶			
168	profile-name			O		R	W

- ¹ If one of these optional properties is present, then both of these properties shall be present.
- ² If one of these optional properties is present, then both of these properties shall be present.
- ³ If one of these optional properties is present, then both of these properties shall be present.
- ⁴ This property is required if, and shall be present only if, the object supports COV reporting.
- ⁵ These properties are required if the object supports intrinsic reporting.
- ⁶ This property, if present, is required to be read-only.

Multi-state Input (Standard Object)

BACnet Standard Multi-state Input				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ¹			Value	R	W
28	description			O	Description	R	W
31	device-type			O			
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
110	state-text			O	Label	R	
113	time-delay			O ³	Time delay (s)		
17	notification-class			O ³	BACnet notification		
7	alarm-values			O ³	Is alarm value		
39	fault-values			O	Is fault value		
35	event-enable			O ³	Event enable		
0	acked-transitions			O ³	Acknowledged transitions		
72	notify-type			O ³	Notify type		
130	event-time-stamps			O ³	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁴			

Multi-state Input (continued)

BACnet Standard Multi-state Input							SmartX Device	
ID	BACnet property name	Required Readable	Required Writable	Optional		Internal Device property name	Readable	Writable
168	profile-name			O			R	W

¹ This property is required to be writable when Out-Of-Service is TRUE.

² Footnote removed

³ These properties are required if the object supports intrinsic reporting.

⁴ This property, if present, is required to be read-only.

Multi-state Input (Supervised Input Variant)

BACnet Proprietary Properties Multi-state Input - Supervised Input				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	N/A	
1611	supervised type	unsigned	supervised circuit type	Y
1612	supervised value	unsigned	supervised resistor value	Y
1631	terminal reference	characterstring	terminal	Y

Multi-state Output (Standard Object)

BACnet Standard Multi-state Output					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value		W		Value	R	W
28	description			O	Description	R	W
31	device-type			O			
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
110	state-text			O	Label	R	
87	priority-array	R			Command priority levels	R	
104	relinquish-default	R			Relinquish default	R	W
113	time-delay			O ¹			
17	notification-class			O ¹			
40	feedback-value			O ¹			
35	event-enable			O ¹			
0	acked-transitions			O ¹			
72	notify-type			O ¹			
130	event-time-stamps			O ¹			
351	event-message-texts			O ²			

Multi-state Output (continued)

BACnet Standard Multi-state Output		SmartX Device					
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
168	profile-name			O		R	W

¹ These properties are required if the object supports intrinsic reporting.

² This property, if present, is required to be read-only.

Multi-state Output (Tristate Output Variant)

BACnet Proprietary Properties Multi-state Output - Tristate Output Variant				
Prop ID	Property description	Data type	Internal property name	Writable
1600	channel number	unsigned	N/A	
1601	electrical type	characterstring	electrical type	
1631	terminal reference	characterstring	terminal	Y
1635	electrical value	real	electrical value	
1829	active command priority	unsigned	active command priority	
1882	output polarity	enumerated	polarity	Y

Multi-state Value (Standard Object)

BACnet Standard Multi-state Value				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R ¹			Value	R	W
28	description			O	Description	R	W
111	status-flags	R			Status flags	R	
36	event-state	R			Event state	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
74	number-of-states	R			Number of states	R	
110	state-text			O	Label	R	
87	priority-array			O ³	Command Priority Levels	R	
104	relinquish-default			O ³	Relinquish default	R	W
113	time-delay			O ⁴	Time delay (s)		
17	notification-class			O ⁴	BACnet notification		
7	alarm-values			O ⁴	Is alarm value		
39	fault-values			O	Is fault value		
35	event-enable			O ⁴	Event enable		
0	acked-transitions			O ⁴	Acknowledged transitions		
72	notify-type			O ⁴	Notify type		
130	event-time-stamps			O ⁴	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁵			

Multi-state Value (continued)

BACnet Standard Multi-state Value		SmartX Device					
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
168	profile-name			O		R	W

¹ If Present_Value is commandable, then it is required to be writable. This property is required to be writable when Out_Of_Service is TRUE.

² Footnote removed.

³ These properties are required if, and shall be present only if, Present_Value is commandable.

⁴ These properties are required if the object supports intrinsic reporting.

⁵ This property, if present, is required to be read-only.

Multistate Value (EcoStruxure BMS Consumer Variant)

BACnet Proprietary Properties Multistate Value - EcoStruxure BMS Consumer				
Prop ID	Property description	Data type	Internal property name	Writable
1850	MPX poll interval	unsigned	poll interval	Y
1852	MPX subscription type	enumerated	subscription type	Y
1853	MPX input binding reference	object property reference	input binding reference	Y
1856	COV interval	unsigned	COV interval	Y

Multistate Value (EcoStruxure BMS Producer Variant)

BACnet Proprietary Properties Multistate Value - EcoStruxure BMS Producer Variant				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	Y
1851	MPX write interval	unsigned	guaranteed write interval	Y
1854	list of output binding	device object property reference	output binding references	Y
1855	priority for outbound binding	unsigned	default priority for writing	Y

Multistate Value (MS Value Variant)

BACnet Proprietary Property Multistate Value - MS Value				
Prop ID	Property description	Data type	Internal property name	Writable
1829	active command priority	unsigned	active command priority	Y

Network Port (Object Type 129 Variant)

BACnet Proprietary Properties Network Port - Object Type 129				
Prop ID	Property description	Data type	Internal property name	Writable
400	IP address	octet string	IP address	Y
401	IP default gateway	octet string	default gateway	Y
402	IP DHCP enable	boolean	IP assignment	Y
408	BACnet IP mode	BACnetIPmode	IP mode	Y
411	IP subnet mask	octet string	subnet mask	Y
412	BACnet IP UDP port	unsigned	IP port number	Y
416	changes pending	boolean	changes pending	
417	command	BACnetnetworkport-command	command status	
419	foreign device subscription lifetime	unsigned	subscription lifetime	Y
1703	MPX BBMD address	octet string	BBMD address	Y
1705	faulting check	unsigned	reliability	

IP Network Settings (Proprietary Object Type 129)

BACnet Standard IP Network Settings				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
103	reliability				Reliability	R	
168	profile-name				Profile name	R	

Notification Class (Standard Object)

BACnet Standard Notification Class				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
17	notification-class	R			BACnet notification	R	
86	priority	R			Priority-to-off-normal Priority-to-fault Priority-to-normal	R	W
1	ack-required	R			Acknowledgement required	R	W
102	recipient-list	R			Recipient rules	R	W
168	profile-name			O		R	W

Program (Standard Object)

BACnet Standard Program				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
92	program-state	R			Program state	R	
90	program-change		W		Program change	R	W
100	reason-for-halt			O ¹	Reason for halt		
29	description-of-halt			O ¹	Description for halt		
91	program-location			O	Program location		
28	description			O	Description	R	W
48	instance-of			O			
111	status-flags	R			Status flags	R	
103	reliability			O	Reliability	R	
81	out-of-service	R			Out of service	R	W
168	profile-name			O		R	W

¹ If one of the optional properties, Reason_For_Halt or description_Of_Halt, is present, then both of these properties shall be present.

Program (FB Program Variant)

BACnet Proprietary Properties Program - FB Program				
Prop ID	Property description	Data type	Internal property name	Writable
1801	program complete	boolean	N/A	
1802	program execution precedence	unsigned	execution precedence	Y
1803	number of cycles	unsigned	number of cycles	
1804	latest exec time	double	last execution time (ms)	
1805	min exe time	double	minimum execution time (ms)	
1806	max exe time	double	maximum execution time (ms)	
1807	enabled	boolean	enabled	Y
1809	program task	enumerated	task	Y
1811	program variables	programvalue	N/A	
1830	is library based	boolean	N/A	

Program (Script Program Variant)

BACnet Proprietary Properties Program - Script Program				
Prop ID	Property description	Data type	Internal property name	Writable
1800	trigger list	list of object identifier	triggers	Y
1801	program complete	boolean	N/A	
1802	program execution precedence	unsigned	execution precedence	Y
1807	enabled	boolean	enabled	Y
1809	program task	enumerated	task	Y
1810	trigger signal	any primitive value	N/A	
1811	program variables	programvalue	N/A	
1812	program current line	characterstring	current line	
1813	line start time	datetime	line start time	
1814	program line time in seconds	unsigned	TS	
1815	program line time in minutes	unsigned	TM	
1816	program line time in hours	unsigned	TH	
1817	program line time in days	unsigned	TD	

Program (Script Program Variant - continued)

BACnet Proprietary Properties Program - Script Program				
Prop ID	Property description	Data type	Internal property name	Writable
1818	program scan	real	N/A	
1819	program error	unsigned	error	
1820	program debug mode	boolean	N/A	
1821	function refs	array of object identifiers	N/A	
1822	program flow type	unsigned	flow type	Y
1823	program restart	boolean	restart	Y
1827	apply initial value	boolean	apply start value	Y
1830	is library based	boolean	N/A	

Script Function (Proprietary Object Type 128)

BACnet Standard Script Function					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
168	profile-name				Profile name	R	

Script Function (Object Type 128 Variant)

BACnet Proprietary Properties Script Function - Object Type 128				
Prop ID	Property description	Data type	Internal property name	Writable
1801	program complete	boolean	N/A	
1811	program variables	programvalue	N/A	
1821	function refs	array of object identifiers	N/A	

Room Unit (Proprietary Object Type 130)

BACnet Standard Room Unit					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
44	firmware-revision				Firmware revision	R	
75	object-identifier	R			Object ID	R	
76	object-list				N/A	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
112	system-status				System status	R	
168	profile-name				Profile name	R	

Room Unit (continued)

BACnet Proprietary Properties Room Unit				
Prop ID	Property description	Data type	Internal property name	Writable
1627	commissioning tool enable	boolean	commissioning tool enable	Y
1628	commissioning tool detected	boolean	commissioning tool detected	
1726	address	unsigned	address	Y
1727	base model	characterstring	base model	
1728	cover model	characterstring	cover model	
1732	ECO mode	boolean	ECO mode	Y

Room Unit Display (Proprietary Object Type 131)

BACnet Standard Room Unit Display					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
168	profile-name				Profile name	R	

Room Unit (Display Variant)

BACnet Proprietary Properties Room Unit - Display				
Prop ID	Property description	Data type	Internal property name	Writable
1729	fan speed	enumerated	fan speed	Y
1730	occupancy override	FALSE	occupancy override	Y
1731	HVAC mode	enumerated	HVAC mode	Y
1733	heating cooling status	enumerated	heating cooling status	Y
1734	custom text 1	characterstring	custom value text 1	Y
1735	custom text 2	characterstring	custom value text 2	Y
1736	custom text 3	characterstring	custom value text 3	Y
1737	custom text 4	characterstring	custom value text 4	Y
1738	show time	boolean	show time	Y
1739	time format	enumerated	time format	Y
1740	show CO2	boolean	show CO2	Y
1741	show humidity	boolean	show humidity	Y
1742	temperature units	enumerated	temperature units	Y
1743	allowed fan speeds	enumerated	allow fan speeds	Y
1744	enable wall back lighting	boolean	enable wall back lighting	Y
1745	allowed HVAC modes	enumerated	allow HVAC modes	Y
1746	allowed setpoint changes	enumerated	allow setpoint changes	Y
1747	setpoint high limit	real	setpoint high limit	Y
1748	setpoint low limit	real	setpoint low limit	Y
1749	allowed fan speed changes	enumerated	allow fan speed changes	Y
1750	allowed occupancy overrides	enumerated	allow occupancy overrides	Y
1751	allowed HVAC mode changes	enumerated	allow HVAC mode changes	Y
1752	allow menu page	boolean	allow menu pages	Y
1753	allow information pages	boolean	N/A	Y
1754	allow temperature unit changes	boolean	N/A	Y
1755	display backlight	enumerated	display back light	Y
1760	sensor hardware present	boolean	N/A	Y
1761	allow information pages array	boolean	N/A	Y

Settings (Proprietary Object Type 134)

BACnet Standard Settings				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
103	reliability				Reliability	R	
168	profile-name				Profile name	R	

Settings (Object Type 129 Variant)

BACnet Proprietary Properties Settings - Object Type 129				
Prop ID	Property description	Data type	Internal property name	Writable
1884	display network information	boolean	display network information	Y
1885	MPX Ethernet port 2 enable	boolean	Ethernet port 2	Y
1886	MPX USB host enable	boolean	N/A	
1887	MPX USB device enable	boolean	N/A	
1888	MPX whitelist enable	boolean	white list	Y
1889	MPX sensor bus enable	boolean	sensor bus	Y
1890	MPX RSTP status	boolean	RSTP	Y
1892	MPX whitelist	list of unsigned	allowed IP addresses	Y
1893	MPX display attached	enumerated	display	
1894	MPX sensor bus status	enumerated	sensor bus	
1895	MPX hand override control	boolean	hand override control	Y

Schedule (Standard Property)

BACnet Standard Schedule				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
85	present-value	R			Value	R	W
28	description			O	Description	R	W
32	effective-period	R			Effective period	R	W
123	weekly-schedule			O ¹	Weekly	R	W
32	exception-schedule			O ¹	Exception	R	W
174	schedule-default	R			Default value	R	W
54	list-of-object-property-references	R			Object property references	R	
88	priority-for-writing	R			Priority for writing	R	
111	status-flags	R			Status flags	R	
103	reliability	R			Reliability	R	
81	out-of-service	R			Out of service	R	W
168	profile-name			O		R	W

Schedule (continued)

BACnet Standard Schedule		SmartX Device							
ID	BACnet property name	Required	Readable	Required	Writable	Optional	Internal Device property name	Readable	Writable
512	proprietary-property-512						Previous transition time	R	
513	proprietary-property-513						Next transition time	R	
514	proprietary-property-514						Following transition time	R	
518	proprietary-property-518						Time since previous transition (min)	R	
519	proprietary-property-519						Time to next transition (min)	R	
520	proprietary-property-520						Time to following transition (min)	R	
521	proprietary-property-521						Next transition value	R	
522	proprietary-property-522						Following transition value	R	

¹ At least one of these properties is required.

Support for Optimum Start-Stop

The controller includes a proprietary extension that can be used, together with programs, to optimize the start and stop times for heating and cooling systems based on scheduled occupancy times. The extension consists of the following proprietary properties of the Schedule object type.

Schedule Property	ID	Description
Previous_Transition_Time	512	The date and time when the Schedule's present-value most recently changed value.
Next_Transition_Time	513	The date and time when the Schedule's present-value is next scheduled to change value.
Following_Transition_Time	514	The time when the Schedule's present-value is next scheduled to change value after the time indicated by Next_Transition.
Time since previous transition (min)	518	The elapsed time in minutes or parts since the present-value previous last changed.
Time to next transition (min)	519	The amount of time in minutes before the present-value changes.
Time to following transition (min)	520	The amount of time in minutes before present-value changes to the Following transition value.
Next transition value	521	The present-value of the referenced property after the next transition.
Following transition value	522	The present-value after two changes.

Schedule (continued)

BACnet Proprietary Properties Schedule				
Prop ID	Property description	Data type	Internal property name	Writable
512	previous transition time	unsigned	previous transition time	
513	next transition time	unsigned	next transition time	
514	following transition time	unsigned	following transition time	
518	minutes from previous transition	unsigned	time since previous transition (min)	
519	minutes to next transition	unsigned	time to next transition (min)	
520	minutes to following transition	unsigned	time to following transition (min)	
521	next transition value	any value	next transition value	
522	following transition value	any value	following transition value	
1637	units	enumerated	units transition units	
1650	menta time to transition	signed integer	N/A	

Trend Log (Standard Object)

BACnet Standard Trend Log					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
28	description			O	Description	R	W
133	enable		W		Log enable	R	W
142	start-time			O ^{1,2}	Start time	R	W
143	stop-time			O ^{1,2}	Stop time	R	W
132	log-device-object-property			O	Log device object property	R	W
134	log-interval			O ^{1,3}	Log interval	R	W
128	cov-resubscription-interval			O	COV resubscription interval	R	
127	client-cov-increment			O	Delta		
144	stop-when-full	R			Stop when full	R	W
126	buffer-size	R			Buffer size	R	W
131	log-buffer	R			Trend log list	R	
141	record-count		W		Record count	R	W
145	total-record-count	R			Total record count	R	
197	logging-type	R				R	W
193	align-intervals			O ⁵			
195	interval-offset			O ⁵			
205	trigger			O			
111	status-flags	R			Status flags	R	
103	reliability			O			
137	notification-threshold			O ⁴	Notification threshold		
140	records-since-notification			O ⁴	Records since notification		
173	last-notify-record			O ⁴	Last notify record		
36	event-state	R			Event state	R	
17	notification-class			O ⁴	BACnet notification		
35	event-enable			O ⁴	Event enable		
0	acked-transitions			O ⁴	Acknowledged transitions		
72	notify-type			O ⁴	Notify type		

Trend Log (continued)

BACnet Standard Trend Log				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
130	event-time-stamps			O ⁴	To-off-normal time To-fault time To-normal time		
351	event-message-texts			O ⁶			
168	profile-name			O	Profile name	R	W

¹ These properties are required if the monitored property is a BACnet property.

² If present, these properties are required to be writable.

³ If present, these properties are required to be writable when Logging_Type has the value POLLED or the value COV. Also, if present this property is required to be read-only if Logging_Type has the value TRIGGERED.

⁴ These properties are required if the object supports intrinsic reporting.

⁵ These properties are required if, and shall be present only if, the object supports clock-aligned logging.

⁶ This property, if present, is required to be read-only.

Notes:

- Log_Device_Object_Property is limited to reference objects in the same device.
- In Start_Time and Stop_Time, dates are restricted to years 1989-2105.
- Buffer_Size is required to be at least 2 but is otherwise limited only by available memory.

Trend Log (continued)

BACnet Proprietary Property Trend Log				
Prop ID	Property description	Data type	Internal property name	Writable
1637	units	enumerated	units	Y

Flow Balance Data (Proprietary Object Type 133)

BACnet Standard Flow Balance Data				SmartX Device			
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
168	profile-name				Profile name	R	

Flow Balance Data (Object Type 133 Variant)

BACnet Proprietary Properties Flow Balance Data - Object Type 133				
Prop ID	Property description	Data type	Internal property name	Writable
1861	rated boxflow	real	rated box flow (l/s)	Y
1862	actuator rotation	boolean	actuator rotation	Y
1863	box maxflow	real	box measured flow (l/s)	Y
1864	box intermediate flow	real	box measured intermediate flow (l/s)	Y
1865	box minflow	real	box measured minimum flow (l/s)	Y
1866	hood maxflow	real	hood measured maximum flow (l/s)	Y
1867	hood intermediate flow	real	hood measured intermediate flow (l/s)	Y
1868	hood minflow	real	hood measured minimum flow (l/s)	Y
1869	FB datetime	datetime	flow balanced datetime	Y
1870	FB status	unsigned	flow balanced status	Y
1871	FB comment	characterstring	flow balance comment	Y

VAV Object (Proprietary Object Type 132)

BACnet Standard VAV Object					SmartX Device		
ID	BACnet property name	Required Readable	Required Writable	Optional	Internal Device property name	Readable	Writable
25	deadband				Deadband	R	
28	description				Description	R	W
75	object-identifier	R			Object ID	R	
77	object-name	R			BACnet name	R	W
79	object-type	R			BACnet type	R	
168	profile-name				Profile name	R	

VAV Object (Object Type 132 Variant)

BACnet Proprietary Properties VAV Object - Object Type 132				
Prop ID	Property description	Data type	Internal property name	Writable
1872	maxflow setpoint	real	maximum flow setpoint (l/s)	Y
1873	intermediate flow setpoint	real	intermediate flow setpoint (l/s)	Y
1874	minflow setpoint	real	minimum flow setpoint (l/s)	Y
1875	balanced K factor	real	balanced k-factor (l/s)	Y
1876	flow correction factor	real	balanced flow correction factor	Y
1877	pressure transducer status	enumerated	pressure transducer status	Y
1878	damper status	enumerated	damper status	Y
1879	damper stroke	real	damper stroke (deg)	Y
1880	raw flow	real	raw flow (l/s)	Y
1881	command timeout	unsigned	flow balance command timeout (min)	Y

MP-C and MP-V Matrix Table

The following table lists the MP-C and MP-V models and their supported I/O types and capabilities.

Model	Description
MP-C-15A	MP-C, 15 Points, 8 Universal I/O, 6 Triacs, 1 High Power Relay, 24VAC/DC
MP-C-18A	MP-C, 18 Points, 10 Universal I/O, 4 Triacs, 3 SPST Relay, 1 High Power Relay, 24VAC/DC
MP-C-18B	MP-C, 18 Points, 10 Universal I/O, 8 Triacs, 24VAC/DC
MP-C-24A	MP-C, 24 Points, 12 UIO type C, 12 Form A relay, 24VAC/DC
MP-C-36A	MP-C, 36 Points, 18 UIO type C, 18 Form A relay, 24VAC/DC
MP-V9	MP-V, 9 points, 4 UI, 3 Digital Output (Triac), 2 Analog Output 24VAC/DC
MP-V7	MP-V, 7 points, 4 UI, 3 Digital Output (Triac), 24VAC/DC
MP-V4	MP-V, 4 points, 4 UI, 3 Digital Output (Triac), 24VAC/DC

Vendor Specific Implementations

Restrictions on Object Names and Identifiers

The instance number portion of the Object_Identifier property has a restricted range, which depends to some extent on the object type. The following table lists the valid range of the instance numbers.

Object Type	Minimum Instance Number	Maximum Instance Number
Device	0	4194302
All standard user-creatable objects	10	64,000
Built-in	64,001	65,535

The following table lists the maximum character length of object names and descriptions.

Property	Maximum Size in Bytes	Comments
Name	32 bytes maximum, character number may vary	The object name may not begin with a space. Otherwise, there are no restrictions.
Description	1000 characters	

Interpretation of Wild Cards in Dates

This section describes how the controllers, especially in the context of the Schedule properties Exception_Schedule and Effective_Period, and the Calendar property Date_List, interpret wildcards.

The following conditions in a date range are treated as errors and prevent a WriteProperty from completing:

1. A day-of-week is specified, but two or fewer of the other fields in the Date are specified.
2. A day-of-week is specified but is inconsistent with the Date specified by the other fields.
3. A year field is specified that is outside the range limit of 1989-2105.
4. The EndDate is earlier than the StartDate.
5. Any of the specified fields are out of range, for example, 31st day of February.

Unsigned Numbers Restrictions

Any property or service parameter that is an unsigned number has an upper limit restriction of $2^{32} - 2$ (4294967294). This upper limit restriction is one less than the full range of all possible 32 bit numbers.

Multistate Object Restrictions

Multistate objects (input, output) have 3 states, while multistate value objects have 32 states.

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