Liebert® iCOM™ CMS

Reference Guide

BACnet Protocol Implementation Conformance Statement

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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1 BACnet Protocol Implementation Conformance Statement

Vendor Name: Vertiv™

Product Name: Liebert® iCOM™ CMS

BACnet Protocol Version.Revision: 1.9

This document describes the Services and Objects supported in the Liebert® iCOM™ CMS BACnet protocol implementation. Data points of the managed device are mapped to BACnet objects that are automatically created in the card when the device is discovered. The connection is a 10/100BaseT Ethernet port that supports device-data access using BACnet/IP, or an RS-485 port that supports device-data access using BACnet MSTP. A web interface provides access to device information as well as card configuration and administration.

1.1 BIBBs Support

Name	Description
DS-RP-B	Data Sharing - ReadProperty-B
DS-RPM-B	Data Sharing - ReadPropertyMultiple-B
DS-WP-B	Data Sharing - WriteProperty-B
DS-WPM-B	Data Sharing - WritePropertyMultiple-B
DS-COV-B	Data Sharing - COV-B
DM-DDB-B	Device Management - Dynamic Device Binding-B
DM-DOB-B	Device Management - Dynamic Object Binding-B

1.2 Segmentation Capability

Not supported.

1.3 Supported Services

Service	Initiate	Execute
Alarm and Event Services		
AcknowledgeAlarm		
ConfirmedCOVNotification	x	
UnconfirmedCOVNotification	x	
ConfirmedEventNotification		
UnconfirmedEventNotification		
GetAlarmSummary		
GetEnrollmentSummary		
GetEventInformation		
LifeSafetyOperation		
SubscribeCOV		x
SubscribeCOVProperty		
File Access Services		
AtomicReadFile		
AtomicWriteFile		
Object Access Services		
AddListElement		
RemoveListElement		
CreateObject		
DeleteObject		
ReadProperty		x
ReadPropertyConditional		
ReadPropertyMultiple		x
WriteProperty		x
WritePropertyMultiple		x
ReadRange		
Remote Device Management Services		
DeviceCommunicationControl		
ConfirmedPrivateTransfer		
UnconfirmedPrivateTransfer		
ReinitializeDevice		
ConfirmedTextMessage		
UnconfirmedTextMessage		

Service	Initiate	Execute
TimeSynchronization		
UTCTimeSynchronization		
Who-Has		X
I-Have	X	
Who-Is		X
I-Am	X	
Virtual Terminal Services		
VT-Open		
VT-Close		
VT-Data		

1.4 Standard Object Types Supported

Object type	X = supported
Accumulator	
Analog Input	X
Analog Output	X
Analog Value	X
Averaging	
Binary Input	X
Binary Output	X
Binary Value	X
Calendar	
Command	
Device	X
Event Enrollment	
File	
Group	
Life Safety Point	
Life Safety Zone	
Loop	
Multi-state Input	X
Multi-state Output	X
Multi-state Value	X
Notification Class	
Program	

Object type	X = supported
Pulse Converter	
Schedule	
Trend Log	
Access Door	
Event Log	
Load Control	
Structured View	
Trend Log Multiple	

1.5 Object Properties

The following object properties are supported. All properties are read-only unless otherwise noted.

1.5.1 Device Object

The Device object represents the agent (the card) rather than the managed device.

Property	Comments
Object_Identifier	The card must be configured with a unique Device Instance Number to avoid interference with other cards on the same BACnet network.
Object_Name	Writable. If the Device Object Name is changed from the default, the configured name must be unique to avoid interference with other cards on the same BACnet network.
Object_Type	
System_Status	
Vendor_Name	
Vendor_Identifier	
Model_Name	
Firmware_Revision	
Application_Software_Version	
Location	
Description	
Protocol_Version	
Protocol_Revision	
Protocol_Services_Supported	
Protocol_Object_Types_Supported	
Object_List	
Max_APDU_Length_Accepted	
Segmentation_Supported	

Property	Comments
Local_Time	
Local_Date	
UTC_Offset	
Daylight_Savings_Status	
APDU_Timeout	Writable. Range: 1-65,535 ms. Default 3000 ms.
Number_Of_APDU_Retries	Writable. Range: 0-8. Default 3.
Device_Address_Binding	
Database_Revision	
Active_COV_Subscriptions	

1.5.2 Analog Object

Property	Analog Input	Analog Output	Analog Value	Comments
Object_Identifier	x	x	x	
Object_Name	x	x	x	
Object_Type	x	x	x	
Present_Value	x	x	x	Writable if 1) object is Analog Output, or 2) object is Analog Value and the associated device data point is writable, or 3) Out_Of_Service is True
Description	x	x	x	
Status_Flags	x	x	x	
Event_State	x	x	x	
Reliability	x	x	x	
Out_Of_Service	x	x	x	Writable. Values: True/False. Default: False.
Units	x	x	x	See below.
Priority_Array		x	(x)	Supported in analog objects that map to writable data points.
Relinquish_Default		x	(x)	Supported in analog objects that map to writable data points. The value is equal to the Present_Value so that if all entries in the Priority_Array are relinquished, the Present_Value does not change.
COV_Increment	x	x	x	Writable. Default: 0.5.

Units

Possible values of the Units property includes the BACnet Engineering Units defined in the BACnet standard, plus these additional proprietary units values:

Value	Units
256	Ampere-Hours
257	MilliHertz (.001 Hertz)
258	GigaHertz (1,000,000,000 Hertz)
259	PSI - Absolute
260	Total Harmonic Distortion (%)
261	Microhms (.000001 Ohms)
262	Bytes
263	Kilobytes
264	Megabytes
265	Gigabytes
266	Terabytes
267	Volt-Ampere-Hours
268	KiloVolt-Ampere-Hours

Value	Units
269	Volt-Ampere-Reactive-Hours
270	KiloVolt-Ampere-Reactive-Hours
271	Grams of Water per Cubic Meter of Air
272	Torrs
273	MilliTorrs

1.5.3 Binary Object Properties

Property	Binary Input	Binary Output	Binary Value	Comments
Object_Identifier	x	x	x	
Object_Name	x	x	x	
Object_Type	x	x	x	
Present_Value	x	x	x	Writable if 1) object is Binary Output, or 2) object is Binary Value and the associated device data point is writable, or 3) Out_Of_Service is True
Description	x	x	x	
Status_Flags	x	x	x	
Event_State	x	x	x	
Reliability	x	x	x	
Out_Of_Service	x	x	x	Writable. Values: True/False. Default: False.
Polarity	x	x		
Inactive_Text	x	x	x	
Active_text	x	x	x	
Priority_Array		x	(x)	Supported in binary objects that map to writable data points.
Relinquish_Default		x	(x)	Supported in binaryobjects that map to writable data points. The value is equal to the Present_Value so that if all entries in the Priority_Array are relinquished, the Present_Value does not change.

1.5.4 Multi-state Object Properties

Property	Multi-state Input	Multi-state Output	Multi-state Value	Comments
Object_Identifier	x	x	x	
Object_Name	x	x	x	
Object_Type	x	x	x	
Present_Value	x	x	x	Writable if 1) object is Multi-state Output, or 2) object is Multi-state Value and the associated device data point is writable, or 3) Out_Of_Service is True
Description	x	x	x	
Status_Flags	x	x	x	
Event_State	x	x	x	
Reliability	x	x	x	
Out_Of_Service	x	x	x	Writable. Values: True/False. Default: False.
Number_Of_States	x	x	x	
State_Text	x	x	x	
Priority_Array		x	(x)	Supported in multi-state objects that map to writable data points.
Relinquish_Default		x	(x)	Supported in multi-state objects that map to writable data points. The value is equal to the Present_Value so that if all entries in the Priority_Array are relinquished, the Present_Value does not change.