Protocol Implementation Conformance Statement

CBX / CBM / CBV / CBT

Date	September 2019
Vendor Name	Cylon Controls
Product Name:	CBX / CBM / CBV / CBT
Product Model Number:	CBX-8R8, CBX-8R8-H, CBM08, CBM12, CBM16, CBM24, CBM24K, CBM24LC, CBV-2U4-3T, CBV-2U4-3T-N, CBT-4T4-4T, CBT-3T6-5R, CBT-4T4-2U1R, CBT12iVAV, CBT14, CBT12
Firmware Revision:	7.8.0 or later
BACnet Protocol Revision:	14

Product Description

The CBM/CBT BACnet Field controller is part of the Cylon BACnet system. The Controller can operate stand-alone or can be networked to perform complex Plant (CBM) / Unitary (CBT) HVAC control, monitoring and energy management functions via BACnet MS/TP.

BACnet Standardised Device Profile (Annex L)

☐ BACnet Operator Workstation (**B-AWS**)
☐ BACnet Operator Workstation (**B-OWS**)
☐ BACnet Building Controller (**B-BC**)
☑ **BACnet Advanced Application Controller (B-AAC)**
☐ BACnet Application Specific Controller (**B-ASC**)
☐ BACnet Smart Sensor (**B-SS**)
☐ BACnet Smart Actuator (**B-SA**)
☐ BACnet Other (**B-OTHER**)

BACnet Interoperability Building Blocks Supported (Annex K)

ID	BIBB	Application Service
K.1.1	DS-RP-A	Data Sharing – ReadProperty-A
K.1.2	DS-RP-B	Data Sharing – ReadProperty-B
K.1.4	DS-RPM-B	Data Sharing – ReadPropertyMultiple-B
K.1.7	DS-WP-A	Data Sharing – WriteProperty-A
K.1.8	DS-WP-B	Data Sharing – WriteProperty-B
K.1.10	DS-WPM-B	Data Sharing – WritePropertyMultiple-B
K.1.12	DS-COV-B	Data Sharing – COV-B
K.2.2	AE-N-I-B	Alarm & Event – Notification Internal-B
K.2.5	AE-ACK-B	Alarm & Event – Ack-B
K.2.7	AE-ASUM-B	Alarm & Event – Alarm Summary-B
K.2.11	AE-INFO-B	Alarm & Event – Information-B
K.3.2	SCHED-I-B	Scheduling – Internal-B
K.4.2	T-VMT-I-B	Trending – Viewing and Modifying Trends Internal-B
K.4.5	T-ATR-B	Trending – Automated Trend Retrieval-B
K.5.1	DM-DDB-A	Device Management – Dynamic Device Binding-A
K.5.2	DM-DDB-B	Device Management – Dynamic Device Binding-B
K.5.4	DM-DOB-B	Device Management – Dynamic Object Binding-B
K.5.6	DM-DCC-B	Device Management – Device Communication Control-B
K.5.12	DM-TS-B	Device Management – TimeSynchronization-B
K.5.14	DM-UTC-B	Device Management – UTCTimeSynchronization-B
K.5.16	DM-RD-B	Device Management – ReinitializeDevice-B

Segmentation Capability

☐ Able to transmit segmented messages   Window Size: N/A
☐ Able to receive segmented messages   Window Size: N/A

Standard Services Supported

Service	Property
Object access	Write property
Object access	Read property
Object access	Read property multiple
Object access	Write property multiple
Object access	Read range **Note**: Used for reading TL and COV subscriptions
Remote management	Who-is
Remote management	I-am
Remote management	Who-has
Remote management	I-have
Remote management	Unconfirmed private transfer **Note**: used by Cylon Engineering Center
Remote management	Time synchronization
Remote management	UTC time synchronization
Remote management	Device communication control
Remote management	Reinitialize device
File access	Atomic write file
File access	Atomic read file
Alarm/Event	Acknowledge alarm
Alarm/Event	Get alarm summary
Alarm/Event	Get event information
Alarm/Event	Confirmed event notification
Alarm/Event	Unconfirmed event notification
Alarm/Event	Subscribe COV
Alarm/Event	Confirmed COV notification
Alarm/Event	Unconfirmed COV notification

Standard Object Types Supported

- ☐ access-door
- ☐ accumulator
- ☑ **analog-input**
- ☑ **analog-output**
- ☑ **analog-value**
- ☐ averaging
- ☑ **binary-input**
- ☑ **binary-output**
- ☑ **binary-value**
- ☑ **calendar**
- ☐ command
- ☑ **device**
- ☐ event-enrollment
- ☐ event-log
- ☑ **file**
- ☐ group
- ☐ life-safety-point
- ☐ life-safety-zone
- ☐ load-control
- ☐ loop
- ☐ multi-state-input
- ☐ multi-state-output
- ☐ multi-state-value
- ☑ **notification-class**
- ☐ program
- ☐ pulse-converter
- ☑ **schedule**
- ☐ structured-view
- ☑ **trend-log**
- ☐ trend-log-multiple

For all of these objects the following apply:

1. The CreateObject and DeleteObject services are not supported, so no objects are dynamically creatable or deletable through BACnet service requests, although these objects are dynamically creatable and deletable through Cylon Control's Engineering Center Software.
2. Client functionality is used by the controller for reading and writing point objects present values between this controller and other BACnet controllers on the network. These transfers are set-up at engineering time using the Cylon Engineering Center.
3. No general range restrictions exist.
4. Not all instances support optional properties (see tables below).

For each of these objects, the supported properties are listed below:

analog-input

☐ Dynamically Creatable ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
reliability	☑	☑	☑
out-of-service	☑	☑	
units	☑		
min-pres-value	☑	☑	☑
max-pres-value	☑	☑	☑
cov-increment	☑	☑	☑
time-delay	☑	☑	
notification-class	☑	☑	
high-limit	☑	☑	
low-limit	☑	☑	
deadband	☑	☑	
limit-enable	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
profile-name	☑		☑

analog-output

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
reliability	☑	☑	☑
out-of-service	☑	☑	
units	☑		
min-pres-value	☑	☑	☑
max-pres-value	☑	☑	☑
resolution	☑		☑
priority-array	☑		
relinquish-default	☑	☑	
cov-increment	☑	☑	☑
time-delay	☑	☑	
notification-class	☑	☑	
high-limit	☑	☑	
low-limit	☑	☑	
deadband	☑	☑	
limit-enable	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
profile-name	☑		☑

analog-value

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
out-of-service	☑		
units	☑		
priority-array	☑		
relinquish-default	☑	☑	
time-delay	☑	☑	
notification-class	☑	☑	
high-limit	☑	☑	
low-limit	☑	☑	
deadband	☑	☑	
limit-enable	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
cov-increment	☑	☑	☑
profile-name	☑		☑

binary-input

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
reliability	☑	☑	☑
out-of-service	☑	☑	
polarity	☑	☑	
inactive-text	☑		☑
active-text	☑		☑
time-delay	☑	☑	
notification-class	☑	☑	
alarm-value	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
profile-name	☑		☑

binary-output

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
reliability	☑	☑	☑
out-of-service	☑	☑	
polarity	☑	☑	
inactive-text	☑		☑
active-text	☑		☑
minimum-off-time	☑	☑	☑
minimum-on-time	☑	☑	☑
priority-array	☑		
relinquish-default	☑	☑	
time-delay	☑	☑	
alarm-value	☑	☑	
notification-class	☑	☑	
feedback-value	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
profile-name	☑		☑

binary-value

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑	☑	
property-list	☑		
status-flags	☑		
event-state	☑		
out-of-service	☑	☑	
inactive-text	☑		☑
active-text	☑		☑
minimum-off-time	☑	☑	☑
minimum-on-time	☑	☑	☑
priority-array	☑		
relinquish-default	☑	☑	
time-delay	☑	☑	
notification-class	☑	☑	
alarm-value	☑	☑	
event-enable	☑	☑	
acked-transitions	☑		
notify-type	☑	☑	
event-time-stamps	☑		
profile-name	☑		☑

calendar

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
present-value	☑		
property-list	☑		
date-list	☑	☑	
profile-name	☑		☑

device

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑	☑	
object-name	☑	☑	
object-type	☑		
property-list	☑		
system-status	☑		
vendor-name	☑		
vendor-identifier	☑		
model-name	☑		
firmware-revision	☑		
application-software-version	☑		
protocol-version	☑		
protocol-revision	☑		
protocol-services-supported	☑		
protocol-object-types-supported	☑		
object-list	☑		
max-apdu-length-accepted	☑		
segmentation-supported	☑		
local-time	☑	☑	☑
local-date	☑	☑	☑
utc-offset	☑	☑	☑
daylight-savings-status	☑	☑	☑
apdu-timeout	☑	☑	
number-of-apdu-retries	☑	☑	
max-master	☑	☑	☑
max-info-frames	☑	☑	☑
description	☑	☑	☑
location	☑	☑	☑
device-address-binding	☑	☑	
database-revision	☑		
active-cov-subscriptions	☑		☑
profile-name	☑		☑

file

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object–identifier	☑		
object–name	☑		
object–type	☑		
property–list	☑		
file–type	☑		
file–size	☑	☑	
modification–date	☑		
archive	☑		
read–only	☑		
file–access–method	☑		
profile–name	☑		☑

notification–class

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object–identifier	☑		
object–name	☑	☑	
object–type	☑		
property–list	☑		
notification–class	☑		
priority	☑	☑	
ack–required	☑	☑	
recipient–list	☑	☑	
profile–name	☑		☑

Schedule

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object–identifier	☑		
object–name	☑	☑	
object–type	☑		
present–value	☑	☑	
property–list	☑		
effective–period	☑	☑	
weekly–schedule	☑	☑	
exception–schedule	☑	☑	
schedule–default	☑	☑	
list–of–object–property–references	☑		
priority–for–writing	☑		
status–flags	☑		
reliability	☑		
out–of–service	☑	☑	
profile–name	☑		☑

trend-log

☐ Dynamically Creatable   ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	☑		
object-name	☑	☑	
object-type	☑		
log-enable	☑	☑	
start-time	☑	☑	☑
stop-time	☑	☑	☑
log-device-object-property	☑		☑
log-interval	☑	☑	☑
stop-when-full	☑	☑	
buffer-size	☑		
record-count	☑	☑	
total-record-count	☑		
event-state	☑		
logging-type	☑		
status-flags	☑		
event-enable	☑	☑	☑
notification-class	☑	☑	☑
acked-transitions	☑		☑
notify-type	☑	☑	☑
cov-increment	☑		☑
event-time-stamps	☑		☑
notification-threshold	☑	☑	☑
last-notify-record	☑		☑
records-since-notification	☑		☑
profile-name	☑		☑

Data Link Layer Options:

☐ BACnet IP, (Annex J)
☐ BACnet IP, (Annex J), Foreign Device
☐ ISO 8802-3, Ethernet (Clause 7)
☐ ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) : N/A
☑ **MS/TP master (Clause 9)**, baud rate(s): **9600, 19200, 38400, 57600, 76800, 115200***
☐ MS/TP slave (Clause 9), baud rate(s): N/A
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s):   N/A
☐ Point-To-Point, modem, (Clause 10), baud rate(s): N/A
☐ LonTalk, (Clause 11), medium: N/A
☐ Other: N/A
Note: 115200 baud is not supported on CBM models

Device Address Binding:

Is static device binding supported?   ☑ Yes   ☐ No
(This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

Networking Options:

☐ Router, Clause 6 - IP, MS/TP, Ethernet
☐ Annex H, BACnet Tunneling Router over IP
☐ BACnet/IP Broadcast Management Device (BBMD)
   Does the BBMD support registrations by Foreign Devices? ☐ Yes ☐ No

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

☑ ISO 10646 (UTF-8)	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS X 0208

If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:

N/A