

Protocol Implementation Conformance Statement

CBM / CBT

Date	June 2017		
Vendor Name	Cylon Controls		
Product Name:	CBM / CBT		
Product Model Number:	CBM08, CBM12, CBM16, CBM24, CBM24K, CBM24LC, CBT12, CBT12iVAV, CBT14		
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 C	perator	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 is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet International (BI). BTL is a registered trademark of BACnet International.



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 se	egment	ed r	nessa	ges
\square Able to	receive seg	gmente	d m	essag	es

Window Size: N/A 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
$oldsymbol{arDelta}$ 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	V		
object-name	V	Ø	
object-type	Ø		
present-value	Ø	Ø	
property-list	\square		
status-flags	V		
event-state	V		
reliability	☑	Ø	V
out-of-service	V	Ø	
units	Ø		
min-pres-value	Ø	Ø	V
max-pres-value	Ø	Ø	\square
cov-increment	Ø	Ø	\square
time-delay	Ø	Ø	
notification-class	Ø	Ø	
high-limit	\square	\square	
low-limit	Ø	Ø	
deadband		Ø	
limit-enable	Ø	Ø	
event-enable	\square	Ø	
acked-transitions	Ø		
notify-type	Ø	Ø	
event-time-stamps	Ø		
profile-name	Ø		\square



analog-output

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



analog-value				
☐ Dynamically Creatable	☐ Dynamically Dele	etable		
Property		Read	Write	opti
object-identifier		N		

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



binary-input

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



binary-output

Property	Read	Write	optional
object-identifier			
object-name		\square	
object-type			
present-value			
property-list	\square		
status-flags			
event-state			
reliability	\square		V
out-of-service			
polarity	\square		
inactive-text	\square		
active-text			V
minimum-off-time	\square		V
minimum-on-time		\square	\square
priority-array			
relinquish-default			
time-delay			
alarm-value			
notification-class			
feedback-value	\square		
event-enable			
acked-transitions	\square		
notify-type	\square	\square	
event-time-stamps	\square		
profile-name	\square		7



binary-value

☐ Dynamically Creatable	☐ Dynamically Deletable
= by narmeany creatable	- by nameday beletable

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

calendar

Property	Read	Write	optional
object-identifier	$\overline{\checkmark}$		
object-name	$\overline{\mathbf{A}}$	$\overline{\mathbf{Q}}$	
object-type	$\overline{\checkmark}$		
present-value	$\overline{\checkmark}$		
property-list	$\overline{\checkmark}$		
date-list	$\overline{\checkmark}$		
profile-name	$\overline{\checkmark}$		V



device

□ Dynamically Creatable	☐ Dynamically Deletable
-------------------------	-------------------------

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



file

Property	Read	Write	optional
object-identifier	\square		
object-name	\square		
object-type	$\overline{\mathbf{A}}$		
property-list			
file-type			
file-size	$\overline{\mathbf{A}}$	$\overline{\mathbf{A}}$	
modification-date	$\overline{\mathbf{A}}$		
archive	$\overline{\mathbf{A}}$		
read-only	$\overline{\mathbf{A}}$		
file-access-method	$\overline{\mathbf{A}}$		
profile-name	V		$\overline{\mathbf{V}}$

notification-class

☐ Dynamically Creatable ☐ Dynamically Deletable

Property	Read	Write	optional
object-identifier	Ø		
object-name	Ø	\square	
object-type			
property-list			
notification-class	Ø		
priority		\square	
ack-required		\square	
recipient-list	Ø	\square	
profile-name			$\overline{\square}$

 \square Dynamically Deletable

Schedule

profile-name

☐ Dynamically Creatable

Property	Read	Write	optional
object-identifier	\square		
object-name	\square	Ø	
object-type	\square		
present-value	\square	Ø	
property-list	\square		
effective-period	\square	Ø	
weekly-schedule	\square	Ø	
exception-schedule	\square	Ø	
schedule-default	\square	Ø	
list-of-object-property-references	\square		
priority-for-writing	\square		
status-flags	\square		
reliability	Ø		
out-of-service	\square	V	

 \checkmark



 \checkmark

trend-log

☐ Dynamically Creatable ☐ Dynamically Deletable			
Property	Read	Write	optional
object-identifier	V		
object-name	$\overline{\mathbf{Q}}$	\square	
object-type	V		
log-enable	$\overline{\checkmark}$	\square	
start-time	$\overline{\square}$	\square	$\overline{\mathbf{Z}}$
stop-time	$\overline{\checkmark}$	\square	$\overline{\mathbf{Q}}$
log-device-object-property	$\overline{\square}$		\square
log-interval	$\overline{\square}$		\square
stop-when-full	$\overline{\mathbf{V}}$	Ø	
buffer-size	$\overline{\square}$		
record-count	$\overline{\mathbf{V}}$	V	
total-record-count	v		
event-state	$\overline{\square}$		
logging-type	$\overline{\square}$		
status-flags	\square		
event-enable	$\overline{\mathbf{V}}$	Ø	\square
notification-class	$\overline{\square}$	$\overline{\square}$	\square
acked-transitions	$\overline{\square}$		\square
notify-type	$\overline{\mathbf{V}}$	Ø	\square
cov-increment	$\overline{\mathbf{V}}$		\square
event-time-stamps	$\overline{\mathbf{Q}}$		$\overline{\mathbf{Q}}$
notification-threshold	$\overline{\mathbf{Q}}$	Ø	$\overline{\mathbf{Q}}$
last-notify-record	$\overline{\mathbf{V}}$		$\overline{\mathbf{V}}$
records-since-notification	$\overline{\mathbf{Q}}$		$\overline{\mathbf{Q}}$
profile-name	V		Ø



ı Link Layer Optio	ns:	
☐ BACnet IP, (Annex J)		
☐ BACnet IP, (Annex J), Forei	gn Device	
☐ ISO 8802-3, Ethernet (Cla	use 7)	
☐ ATA 878.1, 2.5 Mb. ARCN	ET (Clause 8)	
		,76800,115200*
	ium: N/A	
	upported on CRM models	
Note: 113200 baud is 110t st	ирропей оп Съм models	
ice Address Bindi	na:	
	_	
= ::		TP slaves and certain other
	way communication with 1-137	ir staves and certain other
vorking Options:		
• .	TP Ethernet	
	_	
		□No
racter Sets Suppo	orted:	
Indicating support for multi simultaneously.	ple character sets does not imply that	they can all be supported
☑ ANSI X3.4.	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS C 6226
	□ BACnet IP, (Annex J) □ BACnet IP, (Annex J), Forei □ ISO 8802-3, Ethernet (Cla □ ATA 878.1, 2.5 Mb. ARCNI □ ATA 878.1, EIA-485 ARCN ☑ MS/TP master (Clause 9), ba □ Point-To-Point, EIA 232 (Clause 11), med □ Other: N/A **Note: 115200 baud is not so Ce Address Bindi Is static device binding support (This is currently necessary Idevices.) Vorking Options: □ Router, Clause 6 - IP, MS/□ Annex H, BACnet Tunnelin □ BACnet/IP Broadcast Manner Does the BBMD support of the BBMD support	□ 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 □ 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 ☐ CE Address Binding: ☐ Is static device binding supported? ☑ Yes □ No (This is currently necessary for two-way communication with MS/ ☐ devices.) ☐ Router, Clause 6 - IP, MS/TP, Ethernet □ Annex H, BACnet Tunneling Router over IP □ BACnet/IP Broadcast Management Device (BBMD)

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

N/A

