

# **Honeywell ComfortPoint™ Open Plant Controller Protocol Implementation Conformance Statement (PICS)**

Topic: BACnet Protocol Implementation Conformance  
Statement (PICS)

Date: 23 July 2018

Version: 1.0

Applicable Products: ComfortPoint™ Open Plant Controller

Author: Ankit Makam

# Table of Contents

Protocol Implementation Conformance Statement - Honeywell ComfortPoint™ Open Plant Controller .....	3
Product Description and Intended Use .....	3
BACnet Standardized Device Profile (Annex L) .....	3
BACnet Interoperability Building Blocks Supported (Annex K) .....	4
Segmentation Capability .....	4
Data Link Layer Options .....	5
Device Address Binding.....	5
Networking Options.....	5
Character Sets Supported .....	5
Network Security Options .....	6
Standard Object Types Supported.....	6
Standard Objects and Properties Supported .....	8
Accumulator Object Properties .....	8
Analog Input Object Properties .....	9
Analog Output Object Properties .....	10
Analog Value Object Properties .....	11
Binary Input Object Properties .....	12
Binary Output Object Properties .....	13
Binary Value Object Properties .....	14
Multi-State Input Object Properties .....	15
Multi-State Output Object Properties .....	16
Multi-State Value Object Properties .....	17
Calendar Input Object Properties.....	17
Device Object Properties .....	18
Event Enrollment Object Properties .....	19
File Object Properties.....	19
Loop Object Properties .....	20
Notification Class Object Properties.....	21
Program Object Properties.....	21
Schedule Object Properties .....	21
Trend Log Object Properties.....	22
Event Log Object Properties .....	23
Structured View Object Properties .....	23

# Protocol Implementation Conformance Statement - Honeywell ComfortPoint™ Open Plant Controller

Date	23- July-2018
Vendor Name	Honeywell International Inc.
Vendor ID	17
Product Name	Honeywell ComfortPoint™ Open Plant Controller
Product Model Number	CPO-PC400
Applications Software Version	N/A
Firmware Revision	3.0.9
BACnet Protocol Revision	14 (135-2016)

## Product Description and Intended Use

CPO-PC400 is an IP based Native BACnet® Network controller, which eliminates the need for additional router hardware and can support up to 90 MS/TP devices. Combined with the various I/O options available, it can meet the needs of complex Heating Ventilation Air Conditioning & Refrigeration (HVACR) applications.

CPO-PC400 is designed to meet the requirements of a BACnet B-BC (BACnet Building Controller) profile, supporting Device Management, Scheduling, and Trend Object functionality.

Powerful and yet easily programmable, it can operate stand-alone or networked to perform complex control, monitoring, and energy management functions.

This is ideally suitable for Central Plant control and complex HVACR / AHU control function.

## BACnet Standardized Device Profile (Annex L)

- BACnet Cross-Domain Advanced Operator Workstation (B-XAWS)
- BACnet Advanced Operator Workstation (B-AWS)
- BACnet Operator Workstation (B-OWS)
- BACnet Operator Display (B-OD)
- BACnet Advanced Life Safety Workstation (B-ALSWS)
- BACnet Life Safety Workstation (B-LSWS)
- BACnet Life Safety Annunciator Panel (B-LSAP)
- BACnet Advanced Access Control Workstation (B-AACWS)
- BACnet Access Control Workstation (B-ACWS)
- BACnet Access Control Security Display (B-ACSD)
- BACnet Building Controller (B-BC)**
- BACnet Advanced Application Controller (B-AAC)
- BACnet Application Specific Controller (B-ASC)
- BACnet Smart Actuator (B-SA)
- BACnet Smart Sensor (B-SS)
- BACnet Advanced Life Safety Controller (B-ALSC)

- BACnet Life Safety Controller (B-LSC)
- BACnet Advanced Access Control Controller (B-AACC)
- BACnet Access Control Controller (B-ACC)
- BACnet Router (B-RTR)
- BACnet Gateway (B-GW)
- BACnet Broadcast Management Device (B-BBMD)
- BACnet Access Control Door Controller (B-ACDC)
- BACnet Access Control Credential Reader (B-ACCR)

## BACnet Interoperability Building Blocks Supported (Annex K)

<b>Data Sharing</b>	Read Property-A	DS-RP-A
	Read Property-B	DS-RP-B
	Read Property Multiple-A	DS-RPM-A
	Read Property Multiple-B	DS-RPM-B
	Write Property-A	DS-WP-A
	Write Property-B	DS-WP-B
	Write Property Multiple-A	DS-WPM-A
	Write Property Multiple-B	DS-WPM-B
	Change Of Value-A	DS-COV-A
	Change Of Value-B	DS-COV-B
	Change Of Value Property-B	DS-COVP-B
<b>Alarm &amp; Event Management</b>	Notification Internal-B	AE-N-I-B
	Notification External-B	AE-N-E-B
	Acknowledgement-B	AE-ACK-B
	Alarm Summary-B	AE-ASUM-B
	Enrollment Summary-B	AE-ESUM-B
	Event Information -B	AE-INFO-B
	Event Log - Internal - B	AE-EL-I-B
<b>Scheduling</b>	Scheduling Internal-B	SCHED-I-B
	Scheduling -External-B	SCHED-E-B
<b>Trending</b>	Viewing and Modifying Trends Internal-B	T-VMT-I-B
	Viewing and Modifying Trends External-B	T-VMT-E-B
	Automated Trend Retrieval-B	T-ATR-B
<b>Device &amp; Network Management</b>	Dynamic Device Binding	DM-DDB-A
	Dynamic Device Binding	DM-DDB-B
	Dynamic Object Binding-B	DM-DOB-B
	Device Communication Control	DM-DCC-B
	Time Synchronization	DM-TS-B
	UTC Time Synchronization	DM-UTC-B
	Reinitialize Device	DM-RD-B
	Back-up and Restore-B	DM-BR-B
	Restart-B	DM-R-B
	List Manipulation-B	DM-LM-B
	Object Creation and Deletion-B	DM-OCD-B

## Segmentation Capability

Able to transmit segmented messages  yes  no Window Size   1  

Able to receive segmented messages  yes  no Window Size   1

## Data Link Layer Options

- ARCNET (ATA 878.1), 2.5 Mb. (Clause 8)
- ARCNET (ATA 878.1), EIA-485 (Clause 8), baud rate(s) \_\_\_\_\_
- BACnet IP, (Annex J)**
- BACnet IP, (Annex J), BACnet Broadcast Management Device (BBMD)**
- BACnet IP, (Annex J), Network Address Translation (NAT Traversal)
- BACnet IPv6, (Annex U)
- BACnet IPv6, (Annex U), BACnet Broadcast Management Device (BBMD)
- BACnet/ZigBee (Annex O) \_\_\_\_\_
- Ethernet, ISO 8802-3 (Clause 7)
- LonTalk, ISO/IEC 14908.1 (Clause 11), medium: \_\_\_\_\_
- MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 76800, 115200**
- MS/TP slave (Clause 9), baud rate(s): \_\_\_\_\_
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): \_\_\_\_\_
- Point-To-Point, modem, (Clause 10), baud rate(s): \_\_\_\_\_
- Other: \_\_\_\_\_

## Device Address Binding

Is static device binding supported?

(This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

Yes  No

- Send Who-Is, receive I-Am (BIBB DM-DDB-A)**
- Receive Who-Is, send I-Am (BIBB DM-DDB-B)**
- Send Who-Has, receive I-Have (BIBB DM-DOB-A)
- Receive Who-Has, send I-Have (BIBB DM-DOB-B)**
- Manual configuration of recipient device's network number and MAC address
- None of the above

## Networking Options

- Router, Clause 6 - BACnet IP (Annex J) - MS/TP (3 MSTP Ports).**
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)**
- Does the BBMD support registrations by Foreign Devices?  Yes  No
- Does the BBMD support network address translation?  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)**
- ISO 10646 (UCS-4)
- IBM™/Microsoft™ DBCS
- ISO 10646 (UCS-2)**
- ISO 8859-1
- JIS X 0208

## Network Security Options

- Non-secure Device - is capable of operating without BACnet Network Security**
- Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)
  - Multiple Application-Specific Keys
  - Supports encryption (NS-ED BIBB)
  - Key Server (NS-KS BIBB)

## Standard Object Types Supported

Object Type	Supported	Dynamically Creatable	Dynamically Deletable
Accumulator	Yes	No	No
Analog Input	Yes	No	No
Analog Output	Yes	No	No
Analog Value	Yes	No	No
Averaging	No	No	No
Binary Input	Yes	No	No
Binary Output	Yes	No	No
Binary Value	Yes	No	No
Calendar	Yes	Yes	Yes
Command	No	No	No
Device	Yes	No	No
Event Enrollment	Yes	Yes	Yes
File	Yes	Yes	Yes
Group	No	No	No
Life Safety Point	No	No	No
Life Safety Zone	No	No	No
Loop	Yes	No	No
Multi-state Input	Yes	No	No
Multi-state Output	Yes	No	No
Multi-state Value	Yes	No	No
Notification Class	Yes	Yes	Yes
Program	Yes	No	No
Pulse Converter	No	No	No
Schedule	Yes	Yes	Yes
Trend Log	Yes	Yes	Yes
Access Door	No	No	No
Event Log	Yes	No	No
Load Control	No	No	No

<b>Object Type</b>	<b>Supported</b>	<b>Dynamically Creatable</b>	<b>Dynamically Deletable</b>
<b>Structured View</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Trend Log Multiple	No	No	No
Access Point	No	No	No
Credential Data Input	No	No	No
CharacterString Value	No	No	No
DateTime Value	No	No	No
Large Analog Value	No	No	No
BitString Value	No	No	No
OctetString Value	No	No	No
Time Value	No	No	No
Integer Value	No	No	No
Positive Integer Value	No	No	No
Date Value	No	No	No
DateTime Pattern Value	No	No	No
Time Pattern Value	No	No	No
Date Pattern Value	No	No	No
Network Security	No	No	No
Global Group	No	No	No
Notification Forwarder	No	No	No
Alert Enrollment	No	No	No
Channel	No	No	No
Lighting Output	No	No	No
Binary Lighting Output	No	No	No
Network Port	No	No	No
Timer	No	No	No
Elevator Group	No	No	No
Lift	No	No	No
Escalator	No	No	No

## Standard Objects and Properties Supported

### Accumulator Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	Description
status-flags	
event-state	
reliability	
out-of-service	out-of-service
scale	
units	
prescale	
max-pres-value	max-pres-value
value-change-time	
value-before-change	
value-set	value-set
pulse-rate	
high-limit	high-limit
low-limit	low-limit
limit-monitoring-interval	
notification-class	notification-class
time-delay	time-delay
limit-enable	limit-enable
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	



## Analog Input Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	Description
Device-type	
status-flags	
event-state	
Reliability	
out-of-service	out-of-service
Update-interval	
Units	
Min-pres-value	
Max-pres-value	
Resolution	
cov-increment	cov-increment
time-delay	time-delay
notification-class	notification-class
high-limit	high-limit
low-limit	low-limit
Deadband	Deadband
limit-enable	limit-enable
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Analog Output Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	Description
Device-type	
status-flags	
event-state	
Reliability	
out-of-service	out-of-service
Units	
Min-pres-value	
Max-pres-value	
resolution	
priority-array	
relinquish-default	relinquish-default
cov-increment	cov-increment
time-delay	time-delay
notification-class	notification-class
high-limit	high-limit
low-limit	low-limit
Deadband	deadband
limit-enable	limit-enable
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Analog Value Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	description
Device-type	
status-flags	
event-state	
reliability	
out-of-service	out-of-service
units	
Min-pres-value	
Max-pres-value	
Resolution	
priority-array	
relinquish-default	relinquish-default
cov-increment	cov-increment
time-delay	time-delay
notification-class	notification-class
high-limit	high-limit
low-limit	low-limit
Deadband	deadband
limit-enable	limit-enable
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Binary Input Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
Description	Description
Device-type	
status-flags	
event-state	
Reliability	
out-of-service	out-of-service
Polarity	
inactive-text	
active-text	
Change-of-state-time	
Change-of-state-count	Change-of-state-count (only zero)
Time-of-state-count-reset	
elapsed-active-time	elapsed-active-time (only zero)
time-of-active-time-reset	
time-delay	time-delay
notification-class	notification-class
alarm-value	alarm-value
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Binary Output Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
Description	Description
Device-type	
status-flags	
event-state	
Reliability	
out-of-service	out-of-service
Polarity	
inactive-text	
active-text	
Change-of-state-time	
Change-of-state-count	Change-of-state-count (only zero)
Time-of-state-count-reset	
elapsed-active-time	elapsed-active-time (only zero)
time-of-active-time-reset	
Minimum-off-time	
Minimum-on-time	
priority-array	
relinquish-default	relinquish-default
time-delay	time-delay
notification-class	notification-class
feedback-value	feedback-value
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Binary Value Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	description
status-flags	
event-state	
reliability	
out-of-service	out-of-service
inactive-text	
active-text	
Change-of-state-time	
Change-of-state-count	Change-of-state-count (only zero)
Time-of-state-count-reset	
elapsed-active-time	elapsed-active-time (only zero)
time-of-active-time-reset	
Minimum-off-time	
Minimum-on-time	
priority-array	
relinquish-default	relinquish-default
time-delay	time-delay
notification-class	notification-class
alarm-value	alarm-value
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Multi-State Input Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	description
Device-type	
status-flags	
event-state	
reliability	
out-of-service	out-of-service
number-of-states	
state-text	
time-delay	time-delay
notification-class	notification-class
alarm-values	alarm-values
fault-values	fault-values
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Multi-State Output Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	description
Device-type	
status-flags	
event-state	
reliability	
out-of-service	out-of-service
number-of-states	
state-text	
Priority-array	
Relinquish-default	Relinquish-default
time-delay	time-delay
notification-class	notification-class
Feedback-value	Feedback-value
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	



## Multi-State Value Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	present-value
description	description
status-flags	
event-state	
reliability	
out-of-service	out-of-service
number-of-states	
state-text	
priority-array	
relinquish-default	relinquish-default
time-delay	time-delay
notification-class	notification-class
alarm-values	alarm-values
fault-values	fault-values
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Calendar Input Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
description	
present-value	
date-list	date-list
Property-list	

## Device Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
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	
Structured_Object_List	
max-apdu-length-accepted	
segmentation-supported	
max-segments-accepted	
local-time	
local-date	
utc-offset	utc-offset
daylight-savings-status	
apdu-segment-timeout	
apdu-timeout	apdu-timeout
number-of-apdu-retries	
max-master	
max-info-frames	
device-address-binding	
database-revision	
configuration-files	
last-restore-time	
backup-failure-timeout	backup-failure-timeout
Backup-preparation-time	
Restore-preparation-time	
Restore-completion-time	
active-cov-subscriptions	
restart-notification-recipients	
time-of-device-restart	
last-restart-reason	
Property_List	

## Event Enrollment Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
description	Description
event-type	
notify-type	
Event-parameters	
Object-property-reference	Object-property-reference
Event-state	
Event-enable	Event-enable
Acked-transitions	
Notification-class	Notification-class
Event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	
Status_Flags	
Reliability	
Property_List	

## File Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
description	description
file-type	file-type
file-size	file-size
modification-date	
archive	Archive
read-only	read-only
file-access-method	
Property_List	

## Loop Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
Present-value	Present-value
description	description
Status-flags	
Event-state	
Reliability	
Out-of-service	Out-of-service
Update-interval	
Output-units	
Manipulated-variable-reference	
Controlled-variable-reference	
Controlled-variable-value	
Controlled-variable-units	
Setpoint-reference	
setpoint	
action	
Proportional-constant	Proportional-constant
Proportional-constant-units	
Integral-constant	Integral-constant
Integral-constant-units	
derivative-constant	derivative-constant
derivative-constant-units	
Bias	Bias
Maximum-output	Maximum-output
Minimum-output	Minimum-output
Priority-for-writing	
notification-class	
Cov-increment	Cov-increment
Time-delay	Time-delay
Notification-class	Notification-class
Error-limit	Error-limit
Deadband	Deadband
Event-enable	Event-enable
Acked-transitions	
Notify-type	
Event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	Time-delay-normal
Property_List	

## Notification Class Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
Description	Description
notification-class	
Priority	Priority
ack-required	ack-required
recipient-list	recipient-list
Property_List	

## Program Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
Program-state	
Program-change	Program-change
Reason-for-halt	
Description-of-halt	
Program-location	
Description	Description
Instance-of	
Status-flags	
Reliability	
Out-of-service	Out-of-service
Property_List	

## Schedule Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
present-value	
Description	Description
effective-period	effective-period
weekly-schedule	weekly-schedule
exception-schedule	exception-schedule
schedule-default	schedule-default
list-of-object-property-references	list-of-object-property-references
priority-for-writing	
status-flags	
reliability	
out-of-service	out-of-service

Readable Properties	Writable Properties
Property_List	

## Trend Log Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
description	description
enable	Enable
start-time	start-time
stop-time	stop-time
log-device-object-property	log-device-object-property
log-interval	log-interval
Cov-resubscription-interval	Cov-resubscription-interval
client-cov-increment	client-cov-increment
stop-when-full	stop-when-full
buffer-size	
Log-buffer	
record-count	record-count
total-record-count	
notification-threshold	notification-threshold
records-since-notification	
last-notify-record	
event-state	
notification-class	notification-class
event-enable	event-enable
acked-transitions	
notify-type	notify-type
event-time-stamps	
status-flags	
logging-Type	
Reliability	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	
Property_List	

## Event Log Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
Property-list	
description	Description
Status-flags	
Event-state	
reliability	
enable	Enable
Start-time	
Stop-time	
Stop-when-full	Stop-when-full
Buffer-size	
Log-buffer	
Record-count	Record-count
Total-record-count	
Notification-threshold	Notification-threshold
records-since-notification	
last-notify-record	
notification-class	notification-class
Event-enable	Event-enable
Acked-transitions	
Notify-type	Notify-type
Event-time-stamps	
event-message-text	
event-message-texts-config	event-message-texts-config
event-detection-enable	event-detection-enable
Event-algorithm-inhibit	Event-algorithm-inhibit
Time-delay-normal	
Property_List	

## Structured View Object Properties

Readable Properties	Writable Properties
object-identifier	
object-name	
object-type	
description	Description
node-type	node-type
node-subtype	node-subtype
subordinate-list	
subordinate-annotations	
Property_List	