2017

Protocol Implementation Conformance Statement

Setra FLEX Environmental Monitor

This document gives the brief product description and the complete over view of the PICS statement.

SS-FLEX-BAC-PICS Rev. B

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1. Document Introduction

This document contains the Protocol Implementation Conformance Statement (PICS) and BACnet® Interoperability Building Blocks (BIBBs) for the Setra FLEX™ as required by the American National Standards Institute/ American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ANSI/ASHRAE) Standard 135-2012, BACnet protocol. BACnet interoperability building blocks are collections of one or more BACnet services. This document includes a listing of the BIBBs currently supported by the Monitor.
FLEX is a native BACnet Application Specific Controller with MS/TP and IP capabilities.

2. Product Description as per Annex A PICS (normative)

Setra FLEX in conjunction with a separate Expansion I/O module (not BACnet) provide a complete solution for monitoring and controlling critical room parameters like pressure, temperature, and humidity in healthcare and laboratory facilities.

3. BACnet Requirements

3.1 BACnet Standardized Device Profile (Annex L)

- ☐ 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)

3.2 BACnet Interoperability Building Blocks (BIBBs) (Annex K)

Table below lists all the BIBBs that are required for the BACnet Application Specific Controller (B-ASC) profile for FLEX. The BIBBS that are not required for B-ASC Profile but supported in FLEX are also listed.

Application Specific Controller (B-ASC)	**Designation**
Required for B-ASC Profile	
Data Sharing - Read Property – B	DS-RP-B
Data Sharing - Write Property – B	DS-WP-B
Device Management - Dynamic Device Binding – B	DM-DDB-B
Device Management - Dynamic Object Binding – B	DM-DOB-B
Device Management - Device Communication Control – B	DM-DCC-B
Not Required for B-ASC Profile but supported in FLEX	
Data Sharing - Write Property Multiple – B	DS-WPM-B
Data Sharing - Read Property Multiple – B	DS-RPM-B
Device Management - Reinitialize Device – B	DM-RD-B
Device Management - Time Synchronization – B	DM-TS-B
Device Management-Dynamic Device Binding-A	DM-DDB-A
Device Management – UTC Time Synchronization – B	DM-UTC-B
Data Sharing - Read Property – A	DS-RP-A
Data Sharing - Write Property – A	DS-WP-A
Data Sharing-COV-B	DS-COV-B

3.3 Standard Object Types Supported

3.3.1 Analog Input

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		
		Required	Optional	Range restrictions
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes*	☒	☐	
Description	Yes	☐	☒	
Device_Type	No	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	Yes	☒	☐	
Units	No+	☒	☐	
Min_Pres_Value	No+	☐	☒	
Max_Pres_Value	No+	☐	☒	
Resolution	No+	☐	☒	
COV_Increment	Yes	☐	☒	

*writable only when Out_Of_Service is true
+writable for instances 13-30

3.3.2 Analog Output

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		
		Required	Optional	Range restrictions
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	Yes	☒	☐	
Units	No	☒	☐	
COV_Increment	Yes	☐	☒	
Max_Pres_Value	Yes	☐	☒	
Min_Pres_Value	Yes	☐	☒	
Resolution	Yes	☐	☒	
Priority_Array	No	☐	☒	
Relinquish_Default	Yes	☐	☒	

3.3.3 Analog Value

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		
		Required	Optional	Range restrictions
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	Yes	☒	☐	
Units	No	☒	☐	
COV_Increment	Yes	☐	☒	

3.3.4 Binary Input

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		
		Required	Optional	Range restrictions
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value*	Yes	☒	☐	
Description	Yes	☐	☒	
Device_Type	No	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	Yes	☒	☐	
Polarity	No	☒	☐	
Inactive_Text	Yes	☐	☒	
Active_Text	Yes	☐	☒	

*writable only when Out_Of_Service is true

3.3.5 Binary Output

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Description	Yes	☐	☒	
Device_Type	No	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	Yes	☒	☐	
Polarity	No	☒	☐	
Inactive_Text	Yes	☐	☒	
Active_Text	Yes	☐	☒	
Priority_Array	No	☐	☒	
Relinquish_Default	Yes	☐	☒	

3.3.6 Binary Value

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	No	☒	☐	
Inactive_Text	Yes	☐	☒	
Active_Text	Yes	☐	☒	

3.3.7 Device

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
System_Status	No	☒	☐	
Vendor_Name	No	☒	☐	
Vendor_Identifier	No	☒	☐	
Model_Name	No	☒	☐	
Firmware_Revision	No	☒	☐	
Application_Software_Version	No	☒	☐	
Location	Yes	☐	☒	
Description	Yes	☐	☒	
Protocol_Version	No	☒	☐	
Protocol_Revision	No	☒	☐	
Protocol_Services_Supported	No	☒	☐	
Protocol_Object_Types_Supported	No	☒	☐	
Object_List	No	☒	☐	
Max_APDU_Length_Accepted	No	☒	☐	
Segmentation_Supported	No	☒	☐	
Local_Time	No	☐	☒	
Local_Date	No	☐	☒	
APDU_Timeout	No	☒	☐	
Number_Of_APDU_Retries	No	☒	☐	
Max_Master	No	☐	☒	
Max_Info_Frames	No	☐	☒	
Device_Address_Binding	No	☒	☐	
Database_Revision	No	☒	☐	
Daylight_Savings_Status	Yes	☐	☒	
UTC_Offset	Yes	☐	☒	
Active_COV_Subscriptions	Yes	☐	☒	
MAX_SEGMENTS_ACCEPTED	NO	☐	☒	

3.3.8 Multi-State Input

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value*	No	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	No	☒	☐	
Number_Of_States	No	☒	☐	
State_Text	No	☐	☒	

*writable only when Out_Of_Service is true

3.3.9 Multi-State Value

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	No	☒	☐	
Number_Of_States	No	☒	☐	
State_Text	No	☐	☒	

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3.3.10 Loop

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		
		Required	Optional	Range restrictions
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Object_Type	No	☒	☐	
Present_Value*	No	☒	☐	
Description	Yes	☐	☒	
Status_Flags	No	☒	☐	
Event_State	No	☒	☐	
Out_Of_Service	No	☒	☐	
Update interval	No	☒	☐	
OUTPUT UNITS	No	☐	☒	
Manipulated_Variable_Reference	Yes	☒		
Controlled_Variable_Reference	Yes	☒		
Controlled_Variable_Value	No	☒		
Controlled_Variable_Units	No	☒	☐	
Setpoint_Reference	Yes	☒	☐	
Setpoint	No	☒	☐	
Action	Yes	☒	☐	
Proportional_Constant	Yes	☐	☒	
Proportional_Constant_Units	Yes	☐	☒	
Integral_Constant	Yes	☐	☒	
Integral_Constant_Units	Yes	☐	☒	
Priority_For_Writing	Yes	☒	☐	

3.3.11 Character String Value Object

Dynamically Creatable: ☐ YES ☒ NO
Dynamically Deletable: ☐ YES ☒ NO

Property Identifier	Writable	Conformance Code		Range restrictions
		Required	Optional	
Object_Identifier	No	☒	☐	
Object_Name	Yes	☒	☐	
Description	Yes	☐	☒	
Object_Type	No	☒	☐	
Present_Value	Yes	☒	☐	
Status_Flags	No	☒	☐	

3.4 Data Link Layer Option

☒ BACnet Internet Protocol (IP) (Annex J)
☒ BACnet IP (Annex J), Foreign Device
☐ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 MB ARCNET network (Clause 8)
☐ ANSI/ATA 878.1, RS-485 ARCNET network (Clause 8), baud rates:
☒ Master-Slave/Token-Passing (MS/TP) master (Clause 9), baud rates: 9600, 19200, 38400, 76800
☐ MS/TP slave (Clause 9), baud rates: 9600, 19200, 38400, 76800
☐ Point-To-Point, EIA 232 (Clause 10), baud rates:
☐ Point-To-Point, modem (Clause 10), baud rates:
☐ LonTalk® protocol (Clause 11), medium:
☐ Other:

3.5 Segmentation Capability

☒ Segmented requests supported : Window Size: 1
☒ Segmented responses supported : Window Size: 1

3.6 Device Address Binding

Is static device binding supported? (Required for two-way communication between MS/TP slaves and other devices)

☐ YES ☒ NO

3.7 Networking Options

☐ Router, Clause 6
☐ Annex H, BACnet Tunneling Router over IP
☐ BACnet/IP Broadcast Management Device (BBMD)

Does the BBMD support registrations by Foreign Devices? ☐ YES ☒ NO

3.8 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

3.9 Supported Services

Table below lists all the BACnet standard application services. The checked services are supported.

Application Service	Initiates Requests	Executes Requests
ReadProperty Service	☒	☒
ReadPropertyMultiple Service	☐	☒
WriteProperty Service	☒	☒
WritePropertyMultiple Service	☐	☒
DeviceCommunicationControl Service	☐	☒
ReinitializeDevice Service	☐	☒
Timesynchronization Service	☐	☒
UTCTimesynchronization Service	☐	☒
who-Is	☒	☒
Who-Has	☐	☒
I-Am	☒	☒
I-Have	☒	☐
UnconfirmedCOVNotification	☒	☐
ConfirmedCOVNotification	☒	☐
SubscribeCOV	☐	☒