

2018

Protocol Implementation Conformance Statement

Setra FLEX Environmental Monitor

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



Index

| | |
|--|----------|
| 1. Document Introduction | 3 |
| 2. Product Description | 3 |
| 3. BACnet Requirements | 3 |
| 3.1 BACnet Interoperability Building Blocks (BIBBs) (Annex K)..... | 3 |
| 3.2 Standard Object Types Supported | 4 |
| 3.2.1 Analog Input..... | 4 |
| 3.2.2 Analog Output..... | 4 |
| 3.2.3 Analog Value..... | 4 |
| 3.2.4 Binary Input..... | 6 |
| 3.2.5 Binary Output..... | 6 |
| 3.2.6 Binary Value..... | 7 |
| 3.2.7 Device | 8 |
| 3.2.8 Multi-State Input | 9 |
| 3.2.9 Multi-State Value | 9 |
| 3.2.10 Loop..... | 10 |
| 3.2.11 Character String Value Object | 11 |
| 3.3 Data Link Layer Option..... | 11 |
| 3.4 Segmentation Capability | 11 |
| 3.5 Device Address Binding | 11 |
| 3.6 Character Sets Supported..... | 11 |
| 3.7 Supported Services..... | 11 |

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 BACnet/IP capabilities.

2. Product Description

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.

The Setra FLEX™ conforms to the BACnet Application Specific Controller (B-ASC) device profile.

3. BACnet Requirements

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

Support for the following BACnet Interoperability Building Blocks (BIBBs) is provided by the FLEX.

| Application Specific Controller (B-ASC) | Designation |
|--|-------------|
| 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 |
| 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 – UTC Time Synchronization – B | DM-UTC-B |
| Device Management-Dynamic Device Binding-A | DM-DDB-A |
| Data Sharing - Read Property – A | DS-RP-A |
| Data Sharing - Write Property – A | DS-WP-A |

3.2 Standard Object Types Supported

3.2.1 Analog Input

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes* | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Device_Type | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Units | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Min_Pres_Value | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Max_Pres_Value | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Resolution | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

*writable only when Out_Of_Service is true

3.2.2 Analog Output

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Units | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Max_Pres_Value | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Min_Pres_Value | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Resolution | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Priority_Array | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Relinquish_Default | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

3.2.3 Analog Value

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Units | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

3.2.4 Binary Input

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value* | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Device_Type | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Polarity | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Inactive_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Active_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

*writable only when Out_Of_Service is true

3.2.5 Binary Output

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Device_Type | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Polarity | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Inactive_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Active_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Priority_Array | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Relinquish_Default | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

3.2.6 Binary Value

Dynamically Creatable: YES NO
 Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Inactive_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Active_Text | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

3.2.7 Device

Dynamically Creatable: YES NO
 Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| System_Status | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Vendor_Name | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Vendor_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Model_Name | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Firmware_Revision | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Application_Software_Version | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Location | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Protocol_Version | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Protocol_Revision | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Protocol_Services_Supported | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Protocol_Object_Types_Supported | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_List | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Max_APDU_Length_Accepted | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Segmentation_Supported | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Local_Time | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Local_Date | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| APDU_Timeout | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Number_Of_APDU_Retries | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Max_Master | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Max_Info_Frames | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Device_Address_Binding | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Database_Revision | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Daylight_Savings_Status | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| UTC_Offset | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Max_Segments_Accepted | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

3.2.8 Multi-State Input

Dynamically Creatable: YES NO
 Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value* | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Number_Of_States | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| State_Text | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

*writable only when Out_Of_Service is true

3.2.9 Multi-State Value

Dynamically Creatable: YES NO
 Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Number_Of_States | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| State_Text | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

3.2.10 Loop

Dynamically Creatable: YES NO

Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|--------------------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value* | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Event_State | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Out_Of_Service | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Update interval | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Output_Units | No | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Manipulated_Variable_Reference | Yes | <input checked="" type="checkbox"/> | | |
| Controlled_Variable_Reference | Yes | <input checked="" type="checkbox"/> | | |
| Controlled_Variable_Value | No | <input checked="" type="checkbox"/> | | |
| Controlled_Variable_Units | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Setpoint_Reference | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Setpoint | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Action | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Proportional_Constant | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Proportional_Constant_Units | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Integral_Constant | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Integral_Constant_Units | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Priority_For_Writing | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

3.2.11 Character String Value Object

Dynamically Creatable: YES NO
 Dynamically Deletable: YES NO

| Property Identifier | Writable | Conformance Code | | Range restrictions |
|---------------------|----------|-------------------------------------|-------------------------------------|--------------------|
| | | Required | Optional | |
| Object_Identifier | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Object_Name | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Description | Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Object_Type | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Present_Value | Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Status_Flags | No | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

3.3 Data Link Layer Option

- BACnet IP, (Annex J)
- Master-Slave/Token-Passing (MS/TP) master (Clause 9), baud rates: 9600, 19200, 38400, 76800

3.4 Segmentation Capability

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

3.5 Device Address Binding

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

YES NO

3.6 Character Sets Supported

- ISO 10646 (UTF-8)
- ISO 10646 (UCS-2)

3.7 Supported Services

| Application Service | Initiates Requests | Executes Requests |
|------------------------------------|-------------------------------------|-------------------------------------|
| ReadProperty Service | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| ReadPropertyMultiple Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| WriteProperty Service | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| WritePropertyMultiple Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| DeviceCommunicationControl Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

| | | |
|--------------------------------|-------------------------------------|-------------------------------------|
| ReinitializeDevice Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Timesynchronization Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| UTCTimesynchronization Service | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Who-Is | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Who-Has | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| I-Am | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| I-Have | <input checked="" type="checkbox"/> | <input type="checkbox"/> |