

ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)

(This annex is part of this standard and is required for its use.)

BACnet Protocol Implementation Conformance Statement**Date:** Dec 15, 2023**Vendor Name:** Armstrong Monitoring Corporation**Product Name:** AMC UTx-B Series Gas Sensor/Transmitter**Product Model Number:** AMC-UTx-B-VCA01- VCA01-R-0000**Application Software Version:** 5.8 **Firmware Revision:** 5.8.8 **BACnet Protocol Revision:** 23**Product Description:**

The AMC UTx-B BACnet gas transmitter is a configurable transmitter and controller designed for hazardous gas detection and control. The AMC UTX-B BACnet gas transmitter can be used in stand alone or networked applications where a BACnet network is available.

BACnet Standardized Device Profiles Supported (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 Lighting Workstations (B-ALWS)
- BACnet Lighting Operator Display (B-LOD)
- 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 Advanced Elevator Workstation (B-AEWS)
- BACnet Elevator Workstation (B-EWS)
- BACnet Elevator Display (B-ED)
- BACnet Advanced Lighting Control Station (B-ALCS)
- BACnet Lighting Control Station (B-LCS)
- 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 Lighting Supervisor (B-LS)
- BACnet Lighting Device (B-LD)
- 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 Advanced Elevator Controller (B-AEC)

- BACnet Elevator Controller (B-EC)
- BACnet Elevator Monitor (B-EM)
- 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 Secure Connect Hub (B-SCHUB)

- BACnet General (B-GENERAL)

BACnet Interoperability Building Blocks Supported (Annex K): _____

Data Sharing-ReadProperty-B (DS-RP-B) _____

Data Sharing-ReadPropertyMultiple-B (DS-RPM-B) _____

Data Sharing-WriteProperty-B (DS-WP-B) _____

Data Sharing-Change Of Value-B (DS-COV-B) _____

Device Management-Dynamic Device Binding-B (DM-DDB-B) _____

Device Management-Dynamic Object Binding-B (DM-DOB) _____

Device Management-DeviceCommunicationControl-B (DM-DCC-B) _____

Device Management-ReinitializeDevice-B (DM-RD-B) _____

| BACnet Service | Initiate | Execute |
|----------------------------|----------|---------|
| ReadProperty | | x |
| ReadPropertyMultiple | | x |
| WriteProperty | | x |
| Who-Is | | x |
| I-Am | x | |
| Who-Has | | x |
| I-Have | x | |
| DeviceCommunicationControl | | x |
| ConfirmedCOVNotification | x | |
| UnconfirmedCOVNotification | x | |
| SubscribeCOV | | x |
| ReinitializeDevice | | x |

Segmentation Capability:

- Able to transmit segmented messages Window Size _____
- Able to receive segmented messages Window Size _____

Standard Object Types Supported:

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using the CreateObject service
- 2) Whether objects of this type are dynamically deletable using the DeleteObject service
- 3) List of the optional properties supported

- 4) List of all properties that are writable where not otherwise required by this standard
- 5) List of all properties that are conditionally writable where not otherwise required by this standard
- 6) List of proprietary properties and for each its property identifier, datatype, and meaning
- 7) List of any property range restrictions

Note: None of the object types listed in this section is dynamically creatable or dynamically deletable.

Note: The BACnet conformance codes are as follows:

O - Optional (may be required under some conditions)

R - Required, but not required to be writable (may be required to be writable under some conditions)

W - Not only required, but also required to be writable

The following codes are used in this document to describe how the properties are implemented:

R/W - Read/write

R/O - Read-only

Device Object

| Property | BACnet Conformance Code | Implementation | Range of Value/Value |
|---------------------------------|-------------------------|----------------|---|
| Object_Identifier | R | R/W | |
| Object_Name | R | R/W | Up to 31 characters |
| Object_Type | R | R/O | device |
| System_Status | R | R/O | operational |
| Vendor_Name | R | R/O | “Armstrong Monitoring Corp.” |
| Vendor_Identifier | R | R/O | 677 |
| Model_Name | R | R/O | “AMC UTx-B Series Gas Sensor/Transmitter” |
| Firmware_Revision | R | R/O | |
| Application_Software_Version | R | R/O | |
| Protocol_Version | R | R/O | 1 |
| Protocol_Revision | R | R/O | 23 |
| Protocol_Services_Supported | R | R/O | |
| Protocol_Object_Types_Supported | R | R/O | |
| Object_List | R | R/O | |
| Max_APDU_Length_Accepted | R | R/O | 480 |
| Segmentation_Supported | R | R/O | no_segmentation |
| APDU_Timeout | R | R/O | 10000 |
| Number_Of_APDU_Retries | R | R/O | 1 |
| Device_Address_Binding | R | R/O | empty_list |
| Database_Revision | R | R/O | |
| Property_List | R | R/O | |
| Max_Master | O | R/W | [0, 127] |
| Max_Info_Frames | O | R/W | [1, 255] |
| Active_COV_Subscriptions | O | R/O | |
| Serial_Number | O | R/O | |
| Description | O | R/O | |

Network Port Object

| Property | BACnet Conformance Code | Implementation | Range of Value/Value |
|-------------------|-------------------------|----------------|----------------------|
| Object_Identifier | R | R/O | |
| Object_Name | R | R/O | |
| Object_Type | R | R/O | networkPort |
| Status_Flag | R | R/O | |
| Reliability | R | R/O | |

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| | | | |
|------------------------|---|-----|--------------------|
| Out_Of_Service | R | R/O | False |
| Network_Type | R | R/O | mstp |
| Protocol_Level | R | R/O | BACNET_APPLICATION |
| Changes_Pending | R | R/O | |
| Property_List | R | R/O | |
| Network_Number | O | R/O | 0 |
| Network_Number_Quality | O | R/O | unknown |
| APDU_Length | O | R/O | 480 |
| Link_Speed | O | R/W | |
| Link_Speeds | O | R/O | |
| Max_Master | O | R/W | [0, 127] |
| Max_Info_Frames | O | R/W | [1, 255] |
| MAC_Address | O | R/W | [0, 127] |

Analog Input Object

| Property | BACnet Code | Conformance | Implementation | Range of Value/Value |
|-------------------|-------------|-------------|--------------------------|----------------------|
| Object_Identifier | R | | R/O | |
| Object_Name | R | | R/O | |
| Object_Type | R | | R/O | analogInput |
| Present_Value | R | | R/W (W when OoS is true) | |
| Status_Flag | R | | R/O | |
| Event_State | R | | R/O | |
| Out_Of_Service | R | | R/W | True/False |
| Units | R | | R/O | |
| Property_List | R | | R/O | |
| COV_Increment | O | | R/W | |
| Reliability | O | | R/O | |
| Device_Type | O | | R/O | |
| Description | O | | R/O | |

Analog Output Object

| Property | BACnet Code | Conformance | Implementation | Range of Value/Value |
|--------------------------|-------------|-------------|----------------|----------------------|
| Object_Identifier | R | | R/O | |
| Object_Name | R | | R/O | |
| Object_Type | R | | R/O | analogOutput |
| Present_Value | R | | R/W | [0.0, 20.0] |
| Status_Flag | R | | R/O | |
| Event_State | R | | R/O | Normal |
| Out_Of_Service | R | | R/W | True/False |
| Units | R | | R/O | Volt or mA |
| Priority_Array | R | | R/O | |
| Relinquish_Default | R | | R/W | |
| Current_Command_Priority | R | | R/O | |
| Property_List | R | | R/O | |
| Reliability | O | | R/O | |
| Min_Pre_Value | O | | R/O | 0.0 |
| Max_Pre_Value | O | | R/O | 20.0 |
| Device_Type | O | | R/W | Up to 31 characters |
| Description | O | | R/O | |

Binary Value Object

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| Property | BACnet Code | Conformance | Implementation | Range of Value/Value |
|--------------------------|-------------|-------------|----------------|----------------------|
| Object_Identifier | R | | R/O | |
| Object_Name | R | | R/O | |
| Object_Type | R | | R/O | binaryValue |
| Present_Value | R | | R/W | Active/Inactive |
| Status_Flag | R | | R/O | |
| Event_State | R | | R/O | Normal |
| Out_Of_Service | R | | R/W | True/False |
| Property_List | R | | R/O | |
| Priority_Array | O | | R/O | |
| Relinquish_Default | O | | R/O | Inactive |
| Current_Command_Priority | O | | R/O | |
| Reliability | O | | R/O | |
| Inactive_Text | O | | R/O | "Alarm Off" |
| Active_Text | O | | R/O | "Alarm On" |
| Description | O | | R/O | |

Binary Output Object

| Property | BACnet Code | Conformance | Implementation | Range of Value/Value |
|--------------------------|-------------|-------------|----------------|----------------------|
| Object_Identifier | R | | R/O | |
| Object_Name | R | | R/O | |
| Object_Type | R | | R/O | binaryOutput |
| Present_Value | R | | R/W | Active/Inactive |
| Status_Flag | R | | R/O | |
| Event_State | R | | R/O | Normal |
| Out_Of_Service | R | | R/W | True/False |
| Polarity | R | | R/W | Normal/Reverse |
| Priority_Array | R | | R/O | |
| Relinquish_Default | R | | R/O | |
| Current_Command_Priority | R | | R/O | |
| Property_List | R | | R/O | |
| Device_Type | O | | R/W | Up to 31 characters |
| Reliability | O | | R/O | |
| Inactive_Text | O | | R/O | "Inactive" |
| Active_Text | O | | R/O | "Active" |
| Description | O | | R/O | |

Multistate Input Object

| Property | BACnet Code | Conformance | Implementation | Range of Value/Value |
|-------------------|-------------|-------------|--------------------------|----------------------|
| Object_Identifier | R | | R/O | |
| Object_Name | R | | R/O | |
| Object_Type | R | | R/O | MultiStateInput |
| Present_Value | R | | R/W (W when OoS is true) | |
| Status_Flag | R | | R/O | |
| Event_State | R | | R/O | Normal |
| Out_Of_Service | R | | R/W | True/False |
| Number_Of_States | R | | R/O | |
| Property_List | R | | R/O | |
| State_Text | O | | R/O | |

| | | | |
|-------------|---|-----|--|
| Device_Type | O | R/O | |
| Reliability | O | R/O | |
| Description | O | R/O | |

BACnet 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)
 - Master Slave
 - Non-isolated transceiver Isolated transceiver
 - Local 47K ohms bias resistors None Other: Local 120 Ohm resistor
 - Transceiver unit loading: 1 1/2 1/4 1/8
 - Data rates: 9600 19200 38400 57600 76800 115200
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
- Point-To-Point, modem, (Clause 10), baud rate(s): _____
- BACnet Secure Connect (Annex AB)
 - BACnet Secure Connect Node
 - If direct connections are supported:
 - Maximum number of simultaneous direct connections initiated: _____
 - Maximum number of simultaneous direct connections accepted: _____
 - BACnet Secure Connect Hub Function
 - Maximum number of simultaneous hub connections accepted: _____
 - HTTPS Proxy Support
 - List the types of HTTPS proxies supported: _____
 - Additional cipher suites supported beyond those required for TLS V1.3
 - The additional cipher suites supported using the cipher suite names as of the TLS Cipher Suite Registry at IANA (See RFC 8446):
 - _____
 - _____
 - Additional Transport Layer Security versions other than V1.3 supported
 - The TLS versions other than V1.3 that are supported, including the supported cipher suites for the version beyond those required, using the cipher suite names as defined by the TLS version supported:
 - _____
 - _____
 - Generates private keys internally, and provides matching certificate signing requests.
 - DNS host name resolution supported (RFC 1123)
 - mDNS host name resolution supported (RFC 6762)
- 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

Networking Options:

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP

Character Sets Supported:

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

- | | | |
|---|---|-------------------------------------|
| <input checked="" type="checkbox"/> ISO 10646 (UTF-8) | <input type="checkbox"/> IBM™/Microsoft™ DBCS | <input type="checkbox"/> ISO 8859-1 |
| <input type="checkbox"/> ISO 10646 (UCS-2) | <input type="checkbox"/> ISO 10646 (UCS-4) | <input type="checkbox"/> JIS X 0208 |

Gateway Options:

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

N/A

If this product is a communication gateway which presents a network of virtual BACnet devices, a separate PICS shall be provided that describes the functionality of the virtual BACnet devices. That PICS shall describe a superset of the functionality of all types of virtual BACnet devices that can be presented by the gateway.

N/A