WALCHEM

IWAKI America Inc.

Intuition-9 BACnet Protocol Implementation Conformance Statement (PICS)

BACnet Protocol Implementation Conformance Statement

Date: 17 Jun 2026
Vendor Name: Iwaki America
Product Name: Intuition-9 Controller
Product Model Number: Intuition-9
Application Software Version: 4.31-18436 **Firmware Revision:** 4.31-18407 **BACnet Protocol Revision:** 1.19

Product Description:

The Walchem Intuition-9 is a water treatment process controller.

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 Workstation (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 Controller (B-GENERAL)

BACnet Interoperability Building Blocks Supported (Annex K):

DS-RP-B Data Sharing – Read Property

- Intuition-9 supports reading of a single property at a time.

DS-RPM-B Data Sharing – Read Property Multiple

- Intuition-9 supports reading groups of properties with a single BACnet command.
- Intuition-9 does not support message segmentation, so it is possible to request more data than the Intuition-9 can fit into a reply message. In this case, Intuition-9 generates a *Segmentation Not Supported* response. Clients can then reissue smaller **ReadPropertyMultiple** requests or issue an equivalent series of **ReadProperty** requests (which will take longer).

DS-WP-B Data Sharing – Write Property

- Intuition-9 interprets the command to write a single property.
- The majority of the Intuition-9 properties are read-only, so most Write-Property requests generate failure responses.

DM-DDB-B Device Management – Device Dynamic Binding

- Intuition-9 responds to **Who-Is** requests with a unicast **I-Am** packet.
- Intuition-9 supports the optional device instance range limits on the **Who-Is** request.
- Intuition-9 broadcasts a single unsolicited **I-Am** message (1) at startup, (2) when the BACnet service restarts, and (3) whenever a change is made to the Intuition-9's BACnet Device ID.

DM-DOB-B Device Management – Dynamic Object Binding

- Intuition-9 responds to **Who-Has** requests with a unicast **I-Have** packet.
- Intuition-9 supports both the **Who-Has** <*Object Identifier*> and **Who-Has** <*Object Name*> forms of this service, with optional device instance range limits.
- Intuition-9 does not emit unsolicited **I-Have** messages.

DM-DCC-B Device Management – Device Communication Control

- Intuition-9 allows BACnet clients to disable and re-enable BACnet communication via the **DeviceCommunicationControl** service.
- Communication can be disabled either until re-enabled, or with a timeout value.
- The **DeviceCommunicationControl** service's optional Password parameter is ignored if present.

Segmentation Capability:

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

Standard Object Types Supported:

Device

Intuition-9 properties that apply to the device as a whole

Analog Input

Analog or Digital Sensor, AI Flowmeter, Digital Input (other than DI State type), or Virtual Input

Analog Value

Analog Output, Pulse Relay, or Analog Control Output

Binary Input

DI State input

Binary Value

Discrete Relay or Discrete Control Output

Network Port

BACnet App [N10] (Protocol Level: BACnet Application), Ethernet [N1] (Protocol Level: Physical), and optionally WiFi [N2] (Protocol Level: Physical)

Properties supported by each BACnet Object Type

Unless otherwise noted, properties are Read-Only over BACnet.

Device Object Properties

*Table 1. Supported properties for BACnet **Device** objects*

Property	Comments
Object_Identifier	**Object_Identifier** has a factory-assigned value for Device objects that can be changed by the operator. The Device Object_Identifier is required to be unique across all devices on the BACnet network.
Object_Name	The Device's **Object_Name** is the Intuition-9 Name that the operator sets via the Intuition-9's Global Settings. It is required to be unique across all devices on the BACnet network.
Object_Type	8 (Device)
System_Status	0 (Operational) when BACnet is active
Vendor_Name	Iwaki America
Vendor_Identifier	1057 (Iwaki America)
Model_Name	Product Name found on the Intuition-9's Controller Details page
Firmware_Revision	4.31-18407
Application_Software_Version	4.31-18436
Location	The Device's **Location** is the Intuition-9 Location that the operator sets via the Intuition-9's Global Settings.
Description	Intuition-9
Protocol_Version	1
Protocol_Revision	19
Protocol_Services_Supported	Read-Property, Read-Property-Multiple, Write-Property, Device-Communication-Control, Who-Has, Who-Is
Protocol_Object_Types_Supported	Analog Input, Analog Value, Binary Input, Binary Value, Device, Network Port
Object_List	List of BACnet objects currently configured in the controller
Max_APDU_Length_Accepted	1476
Segmentation_Supported	3 (None)
Local_Time	
Local_Date	
APDU_Timeout	20000 milliseconds
Number_Of_APDU_Retries	3
Device_Address_Binding	Empty list
Database_Revision	
Serial_Number	Serial Number found on the Intuition-9's Controller Details page

Analog Input and *Analog Value* Object Properties

*Table 2. Supported properties for BACnet **Analog Input** and **Analog Value** objects*

Property ID	Analog Input	Analog Value	Comments
Object_Identifier	☑	☑	Assigned by the system. Cannot be modified by the operator.
Object_Name	☑	☑	Device-unique name constructed from operator-entered object name and the object's type/number identifier
Object_Type	☑	☑	0 (Analog Input) or 2 (Analog Value)
Present_Value	☑	☑	
Description	☑	☑	Operator-entered object name
Device_Type	☑	☐	Operator-selected object type
Status_Flags	☑	☑	
Event_State	☑	☑	Always NORMAL because Intuition-9 does not support event reporting
Reliability	☑	☑	
Out_Of_Service	☑	☑	
Units	☑	☑	See below
Min_Pres_Value	☑	☐	
Max_Pres_Value	☑	☐	
Resolution	☑	☑	

Analog Input and *Analog Value* Object Units

Supported values for the Units property include the BACnet Engineering Units defined in ASHRAE 135, along with the following proprietary Units values:

*Table 3. Proprietary Units for BACnet **Analog Input** and **Analog Value** objects*

Value	Units
512	mV/unit
513	mV/decade
517	PPB/PPM ratio
518	counts
520	/gal
521	/l
522	$/m^3$
527	MG/S
528	MG/M
529	MG/H
530	MG/D
533	pulses
534	percent/degree Celsius
535	1/cm
538	oz/gal
539	1/seconds
541	dBm
542	string entered into device
543	nanoamperes (nA)
544	per thousand

Versions 4.25 and earlier used proprietary units that have been supplanted by Addendum ASHRAE 135-2020*cn*.

Table 4. Obsolete Walchem-Proprietary Units

Obsolete Value	Standard Value	Units
514	47909	µS/cm
515	47911	mS/m
516	47910	mS/cm
519	47912	Millions of US Gallons
523	47879	gallons/second
524	47880	gallons/day
525	47878	liters/day
531	47914	ml/minute
532	47917	pulses/minute
536	47915	mils/year
537	47916	mm/year

Binary Input and *Binary Value* Object Properties

*Table 5. Supported properties for BACnet **Binary Input** and **Binary Value** objects*

Property ID	Binary Input	Binary Value	Comments
Object_Identifier	☑	☑	Assigned by the system. Cannot be modified by the operator.
Object_Name	☑	☑	Device-unique name constructed from operator-entered object name and the object's type/number identifier
Object_Type	☑	☑	3 (Binary Input) or 5 (Binary Value)
Present_Value	☑	☑	
Description	☑	☑	Operator-entered object name
Device_Type	☑	☐	Operator-selected object type
Status_Flags	☑	☑	
Event_State	☑	☑	Always NORMAL because Intuition-9 does not support event reporting
Reliability	☑	☑	
Out_Of_Service	☑	☑	
Polarity	☑	☐	0 (NORMAL)
Inactive_Text	☑	☑	
Active_Text	☑	☑	

Network Port Object Properties

*Table 6. Supported properties for BACnet **Network Port** objects*

Property ID	Comments
Object_Identifier	Assigned by the system. Cannot be modified by the operator.
Object_Name	Assigned by the system.
Object_Type	56 (Network Port)
Description	Assigned by the system.
Status_Flags	
Reliability	0 (No Fault Detected)
Out_Of_Service	
Network_Type	5 (IPv4)
Protocol_Level	BACNET_APPLICATION or PHYSICAL
Reference_Port	
Network_Number[1]	0-65534 (**writable**)[3, 4]
Network_Number_Quality[1]	0 (UNKNOWN), 1 (LEARNED), 2 (LEARNED_CONFIGURED), or 3 (CONFIGURED)[5]
Changes_Pending	FALSE
MAC_Address	
APDU_Length[1]	1476
Link_Speed[2]	
BACnet_IP_Mode[1]	0 (Normal)
IP_Address[2]	
BACnet_IP_UDP_Port[1]	Data Port configured by operator in Remote Comms settings (default: 47808)
IP_Subnet_Mask[2]	
IP_Default_Gateway[2]	
IP_DNS_Server[2]	
IP_DHCP_Enable[2]	

Notes:

1. Present only when Protocol_Level is BACNET_APPLICATION
2. Present only when Protocol_Level is PHYSICAL
3. The Network_Number property can be modified by receipt of a Network-Number-Is message or via the Write-Property service.
4. Intuition-9 accepts Network-Number-Is messages but never sends What-Is-Network-Number requests
5. When Write-Property is used to set the Network_Number to a value in the range 1 to 65534, the Network_Number_Quality property is set to CONFIGURED. When Write-Property is used to set the Network_Number to zero, the Network_Number_Quality property is set to UNKNOWN. Network-Number-Is messages are ignored when Network_Number_Quality is CONFIGURED. Network-Number-Is messages set the Network_Number_Quality property to LEARNED or LEARNED_CONFIGURED depending on the flag value, as described in the BACnet specification.

BACnet Options

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, (Clause 11), medium: _____
- ☐ MS/TP master (Clause 9), baud rate(s): _____
- ☐ 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): _____
- ☐ 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 direct connections accepted: _____
  - ☐ HTTPS Proxy Support
    List the type 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.

- ☑ ISO 10646 (UTF-8)
- ☐ IBM™/Microsoft™ DBCS
- ☐ ISO 8859-1
- ☐ ISO 10646 (UCS-2)
- ☐ ISO 10646 (UCS-4)
- ☐ 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