

Zoning System TEC2647Z-2 and TEC2647Z-2+PIR Zone Controllers Protocol Implementation Conformance Statement

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Technical Bulletin

TEC2647Z-2 and TEC2647Z-2+PIR

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Zoning System TEC2647Z-2 and TEC2647Z-2+PIR Zone Controller Protocol Implementation Conformance Statement Technical Bulletin

Document Introduction

This document contains the Protocol Implementation Conformance Statement (PICS) and BACnet® Interoperability Building Blocks (BIBBs) for the Zoning System TEC2647Z-2 and TEC2647Z-2+PIR Zone Controller as required by the American National Standards Institute/American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ANSI/ASHRAE) Standard 135-2004, BACnet protocol.

The PICS is a written document created by the manufacturer of a device to identify the particular options specified in the BACnet standard and implemented in the device.

BACnet interoperability building blocks are collections of one or more BACnet services. This document includes a listing of the BIBBs currently supported by the Zoning System TEC2647Z-2 and TEC2647Z-2+PIR Zone Controller.

Annex A - Protocol Implementation Conformance Statement (Normative)

Table 1: BACnet Protocol Implementation Conformance Statement

Date	January 9, 2009
Vendor Name	Johnson Controls, Inc.
Product Name	Zoning System TEC2647Z-2 Zone Controller Zoning System TEC2647Z-2+PIR Zone Controller
Product Model Number	TEC2647Z-2 TEC2647Z-2+PIR
Applications Software Version	Not Applicable
Firmware Version	1.00.35
BACnet Protocol Revision	Version 1, Revision 2

Product Description

The zone controller is a BACnet Master-Slave/Token-Passing (MS/TP) device that operates with a TEC2664Z-2 Rooftop Controller to provide efficient space temperature control in zoning systems. This zoning system provides proportional 0 to 10 VDC control of pressure dependent Variable Air Volume (VAV) equipment with or without local reheat.

The zone and rooftop controller combination can operate as a stand-alone zoning system, or it can operate with a Building Automation System (BAS) that enables remote monitoring and programmability in networked zoning systems.

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)

Note: For a complete listing of the additional BIBBs supported (Annex K), see [BACnet Interoperability Building Blocks \(BIBBs\) \(Annex K\)](#) on page 5 of this document.

BACnet Interoperability Building Blocks (BIBBs) (Annex K)

Table 2 lists all the BIBBs that are required for the BACnet Application Specific Controller (B-ASC) profile and the support for these BIBBs within the Metasys® system. The BIBBs that are not required are also listed.

Table 2: BACnet B-ASC BIBBs Support

Application Service (B-ASC)	Designation	Supported
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		
Data Sharing - Read Property - A	DS-RP-A	☒
Data Sharing - Read Property Multiple - B	DS-RPM-B	☒
Data Sharing - Write Property - A	DS-WP-A	☒
Data Sharing - COV - A	DS-COV-A	☒
Data Sharing - COV - B	DS-COV-B	☒
A = Initiates		
B = Executes		

Standard Object Types Supported

The following is a list of the standard object types as defined by ASHRAE. The objects checked are currently supported by this product. See the section in this document for the supported object type for details.

- Accumulator
- Analog Input
- Analog Output
- Analog Value
- Averaging
- Binary Input
- Binary Output
- Binary Value
- Calendar
- Command
- Device
- Event Enrollment
- File
- Group
- Life Safety Point
- Life Safety Zone
- Loop
- Multistate Input
- Multistate Output
- Multistate Value
- Notification Class
- Program
- Pulse Converter
- Schedule
- Trend Log

Analog Input

Dynamically Creatable: No

Dynamically Deletable: No

Table 3: Analog Input

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
PRESENT_VALUE	√			√ ¹			
STATUS_FLAGS	√						
EVENT_STATE	√						
RELIABILITY		√					
OUT_OF_SERVICE	√			√			
UNITS	√						

1. This property is writable when **OUT_OF_SERVICE** is true.

Analog Value

Dynamically Creatable: No

Dynamically Deletable: No

Table 4: Analog Value

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
PRESENT_VALUE	√			√ ¹			
STATUS_FLAGS	√						
EVENT_STATE	√						
RELIABILITY		√					
OUT_OF_SERVICE	√			√			
UNITS	√						

1. This property is writable when **OUT_OF_SERVICE** is true.

Binary Input

Dynamically Creatable: No

Dynamically Deletable: No

Table 5: Binary Input

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
PRESENT_VALUE	√			√ ¹			
STATUS_FLAGS	√						
EVENT_STATE	√						
RELIABILITY		√					
OUT_OF_SERVICE	√			√			
POLARITY	√			√			
INACTIVE_TEXT		√					
ACTIVE_TEXT		√					
STATES_TEXT			√			931	Enumerated

1. This property is writable when **OUT_OF_SERVICE** is true.

Binary Value

Dynamically Creatable: No

Dynamically Deletable: No

Table 6: Binary Value

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
PRESENT_VALUE	√			√ ¹			
STATUS_FLAGS	√						
EVENT_STATE	√						
RELIABILITY		√					
OUT_OF_SERVICE	√			√			
INACTIVE_TEXT		√					
ACTIVE_TEXT		√					
STATES_TEXT			√			931	Enumerated

1. This property is writable when **OUT_OF_SERVICE** is true.

Device

Dynamically Creatable: No

Dynamically Deletable: No

Table 7: Device

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
SYSTEM_STATUS	√						
VENDOR_NAME	√						
VENDOR_IDENTIFIER	√						
MODEL_NAME	√						
FIRMWARE_REVISION	√						
APPLICATION_SOFTWARE_VERSION	√						
PROTOCOL_VERSION	√						
PROTOCOL_REVISION	√						
PROTOCOL_SERVICES_SUPPORTED	√						
PROTOCOL_OBJECT_TYPES_SUPPORTED	√						
OBJECT_LIST	√						
MAX_APDU_LENGTH_ACCEPTED	√						
SEGMENTATION_SUPPORTED	√						
APDU_TIMEOUT	√						
NUMBER_OF_APDU_RETRIES	√						
MAX_MASTER				√			
MAX_INFO_FRAMES				√			
DEVICE_ADDRESS_BINDING	√						
DATABASE_REVISION	√						

Multistate Value

Dynamically Creatable: No

Dynamically Deletable: No

Table 8: Multistate Value

Property Name	Required	Optional	Proprietary	Writable	Range	Property ID	Data Type
OBJECT_IDENTIFIER	√						
OBJECT_NAME	√						
OBJECT_TYPE	√						
PRESENT_VALUE	√			√ ¹			
STATUS_FLAGS	√						
EVENT_STATE	√						
RELIABILITY		√					
OUT_OF_SERVICE	√			√			
NUMBER_OF_STATES	√						
STATE_TEXT		√					
STATES_TEXT			√			931	Enumerated

1. This property is writable when **OUT_OF_SERVICE** is true.

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: Auto (default); 9600; 19,200; 38,400; 76,800
- MS/TP slave (Clause 9), baud rates: _____
- Point-To-Point, EIA 232 (Clause 10), baud rates: _____
- Point-To-Point, modem (Clause 10), baud rates: _____
- LonTalk® protocol (Clause 11), medium: _____
- Other: _____

Segmentation Capability

- Segmented requests supported: Window Size: N/A
- Segmented responses supported: Window Size: N/A

Device Address Binding

- Yes No **Is static device binding supported?** (required for two-way communication between MS/TP slaves and other devices)

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

Character Sets Supported

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

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> ANSI X3.4 | <input type="checkbox"/> IBM®/Microsoft® Double-Byte Character Set (DBCS) | <input type="checkbox"/> ISO 8859-1 |
| <input type="checkbox"/> ISO 10646 Universal Character Set-2 (UCS-2) | <input type="checkbox"/> ISO 10646 (UCS-4) | <input type="checkbox"/> Japanese Industrial Standard (JIS) C 6226 |

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

None

| Zoning System Zone Controller Supported Services

Table 9 lists all the BACnet standard application services. The checked services are supported by the Zoning System Zone Controller.

**Table 9: BACnet Standard Application Services Support
(Part 1 of 2)**

Application Service	Initiates Requests	Executes Requests
AcknowledgeAlarm	<input type="checkbox"/>	<input type="checkbox"/>
AddListElement	<input type="checkbox"/>	<input type="checkbox"/>
AtomicReadFile	<input type="checkbox"/>	<input type="checkbox"/>
AtomicWriteFile	<input type="checkbox"/>	<input type="checkbox"/>
Authenticate	<input type="checkbox"/>	<input type="checkbox"/>
ConfirmedCOVNotification	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ConfirmedEventNotification	<input type="checkbox"/>	<input type="checkbox"/>
ConfirmedPrivateTransfer	<input type="checkbox"/>	<input type="checkbox"/>
ConfirmedTextMessage	<input type="checkbox"/>	<input type="checkbox"/>
CreateObject	<input type="checkbox"/>	<input type="checkbox"/>
DeleteObject	<input type="checkbox"/>	<input type="checkbox"/>
DeviceCommunicationControl	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GetAlarmSummary	<input type="checkbox"/>	<input type="checkbox"/>
GetEnrollmentSummary	<input type="checkbox"/>	<input type="checkbox"/>
GetEventInformation	<input type="checkbox"/>	<input type="checkbox"/>
I-Am	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I-Have	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LifeSafetyOperation	<input type="checkbox"/>	<input type="checkbox"/>
ReadProperty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ReadPropertyConditional	<input type="checkbox"/>	<input type="checkbox"/>
ReadPropertyMultiple	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ReadRange	<input type="checkbox"/>	<input type="checkbox"/>
ReinitializeDevice	<input type="checkbox"/>	<input type="checkbox"/>
RemoveListElement	<input type="checkbox"/>	<input type="checkbox"/>
RequestKey	<input type="checkbox"/>	<input type="checkbox"/>
SubscribeCOV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SubscribeCOVProperty	<input type="checkbox"/>	<input type="checkbox"/>
TimeSynchronization	<input type="checkbox"/>	<input type="checkbox"/>
UnconfirmedCOVNotification	<input type="checkbox"/>	<input type="checkbox"/>
UnconfirmedEventNotification	<input type="checkbox"/>	<input type="checkbox"/>
UnconfirmedPrivateTransfer	<input type="checkbox"/>	<input type="checkbox"/>

**Table 9: BACnet Standard Application Services Support
(Part 2 of 2)**

Application Service	Initiates Requests	Executes Requests
UnconfirmedTextMessage	<input type="checkbox"/>	<input type="checkbox"/>
UTCTimeSynchronization	<input type="checkbox"/>	<input type="checkbox"/>
VT-Close	<input type="checkbox"/>	<input type="checkbox"/>
VT-Data	<input type="checkbox"/>	<input type="checkbox"/>
VT-Open	<input type="checkbox"/>	<input type="checkbox"/>
Who-Has	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Who-Is	<input type="checkbox"/>	<input checked="" type="checkbox"/>
WriteProperty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
WritePropertyMultiple	<input type="checkbox"/>	<input type="checkbox"/>



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