

# BACnet IP RIB®

January 30, 2024

## Protocol Implementation Conformance Statement

Vendor Name: **Functional Devices, Inc.**  
Product Name: **BACnet IP RIB**  
Product Model Number: **RIBTW2421B-BCIP**  
Application Software Version: **3.10**  
Firmware Revision: **20.00**  
BACnet Protocol Revision: **20**

### 1. Product Description

The BACnet RIB provides a software-implemented network interface between BACnet client devices and RIB control and monitoring points.

### 2. BACnet Standardized Device Profile (Annex L)

The BACdoor OEM Client-Server supports the B-ASC profile.

### 3. BACnet Interoperability Building Blocks Supported (Annex K)

DS-RP-B, DS-RPM-B, DS-WP-B, DS-WPM-B, DM-DDB-A, DM-DDB-B, DM-DOB-B, DM-DCC-B, DB-RD-B

### 4. Segmentation Capability

Segmentation is not supported.

### 5. Standard Object Types (See Specification for product to see which are supported on the product)

No dynamic Creation or Deletion supported  
No proprietary object types supported

Standard Object Types Supported:

- **Binary Input**
- **Binary Output**
- **Device**
- **Network Port**

Optional Properties Supported:

- **Binary Input**
  - Description
  - Reliability
  - Inactive\_Text
  - Active\_Text

- **Binary Output**
  - Description
  - Reliability
  - Inactive\_Text
  - Active\_Text
  - Minimum\_On\_Time
  - Minimum\_Off\_Time
  - Feedback\_Value
- **Device**
  - Description
- **Network Port**
  - Description
  - Command
  - MAC\_Address
  - BACnet\_IP\_Mode
  - IP\_Address
  - BACnet\_IP\_UDP\_Port
  - IP\_Subnet\_Mask
  - IP\_Default\_Gateway
  - IP\_DNS\_Server
  - IP\_DHCP\_Enable
  - FD\_BBMD\_Address
  - FD\_Subscription\_Lifetime

Writable Properties:

- **Binary Input**
  - Object\_Name (32 characters max)
  - Description (64 characters max)
  - Inactive\_Text (32 characters max)
  - Active\_Text (32 characters max)
  - Polarity
- **Binary Output**
  - Object\_Name (32 characters max)
  - Description (64 characters max)
  - Inactive\_Text (32 characters max)
  - Active\_Text (32 characters max)
  - Polarity
  - Present\_Value
  - Relinquish\_Default
  - Minimum\_On\_Time (0\_65535)
  - Minimum\_Off\_Time (0\_65535)
- **Device**
  - Object\_Identifier
  - Object\_Name (32 characters max)
  - Description (64 characters max)
  - APDU\_Timeout
  - Number\_Of\_APDU\_Retries

- Network Port**  
 Object\_Identifier  
 Object\_Name (32 characters max)  
 Description (64 characters max)  
 Network\_Number (0\_65534)  
 Command (Discard\_Changes, Renew\_FD\_Registration)  
 BACnet\_IP\_Mode (Normal, Foreign)  
 BACnet\_IP\_UDP\_Port (47808\_65535)  
 FD\_BBMD\_Address  
 FD\_Subscription\_Lifetime

### Object Details

|     |                                 |   |   |
|-----|---------------------------------|---|---|
| DEx | Object_Identifier               | default to DE277000-DE277255 (Based on last octet of Ethernet MAC Address)  | W |
|     | Object_Name                     | Up to 32 characters   | W |
|     | Object_Type                     | DEVICE  | R |
|     | System_Status                   | OPERATIONAL   | R |
|     | Vendor_Name                     | "Functional Devices, Inc"   | R |
|     | Vendor_Identifier               | 277   | R |
|     | Model_Name                      | "RIBTW2421B-BCIP"   | R |
|     | Firmware_Revision               | "20.00" (or similar)  | R |
|     | Application_Software_Version    | "3.10" (or similar)   | R |
|     | Description                     | Up to 64 characters   | W |
|     | Protocol_Version                | 1   | R |
|     | Protocol_Revision               | 20  | R |
|     | Protocol_Services_Supported     | {readProperty,readPropertyMultiple,writeProperty,writePropertyMultiple,deviceCommunicationControl,who-Has,I-Am,who-Is, reinitDevice } | R |
|     | Protocol_Object_Types_Supported | {BinaryInput, BinaryOutput, Device, Network Port }  | R |
|     | Object_List                     | DEx, NP1, BI1, BO1  | R |
|     | Max_APDU_Length_Accepted        | 480   | R |
|     | Segmentation_Supported          | NONE  | R |
|     | APDU_Timeout                    | 3000 default  | W |
|     | Number_Of_APDU_Retries          | 0 default   | W |
|     | Device_Address_Binding          | always empty  | R |
|     | Database_Revision               | 1   | R |
|     | Property_List                   | Array of All Properties except Object_Identifier, Object_Name, Object_Type and Property_List  | R |

|     |                        |  |   |
|-----|------------------------|--|---|
| NP1 | Object_Identifier      | NP1 default  | W |
|     | Object_Name            | Up to 32 characters                                | W |
|     | Object_Type            | NETWORK PORT                                       | R |
|     | Description            | Up to 64 characters                                | W |
|     | Status_Flags           | Always { 0,0,0,0 }                                 | R |
|     | Reliability            | NO_FAULT_DETECTED or RENEW_FD_REGISTRATION_FAILURE | R |
|     | Out_of_Service         | Always FALSE                                       | R |
|     | Network_Type           | IPV4   | R |
|     | Protocol_Level         | BACNET_APPLICATION                                 | R |
|     | Network_Number         | 0-65534 (default=0)                                | W |
|     | Network_Number_Quality | Always UNKNOWN                                     | R |
|     | Changes_Pending        | FALSE or TRUE                                      | R |

|  |                               |  |   |
|--|-------------------------------|--|---|
|  | Command                       | IDLE, DISCARD_CHANGES or RENEW_FD_REGISTRATION   | W |
|  | MAC_Address                   | As an octet string   | R |
|  | Link_Speed                    | 0.0  | R |
|  | BACnet_IP_Mode                | NORMAL or FOREIGN  | W |
|  | IP_Address                    | x.x.x.x (e.g., 192.168.1.123)  | R |
|  | IP_Subnet_Mask                | x.x.x.x (e.g., 255.255.255.0)  | R |
|  | IP_Default_Gateway            | x.x.x.x (e.g., 192.168.1.1)  | R |
|  | IP_DNS_Server                 | {x.x.x.x}, {y.y.y.y}<br>(e.g., {74.74.74.74}, {75.75.75.75})                                 | R |
|  | IP_DHCP_Enable                | TRUE default   | R |
|  | BACnet_IP_UDP_Port            | 47808 default  | W |
|  | FD_BBMD_Address               | NULL (shown as 0.0.0.0) default or x.x.x.x:port (e.g., 192.168.1.123:47808)                  | W |
|  | FD_BBMD_Subscription_Lifetime | 0 default  | W |
|  | Property_List                 | Array of All Properties except Object_Identifier, Object_Name, Object_Type and Property_List | R |
|  |                               |  |   |

|     |                   |  |   |
|-----|-------------------|--|---|
| BI1 | Object_Identifier | BI1  | R |
|     | Object_Name       | Up to 32 characters  | W |
|     | Object_Type       | Binary_Input   | R |
|     | Present_Value     | 0 or 1   | R |
|     | Description       | Up to 64 characters  | W |
|     | Status_Flags      | Always {0,0,0,0}   | R |
|     | Event_State       | Always NORMAL  | R |
|     | Reliability       | Always NO_FAULT_DETECTED   | R |
|     | Out_Of_Service    | Always FALSE   | R |
|     | Polarity          | NORMAL or REVERSE  | W |
|     | Inactive_Text     | Up to 32 characters  | W |
|     | Active_Text       | Up to 32 characters  | W |
|     | Property_List     | Array of All Properties except Object_Identifier, Object_Name, Object_Type and Property_List | R |

|     |                    |  |   |
|-----|--------------------|--|---|
| BO1 | Object_Identifier  | BO1  | R |
|     | Object_Name        | Up to 32 characters  | W |
|     | Object_Type        | Binary_Output  | R |
|     | Present_Value      | 0 or 1   | W |
|     | Description        | Up to 64 characters  | W |
|     | Status_Flags       | {0,0,0,0} Normal or {0,0,1,0} Overridden   | R |
|     | Event_State        | Always NORMAL  | R |
|     | Reliability        | Always NO_FAULT_DETECTED   | R |
|     | Out_Of_Service     | Always FALSE   | R |
|     | Polarity           | NORMAL or REVERSE  | W |
|     | Inactive_Text      | Up to 32 characters  | W |
|     | Active_Text        | Up to 32 characters  | W |
|     | Minimum_Off_Time   | 0-65535 seconds  | W |
|     | Minimum_On_Time    | 0-65535 seconds  | W |
|     | Priority_Array     | 16 slots (0, 1, NULL)  | R |
|     | Relinquish_Default | 0 or 1   | W |
|     | Feedback_Value     | 0 or 1   | R |
|     | Property_List      | Array of All Properties except Object_Identifier, Object_Name, Object_Type and Property_List | R |

## 6. Data Link Layer Options

- BACnet/IP, (Annex J)
- ISO 8802-3, Ethernet (Clause 7)
- ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), configurable baud rate to 156K
- MS/TP master (Clause 9): 9600, 19200, 38400, 57600, 76800, 115200 baud
- PTP (Clause 10)

## 7. Device Address Binding

Static binding is not supported.

## 8. Networking Options

The RIB is not a router.

Annex H, BACnet Tunneling Router over IP is not supported

## 9. Character Sets Supported

- ISO 10646(UTF-8)  IBM/Microsoft DBCS  JIS C 6226  ISO 10646 (UCS4)  ISO 10646 (UCS2)
- ISO 8859-1

## 10. Network Security Options

The RIB is a non-secure Device.