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: October 9, 2024
Vendor Name: Richards Electric Motor Company
Product Name: RED-485 Multiprotocol RS-485 Dongle
Product Model Number: RED-485
Application Software Version: V4.400   **Firmware Revision:** V4.400   **BACnet Protocol Revision:** 12

Product Description:
The RED-485 is a multiprotocol RS-485 communication interface for Toshiba inverters, including AS3, S15, NC3, AS1, 9-Series, and 7-Series inverters, supporting protocols such as BACnet MS/TP, Modbus RTU, JCI Metasys N2, and Siemens P1 FLN.

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 – WritePropertyMultiple-B (DS-WPM-B)
Data Sharing – COV-B (DS-COV-B)
Device Management – Dynamic Device Binding-B (DM-DDB-B)
Device Management – Dynamic Object Binding-B (DM-DOB-B)
Device Management – DeviceCommunicationControl-B (DM-DCC-B)
Device Management – ReinitializeDevice-B (DM-RD-B)

Segmentation Capability:

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

Standard Object Types Supported:

Property	Device	Binary Input	Binary Output	Analog Input	Analog Output
Object Identifier	W	R	R	R	R
Object Name	W	R	R	R	R
Object Type	R	R	R	R	R
System Status	R				
Vendor Name	R				
Vendor Identifier	R				
Model Name	R				
Firmware Revision	R				
Application Software Version	R				
Protocol Version	R				
Protocol Revision	R				
Protocol Services Supported	R				
Protocol Object Types Supported	R				
Object List	R				
Max APDU Length Accepted	R				
Segmentation Supported	R				
APDU Timeout	W (10…65535)				
Number Of APDU Retries	W (0…10)				
Max Master	W (1…127)				
Max Info Frames	W (1…100)				

Device Address Binding	R				
Database Revision	R				
Active COV Subscriptions	R				
Present Value		R	W	R	W
Status Flags		R	R	R	R
Event State		R	R	R	R
Reliability		R	R	R	R
Out Of Service		R	R	R	R
Units				R	R
Priority Array			R		R
Relinquish Default			R		R
COV Increment				W	W
Polarity		W	W		
Inactive Text		R	R		
Active Text		R	R		

R – Readable using BACnet services
W – Readable and writable using BACnet services

No objects are dynamically creatable using the CreateObject service
No objects are dynamically deletable using the DeleteObject service

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: _____
    Transceiver unit loading: ☐ 1   ☐ ½   ☐ ¼   ☑ ⅛
    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.

☑ 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

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.