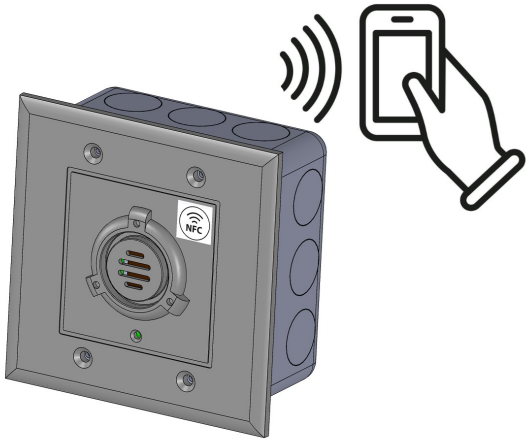
QVRF

GAS TRANSMITTER/SENSOR



BACnet
Protocol Implementation Conformance (PIC) Statement

ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)

QVRF BACnet Protocol Implementation Conformance Statement

Date: 2026-08-17
Vendor Name: Greystone Energy Systems, Inc.
Product Name: QVRF Gas Transmitter
Product Model Number: QVRF
Application Software Version: V2-01_S4-06
Firmware Revision: QVRF-SEN-4-10
BACnet Protocol Revision: Version 1, Revision 26

Product Description:
QVRF is a Gas Detection Transmitter/Sensor that communicates via BACnet protocol MS/TP. QVRF is a BACnet MS/TP device capable of operating as a Master or Slave, depending on configuration. Available with electrochemical sensor to detect toxic gases, catalytic sensor to detect combustible gases and NDIR infrared sensor to detect CO2,CH4 and Freon gases.

BACnet Standardized Device Profile (Annex L):

☐ **BACnet Operator Workstation (B-OWS)**
☐ **BACnet Advanced Operator Workstation (B-AWS)**
☐ **BACnet Operator Display (B-OD)**
☐ **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)**

BACnet Interoperability Building Blocks Supported (Annex K)
Data Sharing BIBBs

BIBB	Name	Initiate	Execute
DS-RP-B	ReadProperty-B	—	☑
DS-RPM-B	ReadPropertyMultiple-B	—	☑
DS-WP-B	WriteProperty-B	—	☑

Device Management BIBBs

BIBB	Name	Initiate	Execute
DM-DDB-B	Dynamic Device Binding	I-Am	Who-Is
DM-DOB-B	Dynamic Object Binding	I-Have	Who-Has
DM-DCC-B	Device Communication Control	—	☑
DM-RD-B	Reinitialize Device	—	☑
DM-TS-B	Time Synchronization	—	☑
DM-UTC-B	UTC Time Synchronization	—	☑

BACnet Interoperability Building Blocks Supported (Annex K)

- DS-RP-B (Data Sharing – ReadProperty – B)
- DS-RPM-B (Data Sharing – ReadPropertyMultiple – B)
- DS-WP-B (Data Sharing – WriteProperty – B)
- DM-DDB-B (Device Management – Dynamic Device Binding – B)
- DM-DOB-B (Device Management – Dynamic Object Binding – B)
- DM-DCC-B (Device Management – DeviceCommunicationControl – B)
- DM-RD-B (Device Management – Reinitialize Device -B)
- DM-TS-B (Device Management – TimeSynchronization – B)
- DM-UTC-B (Device Management – UTCTimeSynchronization – B)

Segmentation Capability

- Segmented requests supported: **No** (SEGMENTATION_NONE)
- Segmented responses supported: **No** (SEGMENTATION_NONE)

Standard Object Types Supported

- Device
- Analog Input
- Analog Value
- Binary Output
- Network Port

Data Link Layer Options

- **MS/TP master (Clause 9), baud rates: 9600, 19200, 38400, 57600, 76800**
- **MS/TP slave (Clause 9), baud rates: 9600, 19200, 38400, 57600, 76800**

Other data link options are not supported.

Device Address Binding
Static device binding supported? No

Networking Options

- **Router (Clause 6): Not supported**
- **BACnet/IP, BBMD, Annex H: Not supported**

Network Security Options

- **Non-secure Device – capable of operating without BACnet Network Security**
- **BACnet Network Security (NS) is not supported**

Character Sets Supported

- **ISO 10646 (UTF-8)**

Property Lists of Objects

Device:

Property	Default Value / Typical Value	Access	Conformance Code
object-identifier	device, 4005	Read	Required
object-name	"QVRF_MAC_ (address)_ (gastype)"	Read/Write	Required
object-type	device	Read	Required
system-status	operational	Read	Required
vendor-name	"GES"	Read	Required
vendor-identifier	381	Read	Required
model-name	"QVRF"	Read	Required
firmware-revision	"QVRF-SEN-4-10"	Read	Required
application-software-version	"V2-01_S4-06"	Read	Required
protocol-version	1	Read	Required
protocol-revision	26	Read	Required
protocol-services-supported	ReadProperty, ReadPropertyMultiple, WriteProperty, DeviceCommunicationControl, ReinitializeDevice (cold_start, warm_start, activate_changes), TimeSynchronization, Who-has, Who-is, UTCTimeSynchronization	Read	Required
protocol-object-types-supported	device, analog-input, analog-value, binary-output, network	Read	Required
object-list	Device Analog Input 0 (Gas Concentration) Analog Input 1 (MCU Temperature) Analog Value 0-1 (Alarm On / Alarm Off) Binary Output 0 (Relay1) Binary Output 1 (Relay2) Network Port	Read	Required
max-APDU-length-accepted	340	Read	Required
segmentation-supported	NO-SEGMENTATION	Read	Required
apdu-timeout	3000 (ms)	Read	Required
number-of-apdu-retries	3	Read	Required
device-address-binding	()	Read	Required
database-revision	1	Read	Required
Local_Time	Time	Read	Optional
Local_Date	Date	Read	Optional
UTC_Offset	300	Read	Optional
Daylight_Savings_Status	True	Read	Optional
max_master	typical range 1–127, default 127	Read/Write	Optional
max_info_frames	1	Read/Write	Optional
property list	above properties	Read	Required

Analog Input 0:

Property	Default Value / Typical Value	Access	Conformance Code
object-identifier	analog-input, 0	Read	Required
object-name	"Gas Concentration"	Read	Required
object-type	analog-input(0)	Read	Required
present-value	xxxx	Read	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
out-of-service	false	Read	Required
units	Percent % (%LFL)	Read	Required
property list	above properties	Read	Required

Analog Input 1:

Property	Default Value	Access	Conformance Code
object-identifier	analog-input, 1	Read	Required
object-name	"Sensor Temperature"	Read	Required
object-type	analog-input(0)	Read	Required
present-value	Xxxx	Read	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
out-of-service	False	Read	Required
units	Degrees-Celsius	Read	Required
property list	above properties	Read	Required

Analog Value 0:

Property	Default Value	Access	Conformance Code
object-identifier	analog-value, 0	Read	Required
object-name	"Alarm On Level"	Read	Required
object-type	analog-value(2)	Read	Required
present-value	Xxxx	Read/Write	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
units	Percent % (%LFL)	Read	Required
property list	above properties	Read	Required

Analog Value 1:

Property	Default Value	Access	Conformance Code
object-identifier	analog-value, 1	Read	Required
object-name	"Alarm Off Level"	Read	Required
object-type	analog-value(2)	Read	Required
present-value	Xxxx	Read/Write	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
units	Percent % (%LFL)	Read	Required
property list	above properties	Read	Required

Binary Output 0:

Property	Default Value	Access	Conformance Code
object-identifier	binary-output, 0	Read	Required
object-name	"Relay1 Output"	Read	Required
object-type	binary-output(4)	Read	Required
present-value	active / inactive	Read/Write	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
out-of-service	false	Read/Write	Required
priority	normal	Read	Required
priority-array	QVRF priority is 16	Read	Required
relinquish-default	inactive	Read	Required
Current command priority		Read	Required
property list	above properties	Read	Required

Binary Output 1:

Property	Default Value	Access	Conformance Code
object-identifier	binary-output, 1	Read	Required
object-name	"Relay2 Output"	Read	Required
object-type	binary-output(4)	Read	Required
present-value	active / inactive	Read/Write	Required
status-flag	in alarm / fault / overridden / out-of-service	Read	Required
event-state	normal(0)	Read	Required
out-of-service	false	Read/Write	Required
priority	normal	Read	Required
priority-array	QVRF priority is 16	Read	Required
relinquish-default	Inactive	Read	Required
Current command priority		Read	Required
property list	above properties	Read	Required

Network Port Object:

Property	Default Value	Access	Conformance Code
object-identifier	Object_network_port,: 1	Read	Required
object-name	MS/TP Port	Read	Required
object-type	Object Network Port	Read	Required
status_flags	in alarm / fault / overridden / out-of-service	Read	Required
reliability	No Fault Detected	Read	Required
Out-of-service	False	Read	Required
network-type	MS/TP	Read	Required
protocol_level	2: BACnet Application	Read	Required
changes_pending	False, true	Read	Required
MAC_address	0 - 254	Read/Write	Optional
max_master	typical range 1–127, default 127	Read/Write	Optional
max_info_frames	1	Read/Write	Optional
Link_speeds	9600, 19200, 38400, 57600, 76800	Read	Optional
Link_speed	Default: 38400	Read/Write	Optional
Apdu_length	340	Read	Optional
Network_number	0	Read	Optional
Network_number_quality	unknown	Read	Optional
property list	above properties	Read	Required