

1. BACNET PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT

Date: 29-Jul-2016
Vendor Name: Trend Control Systems Ltd.
Product Name: IQ4
Product Model Number: IQ411/BAC/230, IQ411/LAN/BAC/230, IQ411/BAC/24, IQ411/LAN/BAC/24, IQ412/BAC/230, IQ412/LAN/BAC/230, IQ412/BAC/24, IQ412/LAN/BAC/24, IQ422/12/BAC/230, IQ422/12/LAN/BAC/230, IQ422/12/BAC/24, IQ422/12/LAN/BAC/24, IQ4E/16/BAC/230, IQ4E/32/BAC/230, IQ4E/64/BAC/230, IQ4E/96/BAC/230, IQ4E/128/BAC/230, IQ4E/160/BAC/230, IQ4E/192/BAC/230, IQ4E/16/LAN/BAC/230, IQ4E/32/LAN/BAC/230, IQ4E/64/LAN/BAC/230, IQ4E/96/LAN/BAC/230, IQ4E/128/LAN/BAC/230, IQ4E/160/LAN/BAC/230, IQ4E/192/LAN/BAC/230, IQ422/12/XNC/BAC/24VAC, IQ422/12/XNC/BAC/230, IQ422/12/XNC/LAN/BAC/24VAC, IQ422/12/XNC/LAN/BAC/230, IQ422/00/XNC/BAC/24VAC, IQ422/00/XNC/BAC/230, IQ422/00/XNC/LAN/BAC/24VAC, IQ422/00/XNC/LAN/BAC/230, IQ4E/96/XNC/BAC/230, IQ4E/96/XNC/LAN/BAC/230, IQ4E/16/BAC/24VAC, IQ4E/32/BAC/24VAC, IQ4E/64/BAC/24VAC, IQ4E/96/BAC/24VAC, IQ4E/128/BAC/24VAC, IQ4E/160/BAC/24VAC, IQ4E/192/BAC/24VAC, IQ4E/16/LAN/BAC/24VAC, IQ4E/32/LAN/BAC/24VAC, IQ4E/64/LAN/BAC/24VAC, IQ4E/96/LAN/BAC/24VAC, IQ4E/128/LAN/BAC/24VAC, IQ4E/160/LAN/BAC/24VAC, IQ4E/192/LAN/BAC/24VAC, IQ4E/96/XNC/BAC/24VAC, IQ4E/96/XNC/LAN/BAC/24VAC.

Applications Software Version: 3.43 **Firmware Revision:** 3.43 **BACnet Protocol Revision:** 15

1.1. PRODUCT DESCRIPTION

The IQ4 is a configurable plant controller using BACnet over IP to interface with 3rd party BACnet systems.

1.2. BACNET STANDARDISED 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)

1.3. LIST ALL BACNET INTEROPERABILITY BUILDING BLOCKS SUPPORTED (ANNEX K)

ID	BIBB	Title
1.1	DS-RP-A	Data Sharing-ReadProperty-A
1.2	DS-RP-B	Data Sharing-ReadProperty-B
1.4	DS-RPM-B	Data Sharing ReadPropertyMultiple-B
1.7	DS-WP-A	Data Sharing-WriteProperty-A
1.8	DS-WP-B	Data Sharing-WriteProperty-B
1.10	DS-WPM-B	Data Sharing-WritePropertyMultiple-B
1.11	DS-COV-A	Data Sharing-ChangeOfValue-A
1.12	DS-COV-B	Data Sharing-ChangeOfValue-B
1.15	DS-COVU-A	Data Sharing-COV-Unsolicited-A
2.2	AE-N-I-B	Alarm and Event-Notification Internal-B
2.11	AE-INFO-B	Alarm and Event-Information-B
3.4	SCH-R-B	Scheduling Readable B
4.2	T-VMT-I-B	Trending-Viewing and Modifying Trends Internal- B
4.5	T-ATR-B	Trending_ Automated Trend Retrieval-B
5.1	DM-DDB-A	Device Management-Dynamic Device Binding-A
5.2	DM-DDB-B	Device Management-Dynamic Device Binding-B
5.4	DM-DOB-B	Device Management-Dynamic Object Binding-B
5.6	DM-DCC-B	Device Management-DeviceCommunicationControl-B
5.12	DM-TS-B	Device Management-TimeSynchronisation-B
5.14	DM-UTC-B	Device Management-UTCTimeSynchronisation-B

1.4. SEGMENTATION CAPABILITY

- Segmented requests supported Window Size = 1
- Segmented responses supported Window Size = 1

1.5. STANDARD OBJECT TYPES SUPPORTED

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using the CreateObject service.
- 2) Whether objects of this type are dynamically deletable using the DeleteObject service.
- 3) List of the optional properties supported.
- 4) List of all properties that are writable where not otherwise required by this standard.
- 5) List of proprietary properties and for each its property identifier, datatype, and meaning.
- 6) List of all properties that are conditionally writable where not otherwise required by this standard.
- 7) List of any property range restrictions.

1.5.1. Analogue Input Object Type A

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_DEVICE_TYPE
 - BP_RELIABILITY
 - BP_EVENT_ENABLE
 - BP_HIGH_LIMIT
 - BP_LIMIT_ENABLE
 - BP_LOW_LIMIT
 - BP_NOTIFICATION_CLASS
 - BP_TIME_DELAY
 - BP_ACKED_TRANSITIONS
 - BP_NOTIFY_TYPE
 - BP_DEADBAND
 - BP_EVENT_TIMESTAMPS
 - BP_COV_INCREMENT
4. Writeable Properties:
 - BP_EVENT_ENABLE
 - BP_HIGH_LIMIT
 - BP_LIMIT_ENABLE
 - BP_LOW_LIMIT
 - BP_NOTIFICATION_CLASS
 - BP_TIME_DELAY
 - BP_COV_INCREMENT
5. Proprietary Properties: None
6. Property Range Restrictions:

BP_HIGH_LIMIT	-1e20 to 1e20, resolution: 7 digits
BP_LOW_LIMIT	-1e20 to 1e20, resolution: 7 digits
BP_TIME_DELAY	0 to 172800, resolution: 1
BP_NOTIFICATION_CLASS	Must be a valid notification class

1.5.2. Analogue Input Object Type B

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_DEVICE_TYPE
 - BP_RELIABILITY
 - BP_COV_INCREMENT
4. Writeable Properties:
 - BP_COV_INCREMENT
5. Proprietary Properties: None
6. Property Range Restrictions: None

1.5.3. Analogue Output Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_DEVICE_TYPE
 - BP_RELIABILITY
 - BP_COV_INCREMENT
4. Writeable Properties:
 - BP_PRESENT_VALUE
 - BP_COV_INCREMENT
5. Proprietary Properties: None
6. Property Range Restrictions:

BP_PRESENT_VALUE	-1e20 to 1e20, resolution: 7 digits
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1.5.4. Analogue Value Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_RELIABILITY
 - BP_COV_INCREMENT
4. Writeable Properties:
 - BP_PRESENT_VALUE
 - BP_COV_INCREMENT
 - BP_UNITS
5. Proprietary Properties: None
6. Property Range Restrictions:
 - BP_PRESENT_VALUE -1e20 to 1e20, resolution: 7 digits
 - BP_UNITS 0 to 255 bytes

1.5.5. Binary Input Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_DEVICE_TYPE
 - BP_ALARM_VALUE
 - BP_ELAPSED_ACTIVE_TIME
 - BP_EVENT_ENABLE
 - BP_NOTIFICATION_CLASS
 - BP_NOTIFY_TYPE
 - BP_RELIABILITY
 - BP_TIME_DELAY
 - BP_ACKED_TRANSITIONS
 - BP_EVENT_TIME_STAMPS
 - BP_TIME_OF_ACTIVE_TIME_RESET
4. Writeable Properties:
 - BP_ALARM_VALUE
 - BP_ELAPSED_ACTIVE_TIME
 - BP_EVENT_ENABLE
 - BP_NOTIFICATION_CLASS
 - BP_TIME_DELAY
5. Proprietary Properties: None
6. Property Range Restrictions: None
 - BP_ELAPSED_ACTIVE_TIME 0 to 235926008, resolution: 1
 - BP_TIME_DELAY 0 to 172800, resolution: 1
 - BP_NOTIFICATION_CLASS Must be a valid notification class

1.5.6. Binary Output Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_DEVICE_TYPE
 - BP_ELAPSED_ACTIVE_TIME Property held internally as elapsed active hours - type REAL, therefore values of greater than 7 digits in resolution may have minor inaccuracies due to Floating Point to integer conversion process.
 - BP_RELIABILITY
 - BP_TIME_OF_ACTIVE_TIME_RESET
4. Writeable Properties:
 - BP_PRESENT_VALUE
 - BP_ELAPSED_ACTIVE_TIME
5. Proprietary Properties: None
6. Property Range Restrictions:
 - BP_ELAPSED_ACTIVE_TIME 0 to 235926008, resolution 1

1.5.7. Binary Value Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_RELIABILITY
4. Writeable Properties:
 - BP_PRESENT_VALUE
5. Proprietary Properties: None
6. Property Range Restrictions: None

1.5.8. Device Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_LOCATION
 - BP_MAX_SEGMENTS_ACCEPTED
 - BP_LOCAL_DATE
 - BP_LOCAL_TIME
 - BP_UTC_OFFSET
 - BP_DAYLIGHT_SAVINGS_STATUS
 - BP_APDU_SEGMENT_TIMEOUT
 - BP_ACTIVE_COV_SUBSCRIPTIONS
4. Writeable Properties:
 - BP_LOCAL_DATE
 - BP_LOCAL_TIME
 - BP_UTC_OFFSET
 - BP_OBJECT_NAME
5. Proprietary Properties: None
6. Property Range Restrictions:

BP_UTC_OFFSET	-780 to +780, resolution: 1
BP_LOCAL_DATE	01/01/2000 to 12/31/2099

1.5.9. Notification Class Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported: None
4. Writeable Properties:
 - BP_RECIPIENT_LIST
5. Proprietary Properties: None
6. Property Range Restrictions: None

1.5.10. Schedule Object Type

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_WEEKLY_SCHEDULE
 - BP_EXCEPTION_SCHEDULE
4. Writeable Properties: None
5. Proprietary Properties: None
6. Property Range Restrictions: None

1.5.11. Trend Log Object

1. Creatable: No
2. Deletable: No
3. Optional Properties Supported:
 - BP_RECORDS_SINCE_NOTIFICATION
 - BP_LAST_NOTIFY_RECORD
 - BP_NOTIFICATION_CLASS
 - BP_EVENT_ENABLE
 - BP_ACKED_TRANSITIONS
 - BP_NOTIFY_TYPE
 - BP_EVENT_TIME_STAMPS
4. Writeable Properties:
 - BP_NOTIFICATION_THRESHOLD
 - BP_LOG_INTERVAL
 - BP_RECORD_COUNT
 - BP_LOG_ENABLE
5. Proprietary Properties: None
6. Property Range Restrictions:

BP_NOTIFICATION_THRESHOLD	0 to 1000	
BP_LOG_INTERVAL	0 to 8640000, resolution 100	This property is held internally as seconds so values with the bottom two digits set will be truncated.
BP_RECORD_COUNT	Only writes of value 0 allowed.	

1.6. DATA LINK LAYER OPTIONS

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- 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), baud rate(s):
- 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):
- LonTalk, (Clause 11), medium:
- BACnet/ZigBee (Annex O):
- Other:

1.7. 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.

1.8. NETWORKING OPTIONS

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)
 - Does the BBMD support registrations by Foreign Devices? Yes No
 - Does the BBMD support network address translation? Yes No

1.9. 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 C 6226

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

N/A

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