

BACnet Protocol Implementation Conformance Statement

Date: August 28, 2019

Vendor Name: Badger Meter, Inc.

Product Name: FC-5000 Flow Computer

Product Model Number: FC-5000

Applications Software Version: N/A **Firmware Revision:** v1.2.9.660 **BACnet Protocol Revision:** 12

Product Description:

The FC-5000 Flow Computer is a microprocessor-driven device designed for flow monitoring. The FC-5000 Flow Computer is compatible with the complete line of Badger Meter industrial flow meters and temperature sensors, creating a solution to totalize and indicate fluid flows. Many years of experience in the industrial market has allowed Badger Meter to incorporate features indispensable in control operations.

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)

List all BACnet Interoperability Building Blocks Supported (Annex K):

- Data Sharing-ReadProperty-B (DS-RP-B)
- Data Sharing-WriteProperty-B (DS-WP-B)
- Data Sharing - ReadProperty Multiple - B (DS-RPM-B)
- Data Sharing - WriteProperty Multiple - B (DS-WPM-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)

Segmentation Capability:

- ☐ Able to transmit segmented messages Window Size: -
- ☐ Able to receive segmented messages Window Size: -

Standard Object Types Supported:

- 1 Device Object
- 11 Analog Value Objects
- 4 Large Analog Value Objects

Data Link Layer Options:

- ☐ BACnet IP, (Annex J)
- ☐ BACnet IP, (Annex J), Foreign Device
- ☐ ISO 8802-3, Ethernet (Clause 7)
- ☐ ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ☐ ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) _____
- ☒ MS/TP master (Clause 9), baud rate(s): 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200
- ☐ 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: _____

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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

BACnet/IP to MS/TP

BACnet/ ISO 8802-3, Ethernet to MS/TP

BACnet/IP to BACnet/ ISO 8802-3, Ethernet

BACnet/IP to BACnet/ ISO 8802-3, Ethernet to MS/TP

☐ Annex H, BACnet Tunneling Router over IP

☐ BACnet/IP Broadcast Management Device (BBMD)

Does the BBMD support registrations by Foreign Devices? ☐ Yes ☒ No

Max BDT (Broadcast Distribution Table)-Entries: -

Does the BBMD support network address translation? ☐ Yes ☒ No

Network Security Options:

☒ Non-secure Device - is capable of operating without BACnet Network Security

☐ Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)

☐ Multiple Application-Specific Keys:

☐ Supports encryption (NS-ED BIBB)

☐ Key Server (NS-KS BIBB)

Character Sets Supported:

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

☒ ISO 10646 (UTF-8/ ANSI X3.4) ☐ IBM™/Microsoft™ DBCS ☐ ISO 8859-1

☐ ISO 10646 (UCS-2) ☐ ISO 10646 (UCS-4) ☐ JIS X 0208

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

Not supported

Object/Property Support Matrix:

| Object Description | BACnet Object ID | BACnet Object Type |
|-----------------------------|------------------|--------------------|
| Flow Rate 1 | 2 | Analog Value |
| Flow Total 1 | 3 | Analog Value |
| Flow Total Precision 1 | 4 | Large Analog Value |
| Flow Rate 2 | 5 | Analog Value |
| Flow Total 2 | 6 | Analog Value |
| Flow Total Precision 2 | 7 | Large Analog Value |
| Temperature 1 | 14 | Analog Value |
| Fluid Density | 16 | Analog Value |
| Mass Flow Rate 1 | 18 | Analog Value |
| Mass Flow Total 1 | 19 | Analog Value |
| Mass Flow Total Precision 1 | 20 | Large Analog Value |
| Mass Flow Rate 2 | 21 | Analog Value |
| Mass Flow Total 2 | 22 | Analog Value |
| Mass Flow Total Precision 2 | 23 | Large Analog Value |

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Analog Value Object Instance Summary:

The following table summarizes the Analog Value Objects supported:

| Instance ID | Object Name | Description | Default Units | Present Value Access Type |
|-------------|-----------------------------|---|---------------|---------------------------|
| 2 | Flow Rate 1 | Average Volumetric Flow Rate on Input Channel 1 | GPM | R |
| 3 | Flow Total 1 | Total Volumetric Flow on Input Channel 1 | Gallons (US) | R |
| 4 | Flow Total Precision 1 | Total Volumetric Flow; Double Prec.; on Input Channel 1 | Gallons (US) | R |
| 5 | Flow Rate 2 | Average Volumetric Flow Rate on Input Channel 2 | GPM | R |
| 6 | Flow Total 2 | Total Volumetric Flow on Input Channel 2 | Gallons (US) | R |
| 7 | Flow Total Precision 2 | Total Volumetric Flow; Double Prec.; on Input Channel 2 | Gallons (US) | R |
| 14 | Temperature 1 | Temperature Measured on Channel 1 | °C | R |
| 16 | Fluid Density | Fluid Density value used in Mass Flow Calculation | Lb/Gal | R |
| 18 | Mass Flow Rate 1 | Average Mass Flow Rate on Input Channel 1 | Lb/second | R |
| 19 | Mass Flow Total 1 | Total Mass Flow on Input Channel 1 | Pounds (Lb) | R |
| 20 | Mass Flow Total Precision 1 | Total Mass Flow; Double Prec.; on Input Channel 1 | Pounds (Lb) | R |
| 21 | Mass Flow Rate 2 | Average Mass Flow Rate on Input Channel 2 | Lb/second | R |
| 22 | Mass Flow Total 2 | Total Mass Flow on Input Channel 2 | Pounds (Lb) | R |
| 23 | Mass Flow Total Precision 2 | Total Mass Flow; Double Prec.; on Input Channel 2 | Pounds (Lb) | R |

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

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Product Photo: FC-5000 Flow Computer

