

BACnet Protocol Implementation Conformance Statement

Date: January 9, 2014

Vendor ID: 423

Vendor Name: BELIMO Automation AG

Product Name: P..W..EV-BAC

Product Model Number: N/A

Application Software Version: 1.33.1 Firmware Revision: 1.0.3 BACnet Protocol Revision: 1.6

Product Description:

The device is an electronic pressure independent characterized control valve (CCV) with adjustable flow rate, sensor-operated flow control and monitoring of power and energy. The set-point, configuration parameters and feedback values are communicated via BACnet/IP or BACnet MS/TP. The commissioning of the device (BACnet Device Address, IP Address settings, Foreign Device settings, MS/TP) is done via the integrated web-server.

BACnet Standardized Device Profile (Annex L):

BACnet Application Specific Controller (B-ASC)

List all 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)
- Device Management - DynamicDeviceBinding-B (DM-DDB-B)
- Device Management - DynamicObjectBinding-B (DM-DOB-B)
- Device Management - DeviceCommunicationControl-B (DM-DCC-B)

Segmentation Capability:

No

Standard Object Types Supported:

Object-Type	Supported	Dynamically Creatable	Dynamically Deletable	Optional Properties Supported	Writable Properties
Analog Input	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description	
Analog Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description	Present_Value
Analog Value	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description	Present_Value
Binary Value	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description Active_Text Inactive_Text Relinquish_Default ¹ Priority_Array ¹	Present_Value
Device	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description	Object_Identifier Object_Name Location APDU_Timeout Number_Of_APDU_Retries
Multi-state Value	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description State_Text Relinquish_Default ¹ Priority_Array ¹	Present_Value
Multi-state Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description State_Text Relinquish_Default ¹ Priority_Array ¹	Present_Value

¹ Only if object commandable

- The properties Object_Name and Location of the Device Object support up to 255 characters (all other character strings are read-only).
- The device does not support the CreateObject and DeleteObject service.
- The writable Present_Value of Value objects may be changed in different ways: web page, service tool and BACnet service.
The value stored in the Present_Value represents the last value written via BACnet and doesn't reflect the actual setting in use.

Service processing

- The device supports DeviceCommunicationControl service. No password is required.

BACnet Protocol Implementation Conformance Statement Continued

Data Link Layer Options:

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- MS/TP master (Clause 9), baud rate(s): 115K,76.8K, 38.4K,19.2K,9.6K

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:

- BACnet/IP Broadcast Management Device (BBMD)

Character Sets Supported:

- ISO 10646 (UTF-8)

Energy Valve

BACnet Object Description List



Object Name	Object Type /Instance	Description	Values	Default	Capatibility
<i>Device_Name</i>	<i>Device [x]</i>				
SpRel	Analog Output [1]	Setpoint Relative in % The set point is related either to the position, the flow (Vmax) or the power (Pmax). See ControlMode for more information.	0...100	0	Read/Write
Override	Multi-state Output [1]	Override Control	1- Auto 2- Close 3- Open 4- V'nom 5- V'max 6- MotStop 7- P'nom 8- P'max	Auto	Read/Write
RelPos	Analog Input [1]	Relative Postion in %	0...100	-	Read Only
AbsPos	Analog Input [2]	Absolute Position in °	0...90	-	Read Only
SpPosReached	Binary Input [1]	Setpoint Position reached	No Yes	-	Read Only
DeltaTMgrStatus	Multi-state Input [102]	Delta T Manager Status	1- Not Selected 2- Standby 3- Active 4- Scaling standby 5- Scaling Active	-	Read Only
RelFlow	Analog Input [10]	Relative Flow in %	0...100	-	Read Only
AbsFlow_SI1	Analog Input [11]	Absolute Flow in l/min	0...100,000	-	Read Only
AbsFlow_SI2	Analog Input [12]	Absolute Flow in m3/h	0...600	-	Read Only
AbsFlow_SI3	Analog Input [14]	Absolute Flow in l/s	0...100,000	-	Read Only
AbsFlow_US	Analog Input [13]	Absolute Flow in gpm	0...100,000	-	Read Only
T1_SI	Analog Input [20]	Temperature 1 (remote) in °C	-10...+120	-	Read Only
T1_US	Analog Input [25]	Temperature 1 (remote) in °F	14...248	-	Read Only
T2_SI	Analog Input [21]	Temperature 2 (embedded) in °C	-10...+120	-	Read Only
T2_US	Analog Input [26]	Temperature 2 (embedded) in °F	14...248	-	Read Only
DeltaT_SI	Analog Input [22]	Delta Temperature in °C	-500...+500	-	Read Only
DeltaT_US	Analog Input [27]	Delta Temperature in °F	-500...+500	-	Read Only
RelPower	Analog Input [40]	Relative Power in %	0...300	-	Read Only
AbsPower_SI	Analog Input [30]	Power in kW	0...2.147e+9	-	Read Only
AbsPower_US1	Analog Input [35]	Power in kBTU/h	0...2.147e+9	-	Read Only
AbsPower_US2	Analog Input [45]	Power in RT	0...2.147e+9	-	Read Only
E_Cooling_SI	Analog Input [31]	Cooling Energy in kWh	0...2.147e+9	-	Read Only
E_Cooling_US1	Analog Input [36]	Cooling Energy in kBTU	0...2.147e+9	-	Read Only
E_Cooling_US2	Analog Input [46]	Cooling Energy in ton·h	0...2.147e+9	-	Read Only
ResetCooling_E	Binary Output [31]	Reset Cooling Energy	None Reset	None	Read/Write

Tech.Doc - 09/14 - Subject to change. © Belimo Aircontrols (USA), Inc.

Object Name	Object Type /Instance	Description	Values	Default	Capatibility
E_Heating_SI	Analog Input [32]	Heating Energy in kWh	0...2.147e+9	-	Read Only
E_Heating_US1	Analog Input [37]	Heating Energy in kBTU	0...2.147e+9	-	Read Only
E_Heating_US2	Analog Input [47]	Heating Energy in ton·h	0...2.147e+9	-	Read Only
ResetHeating_E	Binary Output [32]	Reset Heating Energy	None Reset	None	Read/Write
Vmax	Analog Value [100]	Maximum Flow Limit in %	0...100	100	Write Only
Vmax_SI	Analog Value [90]	Maximum Flow Limit in l/min	0...4000	-	Write Only
Vmax_US	Analog Value [91]	Maximum Flow Limit in gpm	0...1000	-	Write Only
Vnom_SI	Analog Value [101]	Nominal Volume Flow in l/min (read-only)	0...100,000	-	Read Only
Vnom_US	Analog Value [102]	Nominal Volume Flow in gpm (read-only)	0...100,000	-	Read Only
Pmax	Analog Value [105]	Maximum Power Limit in %	0...100	100	Write Only
Pmax_SI	Analog Value [95]	Maximum Power Limit in kW	0...5000	-	Write Only
Pmax_US	Analog Value [96]	Maximum Power Limit in kBTU/h	0...15,000	-	Write Only
Pnom_SI	Analog Value [106]	Nominal Power Limit in kW (read-only)	0...2.147e+9	-	Read Only
Pnom_US	Analog Value [107]	Nominal Power Limit in kBTU/h (read-only)	0...2.147e+9	-	Read Only
ControlMode	Multi-state Value [100]	Control Mode The value defines the interpretation of the setpoint.	1- PosCtrl 2- FlowCtrl 3- PowerCtrl	FlowCtrl	Read/Write
DeltaT_Limitation	Multi-state Value [101]	Delta T Limitation	1- Disabled 2- dT-Manager 3- dT-Mgr scaling	Disabled	Read/Write
SpDeltaT_SI	Analog Value [103]	Setpoint DeltaT in °C	4...33	4	Write Only
SpDeltaT_US	Analog Value [104]	Setpoint DeltaT in °F	7...60	7	Write Only
SpFlow_DeltaT_SI	Analog Value [108]	Setpoint Flow at DeltaT in l/min	0...4000	0	Write Only
SpFlow_DeltaT_US	Analog Value [109]	Setpoint Flow at DeltaT in gpm	0...1000	0	Write Only
ErrorState	Analog Input [100]	Error State	see table below	-	Read Only
RstErrCount	Binary Value [100]	Reset Error Counters	None Reset	None	Read/Write

Error State

Bit 0:	Error Sensor T1
Bit 1:	Error Sensor T2
Bit 2:	Error Flow Sensor
Bit 3:	Actuator cannot move
Bit 4:	Flow with closed valve
Bit 5:	Air bubbles
Bit 6:	Flow not reached
Bit 7:	Power not realized
Bit 8:	Gear disengaged