



# BACnet Interface Description



## Flow Sensor 22PF-1U..

Edition 2023-11 / V4.2



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# Protocol Implementation Conformance Statement – PICS

## General information

Date	15.12.2022
Vendor Name	BELIMO Automation AG
Vendor ID	423
Product Name	Flow Sensor
Product Model Number	22PF-x1(X)Ux2(x3(x4))-(SG) x1: 1, 5 x2: C, D, E, F, G, H, H x3: H, N, K x4: H, T
Application Software Version	FM V4.0
Firmware Revision	14.10.0002
BACnet Protocol Revision	14
Product Description	Flow Sensor
BACnet Standard Device Profile	BACnet Application Specific Controller (B-ASC)
Segmentation Capability	No
Data Link Layer Options	MS/TP Manager
Device Address Binding	No static device binding supported
Networking Options	None
Character Sets Supported	ISO 10646 (UTF-8)
Gateway Options	None
Network Security Options	Non-secure device
Conformance	BTL listing pending

## BACnet Interoperability Building Blocks supported (BIBBs)

Data sharing – ReadProperty-B (DS-RP-B)  
 Data sharing – ReadPropertyMultiple-B (DS-RPM-B)  
 Data sharing – WriteProperty-B (DS-WP-B)  
 Data sharing – COV-B (DS-COV-B)  
 Device management – DynamicDeviceBinding-B (DM-DDB-B)  
 Device management – DynamicObjectBinding-B (DM-DOB-B)  
 Device management – DeviceCommunicationControl-B (DM-DCC-B)

## BACnet MS/TP

Baud Rates	9'600, 19'200, 38'400, 76'800, 115'200 (Default: 38'400)
Address	0...127 (Default: 1)
Number of Nodes	Max. 32 (without repeater), 1 full bus load
Terminating Resistor	120 Ω

## Parametrisation

Tool	Belimo Assistant App
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All writeable objects which are persistent are **not** supposed to be written on a regular basis.

## Object processing

Object type	Optional properties	Writeable properties
Device	Description Location Active COV Subscriptions Max Master Max Info Frames Profile Name	Object Identifier Object Name Location Description APDU Timeout (1'000...60'000) Number of APDU Retries (0...10) Max Master (1...127) Max Info Frames (1...30)
Analog Input [AI]	Description COV Increment	COV Increment
Analog Value [AV]	Description COV Increment	Present Value COV Increment
Binary Input [BI]	Description Active Text Inactive Text	–
Binary Value [BV]	Description Active Text State Text	Present Value
Multi-state Value [MV]	Description State Text	Present Value
Position Integer Value [PIV]	Description	–

The device does not support the services CreateObject and DeleteObject.

The specified maximum length of writeable strings is based on single-byte characters.

- Object name 32 char
- Location 64 char
- Description 64 char

## Service processing

The device supports the DeviceCommunicationControl services.  
No password is required.

A maximum of 5 active COV subscriptions with a lifetime of 1...28'800 s (max. 8 hours) are supported.

# BACnet object description

Object name	Object type [Instance]	Description Comment	Values	COV increment	Access
Device_Name	Device [Inst.No]	BACnet internetwork-wide unique number for device identification. This value plus the parameterized MAC address (0...127) define the Device-ID.	0...4'194'302 Default: 1	–	R
Sens1Active_Volt	AI[20]	<b>Sensor 1 as Voltage in V</b> If Sens1Type MV[220] is not 2: Active then Out_Of_Service is TRUE	0...15	0.01...15 Default: 1	R
T_UnitSel	AI[23]	<b>Temperature (Flow Body) in selected unit</b> → based on selection in MV[127]	-20...394 Actual range determined by selected unit	0.01...140 Default: 1	R
RelFlow	AV[10]	<b>Relative volumetric flow</b> Relative volumetric flow in % of FS (Full scale) Related to FS_UnitSel [AV100]	0...150	0.01...150 Default: 1	R
AbsFlow_UnitSel	AV[19]	<b>Absolute volumetric flow in selected unit</b> → based on selection in MV[123]	0...360'000 Actual range determined by selected unit	0.001...360'000 Default: 1	R
Volume_UnitSel	AV[52]	<b>Accumulated Volume in selected unit</b> → based on selection in MV[126]	0...2'147'483'647 Actual range determined by selected unit	1...4.2E10 Default: 1	R
GlycolConcentration	AV[60]	<b>Glycol Concentration in %</b>	0...100	0.01...100 Default: 1	R
FS_UnitSel	AV[100]	<b>"Full Scale" FS in selected unit</b> → based on selection in MV[123]	0...360'000 Actual range determined by selected unit	0.001...360'000 Default: 1	R
ErrorState	AV[140]	<b>Error state</b> Value is bit-coded. More than one bit can be set to 1. Not all bits mentioned in the enumeration are used for this product range.  3: Reverse flow: Wrong flow direction. 6: Flow actual exceeds flow nominal. 7: Flow measurement error: Airbubbles, water contamination, not specified fluid used. 9: Flowbody temperature error: Temperature sensor defect. 11: Freeze warning: Water/glycol used tends to freeze. 12: Glycol detected: Medium, contains glycol although not set.	Bitmask = 0: – 1: – 2: – 3: Reverse flow 4: – 5: – 6: Flow actual exceeds FS 7: Flow measurement error 8: – 9: Flowbody temperature not OK 10: – 11: Freeze warning 12: Glycol detected 13: – 14: – 15: –	1...65'535 Default: 0	R
Sens1Switch	BI[20]	<b>Sensor 1 as switch</b> If Sens1Type MV[220] is not 5: Switch then Out_Of_Service is TRUE	0: Inactive 1: Active	–	R
BusTermination	BV[99]	<b>Bus termination</b>	0: Disabled 1: Enabled	–	R

Object name	Object type [Instance]	Description Comment	Values	COV increment	Access
SummaryStatus	MV[99]	<b>Summary Status</b>	1: Ok 2: Warning 3: Not Ok	–	R
StatusSensor	MV[103]	<b>Status sensor</b>	1: OK 2: Flow measurement error 3: Flowbody temperature not OK 4: – 5: Communication to flow sensor interrupted	–	R
StatusFlow	MV[104]	<b>Status flow</b>	1: OK 2: Actual flow exceeds FS 3: – 4: – 5: Reverse flow	–	R
StatusMedia	MV[105]	<b>Status media</b>	1: OK 2: Glycol detected 3: Freeze warning	–	R
UnitSelFlow	MV[123]	<b>Unit selection flow</b>	1: m <sup>3</sup> /s      5: l/h 2: m <sup>3</sup> /h      6: gpm 3: l/s          7: cfm 4: l/min      Default: 5	–	W
UnitSelVolume	MV[126]	<b>Unit selection volume</b>	1: m <sup>3</sup> Default: 1 2: Litre 3: Gallon 4: Cubic Foot	–	W
UnitSelTemperature	MV[127]	<b>Unit selection temperature sensor</b>	1: Degree C    Default: 1 2: K 3: Degree F	–	W
Sens1Type	MV[220]	<b>Sensor 1 Type</b> Additional sensor input	1: None 2: Active volt 3: – 4: – 5: Switch Default: 1	–	W
VolumePIV_UnitSel	PIV[50]	<b>Accumulated Volume in selected unit</b> → based on selection in MV[126]	0..2'147'483'647 Actual range determined by selected unit	–	R
MeterSerialNo_Part1	PIV[201]	<b>Flow Meter serial number first digits</b>	–	–	R
MeterSerialNo_Part2	PIV[202]	<b>Flow Meter serial number last digits</b>	–	–	R

Definition Access: R = Read, W = Write

Note: According to the present configuration settings of the Product (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range.

# All inclusive.

Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Damper actuators, control valves, sensors and meters represent our core business.

Always focusing on customer value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The "small" Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance.

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Complete product range



Tested quality



Short delivery times



Comprehensive support



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