6-way PI zone valve (C6..QP..-..+BAC)

Contents

Protocol Implementation Conformance Statement – PICS

General information	Date	26.04.2023
	Vendor Name	BELIMO Automation AG
	Vendor ID	423
	Product Name	6-way PI zone valve
	Product Model Number	C6..QP(T)-..+BAC
	Applikations Software Version	6-Way-PIQCV V1.0
	Firmware Revision	BTL:0002:0001
	BACnet Protocol Revision	12
	Product Description	Communicative characterised control valve with sensor-operated flow control, 6-way
	BACnet Standard Device Profile	BACnet Application Specific Controller (B-ASC)
	Segmentation capability	No
	Data Link Layer Options	MS/TP master
	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
	Conformation	Listed by BTL
BACnet Interoperability Building Blocks supported BIBBs	Data sharing – ReadProperty-B (DS-RP-B) Data sharing – ReadPropertyMultiple-B (DS-RPM-B) Data sharing – WriteProperty-B Data sharing – WritePropertyMultiple-B (DS-WPM-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 busload
	Terminating resistor	120 Ω (to be done with external resistor)
Parameterisation	Tool	Belimo Assistant App

All writeable objects with instance number ≥ 90 are persistent and are **not** supposed to be written on a regular base.

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Standard Object Types Supported

Objekt 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...255)
Analog Input [AI]	Description COV Increment	COV Increment
Analog Output [AO]	Description COV Increment	Present Value COV Increment Relinquish Default
Analog Value [AV]	Description COV Increment	Present Value COV Increment
Binary Input [BI]	Description Active text Inactive Text	
Multi-state Input [MI]	Description State Text	
Multi-state Output [MO]	Description State Text	Present Value Relinquish Default
Multi-state Value [MV]	Description State Text	Present Value

The device does not support the services CreateObject and DeleteObject.
The specified maximum length of writable strings is based on single-byte characters.
– Object name: 32 char
– Location: 64 char
– Description: 64 char

Service processing

The device supports the DeviceCommunicationControl and ReinitializeDevice services. No password is required.
A maximum of 5 active COV subscriptions with a lifetime of 1…28'800 sec. (8 hours) are supported.

BACnet Object Description

Object Name	Object Type [Instance]	Description Comment *Status_Flags*	Values	COV Increment	Access
Device	Device [Inst.Nr]		0…4'194'302 *Default: 1*	–	W
RelPos	AI[1]	Relative Position in % Combined Relative Position Relative Position 0...33% refers to range Vmax1...0 l/h i.e. Setpoint 0% = Vmax1 / Setpoint 33% = 0 l/h Relative Position 67...100% refers to 0 l/h...Vmax2 i.e. Setpoint 67% = 0 l/h / Setpoint 100% = Vmax2	0...100	0.1...100 *Default: 1*	R
SpAnalog_V	AI[5]	Setpoint Analog in V Shows the setpoint in V if actuator is control by analog signal (SpSource MV[122] is analog(1))	0...10	0.01...10 *Default: 1*	R
RelFlow	AI[10]	Relative Flow in % Calculated and related to Vmax (Vmax 1 or Vmax 2)	0…100	0.01...100 *Default: 1*	R
AbsFlow_gpm	AI[13]	Absolute Flow in gpm Calculated flow in gpm	0…Vnom	0.1…100 *Default: 1*	R
AbsFlow_lh	AI[15]	Absolute Flow in l/h Calculated flow in l/h	0…Vnom	0.1…100 *Default: 1*	R
AbsFlow_UnitSel	AI[19]	Absolute Flow in unit selected Calculated flow in unit selected in MV[121]	0...Vnom	0.1...1'000 *Default: 1*	R
SpAbsFlow_UnitSel	AI[109]	Setpoint Absolute Flow in unit selected Shows the setpoint in unit selected in MV[121]	0…Vnom	0.1…100 *Default: 1*	R
SpRel	AO[1]	Relative Setpoint in % Setpoint for actuator if controlled via bus between Vmax1 (AV[99]) and Vmax2 (AV[100]) Setpoint 0...33 % refers to range Vmax1...0 l/h i.e. Setpoint 0 % = Vmax1 Setpoint 67...100 % refers to 0 l/h...Vmax2 i.e. Setpoint 100% = Vmax2	0…100 *Default: 0*	0.1...100 *Default: 1*	C
Vmax1	AV[99]	Maximum Flow Limit in % Vmax Sequence 1. Related to Vnom 1)	19…100 *Default: 100*	0.19…100 *Default: 1*	W
Vmax2	AV[100]	Maximum Flow Limit in % Vmax Sequence 2. Related to Vnom 1)	19…100 *Default: 100*	0.19…100 *Default: 1*	W
Vnom_gpm	AV[102]	Nominal Flow in gpm Vnom in gpm	Depending on DN size	–	R
Vnom_lh	AV[115]	Nominal Flow in l/h Vnom in l/h	Depending on DN size	–	R
Vnom_UnitSel	AV[119]	Nominal Flow in unit selected Vnom in unit selected in MV[121]	–	0.1...100 *Default: 1*	R

BACnet Object Description

Object Name	Object Type [Instance]	Description Comment *Status_Flags*	Values	Access
SummaryStatus	BI[101]	Summary Status Summary of Status (MI[106])	Inactive_Text: OK Active_Text: Not OK	R
ActSequence	MI[1]	Active Sequence	1: Sequence 1 2: Sequence 2 3: Dead Band	R
StatusActuator	MI[106]	Status Actuator Actuator cannot move: Mechanical overload e.g. blocked actuator, etc. Valid for 6-way and 2-way valve	1: OK 2: Actuator cannot move 3: Gear disenganged 4: No communication to 2-way valve	R
Override	MO[1]	Override Control Override the setpoint (SpRel AO[1] or analog signal) with defined values	1: None 2: Sequence 1 open 3: Sequence 2 open 4: Close 5: Sequence 1 Vmax 6: Sequence 2 Vmax *Default: None(1)*	C
ControlMode	MV[100]	Control Mode	1: - 2: FlowCtrl *Default: FlowCtrl(2)*	R
UnitSelFlow	MV[121]	Unit Selection Flow The selected unit is valid for AI[19] and AI[109].	1: m^3/s 2: m^3/h 3: l/s 4: l/min 5: l/h 6: gpm 7: cfm *Default: l/h(5)*	W
SpSource	MV[122]	Setpoint Source *If Analog(1) then actuator is controlled by analog signal 0...10 V on wire 3.* *If Bus(2) then setpoint via bus SpRel AO[1]*	1: Analog 2: Bus *Default: Analog(1)*	W

Access: R = Read, W = Write, C = Commandable with priority array

1) Minimum V'max values may vary, related to Device type

	min V'max [l/h]	min V'max [%]
C615QP-B+BAC	40	19
C615QP-D+BAC	100	23
C615QP-F+BAC	190	19
C620QPT-G+BAC	600	28