BACnet Interface Description

6-way EPIV V4.1, DN 15...25
Electronic pressure-independent 6-way characterised control valve

Edition 2025-03 / V4.1

Contents

PICS
Protocol Implementation Conformance Statement

General information

Date	01.03.2025
Vendor Name	BELIMO Automation AG
Vendor ID	423
Product Name	6-way EPIV
Product Model Number	EP..R6+BAC (e.g. EP015R6+BAC)
	EP..R6+BAC-HH1
	EP..R6+BAC-HH2
	EP..R6+BAC-HHM
Application Software Version	6WEPIV 4.1.0
Firmware Revision	BTL:0001 B:0005 FW:01.02.0000
BACnet Protocol Revision	1.14
Product Description	Electronic pressure-independent characterised control valve with energy monitoring
BACnet Standard Device Profile	BACnet Application Specific Controller (B-ASC)
Segment 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	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 (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

Configuration

Tool	Belimo Assistant 2

⚠️ All writeable objects with instance number ≥90 which are persistent are **not** supposed to be written on a regular basis. Designated data points are highlighted in colour in the document.

Standard object types supported

Object type	Optional properties	Writeable properties
Device	Description Location Active COV Subscriptions Max Manager Max Info Frames Profile Name	Object Identifier Object Name Location Description APDU Timeout (1'000...60'000) Number of APDU Retries (0...10) Max Manager (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	–
Binary Value [BV]	Description Active Text State Text	Present Value
Multi-state Input [MI]	Description State Text	–
Multi-state Value [MV]	Description State Text	Present Value
Positive 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 6 active COV subscriptions with a lifetime of 1...28'800 s. (max. 8 hours) are supported.

Object descriptions

Control and general settings

These objects can be used to control and configure the fundamental functionalities and read the corresponding feedback values of the EPIV.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Device	Device [Inst.No]	BACnet internetwork-wide unique number for device identification. BACnet MS/TP: This value plus the parameterized MAC address (0...127) define the Device-ID.	0...4'194'302 Default: 1	–	W
SpRel	AO[1]	**Setpoint relative in %** The setpoint is related to either the position or the volumetric flow (of V'_{max1}, V'_{max2}). The datapoint is active, if the setpoint is controlled by MV[122]: Setpoint source = 1: Bus and BV[155]: Setpoint mode = 0: Single setpoint. **Position Control** Setpoint 0...100% refers to relative position 0...100% **Flow Control** Setpoint 0...33.33% refers to range $V'_{max}1...0$ l/h i.e. Setpoint 0% = V'_{max1} / Setpoint 33.33% = 0 l/h Setpoint 66.67...100% refers to 0 l/h...V'_{max2} i.e. Setpoint 66.67% = 0 l/h / Setpoint 100% = V'_{max2} See also Maximum volumetric flow limits: AV[95]: Maximum volumetric flow limit 　　　for sequence 1 in % AV[96]: Maximum volumetric flow limit 　　　for sequence 1 in selected unit AV[97]: Maximum volumetric flow limit 　　　for sequence 2 in % AV[98]: Maximum volumetric flow limit 　　　for sequence 2 in selected unit	0...100 Default: 50	0.01...100 Default: 1	C
SpRel_Seq1	AO[156]	**Setpoint relative for sequence 1** 6-way EPIV specific setpoint for sequence 1, relative to maximum flow for sequence 1 The setpoint is active, if the setpoint is controlled by MV[122] : Setpoint source = 2: Bus and BV[155] : Setpoint mode = 2: Separate setpoints. **Position Control** Setpoint 0...100% refers to relative position 0...33.33%. Setpoint of 0% closes the valve. **Flow Control** Setpoint 0...100% refers to range 0 l/h...V'_{max1} i.e. Setpoint 0% = 0 l/h / Setpoint 100% = V'_{max1} If a value >0 is detected for both setpoints at the same time, the 6-way valve closes. This will be indicated as error in AV[140]: Error state. If a value >0 is detected for both setpoints at the same time, the 6-way valve closes. See also Maximum volumetric flow limit: AV [95]: Maximum volumetric flow limit 　　　for sequence 1 in % AV [96]: Maximum volumetric flow limit 　　　for sequence 1 in selected unit	0...100 Default: 0	0.01...100 Default: 1	C

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
SpRel_Seq2	AO[157]	**Setpoint relative for sequence 2** 6-way EPIV specific setpoint for sequence 2, relative to maximum flow for sequence 2 The setpoint is active, if the setpoint is controlled by MV[122] : Setpoint source = 2: Bus and BV[155] : Setpoint mode = 2: Separate setpoints **Position Control** Setpoint 0...100% refers to relative position 66.67...100%. Setpoint of 0% closes valve. **Flow Control** Setpoint 0...100% refers to range 0 l/h...V'$_{max2}$ i.e. Setpoint 0% = 0l/h / Setpoint 100% = V'$_{max2}$ If a value >0 is detected for both setpoints at the same time, the 6-way valve closes. This will be indicated as error in AV[140]: Error state. See also Maximum volumetric flow limit: AV[97]: Maximum volumetric flow limit for sequence 2 in % AV[98]: Maximum volumetric flow limit for sequence 2 in selected unit	0...100 Default: 0	0.01...100 Default: 1	C
SpAnalog	AI[6]	**Setpoint analog in %** Shows the setpoint in % if actuator is controlled by MV[122]: Setpoint source = 1: Analog. Not considered if override control (bus, tool and/or analog forced control) is active. If MV[122]: Setpoint source = 2: Bus then Out_Of_Service is TRUE Overridden = if forced control (bus, tool and analog forced control) is active	0...100	0.01...100 Default: 1	R
RelPos	AI[1]	**Relative position in %** Overridden = true, if the gear train is disengaged	0...100	0.01...100 Default: 1	R
AbsPos	AV[2]	**Absolute position in °** Overridden = true, if the gear train is disengaged	0...96	0.01...96 Default: 1	R
SpSource	MV[122]	**Setpoint source** 1: Setpoint from analog signal 0.5...10V on wire 3 2: Relative setpoint via Bus AO[1]: Setpoint relative.	1: Analog 2: Bus Default: 1	−	R / W
ControlMode	MV[100]	**Control mode** This value defines the interpretation of the setpoint. A reset will be performed, if the state of this object is changed.	1: Position control 2: Flow control Default: 2	−	R / W

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
SelSpMode	BV[155]	**Setpoint mode** Select the desired mode for the setpoint relative.		–	R / W
		0: Combined sequence (Seq1/Seq2) in one datapoint. Related to AO[1]: Setpoint relative	0: Single setpoint		
		1: A separate setpoint is assigned to each sequence.	1: Separate setpoints		
		Separate setpoint for sequence 1 AO[156]: Setpoint relative for sequence 1	Default: 0		
		Separate setpoint for sequence 2 AO[157]: Setpoint relative for sequence 2			
		Note: Simultaneous writing to both setpoints causes the 6-way valve to close and will be indicated as error in AV[140]: Error state.			
ActSequence	MV[150]	**Actual sequence** Indicates active sequence	1: Closed 2: Sequence 1 3: Sequence 2	–	R
InvSeg	BV[151]	**Invert sequences** Allows the assignments of the sequences to be inverted.	0: Not inverted 1: Inverted Default: 0	–	R / W
		Note: Inversion causes a change of direction of the actuator including all relevant settings and parameters.			
Override	MV[1]	**Override control** Overrides setpoint with defined values. Override minimum and maximum correspond to Position or Flow Control Mode. ➡ Unit can be selected by MV[100]: Control mode	1: None 2: Open sequence 1 3: Open sequence 2 4: Close 5: – 6: – 7: Maximum sequence 1 8: Maximum sequence 2 9: Nominal sequence 1 10: Nominal sequence 2 11: Motor stop Default: 1	–	R / W
Command	MV[120]	**Command** Initiation of actuator functions for service and test. After command is sent, value returns to 1: None.	1: None 2: – 3: Synchronization Default: 1	–	R / W
BusFailAction	MV[130]	**Bus fail action** In the event of a breakdown in communication, the actuator enables the Bus fail action. The bus monitoring controls the bus communication. If neither AO[1]: Setpoint relative nor MV[1]: Override control is renewed before AV[130]: Timeout for bus watchdog, the actuator controls to the Bus fail position. Triggered bus monitoring is indicated as error in AV[140]: Error state.	1: None 2: Open sequence 1 3: Open sequence 2 4: Close 5: – 6: – 7: Maximum sequence 1 8: Maximum sequence 2 9: Motor stop Default: 1	–	R / W

Subject to technical modifications

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
BusWatchdog	AV[130]	**Timeout for bus watchdog in s** If no write request is received within the timeout, the device will execute the action defined in MV[130]: Bus fail action.	5...3'600 Default: 120	1...3'595 Default: 1	R / W
BusTermination	BV[99]	**Bus termination** Indicates if bus termination (120 Ω) is enabled. Bus termination can be set with Belimo Assistant 2.	0: Disabled 1: Enabled	–	R
StatusActuator	MV[106]	**Status actuator**	1: OK	–	R
		2: Mechanical overload due to blocked valve, etc.	2: Actuator cannot move		
		3: Gear train disengaged button is pressed	3: Gear train disengaged		
		4: Communication with actuator not possible	4: No communication to actuator		

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

Note: According to the present configuration settings of the EPIV (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each EPIV may have different HVAC value size limitations. See corresponding Device Type datasheet.

Flow

These objects can be used to configure and read values related to Flow control.
For setpoint see AO[1]: Setpoint Relative in section "Control and general settings".

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
SpAbsFlow_ UnitSel	AV[17]	**Setpoint absolute volumetric flow in selected unit** → Unit can be selected by MV[123]: Unit selection flow	0...0.000097 m³/s 0...3.5 m³/h 0...0.972 l/s 0...58.333 l/min 0...3'500 l/h 0...15.41 gpm 0...2.06 cfm	0.001...3'500	R
RelFlow	AV[10]	**Relative volumetric flow in %** Related to V'$_{max}$ AV[95]: Vmax_Seq1 or AV[97]: Vmax_Seq2	0...150	0.01...150 Default: 1	R
AbsFlow_ UnitSel	AV[19]	**Absolute volumetric flow in selected unit** Sensor reading up to 2,5* V'$_{nom}$ possible. Effective measuring range depends on device type (see data sheet). → Unit can be selected by MV[123]: Unit selection flow	0...0.0024 m³/s 0...8.75 m³/h 0...2.43 l/s 0...145.832 l/min 0...8'750 l/h 0...38.525 gpm 0...5.15 cfm	0.001...8'750	R
Vmax_Seq1	AV[95]	**Maximum volumetric flow limit for sequence 1 in %** (V'$_{max1}$) Maximum volumetric flow limit relative to V'$_{nom}$ AV[100] : Nominal volumetric flow Considered when MV[100]: Control mode = 2: Flow control Values below 4.2% will be truncated.	4.2...100 Default: 100	0.01...100 Default: 100	R / W
Vmax_Seq1_ UnitSel	AV[96]	**Maximum volumetric flow limit for sequence 1 in selected unit** (V'$_{max1}$) Effective value range depends on device type (see data sheet) → Unit can be selected by MV[123]: Unit selection flow	0.00004...0.00097 m³/s 0.147...3.5 m³/h 0.04...0.972 l/s 2.449...58.333 l/min 147...3'500 l/h 0.647...15.41 gpm 0.086...2.06 cfm	0.001...3'500	R / W
Vmax_Seq2	AV[97]	**Maximum volumetric flow limit for sequence 2 in %** (V'$_{max2}$) Maximum volumetric flow limit relative to V'$_{nom}$ AV[100] : Nominal volumetric flow. Considered when MV[100] : Control mode = 2: Flow Control Values below 4.2% will be truncated.	4.2...100 Default: 100	0.01...100 Default: 100	R / W
Vmax_Seq2_ UnitSel	AV[98]	**Maximum volumetric flow limit for sequence 2 in selected unit** (V'$_{max2}$) Effective value range depends on device type (see data sheet). → Unit can be selected by MV[123] : Unit selection flow	0.00004...0.00097 m³/s 0.147...3.5 m³/h 0.04...0.972 l/s 2.449...58.333 l/min 147...3'500 l/h 0.647...15.41 gpm 0.086...2.06 cfm	0.001.. 3'500	R / W

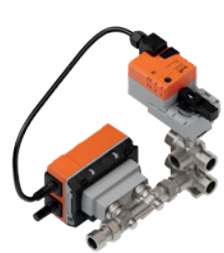| Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Vnom_UnitSel	AV[100]	**Nominal volumetric flow in selected unit** ➔ Unit can be selected by MV[123]: Unit selection flow	0...0.000097 m^3/s 0...3.5 m^3/h 0...0.972 l/s 0...58.333 l/min 0...3'500 l/h 0...15.41 gpm 0...2.06 cfm	0.001...3'500	R
UnitSelFlow	MV[123]	**Unit selection volumetric flow** The selected unit is valid for: AV[17]: Setpoint absolute volumetric flow in selected unit AV[19]: Absolute volumetric flow in selected unit AV[96]: Maximum volumetric flow limit for sequence 1 in selected unit AV[98]: Maximum volumetric flow limit for sequence 2 in selected unit AV[100]: Nominal volumetric flow in selected unit	1: m^3/s 2: m^3/h 3: l/s 4: l/min 5: l/h 6: gpm 7: cfm Default: 5	–	R / W
Volume_UnitSel	AV[52]	**Accumulated volume in selected unit** (cannot be reset) ➔ Unit can be selected by MV[126]: Unit selection volume	0.. 42'000'000 m^3 0...42'000'000'000 l 0...11'095'226'199 gal 0...1'483'216'002.3 cf	0...42'000'000'000 Default: 1	R
VolumePIV_UnitSel	PIV[50]	**Accumulated volume in selected unit** (cannot be reset) ➔ Unit can be selected by MV[126]: Unit selection volume	0...42'000'000 m^3 0...42'000'000'000 l 0...11'095'226'199 gal 0...1'483'216'002 cf	–	R
UnitSelVolume	MV[126]	**Unit selection volume** The selected unit is valid for: AV[52]: Accumulated volume in selected unit	1: m^3 2: l 3: gal 4: cf Default: 1	–	R / W
StatusSensor	MV[103]	**Status sensor** Indicates information within the flow sensor and the flowbody temperature sensor. 2: Air in the system, error occurred during flow measurement. 3: Error with embedded temperature sensor. 5: Internal communication to flow sensor interrupted.	1: OK 2: Flow measurement error 3: Flowbody temperature not OK 4: – 5: Communication to flow sensor interrupted	–	R

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
StatusFlow	MV[104]	**Status flow**	1: OK	–	R
		2: Actual flow exceeds the designed nominal flow.	2: Actual flow exceeds nominal flow		
		3: Flow is measured but position of valve is closed. Actuator incorrectly mounted.	3: Flow with closed valve		
		4: Setpoint cannot be reached within 15 min during flow control. Pump pressure too low; high resistance in the flow circuit; flushing bypass open; V'$_{max}$ setting too high.	4: Flow setpoint cannot be reached		
		5: Reverse flow is detected. Pump pressure too low; high resistance in the flow circuit; flushing bypass open; V'$_{max}$ setting too high.	5: Reverse flow		
StatusMedia	MV[105]	**Status media**	1: OK	–	R
		2: Medium, contains glycol.	2: Glycol detected		
		3: Measured temperature and glycol concentration indicate that grease ice can build up	3: Freeze warning		
Glycol Concentration	AV[60]	**Glycol concentration in %** Effective measuring range depends on device type (see data sheet).	0...60	0.01...60 Default: 1	R
MeterSerialNo_ Part1	PIV[201]	**Flow meter serial number first digits** ProductionOrderNumber	–	–	R
MeterSerialNo_ Part2	PIV[202]	**Flow meter serial number last digits** ProductionSequenceNumber	–	–	R

Definition Access: R = Read, W = Write

Note: According to the present configuration settings of the EPIV (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each EPIV may have different HVAC value size limitations. See corresponding Device Type datasheet.
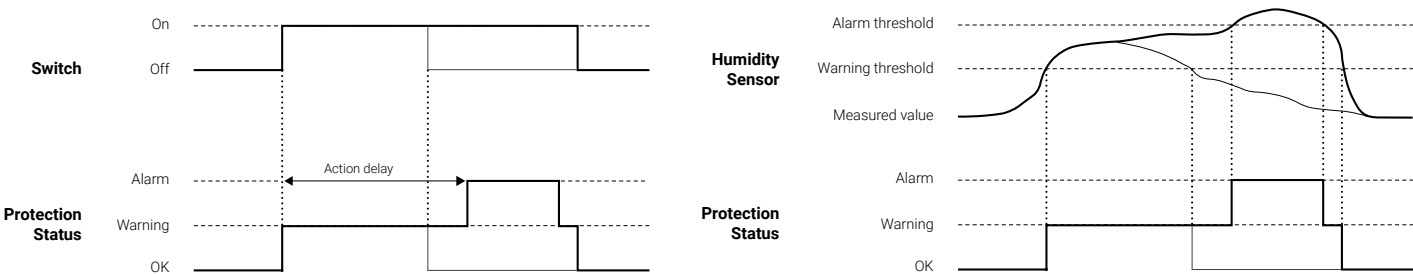
Condensation protection function

These objects can be used to configure and read values related to the Condensation protection function.
Different device variants with different functionalities and characteristics are available, with the following specific features.

EP0..R6+BAC

Device is delivered without sensors.
Condensation switch or humidity sensors must be connected via Y3 and configured manually.
Neither additional sensor connection nor analogue setpoint is available, if condensation protection is enabled.

EP0..R6+BAC-HHM

Device is delivered with connected humidity sensor and is pre-configured.
Additional sensor connection via Y3 is available for free use (e.g. additional switching contact, active sensor or analogue control / hybrid mode).

EP0..R6+BAC-HH1/HH2

Device is delivered with connected condensation switch and is pre-configured.
Additional sensor connection via Y3 is available for free use (e.g. additional switching contact, active sensor or analogue control / hybrid mode).

Condensation protection function overview

The overview shows the behaviour of the different variants of the Condensation protection function.

Condensation alarm / condensation alarm – valve closed
Condensation was detected and condensation action delay has expired, an alarm is issued accordingly and the valve reacts depending on the setting of the condensation protection action.

Condensation warning
Condensation was detected and condensation action delay becomes active.
If measures are taken to prevent the condensation, the condition may return to normal operation.

OK
No condensation detected and the valve is operating normally.

Condensation alarm / condensation alarm – valve closed
Condensation alarm threshold has exceeded, an alarm is issued accordingly and the valve reacts depending on the setting of the condensation protection action.

Condensation warning
Condensation warning threshold has exceeded.
If measures are taken to prevent the condensation, the condition may return to normal operation.

Condensation normal / OK
No condensation detected and the valve is operating normally.

The following list provides an overview of which data points and functions are supported and related with which device variants.

Datapoint	EP0..R6+BAC	EP0..R6+BAC-HH1/HH2	EP0..R6+BAC-HHM	Function
BV[170]: Enable condensation protection	Default: Disabled	Default: Enabled	Default: Enabled	Enables the condensation protection function.
MV[171]: Condensation protection action	Default: None	Default: None	Default: None	Defines the action in case a condensation event is detected.
AI[172]: Relative humidity	Volt	Not available	Percentage	Measured value of the humidity sensor.
AV[173]: Condensation warning threshold	Volt	Not available	Percentage	If a humidity sensor is used, a warning threshold can be configured.
AV[174]: Condensation alarm threshold	Volt	Not available	Percentage	If a humidity sensor is used, an alarm threshold can be configured.
AV[175]: Condensation action delay	Seconds	Seconds	Not available	If a consendation switch is used, an action delay can be configured.
MV[108]: Condensation protection status	OK Condensation warning Condensation alarm Condensation alarm – valve closed	OK Condensation warning Condensation alarm Condensation alarm – valve closed	OK Condensation warning Condensation alarm Condensation alarm – valve closed Condensation sensor error	The condensation protection status issues current warnings and messages depending on the device type and the set functions.
MV[122]: Setpoint Source	Bus	Analog / Bus	Analog / Bus	If condensation protection is enabled, the specififc settings for Setpoint source apply
MV[220]: Sensor 1 type	Active switch	Not used by condensation function Available as additional sensor input	Not used by condensation function Available as additional sensor input	If condensation protection is enabled with device type EP0..R6+BAC, Sensor 1 Type has to be configured according the connected sensor type on Y3 input (condensation switch, humidity sensor).

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
EnCondProt	BV[170]	**Enable condensation protection** Enables the condensation protection function. **EP0..R6+BAC** Function is active, if Enable condensation protection = 1: Enabled and the setpoint is controlled by MV[122]: Setpoint source = 2: Bus. **EP0..R6+BAC-HH1/HH2 EP0..R6+BAC-HHM** Condensation protection enabled per default.	0: Disabled 1: Enabled Default: 0	–	R / W
SelCondProtAct	MV[171]	**Condensation protection action** **Humidity sensor** Defines the action in case the measured value in AI[172]: Relative humidity exceeds the value defined in AV[174]: Condensation alarm threshold. **Condensation switch** Defines the action in case the sensor detects condensation.	1: None 2: Close Valve Default: 2	–	R / W
CondWarnTH	AV[173]	**Condensation warning threshold** If the measured value of AI[172]: Relative humidity (volt / percentage) exceeds the defined threshold, MV[108]: Condensation protection status changes to Warning. Warning threshold must be defined less than or equal to AV[174]: Condensation alarm threshold. **Note:** Not supported in conjunction with condensation switches.	**EP0..R6+BAC** 0.5...9.5 Default: 0.5 **EP0..R6+BAC-HHM** 50...95 Default: 70	0.01...9 Default: 0	R / W
CondAlmTH	AV[174]	**Condensation alarm threshold** If the measured value of AI[172]: Relative humidity (volt / percentage) exceeds the defined threshold, MV[171]: Condensation protection status changes to Alarm or Alarm – closed valve. Alarm threshold must be defined higher or equal to the AV[173]:Condensation warning threshold. **Note:** Not supported in conjunction with condensation switches.	**EP0..R6+BAC** 0.5...9.5 Default: 9.5 **EP0..R6+BAC-HHM** 50...95 Default: 90	0.01...9 Default: 0	R / W
CondActDel	AV[175]	**Condensation action delay** In case of a condensation condition, the device remains in Warning status until action delay has expired. In case action delay is set to 0, the device immditaly changes to alarm status. **Note:** Not supported in conjunction with humidity sensor.	0...10'800 Default: 0	1...10'800 Default: 0	R / W

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
RelHum_UnitSel	AI[172]	**Relative humidity** Measured value of the humidity sensor in volt (EP0..R6+BAC) or percentage (EP0..R6+BAC-HHM) **Note:** Not supported in conjunction with condensation switches.	0...10 0...100	0.0...10 Default: 0.1	R
CondProtStatus	MV[108]	**Condensation protection status** **EP0..R6+BAC** (condensation switch) / **EP0..R6+BAC-H1/H2** 1: No condensation issues, actuator and valve are in normal operation. 2: Condensation switch and action delay active or warning threshold exceeded. The valve remains in normal operation. An appropriate action (e.g. increase supply water temperature) is required by the BMS to prevent any damage. 3: Condensation switch active, action delay expired or alarm threshold exceeded. 4: Condensation switch active, action delay expired or alarm threshold exceeded and MV[171]: Select condensation protection action = 1: Close Valve. The valve closes to prevent any damage. 5: Only in conjunction with EP0..R6+BAC-HHM: Issue with humidity sensor detected. Check wiring and connection, restart the device to reset the error and check the measured humidity AI [172]: Relative humidity for plausibility. The valve closes to prevent any damage.	1: OK 2: Condensation warning 3: Condensation alarm 4: Condensation alarm – valve closed 5: Condensation sensor error	–	R

Definition Access: R = Read, W = Write

Note: According to the present configuration settings of the EPIV (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each EPIV may have different HVAC value size limitations. See corresponding Device Type datasheet.

Temperature

The measured temperature values can be read out via the objects below.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
T_UnitSel	AI[23]	**Temperature (flow body) in selected unit** ➤ Unit can be selected by MV[127]: Unit selection temperature sensors.	-20..150°C 253.15..423.15 K -4..302°F	0.01...306 Default: 1	R

Conversion of sensor signals

These objects can be used to configure the additional Sensor 1 Input on Y3 and read values related to.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Sens1Active_Volt	AI[20]	**Sensor 1 as voltage in V** If MV[220] Sensor Type is not = 2: Active then Out_Of_Service is TRUE	0...15	0.01...15 Default: 0.1	R
Sens1Switch	BI[20]	**Sensor 1 as switch** If MV[220] Sensor Type is not = 5: Switch Normally open or 6: Normally closed then Out_Of_Service is TRUE	0: Inactive 1: Active	–	R
UnitSelTemperature	MV[127]	**Unit selection temperature sensors** The selected unit is valid for: AI[23]: Temperature 2 (Flow Body) in selected unit	1: °C 2: K 3: °F Default: 1	–	R / W
Sens1Type	MV[220]	**Sensor 1 type** Additional sensor input. Only selectable if MV[122]: Setpoint source = 2: Bus. **EP0..R6+BAC** If condensation protection BV[170] = 1: Enabled the following settings apply. Condensation switch: For condensation protection with condensation switch. MV[220] = 5: Switch Normally open or = 6: Switch normally closed. Recommended to use sensor with 6: Switch normally closed functionality for fail safe behaviour. Analog humidity sensor: For condensation protection with relative humidity sensor MV[220]: Sensor 1 type = 2: Active volt	1: None 2: Active volt 3: – 4: – 5: Switch Normally Open 6: Switch Normally Closed Default: 1	–	R / W

Definition Access: R = Read, W = Write

Note: According to the present configuration settings of the EPIV (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each EPIV may have different HVAC value size limitations. See corresponding Device Type datasheet.

Health state

These objects allow to determine malfunctions, service information and error states of the 6-Way-EPIV.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
ErrorState	AV[140]	**Error State** 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.		1...2.147483647 Default: 1	R
		0: Communication with actuator not possible. Defective components, cable connection disconnected.	0: No communication to actuator		
		1: Gear train disengaged button is pressed	1: Gear train disengaged		
		2: Mechanical overload due to blocked valve, etc.	2: Actuator cannot move		
		3: Reverse flow is detected	3: Reverse flow		
		4: Setpoint cannot be reached within 15 min during flow control. Pump pressure too low; high resistance in the flow circuit; flushing bypass open; V'_{max} setting too high.	4: Flow setpoint not reached		
		5: Flow is measured but position of valve is closed. Actuator incorrectly mounted.	5: Flow with closed valve		
		6: Actual flow exceeds the designed nominal flow.	6: Flow actual exceeds flow nominal		
		7: Air in the system, error occurred during flow measurement. Water contamination, not specified fluid used.	7: Flow measurement error 8: –		
		9: Error with embedded temperature sensor.	9: Flowbody temperature error		
		10: Internal communication to flow sensor interrupted.	10: Communication to sensor interrupted		
		11: Measured temperature & glycol concentration indicate that grease ice can build up.	11: Freeze warning		
		12: Medium, contains glycol.	12: Glycol detected 13: –		
		14: Device has reached end of life and energy sensor needs to be replaced.	14: –		
		15: Timeout for the Bus watchdog expired. No update of Setpoint / Override within specified time.	15: Bus watchdog triggered 16: – 17: – 18: –		
		19: Condensation sensor has detected condensation and forced valve to close.	19: Condensation alarm – valve closed		
		20: A value >0 has been detected for both setpoints at the same time, the 6-way valve closes.	20: Both setpoints non-zero – valve closed		
SummaryStatus	MV[99]	**Summary status** Summarizes all status. MV [103]: Status sensor MV [104]: Status flow MV [105]: Status media MV [106]: Status actuator MV [108]: Condensation protection status	1: OK 2: Warning 3: Not OK	–	R

Definition Access: R = Read, W = Write

Note: According to the present configuration settings of the EPIV (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each EPIV may have different HVAC value size limitations. See corresponding Device Type datasheet.

Subject to technical modifications

All inclusive.

Belimo is the global market leader in the development, production, and sales of field devices for the energy-efficient control of heating, ventilation and air-conditioning systems. The focus of our core business is on damper actuators, control valves, sensors and meters.

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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