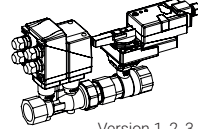
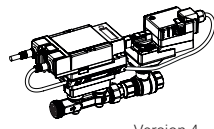


# BACnet Interface Description

Where is the Ethernet socket?	
On the actuator	On the flow sensor
 <p>Version 1, 2, 3</p>	 <p>Version 4</p>
<p><b>X</b> See „BACnet Interface Description Energy Valve (V1, V2, V3)“</p>	<p>Stay with this document <b>✓</b></p>
<p><b>For guidance in replacing an old EV with EV V4 -&gt; see “Replacement Guide V1, V2, V3 vs. V4”</b></p>	

## Energy Valve DN 15...50 (Version 4)

Edition 2024-12 / V4.2.1

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# PICS

## Protocol Implementation Conformance Statement

### General information

Date	05.07.2024
Vendor Name	BELIMO Automation AG
Vendor ID	423
Product Name	Energy Valve
Product Model Number	EV..R2+(K)BAC (Version 4, DN 15...50) EV..R2+MID (Version 4, DN 15...50) EV..R3+BAC (Version 4, DN 15...50)
Application Software Version	EV 4.2.1
Firmware Revision	14.10.0002
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 BACnet IP, (Annex J) BACnet IP, (Annex J), Foreign Device
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

### Power-on behaviour

The initialization of the data after power fail takes up to 190 seconds. All values remain 0 during power-on.

### 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

### BACnet IP

Port	open (Default: 47'808)
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### Configuration

Tool	Belimo Assistant 2 or web browser
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All writeable objects with instance number  $\geq 90$  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 Output [MO]	Description State Text	Present Value Relinquish Default
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 Energy Valve.

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]	<b>Setpoint relative in %</b> The setpoint is related to either the position, the volumetric flow (of $V'_{min}$ , $V'_{max}$ ) or the power (of $P'_{max}$ ). It is scaled between Min and Max limits. The setpoint is active, if the setpoint is controlled by MV[122]: Setpoint Source = 2: Bus. See also AV[90], AV[94], AV[100], AV[110].  Overridden = true, if MV[122]: SpSource = 1: Analog or if forced control (bus, tool and/or analog forced control) is active	0...100 Default: 0	0.01...100 Default: 1	C
SpAnalog	AI[6]	<b>Setpoint analog in %</b> Shows the setpoint in % if actuator is controlled by MV[122]: Setpoint Source = 1: Analog. If MV[122]: Setpoint Source = 2: Bus then Out_Of_Service is TRUE  Overridden = true, if MV[122]: SpSource = 2: Bus or if forced control (bus, tool and/or analog forced control) is active	0...100	0.01...100 Default: 1	R
RelPos	AI[1]	<b>Relative position in %</b> Overridden = true, if the gear train is disengaged	0...100	0.01...100 Default: 1	R
AbsPos	AV[2]	<b>Absolute position in °</b> Overridden = true, if the gear train is disengaged	0...96	0.01...96 Default: 1	R
SpSource	MV[122]	<b>Setpoint source</b> 1: Setpoint from analog signal 0.5...10 V on wire 3 2: Setpoint via BACnet AO[1]: SpRel	1: Analog 2: Bus Default: 1	–	W
ControlMode	MV[100]	<b>Control mode</b> 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 3: Power control 4: Differential pressure control Default: 2	–	W
Override	MV[1]	<b>Override control</b> Overrides setpoint with defined values	1: None      7: Nominal 2: Open Valve   8: – 3: Close Valve   9: – 4: Minimum    10: – 5: –            11: Motor stop 6: Maximum    Default: 1	–	C
Command	MV[120]	<b>Initiate function</b> Initiation of actuator functions for service and test. After command is sent, value returns to 1: None.	1: None 2: – 3: Synchronization Default: 1	–	W

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
BusFailAction	MV[130]	<p><b>Bus fail action</b></p> <p>In the event of a breakdown in communication, the actuator enables the bus watchdog fail action.</p> <p>The bus monitoring controls the BACnet communication. If neither AO[1]: Setpoint Relative nor MV[1]: Override Control is renewed before the Timeout for AV[130]: Bus Watchdog, the actuator controls to the Bus Fail Position. Triggered bus monitoring is indicated in AV[140]: ErrorState.</p>	1: None 2: Open 3: Close 4: Max 5: Min 6: – 7: Stop Default: 1	–	W
BusWatchdog	AV[130]	<p><b>Timeout for bus watchdog in s</b></p> <p>If no write request is received within the timeout, the device will execute the action defined in MV[130]: Bus fail action.</p>	5...3'600 Default: 120	1...3'595 Default: 1	W
BusTermination	BV[99]	<p><b>Bus termination</b></p> <p>Indicates if bus termination (120 Ω) is enabled. Bus termination can be set with Belimo Assistant 2 or web browser.</p>	0: Disabled 1: Enabled Default: 0	–	R
StatusActuator	MV[106]	<p><b>Status actuator</b></p> <p>2: Mechanical overload due to blocked valve, etc.            3: Gear train disengaged button is pressed            4: Communication with actuator not possible</p>	1: OK 2: Actuator cannot move 3: Gear train disengaged 4: No communication to actuator	–	R

## 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]	<b>Setpoint absolute volumetric flow in selected unit</b> → Unit can be selected by MV[123]: UnitSelFlow Overridden = true, if forced control (bus, tool and/or analog forced control) is active	0...0.006 m <sup>3</sup> /s 0...22.700 m <sup>3</sup> /h 0...6.305 l/s 0...378.333 l/min 0...22'700.000 l/h 0...99.945 gpm 0...13.360 cfm	22'700 Default: 1	R
RelFlow	AV[10]	<b>Relative volumetric flow in %</b> Related to V' <sub>max</sub> AV[94], AV[97]: Maximum Volumetric Flow Limit	0...150	0.01...150 Default: 1	R
AbsFlow_ UnitSel	AV[19]	<b>Absolute volumetric flow in selected unit</b> → Unit can be selected by MV[123]: UnitSelFlow Sensor reading up to 2,5* V' <sub>nom</sub> possible. Make sure to use the device within the specified parameters (see datasheet).	0...0.015 m <sup>3</sup> /s 0...56.750 m <sup>3</sup> /h 0...15.762 l/s 0...945.832 l/min 0...56'750.000 l/h 0...249.862 gpm 0...33.400 cfm	0...56'750 Default: 1	R
UnitSelFlow	MV[123]	<b>Unit selection volumetric flow</b> The selected unit is valid for AV[17], AV[19], AV[93], AV[97], AV[100], AV[127]	1: m <sup>3</sup> /s 2: m <sup>3</sup> /h 3: l/s 4: l/min 5: l/h 6: gpm 7: cfm Default: 5	–	W
Volume_UnitSel	AV[52]	<b>Accumulated volume in selected unit</b> → Unit can be selected by MV[126]: Unit selection volume See also MV[200]: Select meter registers	0...42'000'000 m <sup>3</sup> 0...42'000'000'000 l 0...11'095'226'199 gal 0...1'483'216'002.3 cf	1...42'000'000'000 Default: 1	R
Glycol Concentration	AV[60]	<b>Glycol concentration in %</b> Measured value or override value in settings	0...100	0.01...100 Default: 1	R
Vmin	AV[90]	<b>Minimum volumetric flow limit in %</b> (V' <sub>min</sub> )	0...V' <sub>max</sub>	0.01...100 Default: 1	W
Vmin_UnitSel	AV[93]	<b>Minimum volumetric flow limit in selected unit</b> (V' <sub>min</sub> ) → Unit can be selected by MV[123]: UnitSelFlow	0...0.006 m <sup>3</sup> /s 0...22.700 m <sup>3</sup> /h 0...6.305 l/s 0...378.333 l/min 0...22'700.000 l/h 0...99.945 gpm 0...13.360 cfm	0.001... 22'700 Default: 1	W
Vmax	AV[94]	<b>Maximum volumetric flow limit in %</b> (V' <sub>max</sub> ) Maximum volumetric flow limit relative to V' <sub>nom</sub> . "Nominal Volumetric Flow" AV[100] considered when MV[100]: Control Mode = 2: Flow Control or = 3: Power Control. Values below 25% will be adjusted to 25%.	25...100 %	0.01...100 Default: 1	W
Vmax_UnitSel	AV[97]	<b>Maximum volumetric flow limit in selected unit</b> (V' <sub>max</sub> ) → Unit can be selected by MV[123]: UnitSelFlow Values below 25% will be adjusted to 25%.	0.0001...0.006m <sup>3</sup> /s 0.375...22.700 m <sup>3</sup> /h 0.104...6.305 l/s 6.250...378.333 l/min 374.994...22'700 l/h 1.651...99.945 gpm 0.221...13.360 cfm	0.001...22'700 Default: 1	W

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Vnom_UnitSel	AV[100]	<b>Nominal volumetric flow in selected unit</b> ( $V'_{nom}$ ) → Unit can be selected by MV[123]: UnitSelFlow	0...0.006 m <sup>3</sup> /s 0...22.700 m <sup>3</sup> /h 0...6.305 l/s 0...378.333 l/min 0...22'700.000 l/h 0...99.945 gpm 0...13.360 cfm	0.001...22'700 Default: 1	R
UnitSelVolume	MV[126]	<b>Unit selection volume</b> The selected unit is valid for AV[50], A[52], PIV[50]	1: m <sup>3</sup> 2: Litre 3: Gallon 4: Cubic foot Default: 1	–	W
VolumePIV_ UnitSel	PIV[50]	<b>Accumulated volume in selected unit</b> → Unit can be selected by MV[126] See also MV[200]: Select meter registers	0...42'000'000 m <sup>3</sup> 0...42'000'000'000 l 0...11'095'226'199 gal 0...1'483'216'002 cf	–	R
StatusFlow	MV[104]	<b>Status flow</b> 2: Actual flow exceeds the designed nominal flow. 3: Flow is measured but position of valve is closed 4: Setpoint cannot be reached within 3 min. during flow control 5: Valve detected a reverse flow	1: OK 2: Actual flow exceeds nominal flow 3: Flow with closed valve 4: Flow setpoint cannot be reached 5: Reverse flow	–	R
StatusMedia	MV[105]	<b>Status media</b> 2: Glycol was detected in a MID application 3: Measured temperature & glycol concentration indicate that grease ice can build up	1: OK 2: Glycol detected 3: Freeze warning	–	R



## Power

These objects can be used to configure and read values related to the Power Management.  
For Power 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
RelPower	AV[40]	<b>Relative power in %</b> Related to P <sub>max</sub> AV[110], AV[113]: Maximum Power Limit	0...300	0.01...300 Default: 1	R
CoolingPower_ UnitSel	AV[45]	<b>Absolute power cooling in selected unit</b> → Unit can be selected by MV[124]: Unit selection power	0...3'990'000 W 0...3'990 kW 0...3.99 MW 0...13'614'444 BTU/h 0...13'614 kBTU/h 0...1'134 ton	0.1...3'990'000 Default: 1	R
HeatingPower_ UnitSel	AV[46]	<b>Absolute power heating in selected unit</b> → Unit can be selected by MV[124]: Unit selection power	0...3'990'000 W 0...3'990 kW 0...3.99 MW 0...13'614'444 BTU/h 0...13'614 kBTU/h 0...1'134 ton	0.1...3'990'000 Default: 1	R
UnitSelPower	MV[124]	<b>Unit selection power</b> The selected unit is valid for AV[45], AV[46], AV[113], AV[116]	1: W 2: kW 3: MW 4: BTU/h 5: kBTU/h 6: ton Default: 2	–	W
Pmax	AV[110]	<b>Maximum power limit in %</b> The maximum power limit setpoint in % is related to AV[116]: P <sub>nom</sub> and considered when MV[100]: Control Mode = 3: Power Control.	0.5...100	0.01...100 Default: 1	W
Pmax_UnitSel	AV[113]	<b>Absolute maximum power limit in selected unit</b> Related to P <sub>nom</sub> → Unit can be selected by MV[124]: Unit selection power	6'650...1'330'000 W 6.65...1330 kW 0.006...1.33 MW 22'690...4'538'148 BTU/h 22.69...4'538 kBTU/h 1.89...378 ton	0.1...1'330'000 Default: 1	W
Pnom_UnitSel	AV[116]	<b>Nominal power in selected unit</b> → Unit can be selected by MV[124]: Unit selection power	0...1'330'000 W 0...1330 kW 0...1.33 MW 0...4'538'148 BTU/h 0...4'538 kBTU/h 0...378 ton	0.1...1'330'000 Default: 1	R
StatusPower	MV[107]	<b>Status power</b> 2: Setpoint cannot be reached within 15 min. during power control	1: OK 2: Power not reached	–	R

## Energy

These objects can be used to configure and read values related to the energy monitoring function.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
CoolingEnergy_ UnitSel	AV[47]	<b>Absolute energy cooling in selected unit</b> → Unit can be selected by MV[125]: Unit selection energy See also MV[200]: Select meter registers	0...2'147'483'647	1...2'147'483'647 Default: 1	R
HeatingEnergy_ UnitSel	AV[48]	<b>Absolute energy heating in selected unit</b> → Unit can be selected by MV[125]: Unit selection energy See also MV[200]: Select meter registers	0...2'147'483'647	1...2'147'483'647 Default: 1	R
UnitSelEnergy	MV[125]	<b>Unit selection energy</b> The selected unit is valid for AV[47], AV[48], PIV[31], PIV[32]	1: J 2: kJ 3: MJ 4: GJ 5: Wh 6: kWh 7: MWh 8: BTU 9: kBTU 10: tonh Default: 6	–	W
SelectMeter- Registers	MV[200]	<b>Select meter registers</b> Select between certified meter register and lifetime register. Value 1 only available for models with MID certification EV..R2+MID. For non MID certified models value 2 is defined as default.  1: The certified meter register will be reset when the sensor module is replaced. 2: The lifetime register is compensated for glycol (if applicable).  Avoid toggling between the two registers as this will affect data logging.  Following objects depend on the selected meter register:  AV[52]: Accumulated volume in selected unit AV[47]: Absolute energy cooling in selected unit AV[48]: Absolute energy heating in selected unit	1: Certified meter register 2: Lifetime meter register  Default: 1 (2)	–	W
CoolingEnergy- PIV_ UnitSel	PIV[31]	<b>Absolute energy cooling in selected unit</b> → Unit can be selected by MV[125]: Unit selection energy See also MV[200]: Select meter registers	0...2'147'483'647	1...2'147'483'647	R
HeatingEnergy- PIV_ UnitSel	PIV[32]	<b>Absolute energy heating in selected unit</b> → Unit can be selected by MV[125]: Unit selection energy See also MV[200]: Select meter registers	0...2'147'483'647	1...2'147'483'647	R
MeterSerialNo_ Part1	PIV[201]	<b>Energy meter serial number first digits</b> ProductionOrderNumber	–	–	R
MeterSerialNo_ Part2	PIV[202]	<b>Energy meter serial number last digits</b> ProductionSequenceNumber	–	–	R

## Differential pressure

These objects can be used to configure and read values related to the differential pressure control functionality. Differential pressure control is only available for 2-way applications.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
SpAbsDiffPressure_ UnitSel	AV[135]	<b>Setpoint absolute differential water pressure in selected unit</b> Value range is related to selected differential water pressure sensor type → Unit can be selected by MV[131]: Unit selection differential water pressure	10'000...400'000 Pa 0.1...4 bar 1.45...58.02 psi 100...4'000 mbar 10...400 kPa	0...390'000 Default: 0.1	W
RelDiffPressure	AV[56]	<b>Relative differential water pressure</b> Relative to dp setpoint max	0...100	0.01...100 Default: 0.1	R
AbsDiffPressure_ UnitSel	AV[55]	<b>Absolute differential water pressure in selected unit</b> → Unit can be selected by MV[131]: Unit selection differential water pressure	0...600'000.00 Pa 0...6.00 bar 0...58.01 psi 0...6'000.00 mbar 0...600.00 kPa	0.01...600'000 Default: 0.1	R
UnitSelDiff- Pressure	MV[131]	<b>Unit selection differential water pressure</b>	1: Pa 2: bar 3: psi 4: mbar 5: kPa Default: 2	–	W
NomDiffPressure_ UnitSel	AV[136]	<b>Nominal differential water pressure in selected unit</b> Value range is related to selected dP sensor type → Unit can be selected by MV[131]: Unit selection differential water pressure	0...600'000.0 Pa 0...6.0 bar 0...87.0 psi 0...6'000.0 mbar 0...600.0 kPa	0.01...600'000 Default: 0.1	R
StatusSensor- DiffPressure	MV[140]	<b>Status differential water pressure</b>	1: OK 2: Differential pressure not detected Default: 1	–	R
StatusDiff- PressureControl	MV[141]	<b>Status differential water pressure control</b>	1: OK 2: Differential pressure setpoint cannot be reached 3: Minimum position applied Default: 1	–	R

## 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
T1_UnitSel	AI[22]	<b>Temperature 1 (remote) in selected unit</b> → Unit can be selected by MV[127]: UnitSelTemperature	-20..150°C 253.15...423.15 K -4...302°F	0.01...306 Default: 1	R
T2_UnitSel	AI[23]	<b>Temperature 2 (flow body) in selected unit</b> → Unit can be selected by MV[127]: UnitSelTemperature	-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 objects related to.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
Sens1Active_Volt	AI[20]	<b>Sensor 1 as voltage in V</b> If MV[220]: Sens1Type is not = 2: Active then Out_Of_Service is TRUE	0...15	0.01...15 Default: 0.1	R
Sens1Passive_Ohm	AI[21]	<b>Sensor 1 as resistance in Ω</b> If MV[220]: Sens1Type is not = 4: Passive then Out_Of_Service is TRUE	0.1...1'000'000	0.1...1'000'000 Default: 1	R
Sens1Temp_UnitSel	AV[20]	<b>Sensor 1 as temperature in selected unit</b> → Unit can be selected by MV[127]: Sens1TempType  If MV[221]: Sens1TempType is = 1: None or MV[220]: Sens1Type is not = 4: Passive then Out_Of_Service is TRUE	-20...150°C 253.15...423.15 K -4...248 °F	0.01...252 Default: 1	R
Sens1Switch	BI[20]	<b>Sensor 1 as switch</b> If MV[220]: Sens1Type is not = 5: Switch then Out_Of_Service is TRUE	0: Inactive 1: Active	–	R
UnitSelTemperature	MV[127]	<b>Unit selection temperature sensors</b> The selected unit is valid for AI[22], AI[23]	1: °C 2: K 3: °F Default: 1	–	W
Sens1Type	MV[220]	<b>Sensor 1 type</b> Additional sensor input. Only selectable if MV[122]: SpSource is = 2: Bus.	1: None 2: Active volt 3: – 4: Passive 5: Switch Default: 1	–	W
Sens1TempType	MV[221]	<b>Sensor 1 passive type</b> Values related to selected units on MV[127]. Only available if [MV[220]: Sensor 1 type = 4: Passive.	1: None 2: PT1000 3: Ni1000EU 4: – 5: – 6: – 7: – 8: NTC10k2 9: NTC10k3 Default: 1	–	W
StatusSensor	MV[103]	<b>Status sensor</b> Indicates informations within the flow sensor and both temperature sensors	1: OK 2: Air in the system, error occurred during flow measurement. 3: Error with embedded temperature sensor 4: No connection to external temperature sensor 5: Internal communication to flow sensor interrupted	–	R

## Delta T manager

These objects can be used to specify the delta T manager functionality and read the corresponding objects.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
SpDeltaT_UnitSel	AV[120]	<b>Setpoint delta temperature in selected unit</b> → Unit can be selected by MV[128]: Unit selection delta T  Considered when delta T limitation active (not = 1: disabled). Check datasheet for further information.	0...55°C 0...55 K 0...99°F	0.01...99 Default: 1	W
DeltaT_UnitSel	AV[22]	<b>Delta Temperature in selected unit</b> → Unit can be selected by MV[128]: Unit selection delta T	0...450°C 0...450 K 0...810°F	0.01...810 Default: 1	R
UnitSelDeltaT	MV[128]	<b>Unit selection delta T</b> The selected unit is valid for AV[22]	1: °C 2: K 3: °F Default: 1	–	W
SpAbsFlow-DeltaT_UnitSel	AV[127]	<b>Setpoint absolute flow at delta T in selected unit</b> → Unit can be selected by MV[123]: UnitSelFlow  Considered when delta T limitation is set to delta T manager-scaled. Check datasheet for further information.	0...0.1 m³/s 0...360 m³/h 0...100 l/s 0...6'000 l/min 0...360'000 l/h 0...1'585.03 gpm 0...211.888 cfm	0...360'000 Default: 1	W
DeltaT_Limitation	MV[101]	<b>Delta T limitation</b> 1: Delta T manager not active 2: Delta T manager active with no restriction to flow 3: Delta T manager active with restriction to flow AV[127]: Setpoint absolute flow at delta T	1: Disabled 2: dT-Manager 3: dT-Manager scaling Default: 1	–	W
StatusDeltaTMgr	MV[102]	<b>Delta T manager status</b> 1: Delta T manager deactivated 2: Delta T manager activated but not active 3: Delta T manager active 4: Delta T manager active with no limitation to the flow 5: Delta T manager active with limitation to flow AV[127]: Setpoint absolute flow at delta T	1: Not selected 2: Standby 3: Active 4: Scaling standby 5: Scaling active	–	R

## Health state

These objects allow to determine malfunctions, service information and error states of the Energy Valve.

Object name	Object type [Instance]	Description Comment, Status_Flags	Values	COV increment	Access
ErrorState	AV[140]	<p><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.</p> <p>Bitmask =</p> <p>0: Communication with actuator not possible. 1: Gear train disengaged button is pressed 2: Mechanical overload due to blocked valve, etc. 3: Reverse flow is detected 4: Setpoint cannot be reached within 15 min during flow control 5: Flow is measured but position of valve is closed 6: Actual flow exceeds the designed nominal flow 7: Air in the system, error occurred during flow measurement 8: No connection to external temperature sensor 9: Error with embedded temperature sensor 10: Internal communication to flow sensor interrupted 11: Measured temperature &amp; glycol concentration indicate that grease ice can build up 12: Glycol was detected in a MID application 13: Setpoint cannot be reached within 15 min during power control 14: MID only. The sensor module must be replaced. 15: Timeout for the bus watchdog expired 16: No differential pressure detected within 5 min during pressure control 17: Differential pressure setpoint can not be reached within 15 min during pressure control mode 18: Minimum position (27%) is applied if: - The valve is restarted - After a power failure - The manual override was previously operated - Switching from another control mode (e.g. flow control) to control mode differential pressure control - No differential pressure is present at a flow rate <math>&lt;0.7\% V_{nom}</math></p>	<p>0: No communication to actuator 1: Gear train disengaged 2: Actuator cannot move 3: Reverse flow 4: Flow setpoint not reached 5: Flow with closed valve 6: Flow actual exceeds flow nominal 7: Flow measurement error 8: Remote temperature error 9: Flowbody temperature error 10: Communication to Sensor interrupted 11: Freeze warning 12: Glycol detected 13: Power setpoint not reached 14: Device end of life reached 15: Bus watchdog triggered 16: No differential pressure detected 17: Differential pressure setpoint can not be reached 18: Minimum position applied</p>	1...524'287 Default: 0	R
SummaryStatus	MV[99]	<p><b>Summary status</b> Summarises all status</p> <p>MV[102]: Status delta T manager MV[103]: Status sensor MV[104]: Status flow MV[105]: Status Media MV[106]: Status actuator MV[107]: Status power MV[140]: Status differential water pressure MV[141]: Status differential water pressurecontrol</p>	<p>1: OK 2: Warning 3: Not OK</p>	–	R

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

Note: According to the present configuration settings of the Energy Valve (e.g. DN size) the HVAC application may perform a size limitation within the indicated BACnet value range. Each Energy Valve may have different HVAC value size limitations.

# 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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5-year warranty



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support



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