



MP-Bus Data-Pool Values

MP  **BUS**[®]

2-way EPIV V4.2, DN 15...50

Electronic pressure-independent characterized control valve

Edition 2024-01 / V4.2

BELIMO[®]

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Data-Pool general notes

General information

- The device supports the MP Data-Pool functional profile. All available data points are managed in a data pool and accessible with MP read/write commands.
- This document describes all public data pool values of the device. It's divided into process values and configuration values.
- The MP Data-Pool functional profile is specified in the MP Cooperation Documentation. The document is provided to Belimo MP-Partners.
- See the technical datasheet for technical information about the device itself.

Identification

The connected type can be identified by its series number:

Prefix	Profile type	Profile category	Type
2	2	35	EP..R2+..

Configuration

Configuration data are not password protected. No Login is required.

Timing of MP-Bus queries

Master implementations typically poll the slaves in cycles (MP1, MP2, MP3, ...). Reading all data pool values of this node in one cycle are not recommended, because it would reduce the overall MP-Bus performance.

Recommendation:

- Split up the queries into several cycles (e.g. 3 queries per cycle).
- Adjust repetition rates (reading values) according to the rate of change of the value.
- Prevent from reading unused data pool values.

Signed integer

Signed integers are represented as two's complement.

Example:

Value of ID40 = 1111 1101 1111 0010₂ = -526₁₀

Actual value
 = value * scaling factor * unit
 = -526 * 0.01 * unit
 = **-5.26 unit**

Data-Pool values overview

Process

ID	Name	Access
10	Setpoint [%]	R / W
11	Command	R / W
12	Relative Position [%]	R
13	Absolute Position [°]	R
14	Override	R / W
15	Sensor 1 Value [mV] [-]	R
16	Analog Setpoint [%]	R
19	Relative Volumetric Flow [%]	R
20	Absolute Volumetric Flow [l/s]	R
22	Absolute Volumetric Flow in selected unit	R
26	Glycol Concentration [%]	R
29	Temperature [°C]	R
51	Total Volume [m ³]	R

Configuration

ID	Name	Access
110	Malfunction & Service information	R
111	Control Mode	R / W
115	Bus Fail Action	R / W
116	Communication Watchdog [s]	R / W
117	Setpoint Source	R / W
120	Sensor 1 Type	R / W
125	V'_{\min} [%]	R / W
129	V'_{\max} [%]	R / W
133	V'_{nom} [l/s]	R
151	Unit Selection Flow	R / W
200	Meter Serial Number (Part 1)	R
201	Meter Serial Number (Part 2)	R

Definition Access: R = Read, W = Write



All writeable datapoints with ID >100 (configuration data) are persistent and are **not** supposed to be written on a regular basis.

Data-Pool values

Process data

No.	Description Comments	Unit	Scaling	Values	Size	Access
10	Setpoint The setpoint refers to the demanded position or flow according to the selected control mode. It is scaled between Min and Max limits. The setpoint is active, if the setpoint is controlled by bus (Setpoint Source = Bus)	%	0.01	0...10'000	2	R / W
11	Command Initiation of actuator functions for service. After command is sent, value changes back to None (0)	–	–	0: None 1: - 2: Sync	1	R / W
12	Relative position	%	0.01	0...10'000	2	R
13	Absolute position					
14	Override control Override the setpoint with defined values Override minimum and maximum flow correspond to Position or Flow Control Mode. → based on selection in ID 111	–	–	0: None 1: Open valve 2: Close valve 3: Min. flow 4: - 5: Max. flow 6: Nom. flow 7: - 8: - 9: - 10: Motor Stop	1	R / W
15	Sensor 1 value Current value of sensor 1, depending on setting of "Sensor 1 Type" (ID 120)	mV –	1	0...65'535	2	R
16	Setpoint analog Shows the setpoint in % if the actuator is controlled by analog signal (ID 117)	%	0.01	0...10'000	2	R
19	Relative volumetric flow Related to V_{max} "Maximal Flow Limit" (ID 129)	%	0.01	0...15'000	2	R
20	Absolute volumetric flow	l/s	0.01	0...10'000	2	R
22	Absolute volumetric flow in selected unit → based on selection in ID 151	–	0.001	0...360'000	4	R
26	Glycol concentration	%	0.01	0...10'000	2	R
29	Temperature	°C	0.01	-2'000...12'000	2	R
51	Total volume	m ³	0.01	0...21'474'836	4	R

Configuration data

No.	Description Comments	Unit	Scaling	Values	Size	Access
110	<p>Malfunction and service information</p> <p>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>0: No communication to actuator. Defective components, cable connection disconnected. 1: Gear train disengaged: The manual override button is pressed. 2: Actuator cannot move: Mechanical overload, e.g. locked actuator etc. 3: Reverse flow: Wrong flow direction. 4: Flow setpoint not reached: Pump pressure too low; high resistance in the flow circuit; flushing bypass open; V_{max} setting too high. 5: Flow with closed valve: Wrong actuator mounted. 6: Flow actual exceeds flow nominal: Position control with high differential pressure. 7: Flow measurement error: Airbubbles, water contamination, not specified fluid used. 9: Flowbody temperature error: Temperature sensor defect. 10: Communication to sensor interrupted: Logic and sensor modul disconnected. 11: Freeze warning: Water/glycol used tends to freeze. 12: Glycol detected: Medium, contains glycol although not set. 15: Bus watchdog triggered: Timeout for the Bus watchdog expired.</p>	–	–	Bitmask = 0: No communication to actuator 1: Gear 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: – 9: Flowbody temperature error 10: Communication to sensor interrupted 11: Freeze warning 12: Glycol detected 13: – 14: – 15: Bus watchdog triggered	2	R
111	Control mode	–	–	0: Position Control 1: Flow Control 2: –	1	R / W
115	<p>Bus fail action</p> <p>Defines the action in case a communication watchdog is triggered (see ID 116)</p>	–	–	0: None 1: Open valve 2: Close valve 3: Max. flow 4: Min. flow 5: – 6: Stop	1	R / W
116	<p>Communication watchdog</p> <p>Each datapool access (read or write) will reset the watchdog timer. If the watchdog is triggered the action according to ID 115 will be executed.</p>	s	1	5...3'600 Default: 120	2	R / W
117	<p>Setpoint source</p> <p>Defines whether the setpoint is controlled by the analog input signal on wire 3 or the MP-Bus</p>	–	–	0: Analog 1: Bus	1	R / W
120	<p>Sensor 1 type</p> <p>If Setpoint Source (ID 117) is analog (Hybrid mode), the Sensor 1 Type can be set to Active (1) to see the Setpoint Analog in mV.</p>	–	–	0: None 1: Active 2: – 3: – 4: Switch	1	R / W

No.	Description Comments	Unit	Scaling	Values	Size	Access
125	V'_{min} The max setpoint in % is related to V' _{nom} (ID 133) and considered when Control Mode (ID 111) = Flow Control.	%	0.01	0...V' _{max}	2	R / W
129	V'_{max} Maximum Flow Limit in % between 25% and 100 % of V' _{nom} . Values below 25% will be adjusted to 25%. The Maximum Flow setpoint is related to V' _{nom} "Nominal Volumetric Flow" (ID 133) and is considered when Control Mode (ID 111) = Flow Control.	%	0.01	2'500...10'000	2	R / W
133	V'_{nom} Nominal volumetric flow	l/s	0.01	0...10'000	2	R
151	Unit selection flow	–	1	0: m ³ /s 1: m ³ /h 2: l/s 3: l/min 4: l/h 5: gpm 6: cfm	1	R / W
200	Meter serial number (part 1)	–	–	0...2'147'483'647	4	R
201	Meter serial number (part 2)	–	–	0...2'147'483'647	4	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 MP-Bus value range. Each EPIV may have different HVAC value size limitations.

All inclusive.

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