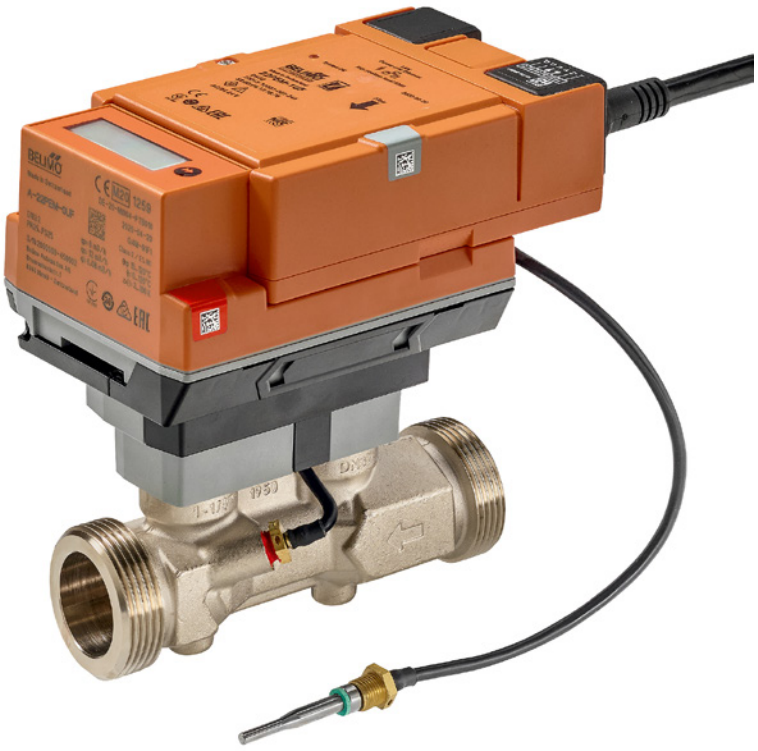

Data-Pool Values

MP BUS

Thermal Energy Meter (TEM)

Edition 2025-11/ V4.2.0

BELIMO

Table of contents

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	1	34	22PE-..., 22PEM-...

Interface version

This description is valid for these models:

Product Model Number	Remark
22PE..-1U.. e.g. 22PEM-1UC	22P(E)(F)-x1(X)Ux2(x3(x4))-(SG) x1: 1. 5 x2: C, D, E, F, G, H, H x3: H. N. K x4: H, T

Configuration

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

Timing of MP-Bus queries

Client implementations typically poll the servers 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 ID 40 = 1111 1101 1111 0010_2 = -526_{10}

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

Value overview

Operation

ID	Name	Access
15	Sensor 1 Value [mV] [Ω] [-]	R
19	Relative Volumetric Flow [%]	R
20	Absolute Volumetric Flow [l/s]	R
22	Absolute Volumetric Flow [selected unit]	R
26	Glycol Concentration [%]	R
27	Temperature 1 (remote) [°C]	R
29	Temperature 2 (flow body) [°C]	R
31	Delta Temperature [K]	R
34	Absolute Power Cooling [kW]	R
37	Absolute Power Heating [kW]	R
51	Accumulated Volume [m^3]	R
54	Absolute Energy Cooling [kWh]	R
57	Absolute Energy Heating [kWh]	R

Service

ID	Name	Access
110	Malfunction & Service information	R
120	Sensor 1 Type	R / W
133	Nominal Volumetric Flow (qp) [l/s]	R
151	Unit Selection Flow	R / W
200	Energy Meter Serial Number First Digits	R
201	Energy Meter Serial Number Last Digits	R
202	Select Meter Register	R / W

All writeable datapoints with ID >100 (configuration data) are persistent and are **not** supposed to be written on a regular basis.
Designated data points are highlighted in cololur in the document.

Value descriptions

Flow

These data-pool values can be used to configure and read values related to Flow control.
For setpoint see ID 10: Setpoint relative in section "Control and general settings".

No.	Description Comments	Values	Unit	Scaling	Size	Access
19	**Relative volumetric flow in % of qp** (Nominal volumetric flow) Related to ID 133: Nominal volumetric flow (qp)	0...15'000	%	0.01	2	R
20	**Absolute volumetric flow** Sensor reading up to 2,5* V'nom possible. Make sure to use the device within the specified parameters (see datasheet).	0...1'575	l/s	0.01	2	R
22	**Absolute volumetric flow in selected unit** Sensor reading up to 2,5* V'nom possible. Make sure to use the device within the specified parameters (see datasheet). → Unit can be selected by ID 151: Unit selection flow	0...15 0...56'750 0...15'762 0...945'832 0...56'750'000 0...249'862 0...33'400	m^3/s m^3/h l/s l/min l/h gpm cfm	0.001	4	R
26	**Glycol concentration** Effective measuring range depends on device type (see data sheet).	0...6'000	%	0.01	2	R
51	**Accumulated volume** (cannot be reset)	0...21'474'836	m^3	0.01	4	R
133	**Nominal volumetric flow (qp)**	0...10'000	l/s	0.01	2	R
151	**Unit selection flow** The selected unit is valid for ID 22: Absolute volumetric flow in selected unit.	0: m^3/s 1: m/h 2: l/s 3: l/min 4: l/h 5: gpm 6: cfm Default: 4	–	1	1	R

Power

These data-pool values can be used to configure and read values related to the Power Management.
For Power Setpoint see ID 10: Setpoint relative in section "Control and general settings".

No.	Description Comments	Values	Unit	Scaling	Size	Access
34	**Absolute power cooling**	0...21'500'000	kW	0.001	4	R
37	**Absolute power heating**	0...21'500'000	kW	0.001	4	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 MP-Bus value range. Each product may have different HVAC value size limitations

Energy

These data-pool values can be used to configure and read values related to the energy monitoring function.

No.	Description Comments	Values	Unit	Scaling	Size	Access
54	**Absolute energy cooling**	0...21'474'836	kWh	1	4	R
57	**Absolute energy heating**	0...21'474'836	kWh	1	4	R
200	**Energy meter serial number first digits** ProductionOrderNumber	0...2'147'483'647	–	–	4	R
201	**Energy meter serial number last digits** ProductionSequenceNumber	0...2'147'483'647	–	–	4	R
202	**Select meter register** Value 0 only available for models with MID certification: 22PEM-.. For non MID certified models value 1 is defined as default. Select between certified meter register and lifetime register. 0: The certified meter register will be reset when the sensor module is replaced. 1: The lifetime register is compensated for glycol (if applicable). Avoid toggling between the two registers. The setting influeces metering of volume and energy. Following IDs depend on the selected meter register: ID 51: Accumulated volume [m3 (3 high positioned)] ID 54: Absolute energy cooling [kWh] ID 57: Absolute energy heating [kWh]	0: Certified meter register 1: Lifetime meter register	–	–	1	R / W

Temperature

The measured temperature values can be read out via the data-pool values below.

No.	Description Comments	Values	Unit	Scaling	Size	Access
27	**Temperature 1 (remote)**	−2'000...15'000	°C	0.01	2	R
29	**Temperature 2 (flow body)**	−2'000...15'000	°C	0.01	2	R
31	**Delta temperature**	0...45'000	K	0.01	2	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 MP-Bus value range. Each product may have different HVAC value size limitations

Conversion of sensor signals

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

No.	Description Comments	Values	Unit	Scaling	Size	Access
15	**Sensor 1 value** Current value of sensor 1, depending on setting ID 120: Sensor 1 Type	0...65'535	mV Ω –	1 1	2	R
120	**Sensor 1 type** Additional sensor input	0: None 1: Active 2: – 3: Passive 4: Switch Default: 0	–	–	1	R / W

Health state

These data-pool values allow to determine malfunctions, service information and error states of the Energy Valve.

No.	Description Comments	Values	Unit	Scaling	Size	Access
110	**Malfunction and service information** 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 is detected. Pump pressure too low; high resistance in the flow circuit; flushing bypass open. 6: Actual flow exceeds the designated nominal flow. 7: Air in the system, error occurred during flow measurement. Water contamination, not specified fluid used. 8: Remote temperature sensor not OK: No connection to the external temperature sensor 9: Flowbody temperature sensor not OK: Error with embedded temperature sensor. 10: Internal communication to flow sensor interrupted. 11: Measured temperature and glycol concentration indicate that grease ice can build up. 12: Medium contains glycol.	Bitmask = 0: – 1: – 2: – 3: Reverse flow 4: – 5: – 6: Flow actual exceeds flow nominal 7: Flow measurement error 8: External temperature error 9: Integrated temperature error 10: Communication to sensor interrupted 11: Freeze warning 12: Glycol detected 13: – 14: – 15: –	–	–	2	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 MP-Bus value range. Each product 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.

In short: Small devices, big impact.

- 5-year warranty
- On site around the globe
- Complete product range
- Tested quality
- Short delivery times
- Comprehensive support

EN – 2025-11/B – Subject to technical modifications

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