



Thermal Energy Meter (TEM)

Contents

<u>Data-Pool General Notes</u>	2
<u>Data-Pool Values Overview</u>	3
<u>Data-Pool Values</u>	4

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

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 = $1111'1101'1111'0010_2 = -526_{10}$

Actual Value = Value * Scaling factor * Unit = $-526 * 0.01 * \text{°C} = -5.26 \text{ °C}$

Data-Pool Values Overview

	ID	Name	R/W
Process	15	Sensor 1 Value [mV] [Ω] [-]	R
	19	Relative Volumetric Flow [%]	R
	20	Absolute Volumetric Flow [l/s]	R
	26	Glycol Concentration [%]	R
	27	Temperature 1 (remote) [°C]	R
	29	Temperature 2 (integrated) [°C]	R
	31	Delta Temperature [K]	R
	34	Absolute Cooling Power [kW]	R
	37	Absolute Heating Power [kW]	R
	51	Total Volume [m ³]	R
	54	Cooling Energy [kWh]	R
	57	Heating Energy [kWh]	R
	Configuration	110	Malfunction & Service information
120		Sensor 1 Type	R/W
133		Vnom [l/s]	R
200		Meter Serial Number (Part 1)	R
201		Meter Serial Number (Part 2)	R
	202	Select Meter Register	R/W

Data-Pool Values
Process Data

Nr	Description	Unit	Scaling	Values	Size	R/W
15	Sensor 1 Value Current value of sensor 1, depending on setting of "Sensor 1 Type" (ID 120)	mV Ω -	1	0...65'535	2	R
19	Relative Volumetric Flow Related to "Nominal Volumetric Flow" (ID 133)	%	0.01	0...15'000	2	R
20	Absolute Volumetric Flow	l/s	0.01	0...10'000	2	R
26	Glycol Concentration	%	0.01	0...10'000	2	R
27	Temperature 1 (remote)	°C	0.01	-2'000...12'000	2	R
29	Temperature 2 (integrated)	°C	0.01	-2'000...12'000	2	R
31	Delta Temperature	K	0.01	0...14'000	2	R
34	Absolute Cooling Power	kW	0.001	0...21'500	4	R
37	Absolute Heating Power	kW	0.001	0...21'500	4	R
51	Total Volume	m ³	0.01	0...21'474'836	4	R
54	Cooling Energy	kWh	1	0...21'474'836	4	R
57	Heating Energy	kWh	1	0...21'474'836	4	R

Configuration Data

Nr	Description	Unit	Scaling	Values	Size	R/W
110	Malfunction & Service information	-	-	Bit 0: - Bit 1: - Bit 2: - Bit 3: Reverse flow Bit 4: - Bit 5: - Bit 6: Actual flow > Vnom Bit 7: Flow measurement error Bit 8: Remote temperature error Bit 9: Integrated temperature error Bit 10: Comm. to sensor interrupted Bit 11: Freeze warning Bit 12: Glycol detected Bit 13: -	2	R
120	Sensor 1 Type	-	-	0: None 1: Active 2: Passive 3: - 4: Switch	1	R/W
133	Vnom Nominal volumetric flow	l/s	0.01	0...10'000	2	R
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
202	Select Meter Register Select the active meter register: The certified meter register is not compensated for glycol and will be reset when the sensor module is replaced. The lifetime register is compensated for glycol (if applicable). Avoid toggling between the two registers.	-	-	0: Certified meter register 1: Lifetime meter register	1	R/W