



MP-Bus Data-Pool Values

MP  BUS

Room Sensors
Room Operating Units
..22RT..-1..-1/-2

Edition 2026-03 / V1.01

BELIMO[®]

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Data-Pool general notes

General information

- The device supports the MP Data-Pool functional profile. All available datapoints 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.

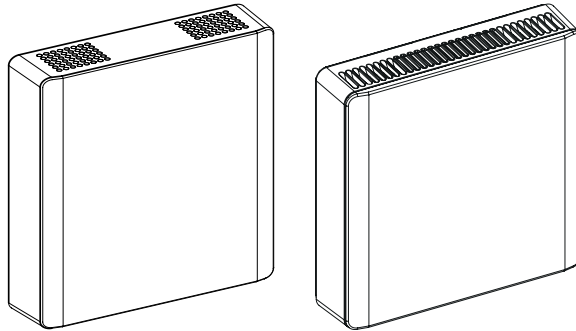
Power-on behaviour

The initialization of sensor data takes up to 10 seconds.
The sensor values remain 0 during power-on.

Identification

The connected type can be identified by its series number:

Prefix	Profile type	Profile category	Type	Remark
2	2	11	22RT-19-1	Room sensors (RS) from legacy series (before May 2022); see appendix
2	3	11	22RTH-19-1	
2	4	11	22RTM-19-1	
2	5	11	22RT-19-1	Room sensors (RS) (from May 2022)
2	6	11	22RTH-19-1	
2	7	11	22RTM-19-1	
2	5	11	22RT-18-1	Room sensors (RS) Room operating units (ROU) without display, Analog/MP
2	6	11	22RTH-18-1	
2	7	11	22RTM-18-1	
2	6	11	P-22RTH-1900A-1	Room operating units (ROU) without display, Analog/MP
2	7	11	P-22RTM-1900A-1	
2	11	11	P-22RTH-1U00A-2	Room operating units (ROU) without display, MOD/BAC/MP
2	12	11	P-22RTM-1U00A-2	
2	5	12	P-22RT-1800D-1	Room operating units (ROU) with display, Analog/MP
2	6	12	P-22RTH-1800D-1	
2	7	12	P-22RTM-1800D-1	
2	5	12	P-22RT-1900D-1	Room operating units (ROU) with display, Analog/MP
2	6	12	P-22RTH-1900D-1	
2	7	12	P-22RTM-1900D-1	
2	11	12	P-22RTH-1U00D-2	Room operating units (ROU) with display, MOD/BAC/MP
2	12	12	P-22RTM-1U00D-2	



Left: Legacy series with punched ventilation opening.
Right: Actual series with slotted ventilation opening.

Configuration

Configuration data are not password protected.

Address range

Up to 16 units on MP (MP1...MP16)
If a mixed line with MP actuators is realized, the number of units is limited to 8 devices.

Timing of MP-Bus queries

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

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**



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

Data-Pool values overview

Process

ID	Name	Access	RS	ROU	
				..-1	..-2
11	Error state	R	■	■	■
14	Room temperature [°C]	R	■	■	■
16	Relative humidity [%]	R	■	■	■
17	CO ₂ value [ppm]	R	■	■	■
21	Air quality status	R	■	■	■
23	Digital input	R			■
..	..	–			
30	Status Device	R	■	■	■
33	Dew point temperature [K]	R	■	■	■
..	..	–			
38	Display warning icon	R / W		■	■
39	Display window icon	R / W		■	■
..	..	–			
70	Room temperature setpoint [°C]	R / W		■	■
71	Ventilation stage [%]	R / W		■	■
72	System operation mode	R / W		■	■
73	Ventilation stage control mode	R / W		■	■
74	Heating/cooling application status	R / W		■	■
77	Enable local adjustment	R / W		■	■
..	..	–			
80	Relative room temperature setpoint [°C]	R / W		■	■

Definition Access: R = Read, W = Write



Room sensors (RS) provide only a subset of the data-pool values supported by room operating units (ROU). Values not marked as supported are not functional but can still be read/written. This allows to use the same template for integration of RS and ROU into BACS.

Configuration

ID	Name	Access	RS	ROU	
				..-1	..-2
110	Offset temperature [°C]	R / W	■	■	■
111	Offset humidity [%]	R / W	■	■	■
112	Offset CO ₂ [ppm]	R / W	■	■	■
..	..	–			
126	CO ₂ limit "Good"	R / W	■	■	■
127	CO ₂ limit "Moderate"	R / W	■	■	■
128	Air quality indication	R / W	■	■	■
..	..	–			
154	Unit for temperature on display	R / W		■	■
..	..	–			
200	Display background color	R / W		■	■
201	Display room temperature	R / W		■	■
202	Display relative humidity	–			
203	Display CO ₂ value	R / W		■	■
204	Display heating/cooling icon	R / W		■	■
205	Warning icon function	R / W		■	■
206	Window icon function	R / W		■	■
..	..	–			
208	Temperature display mode	R / W		■	■
209	Display ventilation stages	R / W		■	■
210	Eco button mode	R / W		■	■
211	Display boost button	R / W		■	■
212	On/off button mode	R / W		■	■
..	..	–			
220	Temperature setpoint type	R / W		■	■
221	Default room temperature setpoint	R / W		■	■
222	Temperature setpoint range	R / W		■	■
223	Ventilation stage configuration	R / W		■	■
224	Ventilation control mode	R / W		■	■

Data-Pool values

Sensor values

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

No.	Description Comments	Unit	Scaling	Values	Size	Access
14	Room temperatur in °C	°C	0.01	0...5'000	2	R
16	Relative humidity in %	%	0.01	0...10'000	2	R
17	CO₂ value in ppm	ppm	1	0...2'000	2	R
33	Dew point temperature in °C	°C	0.01	-5'000...5'000	2	R

Offset/correction values

These data-pool values can be used to specify offset/correction values for the individual measured values.

No.	Description Comments	Unit	Scaling	Values	Size	Access
110	Room temperatur offset in K Offset applied to measured temperature in K	K	0.01	-1'500...1'500	2	R / W
111	Relative humidity offset in % Offset applied to measured relative humidity in percent	%	0.01	-2'000...2'000	2	R / W
112	CO₂ offset in ppm Offset applied to measured CO ₂ content in ppm	ppm	1	-500...500	2	R / W

Temperature unit selection

No.	Description Comments	Unit	Scaling	Values	Size	Access
154	Unit for temperature on display	-	1	0: °C 1: - 2: °F	1	R / W

Temperature setpoint

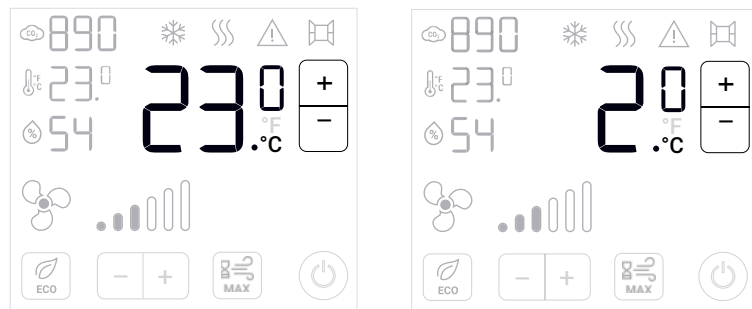


Figure 1: Left: Room temperature setpoint (in °C). Right: Relative room temperature setpoint

No.	Description Comments	Unit	Scaling	Values	Size	Access
70	Room temperatur setpoint [°C]	°C	0.01	500...4'500	2	R / W
80	Relative room temperature setpoint [°C]	°C	0.01	-560...560	2	R / W
220	Temperature setpoint type Set the temperature setpoint type between absolute setpoint (e.g., 23°C) and the relative setpoint or setpoint shift (e.g. + 3°C).	-	1	0: Absolut 1: Relative	1	R / W
221	Default room temperature setpoint [°C] Set the base temperature for the Belimop Display App	°C	0.01	1'500...3'500	2	R / W
222	Temperature setpoint range [°C] Set the adjustable temperature setpoint range around the base temperature for the Belimo Display App	°C	1	0...10	1	R / W

Ventilation setpoint

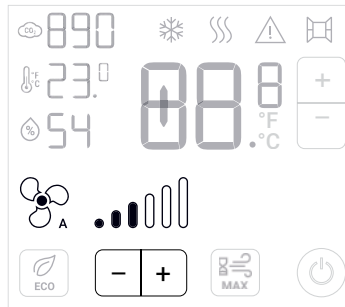
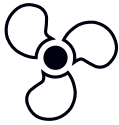


Figure 2: Ventilation setpoint

No.	Description Comments	Unit	Scaling	Values	Size	Access
71	Ventilation stage Set desired ventilation stage in room/zone in percent.	%	0.01	0...10'000	2	R / W
73	Ventilation stage control mode Set ventilation mode to automatic control or manual control (applies if hybrid control mode is activated, see ID 224).	–	1	0: Manual ventilation stages control 1: Automatic ventilation stages control	1	R / W
223	Ventilation stage configuration Set the number of adjustable ventilation stages on the display.	–	1	0: – 1: – 2: 3 stages 3: 4 stages 4: 7 stages	1	R / W
224	Ventilation control mode Set the ventilation control functionality between manual mode only and automatic and manual mode combined.	–	1	0: Manual mode only 1: Hybrid control mode, setpoint invisible in auto mode	1	R / W

Display configuration

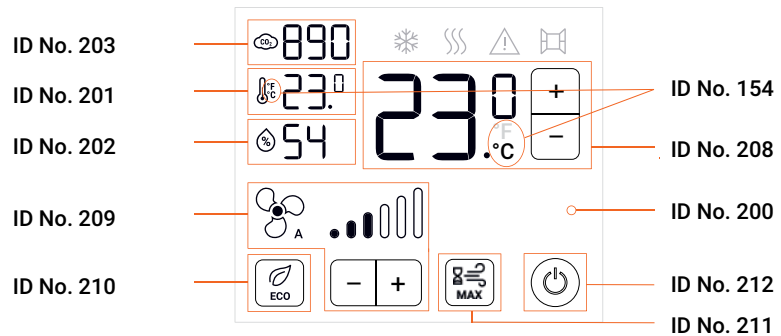


Figure 3: Display configuration options

No.	Description Comments	Unit	Scaling	Values	Size	Access
77	Enable local adjustment Allow or prohibit the room occupant to adjust settings on the room operating unit.	-	1	0: Disabled 1: Enabled	1	R / W
200	Display background color Set the display background color either white (0) or black (1).	-	1	0: Black on white 1: White on black	1	R / W
201	Display room temperature	-	1	0: Invisible 1: Visible	1	R / W
202	Display relative humidity	-	1	0: Invisible 1: Visible	1	R / W
203	Display CO₂ value	-	1	0: Invisible 1: Visible	1	R / W
208	Temperature display mode Set the functionality of the large temperature indicator on the display.	-	1	0: Invisible 1: Actual room temperature 2: Room temperature setpoint	1	R / W
209	Display ventilation stages Set/reset the display of the ventilation stages.	-	1	0: Invisible 1: Visible	1	R / W
210	Eco button mode Set the functionality of the Eco mode icon on the display.	-	1	0: Invisible 1: Status (no user interaction) 2: Setpoint	1	R / W
211	Display Boost button Set/reset Boost/Max icon on the display.	-	1	0: Invisible 1: Visible	1	R / W
212	On/off button mode Set the functionality of the on/off icon on the display.	-	1	0: Invisible 1: Status (no user interaction) 2: Setpoint	1	R / W

Status icons on display

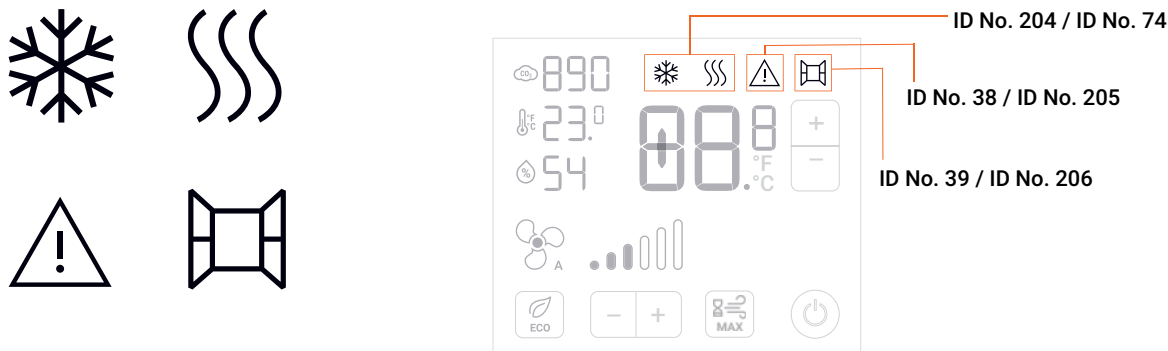


Figure 4: Status icons configuration options

No.	Description Comments	Unit	Scaling	Values	Size	Access
38	Display warning icon (Applies if ID 205 is set to 1)	-	1	0: Invisible 1: Visible	1	R / W
39	Display window icon (Applies if ID 206 is set to 1)	-	1	0: Invisible 1: Visible	1	R / W
74	Heating/cooling application status Appearance of heating or cooling icons on the display	-	1	0: None 1: Heating 2: Cooling	1	R / W
204	Display heating/cooling icon Set/reset the display of the heating and cooling icons.	-	1	0: Invisible 1: Visible	1	R / W
205	Warning icon function Set the functionality of the warning icon on the display.	-	1	0: Invisible 1: According to "Display warning icon" 2: According to "Device Error Status"	1	R / W
206	Window icon function Set the functionality of the window icon on the display	-	1	0: Invisible 1: According to "Display window icon" setting 2: -	1	R / W

Building operation mode

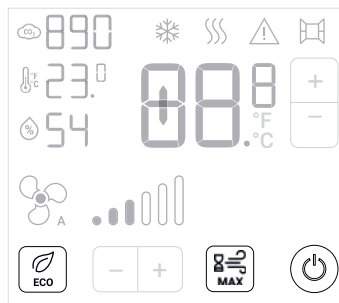


Figure 5: Switching between modes using the "ECO", "MAX" and "On/Off" button.

No.	Description Comments	Unit	Scaling	Values	Size	Access
72	System operation mode Set HVAC building operation mode	-	1	0: Off/Protection 1: On/Comfort 2: Eco Mode 3: Boost Mode	1	R / W

Digital input

No.	Description Comments	Unit	Scaling	Values	Size	Access
23	Digital Input Feedback of the digital input	-	1	0: Open 1: Closed	1	R

Data-Pool values

Air quality traffic light



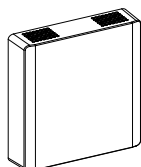
Figure 6: CO₂ traffic light for different models.

No.	Description Comments	Unit	Scaling	Values	Size	Access
21	Air quality status Status of measured air quality in the room/zone	–	1	0: Deactivated 1: Ok 2: Warning 3: Alarm	1	R
126	CO₂ limit for good air quality Set threshold value of CO ₂ concentration to switch between "good" (green LED) and "moderate" (yellow LED) state.	ppm	1	600...1'249	2	R / W
127	CO₂ limit for moderate air quality Set threshold value of CO ₂ concentration to switch between "moderate" (yellow LED) and "poor" (red LED) state.	ppm	1	1'250...2'000	2	R / W
128	Air quality indication Enable/disable CO ₂ traffic light	–	1	0: Disabled 1: Enabled	1	R / W

Device state

No.	Description Comments	Unit	Scaling	Values	Size	Access
11	Error State Error status of the device	–	1	Bit 0: Temperature sensor error Bit 1: Humidity sensor error Bit 2: CO ₂ sensor error Bit 3: Dewpoint calculation error The flag is reset automatically if the condition disappears.	1	R
30	Status Device	–	1	Bit 0: reserved Bit 1: reserved Bit 2: Sensor summary error (see ID 11 for details) Bit 3: reserved Bit 4: reserved Bit 5: reserved Bit 6: Sensors initializing (up to 10 s after power-up) The flag is reset automatically if the condition disappears.	2	R

Appendix: Data-Pool values for legacy room sensor series



This section contains the data-pool description for 22RT-19-1, 22RH-19-1 and 22RTM-19-1 produced before May 2022.

Legacy units can be visually identified by their punched ventilation opening.

No.	Description Comments	Unit	Scaling	Values	Size	Access
11	Error State Error status of the device	–	1	Bit 0: Temperature sensor fault Bit 1: RH sensor fault Bit 2: CO ₂ sensor fault The flag is reset automatically if the condition disappears.	1	R
14	SensTemp [UnitSel] Temperature in selected unit (ID 153)	UnitSel	0.01	0...5'000 (32...122°F)	2	R
16	SensRelHumid Relative humidity in percent	%	0.01	0...10'000	2	R
17	SensCO2 CO ₂ content in ppm	ppm	1	0...2'000	2	R
23	DigitalIn Digital input (e.g. presence detector)	–	–	0: (Open) 1: (Closed)	1	R
30	Status device	–	1	Bit 0: Reserved Bit 1: Reserved Bit 2: Sensor summary error (see ID 11 for details) Bit 3: Reserved Bit 4: Reserved Bit 5: reserved Bit 6: Sensors initializing (up to 20 s after power-up) The flag is reset automatically if the condition disappears.	2	R
33	DewPointTemp [UnitSel] Temperature of calculated dew point in selected unit (ID 153)	UnitSel	0.01	0...5'000 (32...122°F)	2	R
100	Position Alphanumeric character string to store the location of the device (optional, helpful for maintenance and troubleshooting).	–	–	One byte per character The string is not null terminated. Fill up unused bytes with 0x20 (space character).	64	R / W
110	OffsetTemp [UnitSel] Offset applied to measured temperature in selected unit	UnitSel	0.01	–1'500...1'500 (–2'700...2'700°F)	2	R / W
111	OffsetHumidity [%] Offset applied to measured relative humidity in percent	%	0.01	–2'000...2'000	2	R / W
112	OffsetCO2 [ppm] Offset applied to measured CO ₂ content in ppm	ppm	1	–500...500	2	R / W
113	OffsetDewPointTemp [UnitSel] Offset applied to calculated dew point temperature in selected unit	UnitSel	0.01	–1'500...1'500 (–2'700...2'700°F)	2	R / W
153	Unit Selection Temp Communication Unit applied for temperature values	–	1	0 = °C 1 = °F Default: 0 = °C	1	R / W

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.

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