BELIMO

Technical data sheet CQ24A-MPL

Communicative rotary actuator for zone valves

- Torque motor 1 Nm
- Nominal voltage AC/DC 24 V
- Control communicative
- Communication via Belimo MP-Bus
- Snap-assembly of the actuator
- Flow setting variable

MP-BUS

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	0.6 W
	Power consumption in rest position	0.4 W
	Power consumption for wire sizing	1.1 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Data bus communication	Communicative control	MP-Bus
	Number of nodes	MP-Bus max. 8 (16)
Functional data	Torque motor	1 Nm
	Manual override	with actuator (clicked out)
	Running time motor	75 s / 90°
	Sound power level, motor	35 dB(A)
	Position indication	Mechanical
	Flow setting	see product features
Safety data	Protection class IEC/EN	III, Safety Extra-Low Voltage (SELV)
	Degree of protection IEC/EN	IP40
	EMC	CE according to 2014/30/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Type of action	Type 1
	Rated impulse voltage supply / control	0.8 kV
	Pollution degree	2
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	5...40°C [41...104°F]
	Storage temperature	-40...80°C [-40...176°F]
	Servicing	maintenance-free
Weight	Weight	0.21 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea) water, snow, ice, insolation or aggressive gases interfere directly with the device and that it is ensured that the ambient conditions remain within the thresholds according to the data sheet at any time.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- Cables must not be removed from the device.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Mode of operation

The actuator receives its digital control signal from the higher level controller via the MP-Bus and drives to the position defined. Connection MP serves as communication interface and does not supply an analogue measuring voltage.

Note: Neither a conventional operation with a standard signal nor a parametrisation of signals (e.g. running time) is possible. With the parametrisation devices a functional check can be executed and the MP adress can be assigned.

When controlling CQ(K) actuators, it must be ensured that via MP-Bus, the setpoint steps are specified in whole percentages.

Simple direct mounting

Tool-free snap assembly.

The actuator can be plugged on the valve by hand (Caution! Just vertical movements). Pins must match the holes on the flange.

The mounting orientation in relation to the valve can be selected in 180° increments. (Possible two times)

Manual override

Click out the actuator and rotate the valve spindle with the help of the actuator.

Adjustable angle of rotation

The angle of rotation of the actuator can be changed by clip in 2.5° increments. This is used to set the maximum flow rate of the valve.

High functional reliability

The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Flow setting

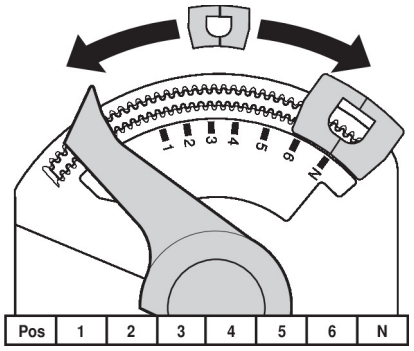
Adjustable kv-values (C2..Q-.., C4..Q-..) are given in the respective zone valve data sheets.

2-way valve: Remove end stop clip and place at desired position.

3-way valve: Remove end stop clip (change-over application).

6-way valve: Remove end stop clip (cooling and heating application).

After every change of the flow setting by means of end stop clip, an adaptation must be triggered on the modulating actuators.



Accessories

Gateways	Description	Type
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
Electrical accessories	**Description**	**Type**
	MP-Bus power supply for MP actuators	ZN230-24MP
Mechanical accessories	**Description**	**Type**
	Spindle extension CQ	ZCQ-E
	Housing cover CQ, Colour: white (RAL 9010)	ZCQ-W
	End stop clip, Multipack 5 pcs.	ZCQ-C
	End stop clip, Multipack 20 pcs.	Z-ESCM
Tools	**Description**	**Type**
	Service Tool, with ZIP-USB function, for parametrisable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH EU
	Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
	Adapter for Service-Tool ZTH	MFT-C
	Connecting cable 5 m, A: RJ11 6/4 ZTH EU, B: free wire end for connection to MP/PP terminal	ZK2-GEN

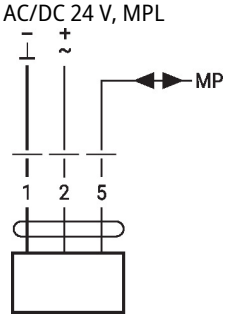
Electrical installation

Supply from isolating transformer.

Parallel connection of other actuators possible. Observe the performance data.

Wire colours:
1 = black
2 = red
5 = orange

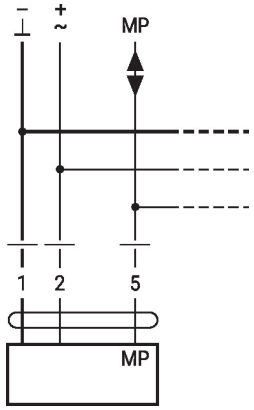
Wiring diagrams
AC/DC 24 V, MPL



Functions

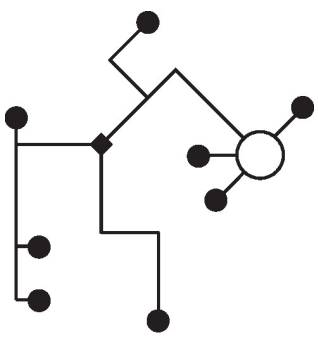
Functions with specific parameters (Parametrisation necessary)

Connection on the MP-Bus



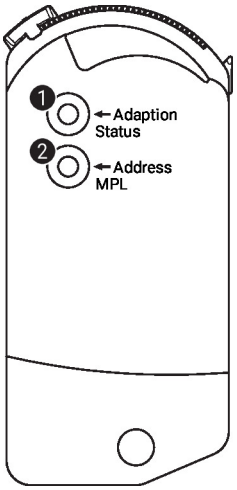
Max. 8 additional actuators

MP-Bus Network topology



There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).
Supply and communication in one and the same 3-wire cable
• no shielding or twisting necessary
• no terminating resistors required

Operating controls and indicators



1 Push-button and LED display yellow

On:	Angle of rotation adaptation active
Press button:	Triggers angle of rotation adaptation, followed by standard mode

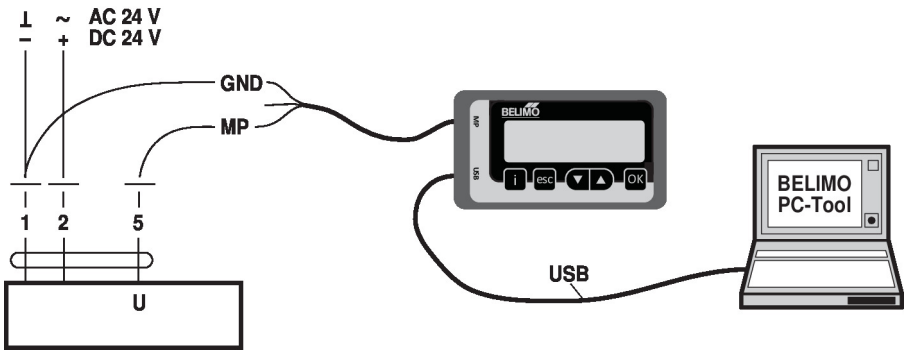
2 Push-button and LED display green

Off:	No power supply or no MP-Bus level
On:	Power supply and MP-Bus level OK
Flickering:	MP-Bus communication active
Flashing:	Depiction of MP address (command from MP client)
- continous:	No MP address set
- with breaks:	Pulse in accordance with MP address (e.g. 5 = MP5)
Press button:	Confirmation of the addressing

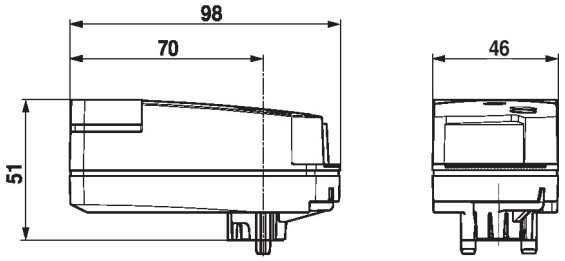
Service

Tools connection

The actuator can be parametrised by ZTH EU via terminal connection.
For extended parametrisation the PC tool can be connected.



Dimensions



Further documentation

- Overview MP Cooperation Partners
- Tool connections
- Introduction to MP-Bus Technology
- The complete product range for water applications
- Data sheet for zone valves
- Installation instructions for zone valves and actuators
- General notes for project planning