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

Picture may differ from product

## 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, 3x 0.75 $mm^2$ |
| | 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 if no (sea) water, snow, ice, sunlight or aggressive gases act directly on the device and if it is ensured that the ambient conditions remain within the limit values specified in the data sheet at all times.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with 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

**Operating mode**

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 configuration of signals (e.g. running time) is possible. With the configuration 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.

**Configurable device**

The factory settings cover the most common applications. Single parameters can be modified with Belimo Assistant 2.

**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**

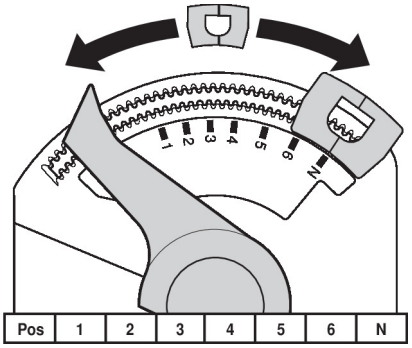
Adjustable Kv values (C2..Q-.., C4..Q-..) / V'max values (C2..QP(T)-..) are given in the respective zone valve data sheets.

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

| Tools | Description | Type |
|---|---|---|
| | Service tool for wired and wireless setup, on-site operation and troubleshooting. | Belimo Assistant 2 |
| | Belimo Assistant Link Bluetooth and USB to NFC and MP-Bus converter for configurable and communicative devices | LINK.10 |
| | Connecting cable 5 m, A: RJ11 6/4 LINK.10, B: 6-pin for connection to service socket | ZK1-GEN |
| | Connecting cable 5 m, A: RJ11 6/4 LINK.10, B: free wire end for connection to MP/PP terminal | ZK2-GEN |

| Electrical accessories | Description | Type |
|---|---|---|
| | MP-Bus power supply for MP actuators | ZN230-24MP |

| Gateways | Description | Type |
|---|---|---|
| | Gateway MP to BACnet MS/TP | UK24BAC |
| | Gateway MP to Modbus RTU | UK24MOD |

| 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 |

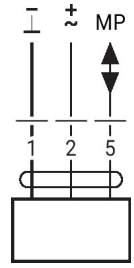
## Electrical installation

**Supply from isolating transformer.**

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

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

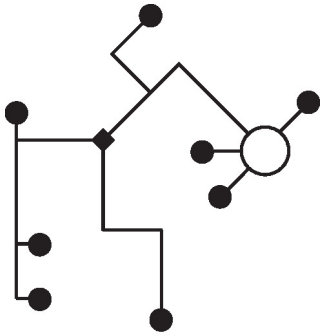
AC/DC 24 V, MPL



## Further electrical installations

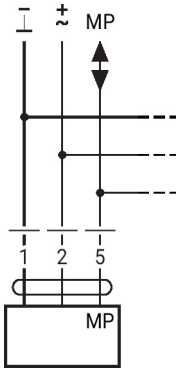
### MP-Bus

MP-Bus Network topology



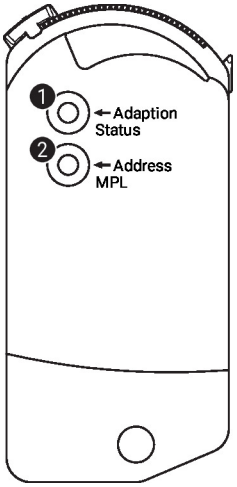
There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).
Supply and communication in one and the same 3-wire cable
• no shielding or twisting necessary
• no terminating resistors required

Connection on the MP-Bus




Max. 8 (16) additional actuators

## 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 |

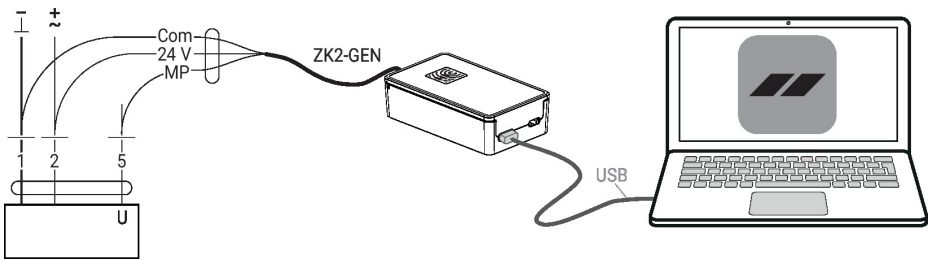
## Service

Using Belimo Assistant 2, device parameters can be modified. Belimo Assistant 2 can operate on a smartphone, tablet or PC. The available connection options vary depending on the hardware on which Belimo Assistant 2 is installed.

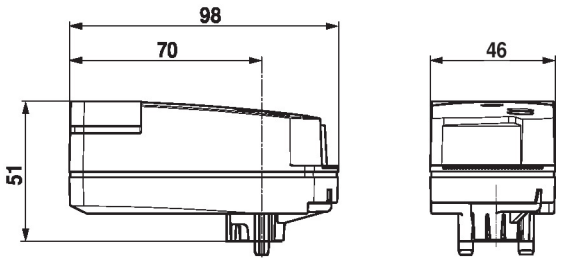
For more information about Belimo Assistant 2, refer to the Quick Guide – Belimo Assistant 2.

**Wired connection**

Belimo devices can be accessed by connecting Belimo Assistant Link to the USB port on a PC or laptop and to the Service Socket or MP-Bus wire on the device.



## 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
- Quick Guide – Belimo Assistant 2