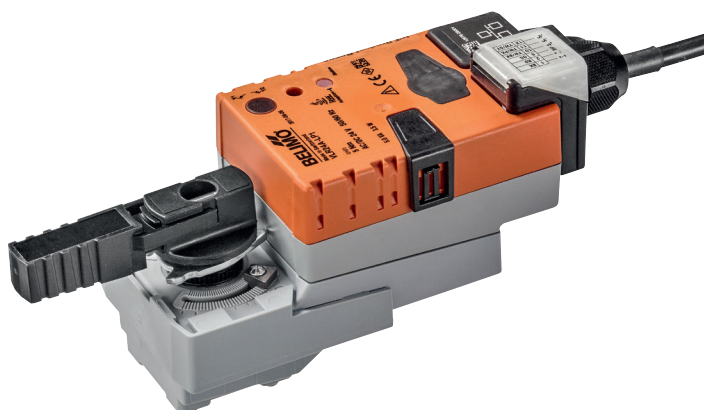


Cloud capable and communicative rotary actuator for ball valves

- Torque motor 5 Nm
- Nominal voltage AC/DC 24 V
- Control modulating, communicative, hybrid, Cloud
- Conversion of sensor signals
- Ethernet 10/100 Mbit/s, TCP/IP, integrated web server
- Communication via BACnet IP, Modbus TCP and Cloud


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 | 4 W |
| | Power consumption in rest position | 3 W |
| | Power consumption for wire sizing | 6 VA |
| | Connection supply / control | Cable 1 m, 6 x 0.5 mm ² |
| | Connection control Ethernet | RJ45 socket |
| | Parallel operation | Yes (note the performance data) |
| Functional data | Torque motor | 5 Nm |
| | Communicative control | Cloud BACnet IP Modbus TCP |
| | Operating range Y | 2...10 V |
| | Input Impedance | 34 kΩ |
| | Operating range Y variable | 0.5...10 V |
| | Position accuracy | ±5% |
| | Manual override | with push-button, can be locked |
| | Running time motor | 90 s / 90° |
| | Running time motor variable | 35...420 s |
| | Adaptation setting range | manual |
| | Sound power level, motor | 35 dB(A) |
| Position indication | Mechanically, pluggable | |
| Safety | Protection class IEC/EN | III Safety Extra-Low Voltage (SELV) |
| | Degree of protection IEC/EN | IP40 |
| | Degree of protection note | IP54 when using protective cap or protective grommet for RJ45 socket |
| | EMC | CE according to 2014/30/EU |
| | Mode of operation | Type 1 |
| | Rated impulse voltage supply / control | 0.8 kV |
| | Control pollution degree | 3 |
| | Ambient temperature | -30...50 °C |
| | Storage temperature | -40...80 °C |
| | Ambient humidity | Max. 95% r.H., non-condensing |
| | Servicing | maintenance-free |
| | Weight | Weight |

Safety notes



- The device must not be used outside the specified field of application, especially not 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 actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section, the design, the installation site and the ventilation conditions must be observed.
- 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 is controlled via the Cloud, BACnet IP or Modbus TCP and drives to the position defined by the control signal. Various data points can be written and read via the same interfaces.

Hybrid mode:

The actuator receives its analog control signal from the higher level controller and drives to the position defined. Using the Cloud, BACnet IP or Modbus TCP, various data points can be read and with the exception of the control signal written.

Converter for sensors Connection option for two sensors (passive sensor, active sensor or switching contact). The actuator serves as an analogue/digital converter for the transmission of the sensor signal to the higher level system.

Communication The parametrisation can be carried out through the integrated web server (RJ45 connection to the web browser), by communicative means or via the Cloud. Additional information regarding the integrated web server can be found in the separate documentation.

"Peer to Peer" connection

<http://belimo.local:8080>

The Notebook must be set to "DHCP".

Make sure that only one network connection is active.

Standard IP address:

<http://192.168.0.10:8080>

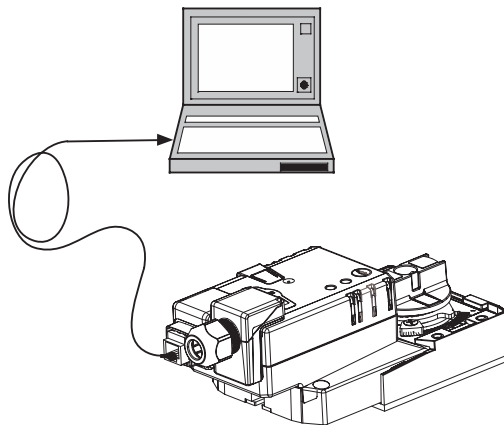
Static IP address

Password (read-only):

User name: «guest»

Password: «guest»

Simple direct mounting



Straightforward direct mounting on the ball valve with only one central screw. The assembly tool is integrated in the plug-in position indication. The mounting orientation in relation to the ball valve can be selected in 90° steps.

Data recording

The recorded data (integrated data recording for 13 months) can be used for analytical purposes.

Download csv files via web browser.

Manual override

Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable angle of rotation

Adjustable angle of rotation with mechanical end stops.

Product features

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

Home position The first time the supply voltage is switched on, i.e. at the time of commissioning, the actuator carries out an adaption, which is when the operating range and position feedback adjust themselves to the mechanical setting range. The actuator then moves into the position defined by the positioning signal.

Adaption and synchronisation An adaption can be triggered manually by pressing the “Adaption” button. Both mechanical end stops are detected during the adaption (entire setting range). The actuator then moves into the position defined by the positioning signal.

Accessories

| | Description | Type |
|-------------------------------|---|----------|
| Electrical accessories | Grommet for RJ connection module, | Z-STRJ.1 |
| | Connection cable 5 m, A: RJ11 6/4 ZTH EU, B: 6-pin service socket for Belimo device | ZK1-GEN |
| Service Tools | Description | Type |
| | Service Tool, with ZIP-USB function | ZTH EU |

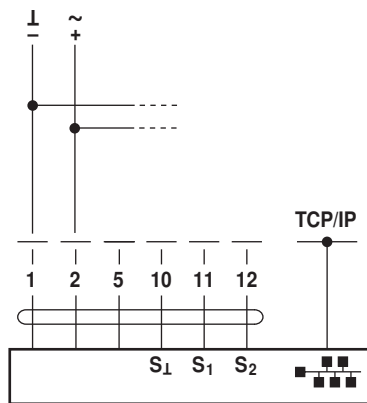
Electrical installation

Notes

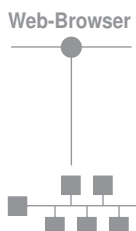
- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V



Cable colours:
 1 = black
 2 = red
 5 = orange
 10 = yellow-black
 11 = yellow-pink
 12 = yellow-grey



Connection of a notebook for parameterisation and manual control via RJ45.

Optional connection via RJ45 (direct connection Notebook / connection via Intranet or Internet) for access to the integrated web server

Functions



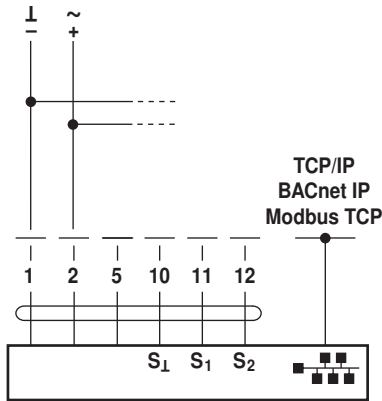
Notes

- The connection diagrams shows connections for the first sensor on terminal S1, while the second sensor can be connected identically on terminal S2.
- Parallel use of different sensor types is permitted.
- For hybrid operation, S1 is used for the control signal Y and must be configured as an active sensor.

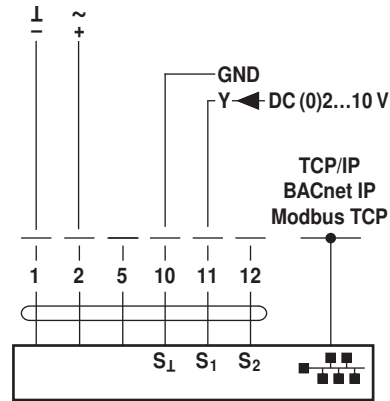
Functions for devices with specific parameters (Parametrisation necessary)

TCP/IP (Cloud) / BACnet IP / Modbus TCP

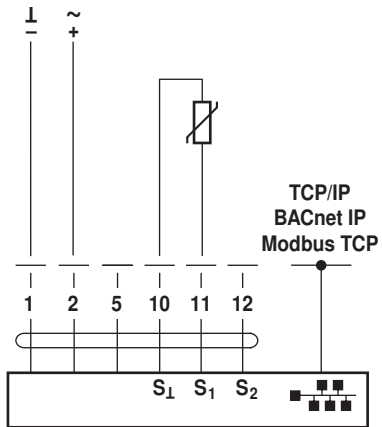
TCP/IP (Cloud) / BACnet IP / Modbus TCP with analogue setpoint (Hybrid operation)



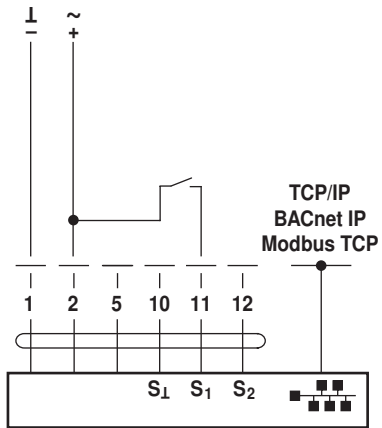
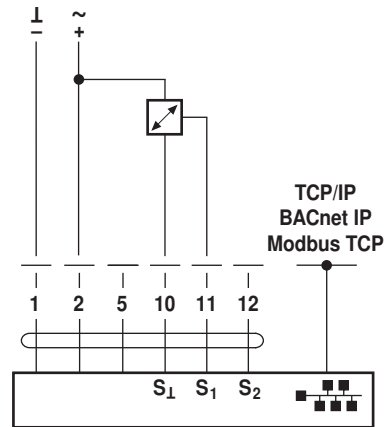
Connection of passive sensors



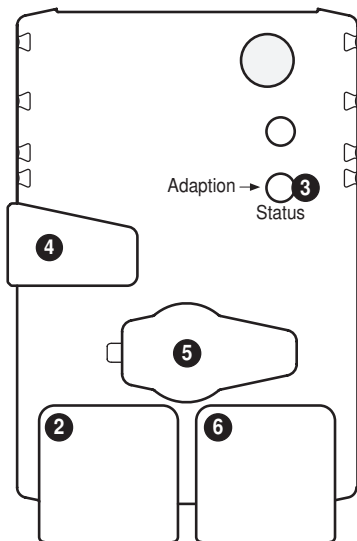
Connection of active sensors



Switching contact connection



Operating controls and indicators



2 LED display green

Off: No power supply or wiring errors
 On: Actuator starts operation
 Flickering: In operation

3 Push-button and LED display orange

Off: Standard mode
 On: Adaptation or synchronising process active
 Press button: Triggers angle of rotation adaptation, followed by standard mode

4 Gear disengagement button

Press button: Gear disengages, motor stops, manual override possible
 Release button: Gear engages, synchronisation starts, followed by standard mode

5 Service plug

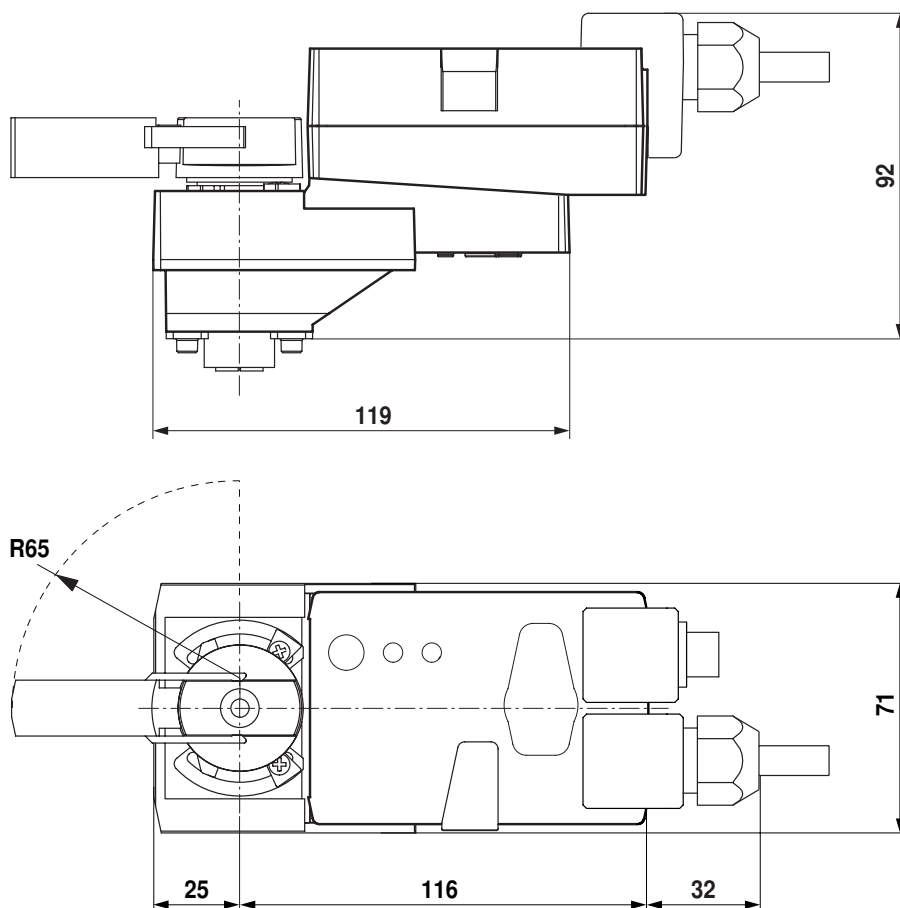
For the connection of ZTH EU

6 RJ45 socket

For the connection of TCP/IP (Cloud), BACnet IP and Modbus TCP

Dimensions [mm]

Dimensional drawings



Further documentation

- General notes for project planning
- Instruction Webserver
- Description Protocol Implementation Conformance Statement PICS
- Description Modbus register
- Description clientAPI