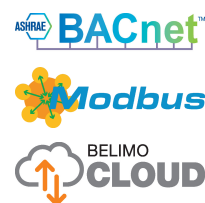


- Air damper size up to approx. 8 m²
- Torque motor 40 Nm
- Nominal voltage AC/DC 24 V
- Control modulating, communicative, hybrid, Cloud
- Communication via BACnet/IP, Modbus TCP and Cloud
- Ethernet 10/100 Mbit/s, TCP/IP, integrated web server
- Conversion of sensor signals



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 | 5.5 W |
| | Power consumption in rest position | 1.6 W |
| | Power consumption for wire sizing | 8 VA |
| | Connection supply / control | Cable 1 m, 6x 0.5 mm ² |
| | Connection Ethernet | RJ45 socket |
| | Parallel operation | Yes (note the performance data) |
| Data bus communication | Communicative control | Cloud BACnet/IP Modbus TCP |
| | Number of nodes | BACnet / Modbus see interface description |
| Functional data | Torque motor | 40 Nm |
| | Operating range Y | 2...10 V |
| | Input impedance | 34 kΩ |
| | Operating range Y variable | 0.5...10 V |
| | Position accuracy | ±5% |
| | Direction of motion motor | selectable with switch 0/1 |
| | Direction of motion note | Y = 0%: At switch position 0 (ccw rotation) / 1 (cw rotation) |
| | Manual override | with push-button, can be locked |
| | Angle of rotation | 95° |
| | Angle of rotation note | can be limited on both sides with adjustable mechanical end stops |
| | Running time motor | 150 s / 90° |
| | Running time motor variable | 75...290 s |
| | Sound power level, motor | 45 dB(A) |
| | Adaptation setting range | manual |
| Mechanical interface | Universal shaft clamp reversible 12...26.7 mm | |
| Position indication | Mechanical, pluggable | |
| Safety data | Protection class IEC/EN | III, Safety Extra-Low Voltage (SELV) |
| | Degree of protection IEC/EN | IP40 IP54 when using protective cap or protective grommet for RJ45 socket |
| | EMC | CE according to 2014/30/EU |

Technical data

| | | |
|--------------------|--|--|
| Safety data | Hygiene test | According to VDI 6022 Part 1 / SWKI VA 104-01, cleanable and disinfectable, low emission |
| | Type of action | Type 1 |
| | Rated impulse voltage supply / control | 0.8 kV |
| | Pollution degree | 3 |
| | Ambient humidity | Max. 95% RH, non-condensing |
| | Ambient temperature | -30...50°C [-22...122°F] |
| | Storage temperature | -40...80°C [-40...176°F] |
| | Servicing | maintenance-free |
| Weight | Weight | 1.5 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 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section and the design, as well as the installation situation 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.

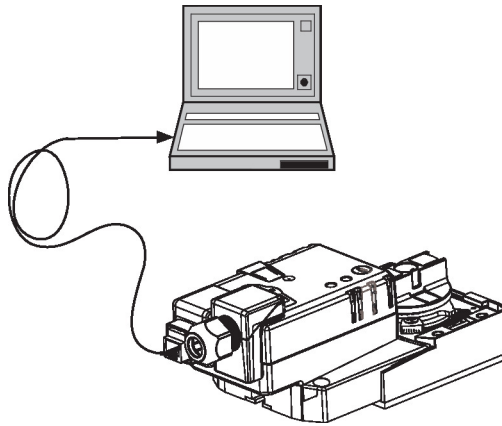
Product features

| | |
|------------------------------|---|
| Operating mode | <p>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.</p> <p>Hybrid mode:</p> <p>The actuator receives its analogue 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.</p> |
| Converter for sensors | <p>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.</p> |

Product features

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 Simple direct mounting on the damper shaft with a universal shaft clamp, supplied with an anti-rotation device to prevent the actuator from rotating.

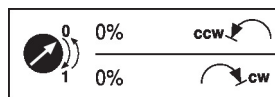
Data recording The recorded data (integrated data recording for 13 months) can be used for analytical purposes.
Download csv files via web browser.

Manual override Manual override with push-button possible (the gear train 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.

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 adaptation, 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 control signal.



Adaptation and synchronisation An adaptation can be triggered manually by pressing the "Adaptation" button. Both mechanical end stops are detected during the adaptation (entire setting range).
The actuator then moves into the position defined by the control signal.

Accessories

| Tools | Description | Type |
|------------------------|---|----------|
| | Service tool, with ZIP-USB function, for parametrisable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH EU |
| | Connecting cable 5 m, A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket | ZK1-GEN |
| Electrical accessories | Description | Type |
| | Grommet for RJ connection module, Multipack 50 pcs. | Z-STRJ.1 |

Electrical installation



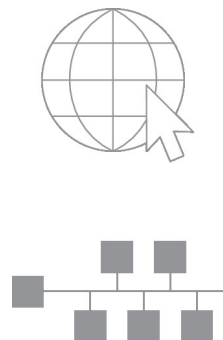
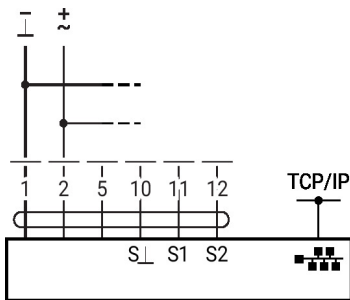
Supply from isolating transformer.
Parallel connection of other actuators possible. Observe the performance data.

Wire colours:

- 1 = black
- 2 = red
- 5 = orange
- 10 = yellow/black
- 11 = yellow/pink
- 12 = yellow/grey

Wiring diagrams

AC/DC 24 V



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

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

Functions



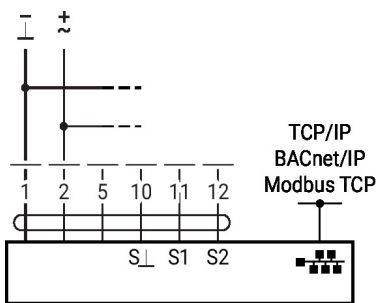
The connection diagrams shows connections for the first sensor on terminal S1, while the second sensor can be connected identically on terminal S2.

Parallel use of different sensor types is permitted.

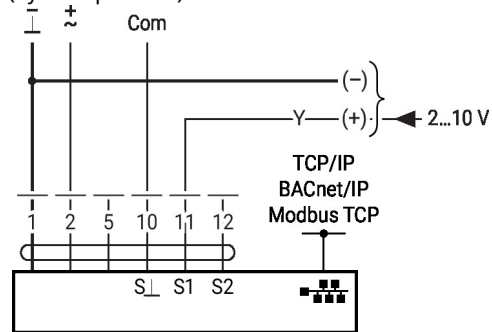
For hybrid operation, S1 is used for the control signal Y and must be configured as an active sensor.

Functions with specific parameters (Parametrisation necessary)

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



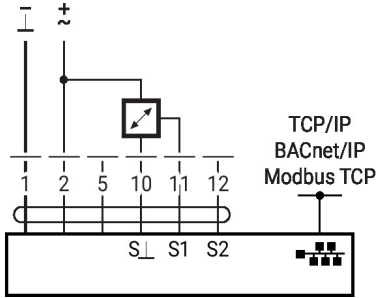
TCP/IP (Cloud) / BACnet/IP / Modbus TCP with analogue setpoint (hybrid operation)



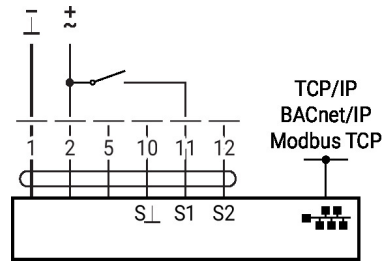
Functions

Functions with specific parameters (Parametrisation necessary)

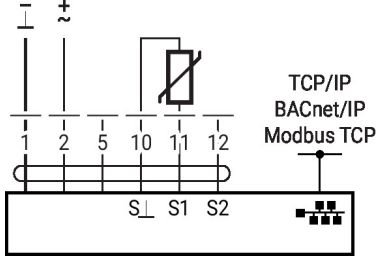
Connection of active sensors



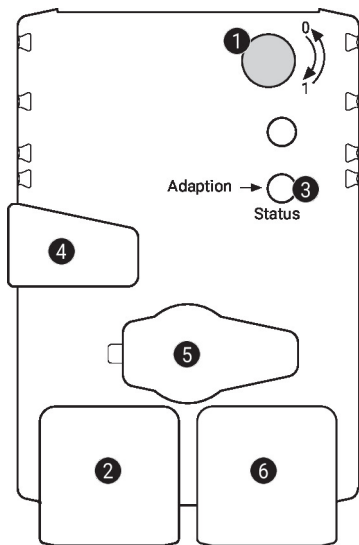
Switching contact connection



Connection of passive sensors



Operating controls and indicators



1 Direction of rotation switch

Switch over: Direction of rotation changes

2 LED display green

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

3 Push-button and LED display yellow

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

4 Manual override button

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

5 Service plug

For connecting parametrisation and service tools

6 RJ45 socket

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

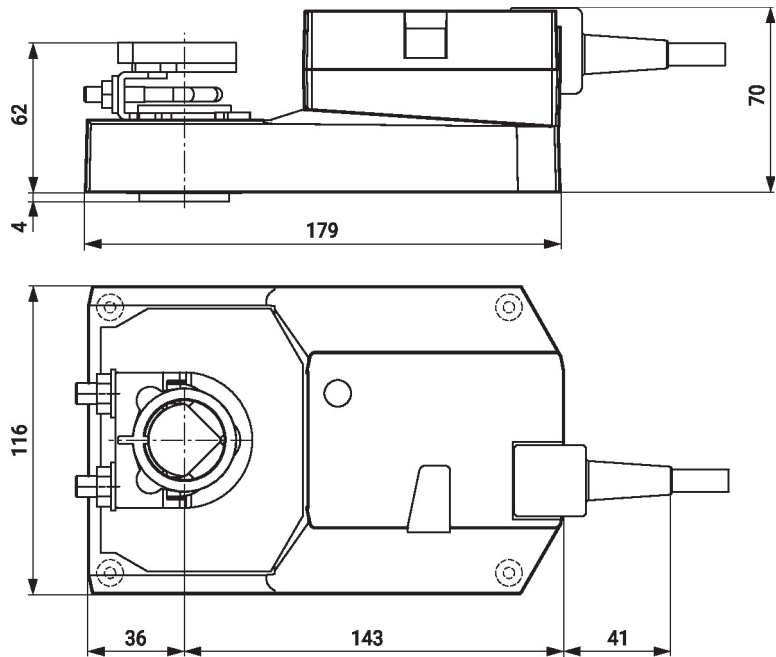
Dimensions

Spindle length

| | |
|--|---------|
| | Min. 52 |
| | Min. 20 |

Clamping range

| | | |
|--|-----------|---------|
| | | |
| | 12...22 | 12...18 |
| | | |
| | 22...26.7 | 12...18 |



Further documentation

- General notes for project planning
- Instruction Webserver
- BACnet Interface description
- Modbus Interface description
- Description clientAPI