BELIMO

Technical data sheet VSRF24A-LP1

Cloud capable and communicative rotary actuator for ball valves

- Torque motor 20 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

BACnet Modbus BELIMO 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	9.5 W
	Power consumption in rest position	3.5 W
	Power consumption for wire sizing	14 VA
	Connection supply / control	Cable 1 m, 6 x 0.5 mm²
	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	20 Nm
	Torque fail-safe	20 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	Y = 0 (0 V = A – AB = 0%)
	Direction of motion fail-safe	Deenergised NC, valve closed (A – AB = 0%)
	Manual override	by means of hand crank and locking switch
	Running time motor	90 s / 90°
	Running time motor variable	40...150 s
	Running time fail-safe	<20 s @ -20...50°C / <60 s @ -30°C
	Adaptation setting range	manual
	Sound power level, motor	45 dB(A)
	Position indication	Mechanical
	Service life	Min. 60'000 fail-safe positions
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
	Mode of operation	Type 1.AA
	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]

Safety data	Storage temperature	-40...80°C [-40...176°F]
	Servicing	maintenance-free
Weight	Weight	2.3 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section, the design, 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.

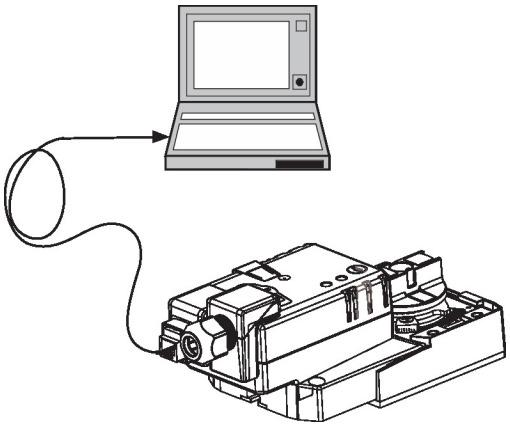
Product features

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
Simple direct mounting on the ball valve with only one screw. 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
By using the hand crank the valve can be operated manually and engaged with the locking switch at any position. Unlocking is carried out manually or automatically by applying the operating voltage.

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.

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

Electrical accessories

Description	Type
Grommet for RJ connection module, Multipack 50 pcs.	Z-STRJ.1

Tools

Description	Type
Service Tool, with ZIP-USB function, for parametrisable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH EU
Connection cable 5 m, A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket	ZK1-GEN

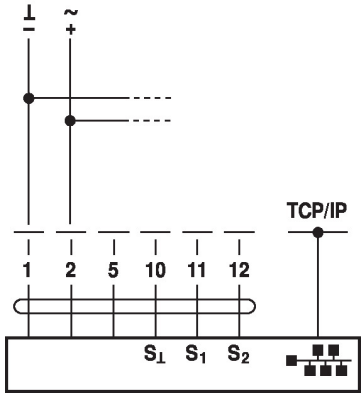
Electrical installation

Supply from 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 parametrisation 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

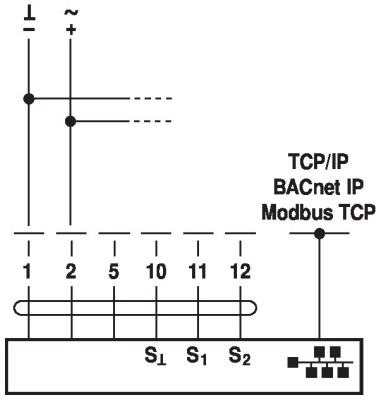
The connection diagrams shows connections for the first sensor on terminal S1, while the second sensor can be connected identically on terminal S2.

Parallel use of different sensor types is permitted.

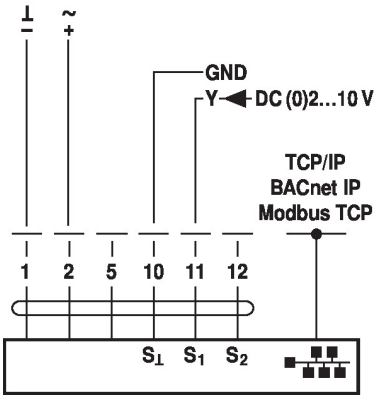
For hybrid operation, S1 is used for the control signal Y and must be configured as an active sensor.

Functions with specific parameters (parametrisation necessary)

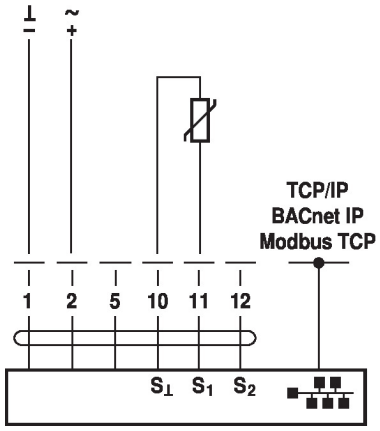
TCP/IP (Cloud) / BACnet IP / Modbus TCP



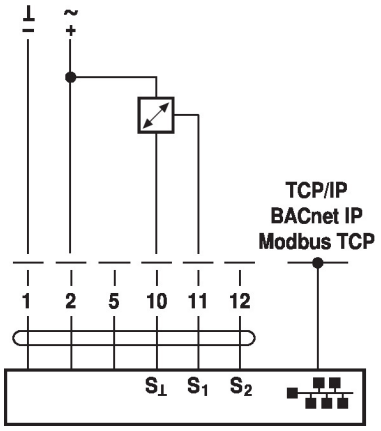
TCP/IP (Cloud) / BACnet IP / Modbus TCP with analogue setpoint (hybrid operation)



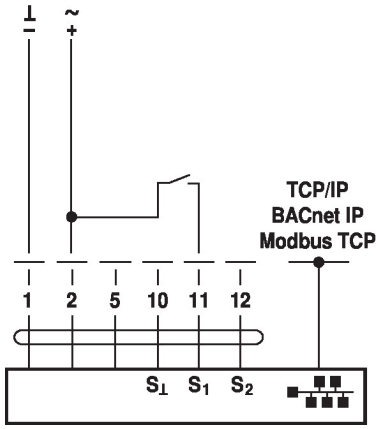
Connection of passive sensors



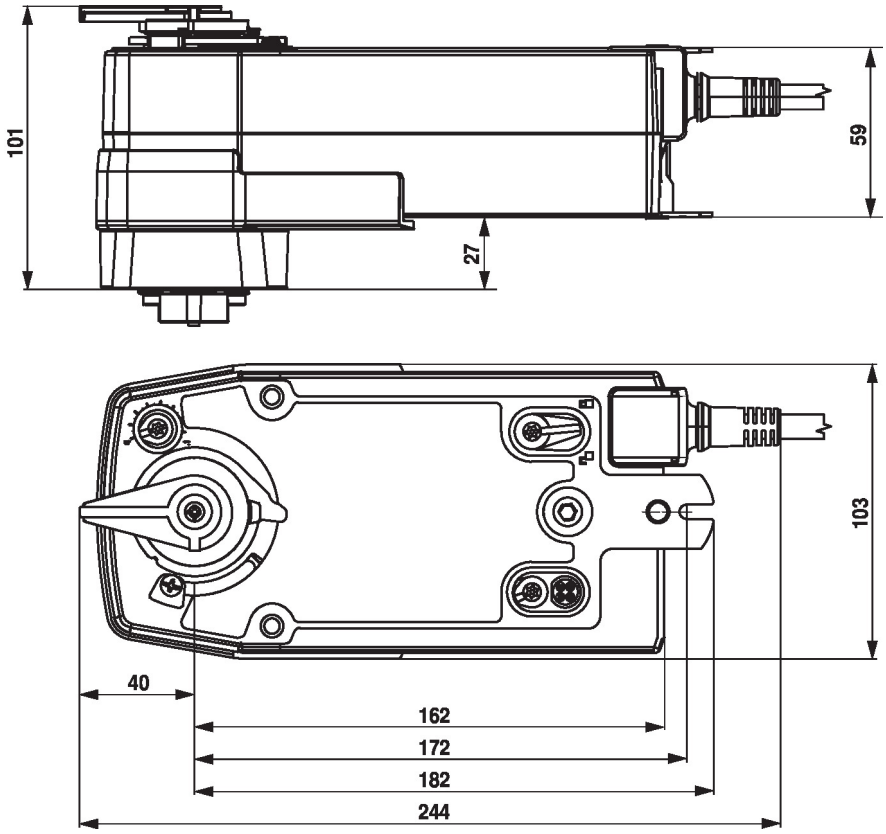
Connection of active sensors



Switching contact connection



Dimensions



Further documentation

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