

Rotary actuator for butterfly valves

- Torque 40 Nm
- Nominal voltage AC/DC 24 V-Control: Modulating DC 0 ... 10 V or variable
- Position feedback DC 2 ... 10 V or variable



Technical data			
Electrical data			
Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V		
Power supply range	AC 19.2 28.8 V / DC 21.6 28.8 V		
Power consumption Operation	4.5 W at nominal torque		
At rest	1.5 W		
Rating	7 VA		
Connection	Cable 1 m, 4 x 0.75 mm ²		
Functional data	Factory settings	Variable	Settings
Torque (nominal torque)	Min. 40 Nm at nominal voltage	25%, 50%, 75% reduced	
Control Control signal Y	DC 0 10 V, input impedance 100 k Ω	Open-close / 3-point (AC only)	
Working range	DC 2 10 V	Starting point DC 0.5 30 V End point DC 2.5 32 V	
Position feedback (measuring voltage U)	DC 2 10 V, max. 0.5 mA	Starting point DC 0.5 8 V End point DC 2.5 10 V	
Uni-rotation	±5%		
Running time	90 s / 90°⊲	90 290 s	
Automatic adjustment of running time, operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the "Adaption" button or with the PC-Tool	Automatic adaptation whenever the supply voltage is switched on, or manual triggering	
Angle of rotation limiting	MAX (maximum position) = 100% MIN (minimum position) = 0% ZS (intermediate position, only AC) = 50%	MAX = (MIN + 30°<) 100% MIN = 0% (MAX − 30°<) ZS = MIN MAX	
Sound power level	Max. 45 dB (A)	with a running 75 s = 50 dB (A) time of 290 s < 40 dB (A)	
Position indication	Mechanical, plug-on		
Safety			
Protection class	III Safety extra-low voltage		
Degree of protection	IP54 in all mounting positions		
EMC	CE according to 89/336/EEC		
Mode of operation	Type 1 (in acc. with EN 60730-1)		
Rated impulse voltage	0.8 kV (in acc. with EN 60730-1)		
Control pollution degree	3 (in acc. with EN 60730-1)		
Ambient temperature range	+0 +50 °C		
Media temperature	-20 +100 °C in the butterfly valve		
Non-operating temperature range	-40 +80 °C		
Ambient humidity range	95% RH, non-condensating (acc. to EN 60730-1)		
Maintenance	Maintenance-free		
Dimensions / weight			
Dimensions	See "Dimensions" on page 5		
Weight approx. 2500 g			

www.belimo.com 1



Safety notes



- The damper actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel. All applicable legal or institutional installation regulations must be complied with.
- 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.
- The cable is not allowed to be removed from the unit.
- When calculating the torque required, the specifications supplied by the damper manufacturers concerning the cross section, design and installation site, and the air flow conditions must be observed.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. The local and currently valid regulations and requirements must be observed.

Product features

Mode of operation

The actuator is controlled with a standard modulating signal of DC 0 ... 10 V and travels to the position defined by the control signal. Measuring voltage U serves for the electrical display of the actuator position 0 ... 100% and as slave control signal for other actuators.

Parameterisable actuators

The factory settings cover the most common applications. Input and output signals and other parameters can be altered with the MFT-H parameterising device or the BELIMO Service Tool, MFT-P.

Simple direct mounting

Simple direct mounting on a butterfly valve with ISO 5211-F07 mounting flange. The mounting position in relation to the butterfly valve can be selected in 90°

steps.

Manual override

Manual override with self-resetting pushbutton possible (the gear is disengaged for as long as the button is pressed).

Adjustable angle of rotation

Adjustable angle of rotation with mechanical end stops.

High functional reliability

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

ISO 5211 - F07 Butterfly valve D6.. For BELIMO F07 butterfly valve D6 and other dampers with the following mechanical specifications:

- Square stem head (17 mm) for form-fit attachment of the rotary actuator.
- Hole circle (d = 70 mm) for assembly with the butterfly valve.

Home position

When the supply voltage is switched on for the first time, i.e. at commissioning or after pressing the "gear disengagement" switch, the actuator travels to the home position. Factory setting: Y2 (counter-clockwise rotation)

Rotary actuator	Rotary valve
→ Y2	A - AB = 0%
Y1 🕍	A – AB = 100%

The actuator then moves into the position defined by the control signal.

Accessories

Electrical accessories

Description	Data sheet
Auxiliary switch SA	T2 - SA
Feedback potentiometer PA	T2 - PA
Manual parameterising device MFT-H	T2 - MFT-H
PC-Tool MFT-P	T2 - MFT-P

www.belimo.com

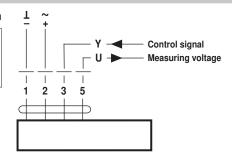


Electrical installation

Wiring diagram

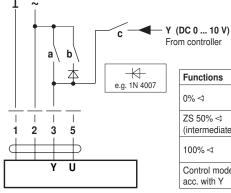
Notes

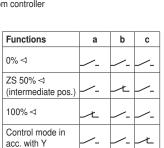
- Connect via safety isolation transformer.
- · Parallel connection of other actuators possible. Note the performance data.



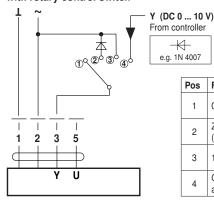
Functions with basic values

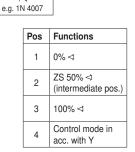
Override control with AC 24 V with relay contacts



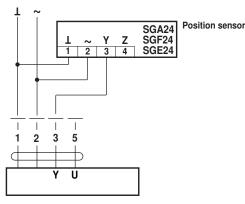


Override control with AC 24 V with rotary control switch

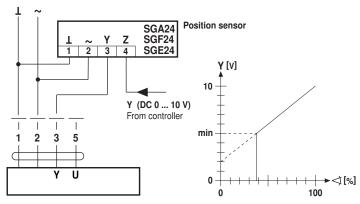




Remote control 0 ... 100 %

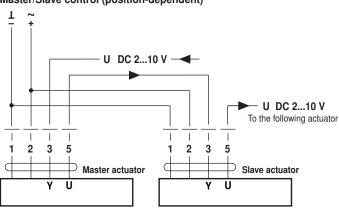


Minimum limit

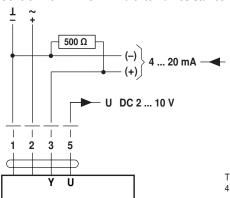


-K1-

Master/Slave control (position-dependent)



Control with 4 ... 20 mA via external resistance



The 500 Ω resistor converts the 4 ... 20 mA current signal to a voltage signal DC 2 ... 10 V

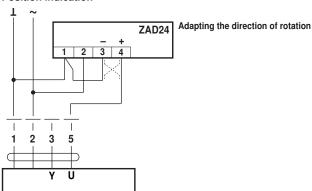
www.belimo.com



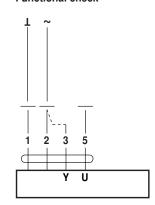
Functions with basic values

(continued)

Position indication



Functional check

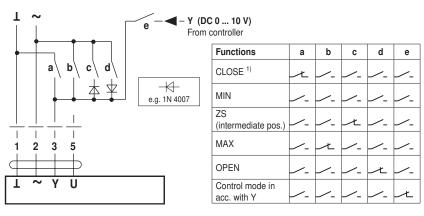


Procedure

- · Apply AC 24 A to connection 1 and 2
- · Disconnect connection 3:
 - For direction of rotation 0:
 Actuator turns in the direction of
- For direction of rotation 1:
 Actuator turns in the direction of
- Short circuit connections 2 and 3:
 - Actuator runs in the opposite direction

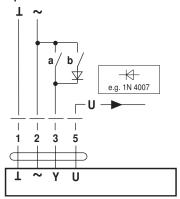
Functions for actuators with specific parameters

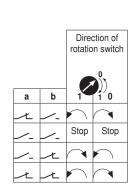
Override control and limiting with AC 24 Vwith relay contacts



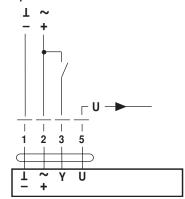
1) Caution! This function is only guaranteed if the start point of the operating range is defined as min. 0.6 V.

3-point control





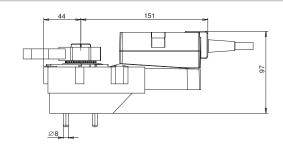
Open/close control

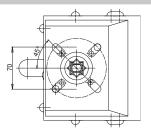


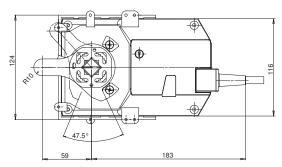


Dimensions [mm]

Dimensional diagrams







Operating controls and indicators



1 Direction of rotation switch

Switching over: Direction of rotation changes

2 Pushbutton and green LED display

Off: No voltage supply or fault

Green, on: Operation

Press button: Switches on angle of rotation adaptation followed by standard operation

3 Pushbutton and yellow LED display

Off: Standard operation

Yellow, on: Adaptation or synchronising process active

Press button: No function

4 Gear disengagement switch

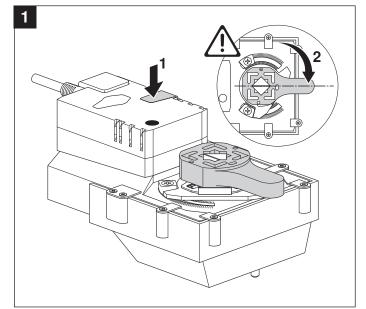
Press button: Gear disengaged, motor stops, manual operation possible

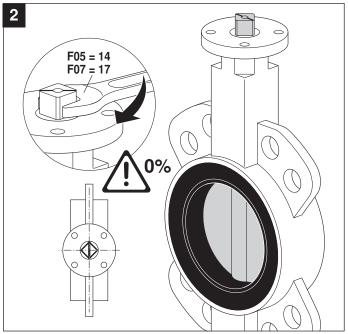
Release button: Gear engaged, synchronisation starts, followed by standard operation

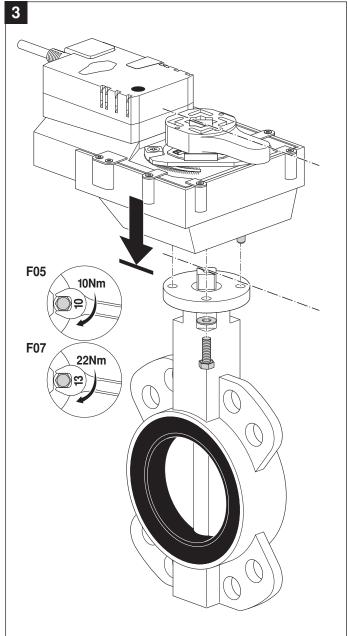
(5) Service plug

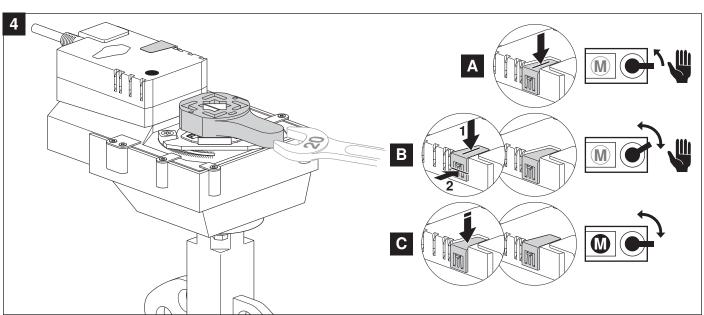
For connecting parameterising and service tools



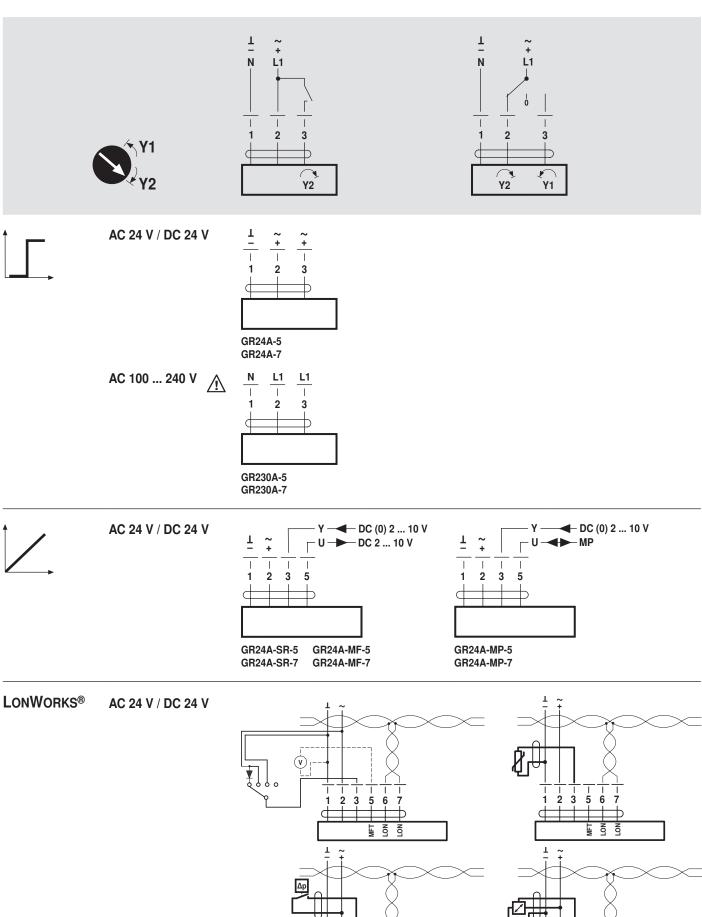












3 5 6

MFT

PON

-5 6

M

LON