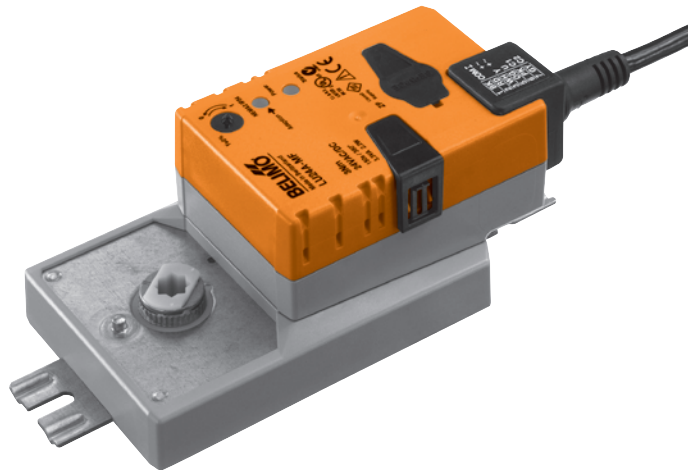


Multifunctional full-rotation actuator for operating air control dampers and shutters in ventilation and air-conditioning systems for building services installations

- For air control dampers up to approx. 0.6 m²
- Torque 3 Nm
- Nominal voltage AC/DC 24 V
- Control: Modulating DC 0 ... 10 V or variable
- Position feedback DC 2 ... 10 V or variable
- Spindle driver: Form-fit 12 mm or 8 mm (with insert)


Technical data
Electrical data

Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
Nominal voltage range	AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
Power consumption	In operation 2 W @ nominal torque
	At rest 1.2 W
	For wire sizing 3.5 VA
Connection	Cable 1 m, 4 x 0.75 mm ²

Functional data	Factory settings	Variable	Settings
Torque (nominal torque)	Min. 3 Nm @ nominal voltage	25%, 50%, 75% reduced	.....
Control Control signal Y	DC 0 ... 10 V, input impedance 100 kΩ	Open-close, 3-point (AC only)	.....
Operating range	DC 2 ... 10 V	Start 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	Start point DC 0.5 ... 8 V	.....
		End point DC 2.5 ... 10 V	.....
Position accuracy	±5%		
Direction of rotation	Can be selected with switch 0 / 1		
Direction of motion at Y = 0 V	In switch position 0 ↺ bzw. 1 ↻	Electronically reversible	.....
Manual override	Gearing latch disengaged with pushbutton, detentable		
Angle of rotation with mechanical limiting	0 ... 330° ↺, adjustable in steps of 10° ↺		
with electrical limiting	0 ... 1800° ↺, adjustable in steps of 1° ↺		
without limiting	Endless		
Running time	150 s / 360° ↺	70 ... 280 s	.....
Automatic adjustment of running time, operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of this adaption by pressing the button «Adaption» or with the PC-Tool	Automatic adaption whenever the supply voltage is switched on, or manual triggering	.....
Override control	MAX (maximum position) = 100%	MAX = (MIN + 30° ↺) ... 100%	.....
	MIN (minimum position) = 0%	MIN = 0% ... (MAX - 30° ↺)	.....
	ZS (intermediate position, AC only) = 50%	ZS = MIN ... MAX	.....
Sound power level	Max. 35 dB (A)	bei Laufzeit 35 s = 45 dB (A)	
		90 s = 35 dB (A)	
Spindle driver	Form-fit 12 mm or 8 mm (with insert)		

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 (to EN 60730-1)
Rated impulse voltage	0.8 kV (to EN 60730-1)
Control pollution degree	3 (to EN 60730-1)
Ambient temperature range	-30 ... +50 °C
Non-operating temperature	-40 ... +80 °C
Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
Maintenance	Maintenance-free

Dimensions / Weight

Dimensions	See «Dimensions» on page 5
Weight	Approx. 650 g

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially not in aircraft or any other form of air transport.
- Assembly must be carried out by trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- 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.
- Mechanical interfaces which are not expressly envisaged by BELIMO for the LU24A-MF must not be created.
- The cable must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper or shutters manufacturers (cross section, design, 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. All locally 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 damper 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	Form-fit direct mounting on a 12 mm or 8 mm damper spindle (with insert). The actuator can also be optionally equipped with a 10 mm form fit or an 8 ... 12 mm clamp (see «Accessories»).
Manual override	Manual operation is possible with the pushbutton (the gearing latch remains disengaged as long as the pushbutton is pressed or detented).
Adjustable angle of rotation	The angle of rotation of the full-rotation actuator can be adjusted in 10° increments between 0 and 330° 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.
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.

Pos. direction of rotation switch	Home position

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

Accessories

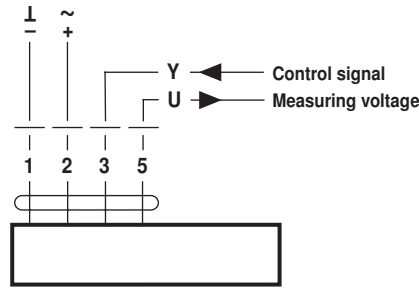
	Description	Data sheet
Electrical accessories	Manual parameterising device MFT-H	T2 - MFT-H
	PC-Tool MFT-P	T2 - MFT-P
	Position sensor SG..24	T2 - SG..24
	Digital position indication ZAD24	T2 - ZAD24
Mechanical accessories	Form-fit insert 10 x 10 mm, type ZF10-LU	T2 - Z-LU..A..
	Clamp with 8 ... 12 mm clamping range and anti-rotation strap, type K-LU	T2 - Z-LU..A..
	Angle of rotation limiter 0 ... 330° increments, type ZDB-LU	T2 - Z-LU..A..

Electrical installation

Wiring diagram

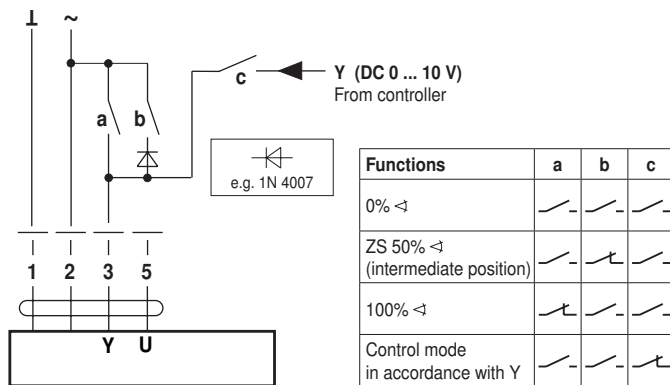
Note

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

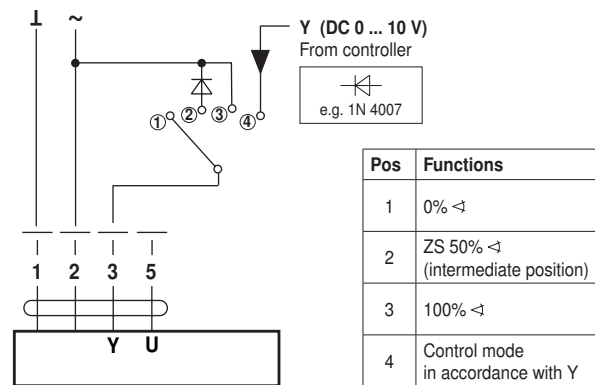


Functions with basic values

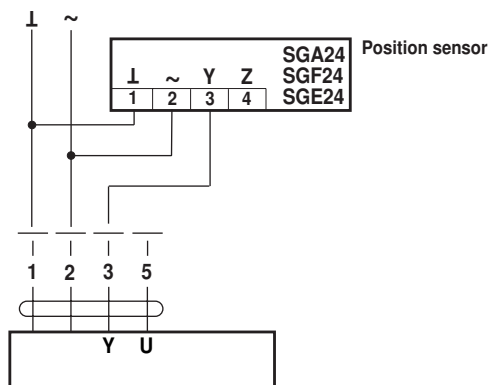
Override control with AC 24 V with relay contacts



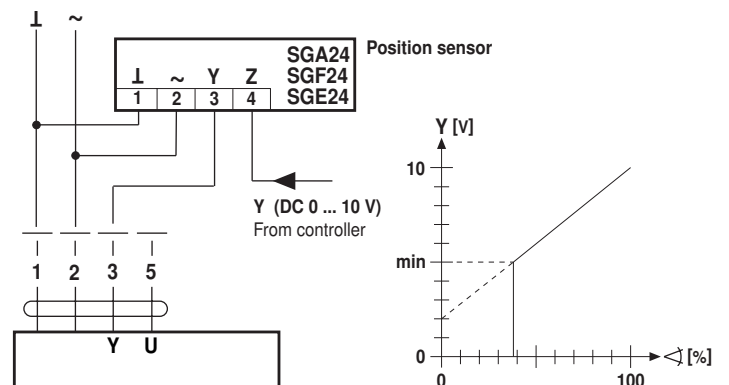
Override control with AC 24 V with rotary control switch



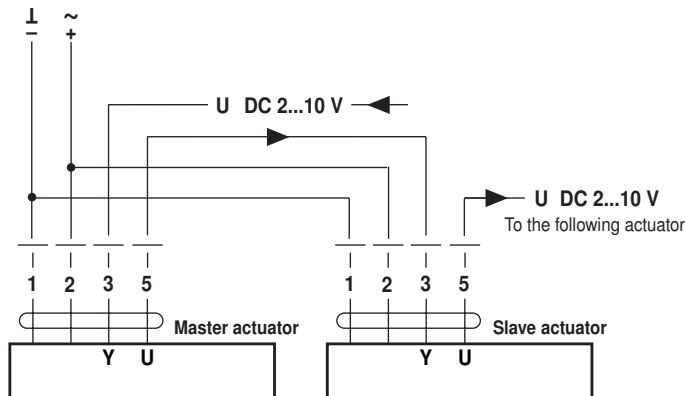
Remote control 0 ... 100 %



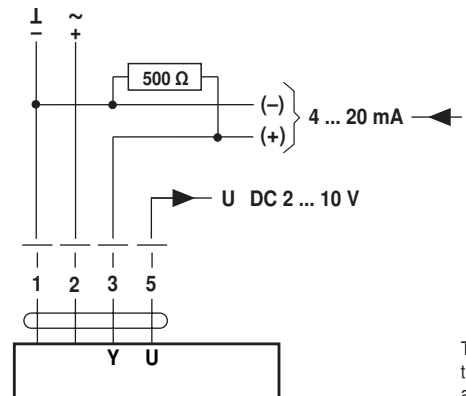
Minimum limit



Master/Slave control (position-dependent)



Control with 4 ... 20 mA via external resistance

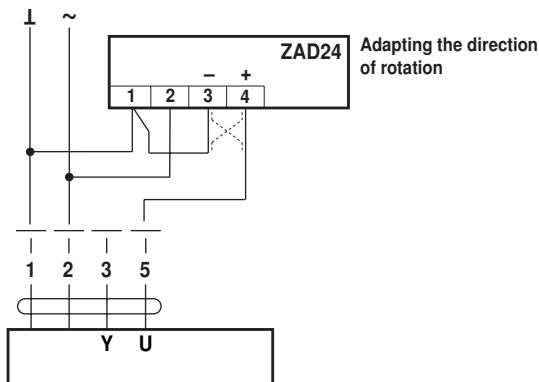


The 500 Ω resistor converts the 4 ... 20 mA current signal to a voltage signal DC 2 ... 10 V

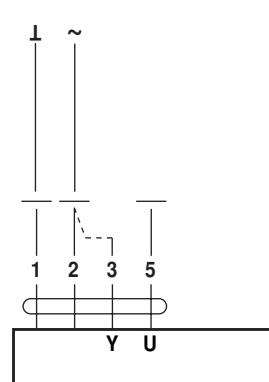
Functions with basic values

(Continue)

Position indication



Functional check

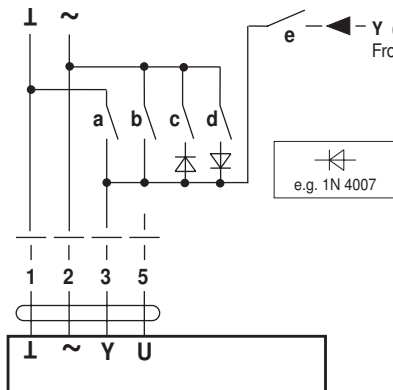


Procedure

- Apply AC 24 V 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

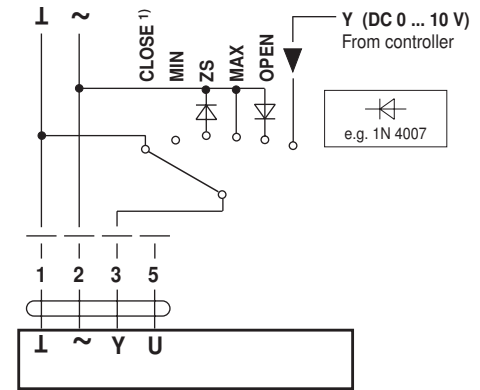
Functions for actuators with specific parameters

Override control and limiting with AC 24 V with relay contacts



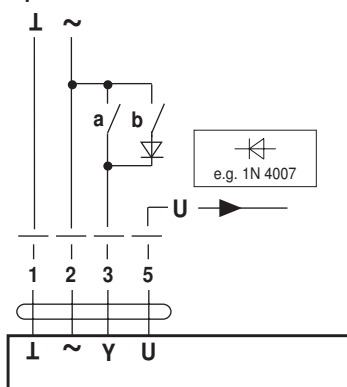
Functions	a	b	c	d	e
CLOSE ¹⁾					
MIN					
ZS (intermediate position)					
MAX					
OPEN					
Control mode in accordance with Y					

Override control and limiting with AC 24 V with rotary switch



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

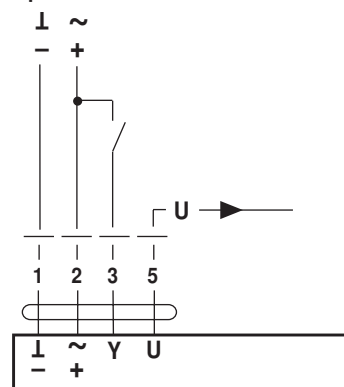
3-point control



Direction of rotation switch

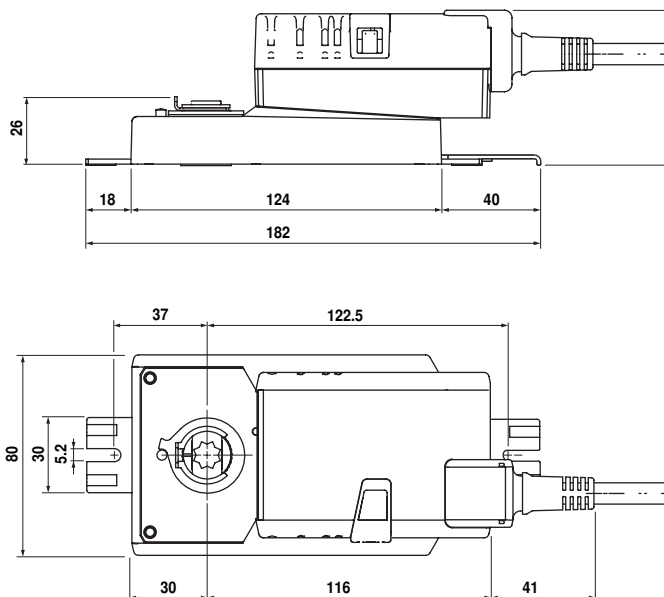
a	b	0	1
		stop	stop

Open/close control



Dimensions [mm]

Dimensional drawings

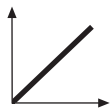
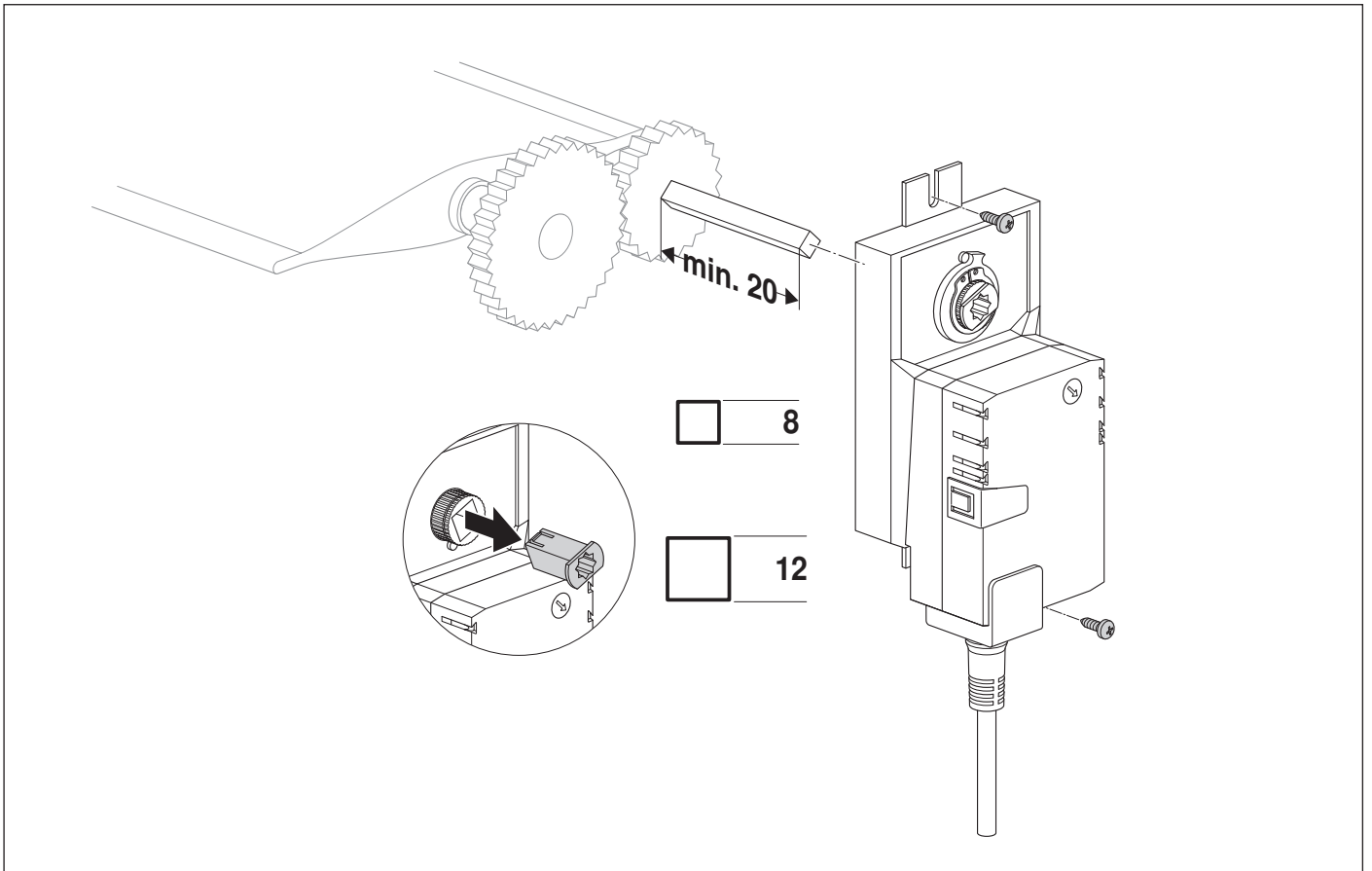


Damper spindle	Length	
	min. 20	12 or 8 (with insert)

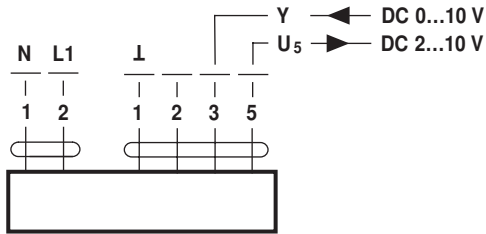
Operating controls and indicators



- ① **Direction of rotation switch**
Switching over: Direction of rotation changes
- ② **Pushbutton and green LED display**
Off: No voltage supply or malfunction
Green on: Operation
Press button: Switches on angle of rotation adaption followed by standard operation
- ③ **Pushbutton and yellow LED display**
Off: Standard operation
Yellow on: Adaption 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

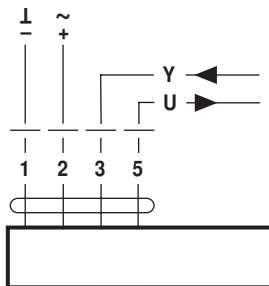


AC 230 V

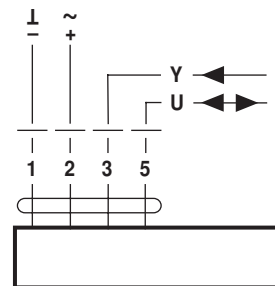


LU230ASR

AC 24 V / DC 24 V



LU24A-MF



LU24A-MP