

**Modulating damper actuator for adjusting dampers in technical building installations**

- Air damper size up to approx. 0.8 m<sup>2</sup>
- Nominal torque 4 Nm
- Nominal voltage AC/DC 24 V
- Control Modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- Running time motor 2.5 s


**Technical data**

<b>Electrical data</b>	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	13 W
	Power consumption in rest position	2 W
	Power consumption for wire sizing	23 VA
	Power consumption for wire sizing note	I <sub>max</sub> 20 A @ 5 ms
	Connection supply / control	Cable 3 m, 4 x 0.75 mm <sup>2</sup> (halogen-free)
	Parallel operation	Yes (note the performance data)
	<b>Functional data</b>	Torque motor
Positioning signal Y		DC 0...10 V
Positioning signal Y note		Input impedance 100 kΩ
Operating range Y		DC 2...10 V
Position feedback U		DC 2...10 V
Position feedback U note		Max. 0.5 mA
Position accuracy		±5%
Direction of rotation motor		Can be selected with switch 0/1
Direction of motion note		Y = 0 V: At switch position 0 (ccw rotation) / 1 (cw rotation)
Manual override		Gear disengagement with push-button, can be locked
Angle of rotation		Max. 95°
Angle of rotation note		can be limited on both sides with adjustable mechanical end stops
Minimum angle of rotation		Min. 30°
Running time motor		2.5 s / 90°
Adaption setting range		manual (automatic on first power-up)
Override control		MAX (maximum position) = 100% MIN (minimum position) = 0% ZS (intermediate position, AC only) = 50%
Sound power level motor		52 dB(A)
Spindle driver		Universal spindle clamp 8...26.7 mm
Position indication		Mechanically, pluggable
<b>Safety</b>		Protection class IEC/EN
	Protection class UL	UL Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Certification UL	cULus according to UL 60730-1A, UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature	-30...40 °C
	Ambient temperature note	Caution: +40...+50 °C utilisation possible only under certain restrictions. Please contact your supplier.
	Non-operating temperature	-40...80 °C

## Technical data

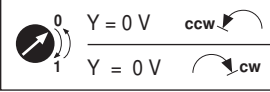
<b>Safety</b>	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
<b>Weight</b>	Weight approx.	0.98 kg

## 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.
- 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.
- Self adaption is necessary when the system is commissioned and after each adjustment of the angle of rotation (press the adaption push-button once).
- When calculating the torque required, the specifications supplied by the damper manufacturers (cross-section, construction, place of installation), and the ventilation 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

<b>Mode of operation</b>	The actuator is connected with a standard modulating signal of DC 0 ... 10V and travels to the position defined by the positioning signal. Measuring voltage U serves for the electrical display of the damper position 0 ... 100% and as slave control signal for other actuators.
<b>Direct mounting</b>	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with a universal mounting bracket to prevent the actuator from rotating.
<b>Manual override</b>	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
<b>High functional reliability</b>	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
<b>Adjustable angle of rotation</b>	Adjustable angle of rotation with mechanical end stops. A minimum permissible angle of rotation of 30° must be allowed for.
<b>Home position</b>	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 detection of the mechanical end stops enables a gentle approach to the end positions, thus protecting the actuator mechanics. The actuator then moves into the position defined by the positioning signal.
<b>Adaption and synchronisation</b>	<div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">  </div> <p>An adaption can be triggered manually by pressing the „Adaption“ button. Both mechanical end stops are detected during the adaption (entire setting range). Automatic synchronisation after pressing the gearbox disengagement button is configured. The synchronisation is in the home position (0%).</p>

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

Electrical installation

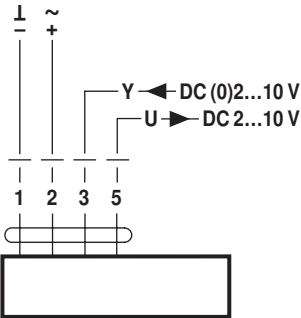


Notes

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

Wiring diagrams

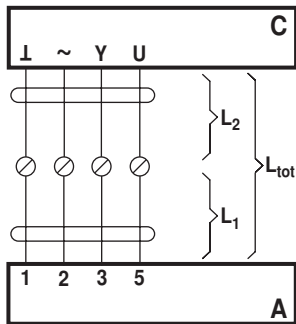
AC/DC 24 V, modulating



Cable colours:

- 1 = black
- 2 = red
- 3 = white
- 5 = orange

Signal cable lengths

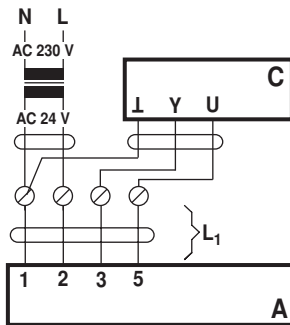


L <sub>2</sub> I / ~	L <sub>tot</sub> = L <sub>1</sub> + L <sub>2</sub>	
	AC	DC
0.75 mm <sup>2</sup>	≤30 m	≤5 m
1.00 mm <sup>2</sup>	≤40 m	≤8 m
1.50 mm <sup>2</sup>	≤70 m	≤12 m
2.50 mm <sup>2</sup>	≤100 m	≤20 m

- A = actuator
- C = control unit
- L<sub>1</sub> = actuator connecting cable
- L<sub>2</sub> = customer cable
- L<sub>tot</sub> = maximum signal cable length

Note:

In the event of several actuators switched in parallel, the maximum signal cable length is to be divided by the number of actuators.



- A = actuator
- C = control unit
- L<sub>1</sub> = actuator connecting cable

Note:

If supply and data line are handled separately, then no special limitations apply for the installation.

Installation notes

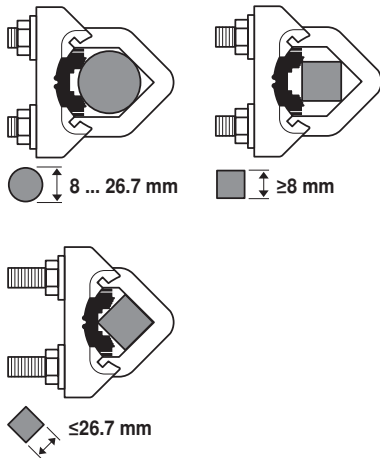
**Negative torque** Max. 50% of the torque (Caution: Application possible only with restrictions. Please contact your supplier.)

Dimensions [mm]

Spindle length

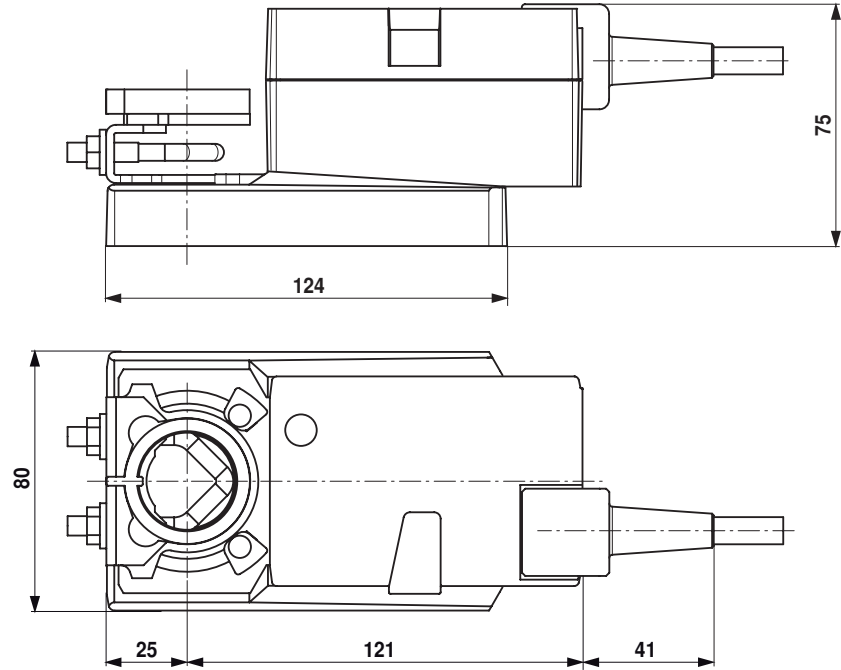
	Min. 40
	Min. 20

Clamping range



When an auxiliary switch or a feedback potentiometer is used, see «Accessories».

Dimensional drawings



**1**

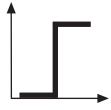
	A			
LMQ24A..	≥40	8...26.7	≥8	≤26.7
NMQ24A..	≥42	8...26.7	≥8	≤26.7

**2**

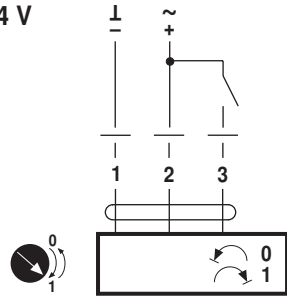
**3**

**4**

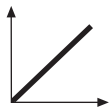
**5**



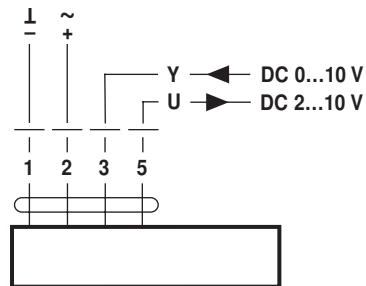
AC 24 V / DC 24 V



LMQ24A..  
NMQ24A..



AC 24 V / DC 24 V



LMQ24A-SR..  
LMQ24A-MF..  
LMQ24A-SRV-ST  
NMQ24A-SR..  
NMQ24A-MF..  
NMQ24A-SRV-ST