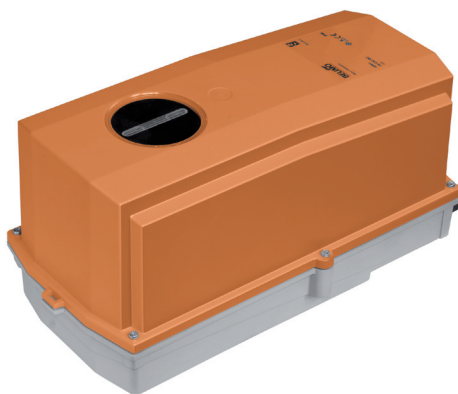


Modulating damper actuator for adjusting dampers in technical building installations

- Air damper size up to approx. 8 m<sup>2</sup>
- Nominal torque 40 Nm
- Nominal voltage AC/DC 24 V
- Control Modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- Optimum weather protection for use outdoors (for use in ambient temperatures up to -40 °C, there is a separate actuator available with built-in heater ex works)



## 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 19.2...28.8 V
	Power consumption in operation	4.5 W
	Power consumption in rest position	2 W
	Power consumption for wire sizing	6.5 VA
	Connection supply / control	Terminals 4 mm <sup>2</sup> (cable Ø 4...10 mm, 4-wire)
	Parallel operation	Yes (note the performance data)
<b>Functional data</b>	Torque motor	Min. 40 Nm
	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. 1 mA
	Position accuracy	±5%
	Direction of motion motor	Selectable 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 (under protective housing)
	Angle of rotation	Max. 95°
	Angle of rotation note	can be limited on both sides with adjustable mechanical end stops
	Running time motor	150 s / 90°
	Sound power level motor	45 dB(A)
	Spindle driver	Universal spindle clamp 14...26.7 mm
	Position indication	Mechanically, pluggable
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Protection class UL	UL Class 2 Supply
	Degree of protection IEC/EN	IP66
	Degree of protection NEMA/UL	NEMA 4, UL Enclosure Type 4
	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	4
	Ambient temperature	-30...50 °C
	Ambient temperature note	-40...50 °C for actuator with integrated heating
	Non-operating temperature	-40...80 °C
	Ambient humidity	100% r.h.
	Maintenance	Maintenance-free
<b>Weight</b>	Weight approx.	4.2 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.
- Junction boxes must at least correspond with enclosure IP degree of protection!
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- The device may only be opened in the manufacturer's factory. It does not contain any parts that can be replaced or repaired by the user.
- The cables must not be removed from the device installed in the interior.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section, the design, the installation site 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.
- The actuator is not designed for applications where chemical influences (gases, fluids) are present or for utilisation in corrosive environments in general.
- The actuator may not be used in plenary applications (e.g. suspended ceilings or raised floors).
- The materials used may be subjected to external influences (temperature, pressure, construction fastening, effect of chemical substances, etc.), which cannot be simulated in laboratory tests or field trials. In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- If cables which are not authorised for UL (NEMA) Type 4 applications are guided out of the unit, then flexible metallic cable conduits or suitable threaded cable conduits of equal value are to be used.

## Product features

<b>Fields of application</b>	<p>The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:</p> <ul style="list-style-type: none"> <li>- UV radiation</li> <li>- rain / snow</li> <li>- dirt / dust</li> <li>- Humidity</li> <li>- Changing atmosphere / frequent and severe temperature fluctuations</li> </ul> <p>(recommendation: use the actuator with integrated factory-installed heating which can be ordered separately to prevent internal condensation)</p>
<b>Mode of operation</b>	<p>The actuator is connected with a standard modulating signal of DC 0...10V and drives 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.</p>
<b>Simple direct mounting</b>	<p>Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.</p>
<b>Manual override</b>	<p>Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).</p> <p>The housing cover must be removed for manual override.</p>
<b>High functional reliability</b>	<p>The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.</p>
<b>Adjustable angle of rotation</b>	<p>Adjustable angle of rotation with mechanical end stops. Standard setting 0 ... 90°. The housing cover must be removed to set the angle of rotation.</p>

## Accessories

	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A
	Signal converter voltage/current, supply AC/DC 24V	Z-UIC
	Digital position indicator for front-panel mounting, 0...99%, front mass 72 x 72 mm	ZAD24
	Range controller for wall mounting, adjustable electron. Min./max. angle of rotation limitation	SBG24
	Positioner for wall mounting, range 0...100%	SGA24
	Positioner in a conduit box, range 0...100%	SGE24
	Positioner for front-panel mounting, range 0...100%	SGF24
	Positioner for wall mounting, range 0...100%	CRP24-B1
Mechanical accessories	Description	Type
	Cable gland, for cable diameter 4-10	Z-KB-PG11

## Electrical installation

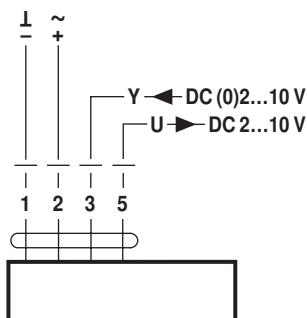


## Notes



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

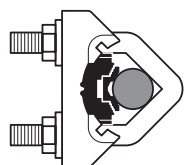
## Wiring diagrams

AC/DC 24 V, modulating

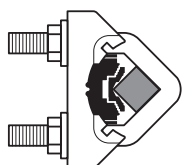


**Dimensions [mm]****Spindle length**

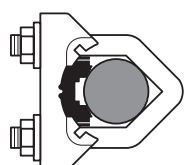
	-
	16...75



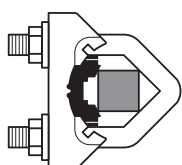
14 ... 22 mm



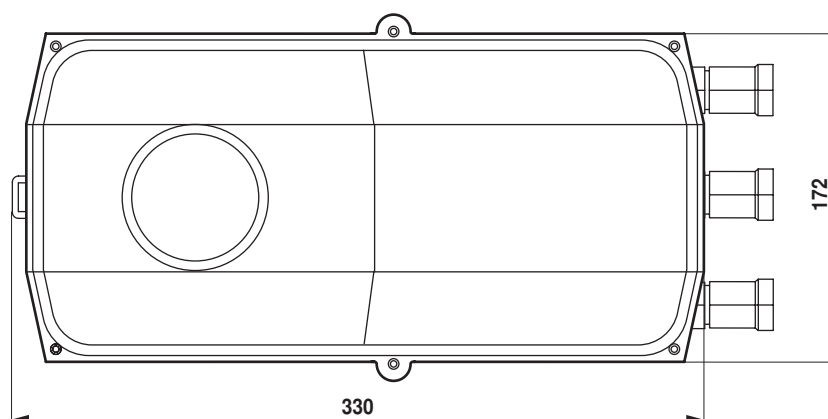
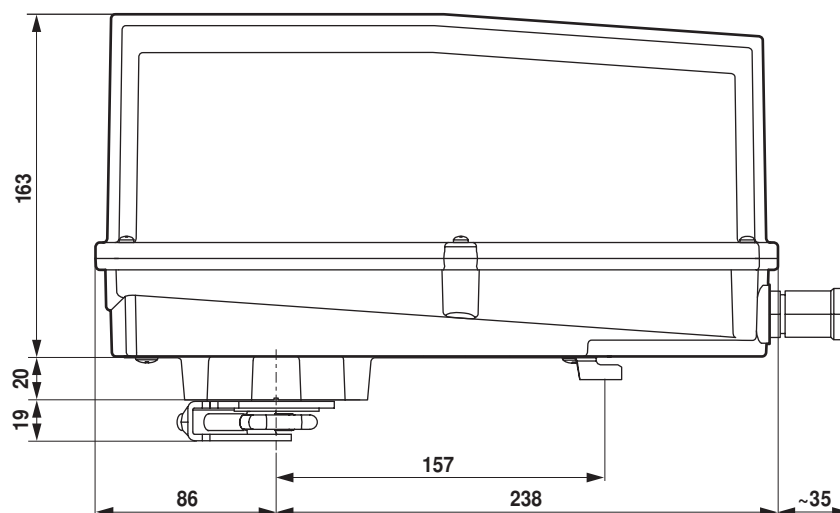
12 ... 18 mm



22 ... 26.7 mm



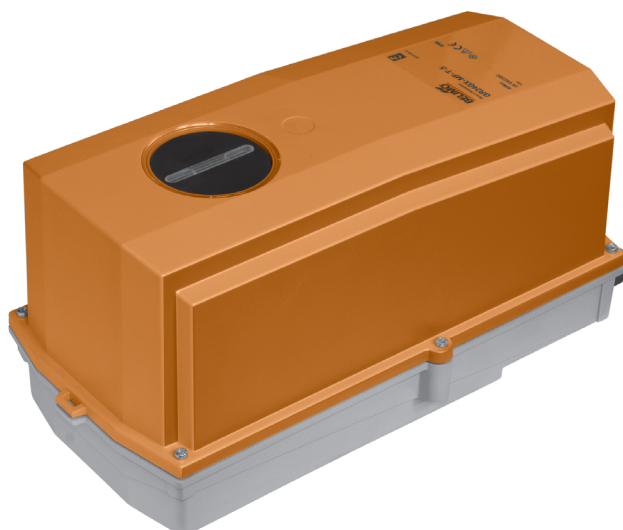
12 ... 18 mm

**Dimensional drawings**

Damper actuator in the IP66 protective housing for adjusting air dampers in industrial plants and in technical building installations

- For air dampers up to approx. 8 m<sup>2</sup>
- Torque 40 Nm
- Nominal voltage AC/DC 24 V
- Control: Open-close

Optimum weather protection for outdoor applications



#### Technical data

<b>Electrical data</b>	Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	In operation 4 W @ nominal torque
		At rest 2 W
		For wire sizing 6 VA
	Connection	Terminals 4 mm <sup>2</sup> (cable Ø 4 ... 10 mm)
<b>Functional data</b>	Torque (nominal torque)	Min. 40 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻, respectively
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↺, can be limited at both ends with adjustable mechanical end stops
	Running time	150 s / 90°↺
	Sound power level	Max. 45 dB (A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage UL Class 2 Supply
	Degree of protection	IP66 NEMA 4, UL Enclosure Type 4
	EMC	CE according to 2004/108/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1 and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage	0.8 kV
	Control pollution degree	4
	Ambient temperature	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
	Ambient humidity	100% r.h.
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions» on page 3
	Weight	Approx. 4.7 kg

## Safety notes



- The 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. Any legal regulations or regulations issued by authorities must be observed during installation.
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- The device on the inside may only be opened up in the factory. It does not contain any parts that can be replaced or repaired by the user.
- When calculating the required torque, the specifications supplied by the damper 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.
- The actuator is not designed for applications where chemical influences (gases, fluids) are present or for utilisation in corrosive environments in general.
- The materials used may be subjected to external influences (temperature, pressure, constructional fixture, effect of chemical substances, etc.), which cannot be simulated in laboratory tests or field trials.  
In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- If cables which are not authorised for UL (NEMA) Type 4 applications are guided out of the unit, then flexible metallic cable conduits or threaded cable conduits of equal value are to be used.
- The actuator may not be used in plenum applications (e.g. suspended ceilings or raised floors).

## Product features

<b>Fields of application</b>	The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions: <ul style="list-style-type: none"> <li>– UV radiation</li> <li>– rain / snow</li> <li>– dirt / dust</li> <li>– humidity</li> <li>– Changing atmosphere / frequent and severe temperature fluctuations (recommendation: use the actuator with integrated factory-installed heating which can be ordered separately to prevent internal condensation *)</li> </ul>
<b>Simple direct mounting</b>	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.
<b>Manual override</b>	Manual override with pushbutton possible (the gear is disengaged for as long as the button is pressed or remains locked).
<b>Adjustable angle of rotation</b>	Adjustable angle of rotation with mechanical end stops. Standard setting 0 ... 90° <math>\leq</math>. The housing cover must be removed to set the angle of rotation.
<b>High functional reliability</b>	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached. * in development

## Accessories

	Description	Data sheet
<b>Electrical accessories</b>	Auxiliary switch S..A..	T2 - S..A..
	Feedback potentiometer P..A..	T2 - P..A..
	Heating with mechanical hygrostat *	
	Heating with adjustable thermostat *	
	* in development	

## Electrical installation

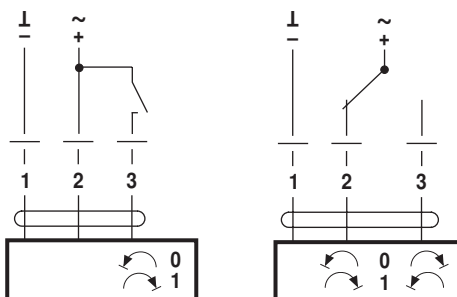
## Wiring diagrams

## Notes

- Connection via safety isolating transformer!
  - Other actuators can be connected in parallel.
- Please note the performance data!






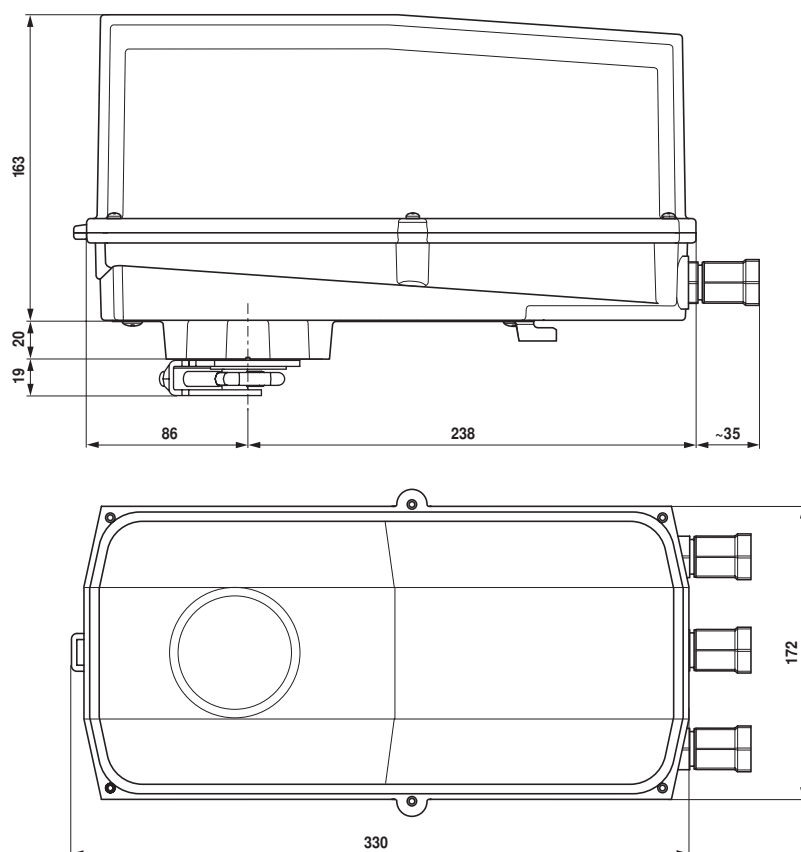
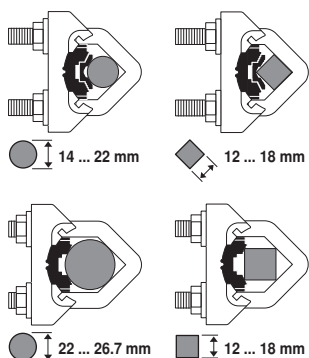
Direction of rotation



## Dimensions [mm]

## Dimensional drawings

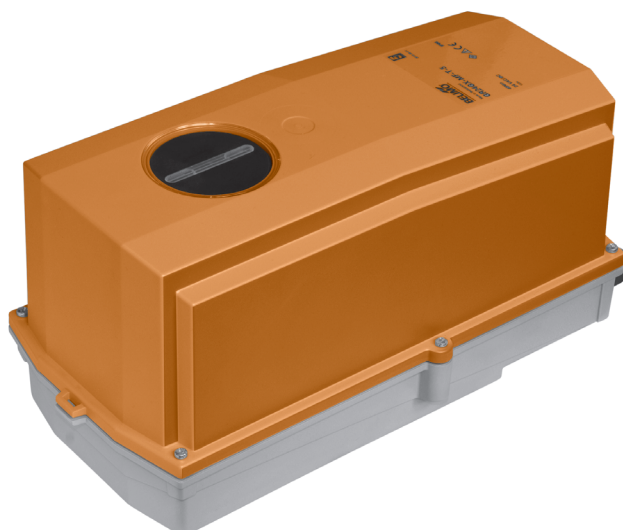
Damper spindle	Length			
	16 ... 75	14 ... 26.7	$\geq 12$	$\leq 25.5$



Damper actuator in the IP66 protective housing for adjusting air dampers in industrial plants and in technical building installations

- For air dampers up to approx. 8 m<sup>2</sup>
- Torque 40 Nm
- Nominal voltage AC 100 ... 240 V
- Control: Open-close

Optimum weather protection for outdoor applications



#### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	In operation 5 W @ nominal torque At rest 2.5 W For wire sizing 9 VA
	Connection	Terminals 4 mm <sup>2</sup> (cable Ø 4 ... 10 mm)
<b>Functional data</b>	Torque (nominal torque)	Min. 40 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻, respectively
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↺, can be limited at both ends with adjustable mechanical end stops
	Running time	150 s / 90°↺
	Sound power level	Max. 45 dB (A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated □
	Degree of protection	IP66 NEMA 4, UL Enclosure Type 4
	EMC	CE according to 2004/108/EC
	Low-voltage directive	CE according to 2006/95/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1 and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage	2.5 kV
	Control pollution degree	4
	Ambient temperature	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
<b>Dimensions / Weight</b>	Ambient humidity	100% r.h.
	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 3
	Weight	Approx. 4.7 kg



## Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during installation.
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- The device on the inside may only be opened up in the factory. It does not contain any parts that can be replaced or repaired by the user.
- When calculating the required torque, the specifications supplied by the damper 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.
- The actuator is not designed for applications where chemical influences (gases, fluids) are present or for utilisation in corrosive environments in general.
- The materials used may be subjected to external influences (temperature, pressure, constructional fixture), that cannot be simulated in laboratory test or field trials. In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- If cables which are not authorised for UL (NEMA) Type 4 applications are guided out of the unit, then flexible metallic cable conduits or threaded cable conduits of equal value are to be used.
- The actuator may not be used in plenum applications (e.g. suspended ceilings or raised floors).

## Product features

<b>Fields of application</b>	The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions: <ul style="list-style-type: none"> <li>– UV radiation</li> <li>– rain / snow</li> <li>– dirt / dust</li> <li>– humidity</li> <li>– Changing atmosphere / frequent and severe temperature fluctuations (recommendation: use the actuator with integrated factory-installed heating which can be ordered separately to prevent internal condensation *)</li> </ul>
<b>Simple direct mounting</b>	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.
<b>Manual override</b>	Manual override with pushbutton possible (the gear is disengaged for as long as the button is pressed or remains locked).
<b>Adjustable angle of rotation</b>	Adjustable angle of rotation with mechanical end stops. Standard setting 0 ... 90° <math>\angle</math>. The housing cover must be removed to set the angle of rotation.
<b>High functional reliability</b>	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.
	* in development

## Accessories

	Description	Data sheet
<b>Electrical accessories</b>	Auxiliary switch S..A..	T2 - S..A..
	Feedback potentiometer P..A..	T2 - P..A..
	Heating with mechanical hygrostat *	
	Heating with adjustable thermostat *	
	* in development	

## Electrical installation

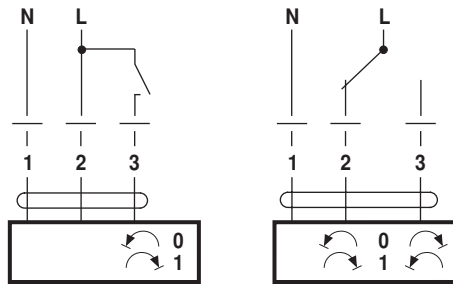
## Wiring diagrams

## Notes

- Caution: Power supply voltage !
- Other actuators can be connected in parallel. Please note the performance data!






Direction of rotation



## Dimensions [mm]

## Dimensional drawings

Damper spindle	Length			
	16 ... 75	14 ... 26.7	≥12	≤25.5

