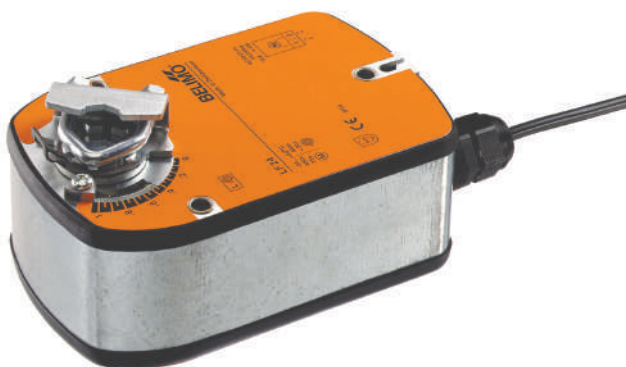


Spring-return actuator with emergency control function for adjusting dampers in technical building installations

- Air damper size up to approx. 0.8 m²
- Nominal torque 4 Nm
- Nominal voltage AC/DC 24 V
- Control Open-close



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	5 W
	Power consumption in rest position	2.5 W
	Power consumption for wire sizing	7 VA
	Power consumption for wire sizing note	I _{max} 5.8 A @ 5 ms
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 4 Nm
	Torque spring return	Min. 4 Nm
	Direction of motion motor	Selectable by mounting L / R
	Direction of motion emergency control function	Selectable by mounting L / R
	Manual override	No
	Angle of rotation	Max. 95°
	Angle of rotation note	Adjustable 37...100% with integrated mechanical limitation
	Running time motor	40...75 s / 90°
	Running time emergency control position	<20 s / 90°
	Running time emergency setting position note	<20 s @ -20...50°C / <60 s @ -30°C
	Sound power level motor	50 dB(A)
	Spindle driver	Universal spindle clamp 8...16 mm
	Position indication	Mechanical
	Service life	Min. 60,000 emergency positions
Safety	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.B
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature	-30...50°C
	Non-operating temperature	-40...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	1.5 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.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.

Safety notes

- 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 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.

Product features

Mode of operation	The actuator moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted.
Simple direct mounting	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
High functional reliability	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.

Accessories

	Description	Type
Electrical accessories	Auxiliary switch, 2 x SPDT	S2A-F
	Feedback potentiometer, 200 Ohm, incl. installation accessories	P200A-F
	Feedback potentiometer 1 kOhm, incl. installation accessories	P1000A-F
	Description	Type
Mechanical accessories	Shaft extension 170 mm, for damper spindles Ø 6...20 mm	AV6-20
	Shaft extension 250 mm, for damper spindles Ø 8...25 mm	AV8-25
	Spindle clamp, for damper spindles Ø 16...20 mm	K6-1
	Straight ball joint with M8, suitable for damper crank arms KH8	KG10A
	Angled ball joint with M8, suitable for damper crank arms KH8	KG8
	Damper crank arm, for damper spindles	KH8
	Actuator arm, for damper spindles Ø 8...16 mm	KH-LF
	Angle of rotation limiter, for LF with end stop	ZDB-LF
	Additional shaft adapter 4-kt. 8x8mm for LF	ZF8-LF
	Mounting kit for linkage operation LF..	ZG-LF1
	Mounting kit for linkage operation LF..., suitable for damper spindles Ø 10...18 mm	ZG-LF3

Electrical installation



Notes

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

Wiring diagrams

AC/DC 24 V, open-close



Cable colours:

- 1 = black
2 = red

Dimensions [mm]

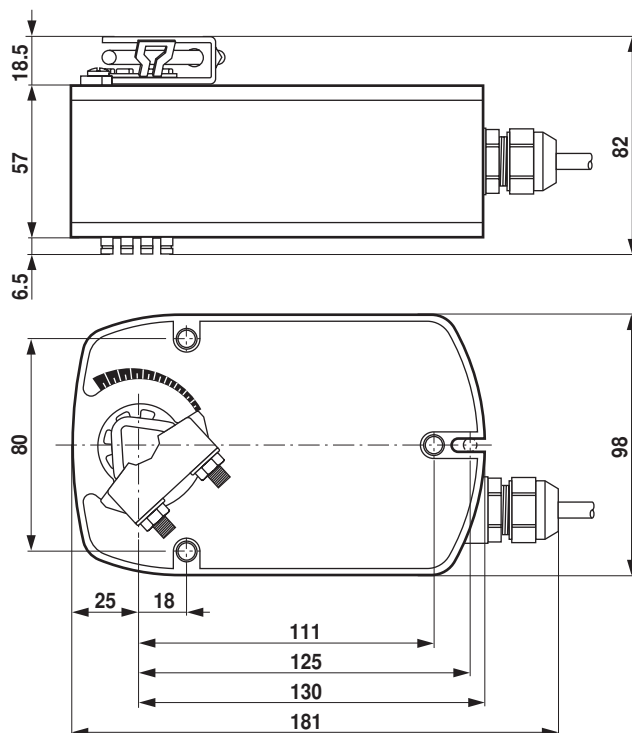
Spindle length

	Min. 84
	Min. 20

Clamping range

8...16	8...16

Dimensional drawings





p0051712

Dampers up to approx. 0.8 m²
Open/Close actuator
(AC 230 V)
Control by single-pole contact

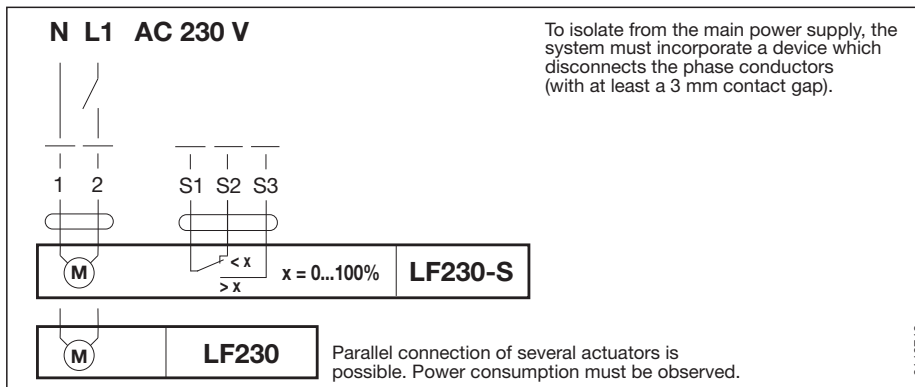
Application

For the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).

Mode of operation

The LF... actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

Wiring diagram



Product features

Simple direct mounting on the damper spindle by universal spindle clamp. An anti-rotation device is supplied to prevent unwanted rotation of the whole unit.

Mechanical angle of rotation limiting adjustable with built-in stop.

High functional reliability

The actuator is overload proof, needs no limit switches and halts automatically at the end stop.

Flexible signalling 0...100% \triangleleft , with adjustable auxiliary switch (LF230-S only).

Adjusting the auxiliary switch LF230-S, page 6

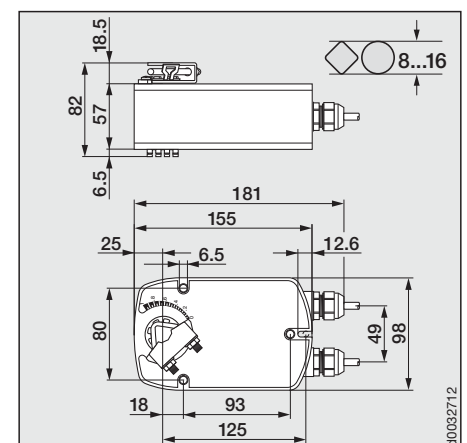
Mounting accessories, page 11

Mounting instructions, pages 13...15

Important: Read the notes about the use and torque requirements of the damper actuators on page 3.

Technical data	LF230, LF230-S
Nominal voltage	AC 230 V 50/60 Hz
Nominal voltage range	AC 198...264 V
For wire sizing	7 VA (I _{max} 150 mA @ 10 ms)
Power consumption	
– motoring	5 W
– holding	3 W
Connecting cable	– motor 1 m long, 2 x 0.75 mm ² – auxiliary switch (LF230-S) 1 m long, 3 x 0.75 mm ²
Auxiliary switch (LF230-S)	1 x SPDT 6 (1.5) A, AC 250 V <input type="checkbox"/>
– Switching point	adjustable 0...100% \triangleleft
Direction of rotation	selected by mounting L/R
Torque	– motor min. 4 Nm (at rated voltage) – spring return min. 4 Nm
Torque	max. 95° (adjustable 37...100% \triangleleft with built-in mechanical stop)
Running time	– motor 40...75 s (0...4 Nm) – spring return ≈ 20 s @ -20...50 °C / max. 60 s @ -30 °C
Sound power level	motor max. 50 dB (A), spring ≈ 62 dB (A)
Service life	min. 60 000 operations
Position indication	mechanical
Protection class	II (all insulated)
Degree of protection	IP 54
Ambient temp. range	-30...+50 °C
Non-operating temp.	-40...+80 °C
Humidity test	to EN 60730-1
EMC	CE according to 2004/108/EEC
Low Voltage Directive	CE according to 2006/95/EEC
Maintenance	maintenance-free
Weight	1550 g

Dimensions



Damper actuator for adjusting dampers in technical building installations

- Air damper size up to approx. 1 m²
- Nominal torque 5 Nm
- Nominal voltage AC/DC 24 V
- Control Open-close, 3-point



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 19.2...28.8 V
	Power consumption in operation	1 W
	Power consumption in rest position	0.2 W
	Power consumption for wire sizing	1.5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 5 Nm
	Direction of motion motor	Selectable with switch 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
	Running time motor	150 s / 90°
	Sound power level motor	35 dB(A)
	Spindle driver	Universal spindle clamp 6...20 mm
	Position indication	Mechanically, pluggable
Safety	Protection class IEC/EN	III Safety extra-low voltage
	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...50 °C
	Non-operating temperature	-40...80 °C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	0.49 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.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

Safety notes

- 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 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
Manual override	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
High functional reliability	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.

Accessories

	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Auxiliary switch, add-on, 2 x SPDT, grey	S2A GR
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 140 Ohm, add-on, grey	P140A GR
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 500 Ohm, add-on, grey	P500A GR
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 1 kOhm, add-on, grey	P1000A GR
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 2.8 kOhm, add-on, grey	P2800A GR
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 5 kOhm, add-on, grey	P5000A GR
	Feedback potentiometer 10 kOhm, add-on	P10000A
	Feedback potentiometer 10 kOhm, add-on, grey	P10000A GR
	Description	Type
Mechanical accessories	Shaft extension 170 mm, for damper spindles Ø 6...20 mm	AV6-20
	Spindle clamp for LM..A, clamping range 6...20 mm	K-ELA
	Spindle clamp for LM..A, clamping range 6...10 mm	K-ELA10
	Spindle clamp for LM..A, clamping range 6...13 mm	K-ELA13
	Spindle clamp for LM..A, clamping range 6...16 mm	K-ELA16
	Universal mounting bracket 180 mm	Z-ARS180
	Form fit insert 10x10 mm, for LM..A	ZF10-LMA
	Form fit insert 12x12 mm, for LM..A	ZF12-LMA
	Form fit insert 8x8 mm, für LM..A	ZF8-LMA
	Form fit insert 10x10 mm, with angle of rotation limiter and position indication for LM..A	ZFRL10-LMA
	Form fit insert 12x12 mm, with angle of rotation limiter and position indication for LM..A	ZFRL12-LMA
	Form fit insert 8x8 mm, with angle of rotation limiter and position indication for LM..A	ZFRL8-LMA
	Position indication for LM..A, NM..A, SM..A, GM..A	Z-PI

Electrical installation

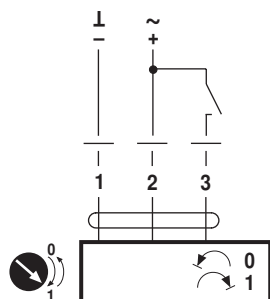


Notes

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

Wiring diagrams

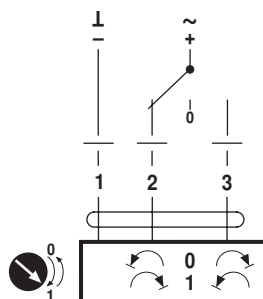
AC/DC 24 V, open-close



Cable colours:

1 = black
2 = red
3 = white

AC/DC 24 V, 3-point

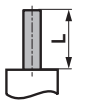
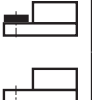


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

1 = black
2 = red
3 = white

Dimensions [mm]

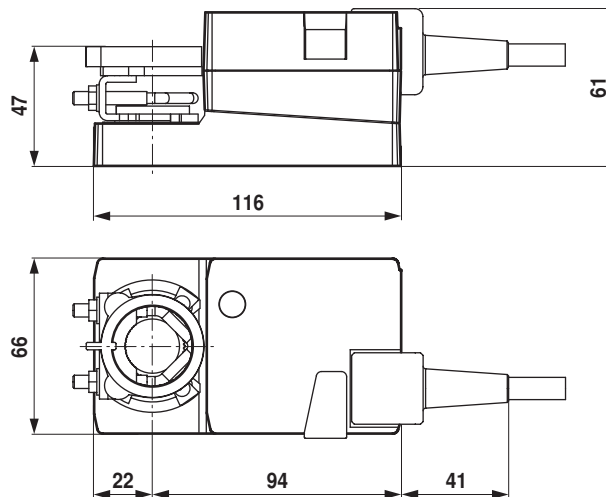
Spindle length

		Min. 37
		-

Clamping range

		
6...20	≥6	≤20

Dimensional drawings



Damper actuator for adjusting dampers in technical building installations

- Air damper size up to approx. 1 m²
- Nominal torque 5 Nm
- Nominal voltage AC 230 V
- Control Open-close, 3-point



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...264 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3.5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 5 Nm
	Direction of motion motor	Selectable with switch 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
	Running time motor	150 s / 90°
	Sound power level motor	35 dB(A)
	Spindle driver	Universal spindle clamp 6...20 mm
	Position indication	Mechanically, pluggable
Safety	Protection class IEC/EN	II Protective insulated
	Protection class UL	II Protective insulated
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/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	2.5 kV
	Control pollution degree	3
	Ambient temperature	-30...50 °C
	Non-operating temperature	-40...80 °C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	0.50 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.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Caution: Power supply voltage!

Safety notes

- 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 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
Manual override	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
High functional reliability	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.

Accessories

	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Auxiliary switch, add-on, 2 x SPDT, grey	S2A GR
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 140 Ohm, add-on, grey	P140A GR
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 500 Ohm, add-on, grey	P500A GR
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 2.8 kOhm, add-on, grey	P2800A GR
	Feedback potentiometer 1 kOhm, add-on, grey	P1000A GR
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 5 kOhm, add-on, grey	P5000A GR
	Feedback potentiometer 10 kOhm, add-on	P10000A
	Feedback potentiometer 10 kOhm, add-on, grey	P10000A GR
	Description	Type
Mechanical accessories	Shaft extension 170 mm, for damper spindles Ø 6...20 mm	AV6-20
	Spindle clamp for LM..A, clamping range 6...20 mm	K-ELA
	Spindle clamp for LM..A, clamping range 6...10 mm	K-ELA10
	Spindle clamp for LM..A, clamping range 6...13 mm	K-ELA13
	Spindle clamp for LM..A, clamping range 6...16 mm	K-ELA16
	Universal mounting bracket 180 mm	Z-ARS180
	Form fit insert 10x10 mm, for LM..A	ZF10-LMA
	Form fit insert 12x12 mm, for LM..A	ZF12-LMA
	Form fit insert 8x8 mm, für LM..A	ZF8-LMA
	Form fit insert 10x10 mm, with angle of rotation limiter and position indication for LM..A	ZFRL10-LMA
	Form fit insert 12x12 mm, with angle of rotation limiter and position indication for LM..A	ZFRL12-LMA

Accessories

Description

Form fit insert 8x8 mm, with angle of rotation limiter and position indication for LM..A

Position indication for LM..A, NM..A, SM..A, GM..A

Type

ZFRL8-LMA

Z-PI

Electrical installation

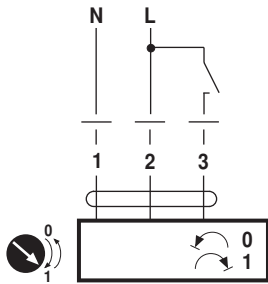


Notes

- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

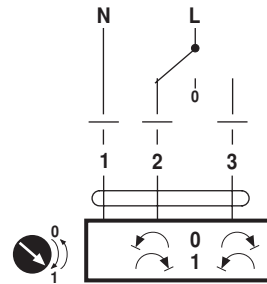
AC 230 V, open-close



Cable colours:

- 1 = blue
2 = brown
3 = white

AC 230 V, 3-point

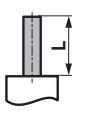
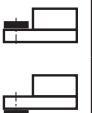




Cable colours:




- 1 = blue
2 = brown
3 = white

Dimensions [mm]

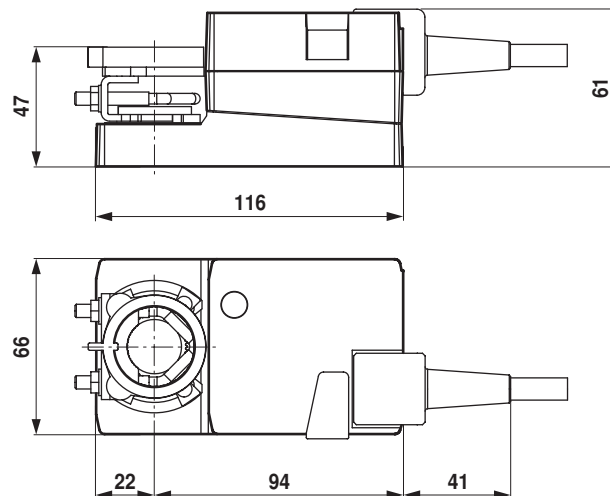
Spindle length

		Min. 37
		-

Clamping range

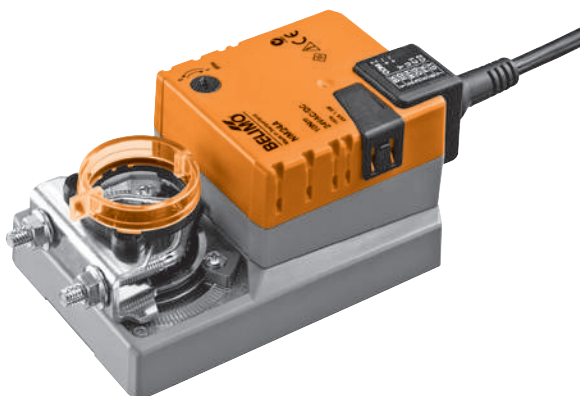
		
6...20	≥6	≤20

Dimensional drawings



Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- For air control dampers up to approx. 2 m²
- Torque 10 Nm
- Nominal voltage AC/DC 24 V
- Control: Open-close or 3-point



Technical data

Electrical data	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 1.5 W @ nominal torque At rest 0.2 W For wire sizing 3.5 VA
	Connection	Cable 1 m, 3 x 0.75 mm ²
Functional data	Torque (nominal torque)	Min. 10 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150 s / 90°↔
	Sound power level	Max. 35 dB (A)
	Position indication	Mechanical, pluggable
Safety	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 89/336/EEC
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	0.8 kV (EN 60730-1)
	Control pollution degree	3 (EN 60730-1)
	Ambient temperature range	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Dimensions / Weight	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 2
	Weight	Approx. 750 g

Safety notes



- The damper actuator is not allowed to be used outside the specified field of application, especially 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.
- The cable must not be removed from the device.
- 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.
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	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.

Accessories

	Description	Data sheet
Electrical accessories	Auxiliary switch, type S..A..	T2 - S..A..
	Feedback potentiometer, type P..A..	T2 - P..A..
Mechanical accessories	Various accessories (clamps, shaft extensions etc.)	T2 - Z-NM..A..

Electrical installation

Wiring diagrams

Notes

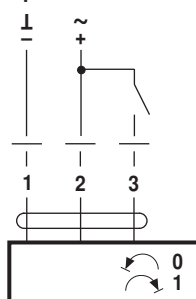
- Connection via safety isolating transformer.
 - Other actuators can be connected in parallel.
- Please note the performance data.



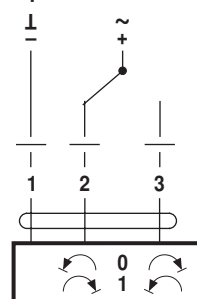
Direction of rotation



Open-close control



3-point control

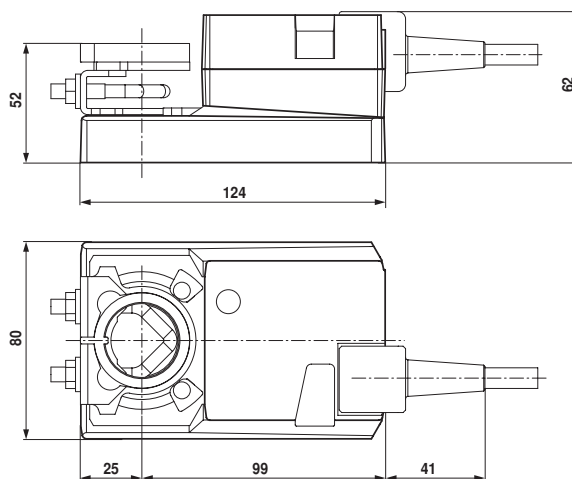







Cable colours:

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

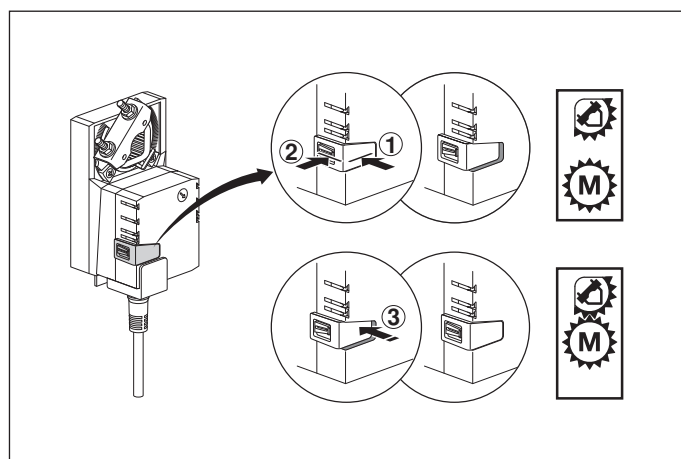
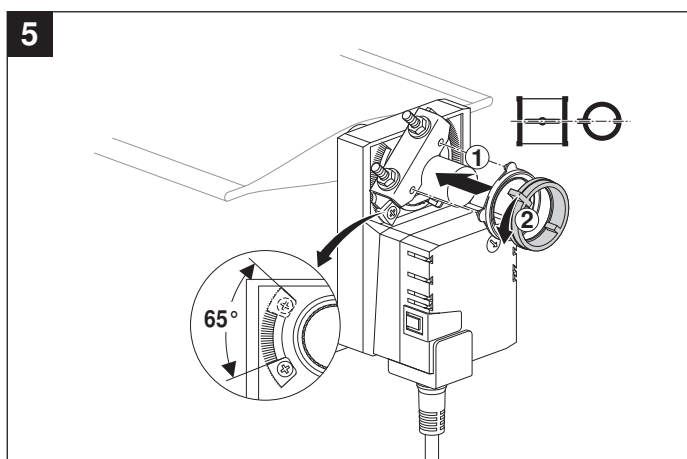
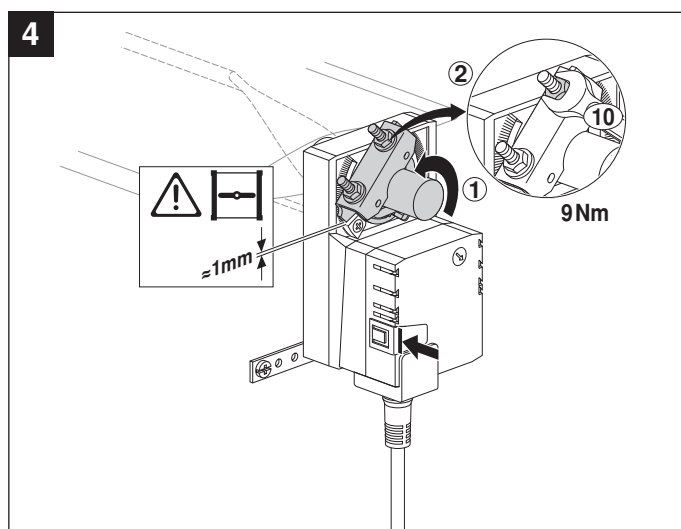
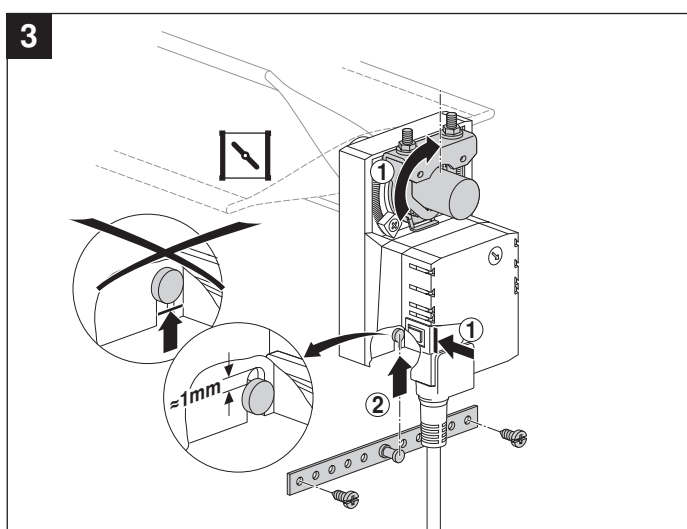
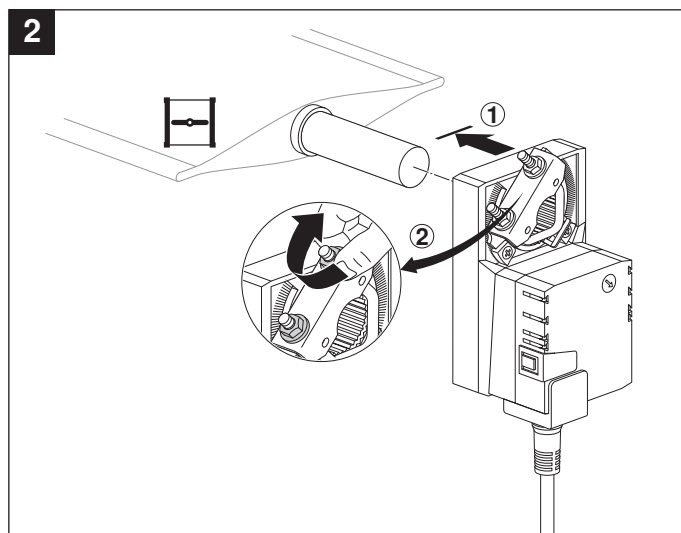
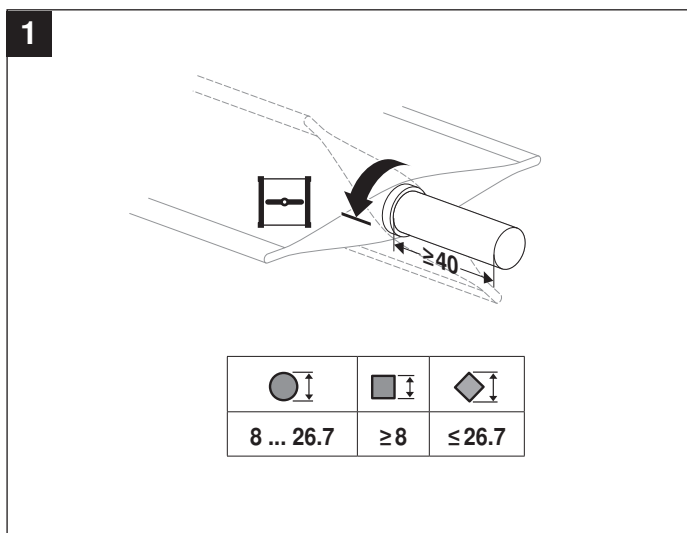
Dimensions [mm]

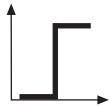
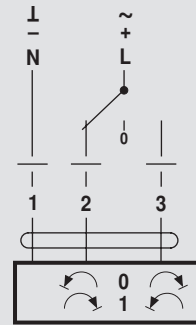
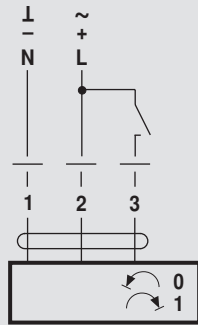
Dimensional drawings



Damper spindle	Length			
	>40	8 ... 26.7	>8	<26.7
	>20	8 ... 20	>8	<20

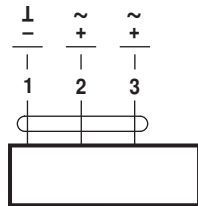
* Option (Accessory K-NA)



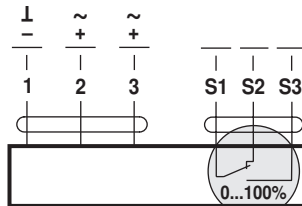


AC 24 V / DC 24 V

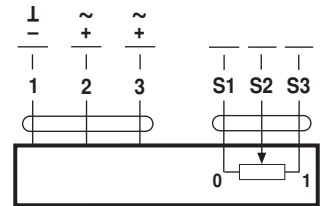
DC 48 ... 110 V
(NM72A..)



NM24A..
NM72A..

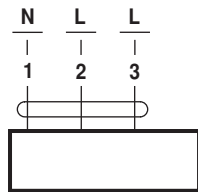


NM24A-S..

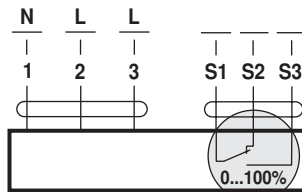


NM24AP5..

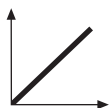
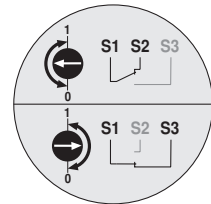
AC 100 ... 240 V



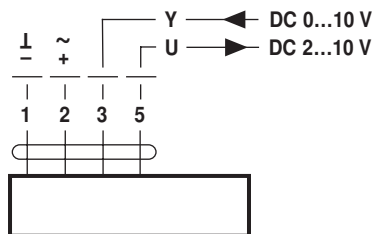
NM230A..



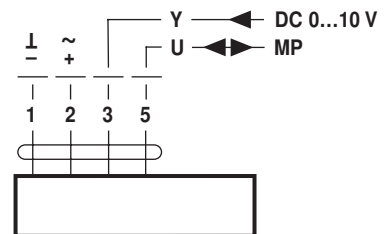
NM230A-S..



AC 24 V / DC 24 V

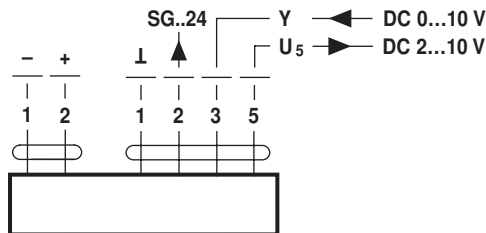


NM24A-SR..
NM24A-MF..



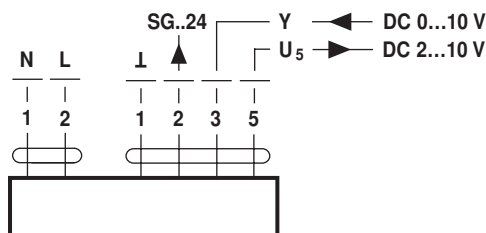
NM24A-MP..

DC 48 ... 110 V
(NM72A-SR..)



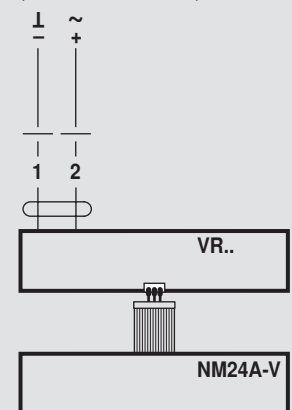
NM72A-SR..

AC 100 ... 240 V



NM230ASR..

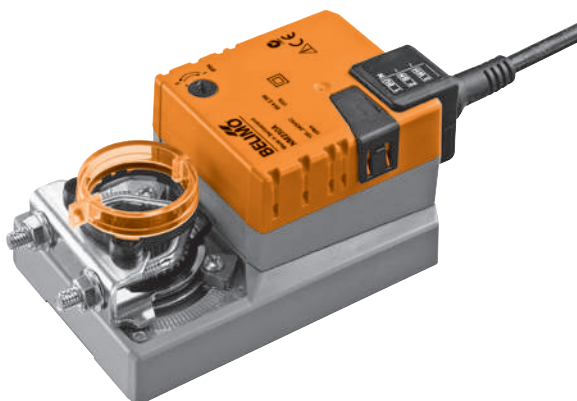
AC 24 V / DC 24 V
(NM24A-V / VR..)



NM24A-V / VR..

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- For air control dampers up to approx. 2 m²
- Torque 10 Nm
- Nominal voltage AC 100 ... 240 V
- Control: Open-close or 3-point



Technical data

Electrical data	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	In operation 2.5 W @ nominal torque At rest 0.6 W For wire sizing 5.5 VA
	Connection	Cable 1 m, 3 x 0.75 mm ²
Functional data	Torque (nominal torque)	Min. 10 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150 s / 90°↔
	Sound power level	Max. 35 dB (A)
	Position indication	Mechanical, pluggable
Safety	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 89/336/EEC
	Low voltage directive	CE according to 73/23/EEC
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	2.5 kV (EN 60730-1)
	Control pollution degree	3 (EN 60730-1)
	Ambient temperature range	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Dimensions / Weight	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 2
	Weight	Approx. 750 g

Safety notes



- The damper actuator is not allowed to be used outside the specified field of application, especially in aircraft or any other form of air transport.
- **Caution: Power supply voltage !**
- 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.
- The cable must not be removed from the device.
- 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.
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	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.

Accessories

	Description	Data sheet
Electrical accessories	Auxiliary switch, type S..A..	T2 - S..A..
	Feedback potentiometer, type P..A..	T2 - P..A..
Mechanical accessories	Various accessories (clamps, shaft extensions etc.)	T2 - Z-NM..A..

Electrical installation

Wiring diagrams

Notes

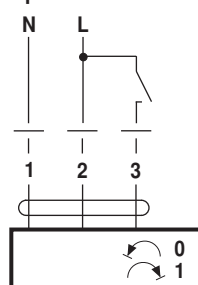
- Caution: Power supply voltage !
- Other actuators can be connected in parallel. Please note the performance data.



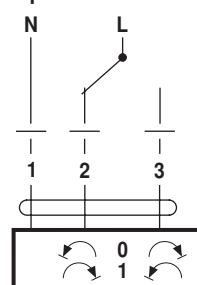
Direction of rotation



Open-close control



3-point control

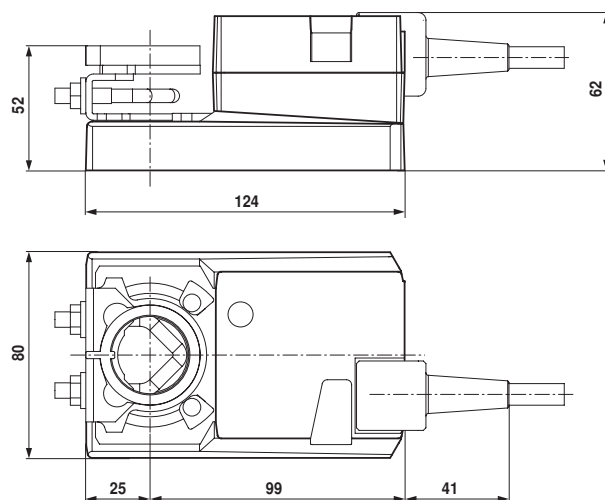







Cable colours:

- 1 = blue
- 2 = brown
- 3 = white

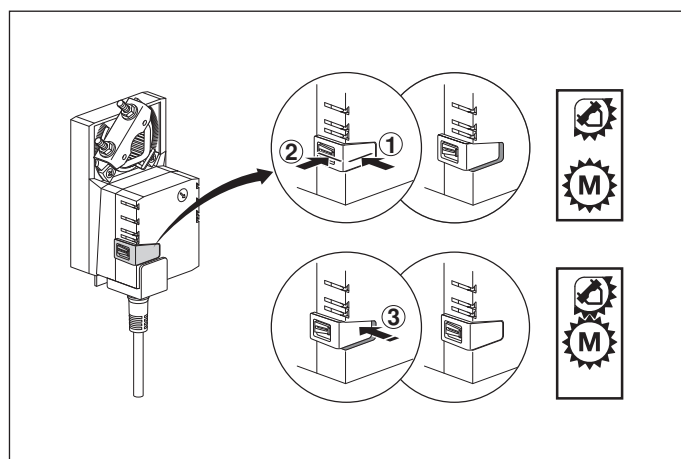
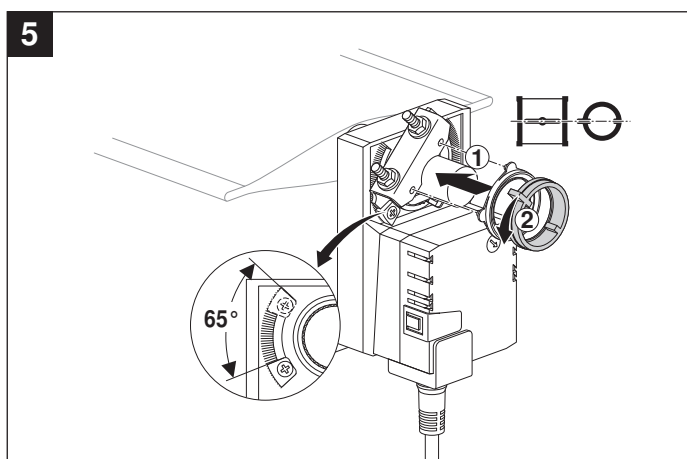
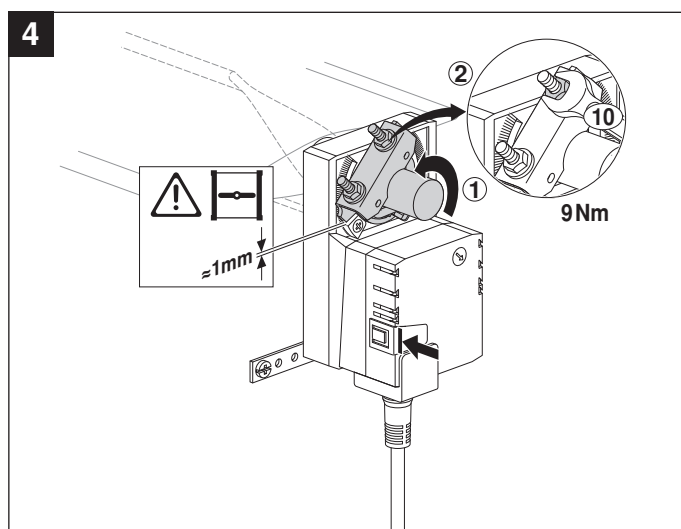
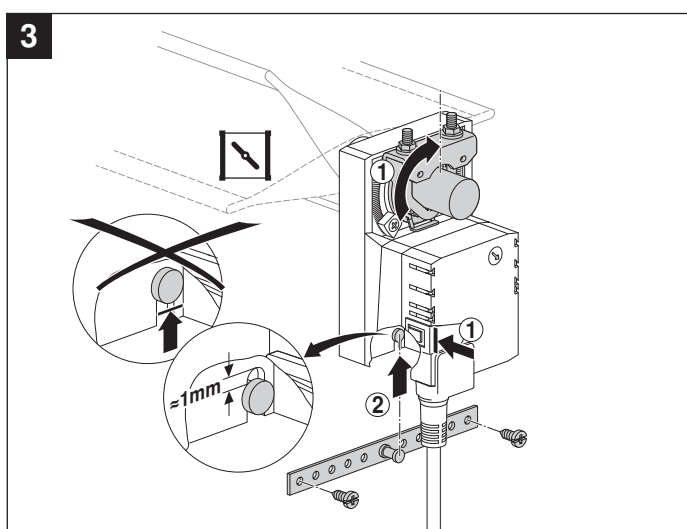
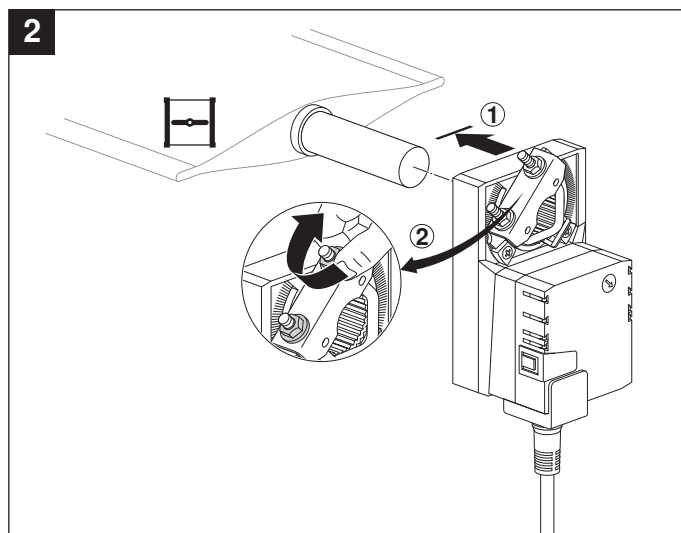
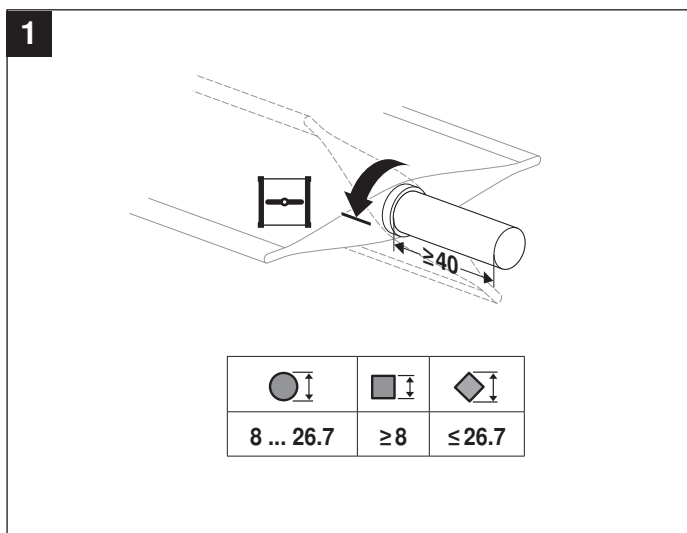
Dimensions [mm]

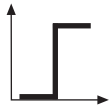
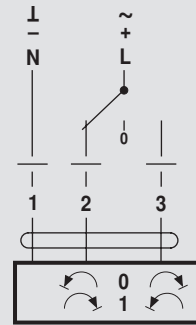
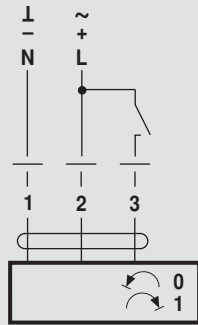
Dimensional drawings



Damper spindle	Length			
	>40	8 ... 26.7	>8	<26.7
	>20	8 ... 20	>8	<20

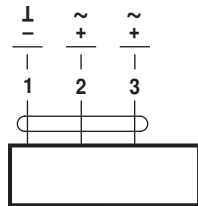
* Option (Accessory K-NA)



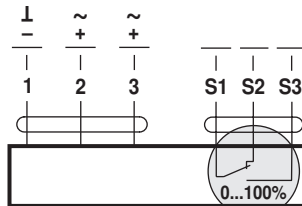


AC 24 V / DC 24 V

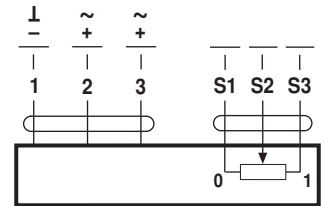
DC 48 ... 110 V
(NM72A..)



NM24A..
NM72A..

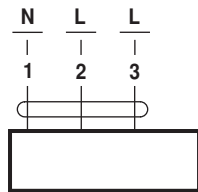


NM24A-S..

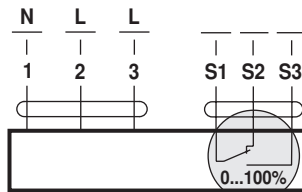


NM24AP5..

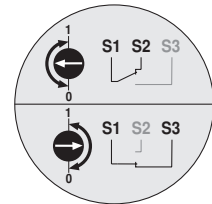
AC 100 ... 240 V



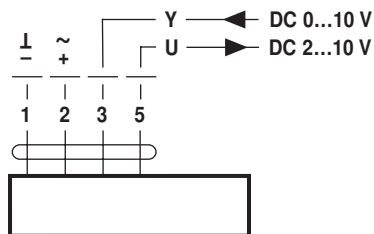
NM230A..



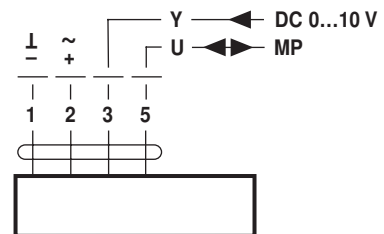
NM230A-S..



AC 24 V / DC 24 V

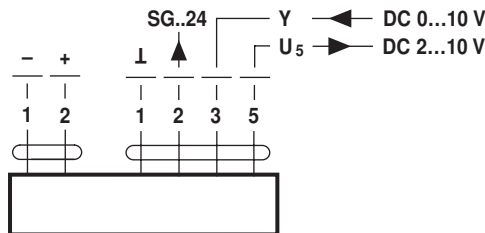


NM24A-SR..
NM24A-MF..



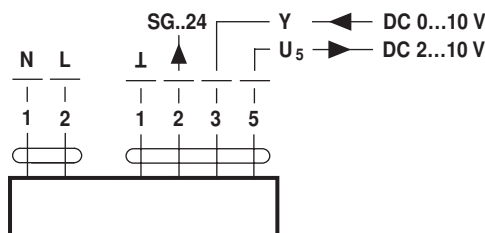
NM24A-MP..

DC 48 ... 110 V
(NM72A-SR..)



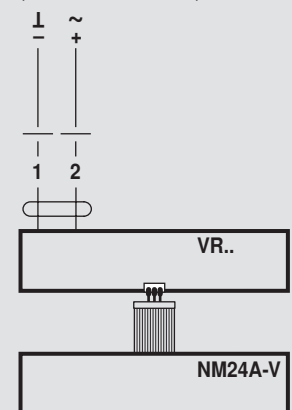
NM72A-SR..

AC 100 ... 240 V



NM230ASR..

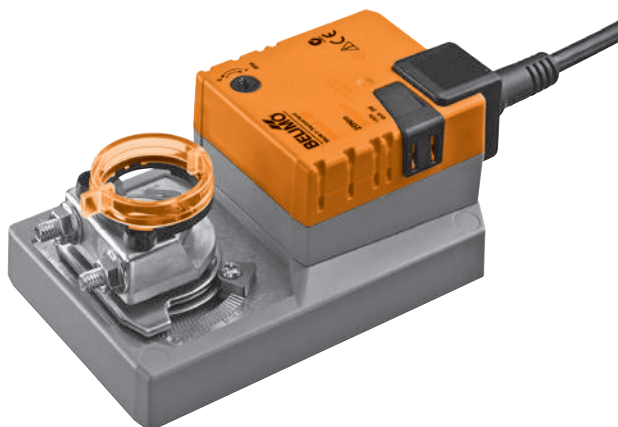
AC 24 V / DC 24 V
(NM24A-V / VR..)



NM24A-V / VR..

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- For air dampers up to approx. 4 m²
- Torque 20 Nm
- Nominal voltage AC/DC 24 V
- Control: Open-close or 3-point



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 0.2 W For wire sizing 4 VA
	Connection	Cable 1 m, 3 x 0.75 mm ²
Functional data	Torque (nominal torque)	Min. 20 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	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
Safety	Protection class	III Safety extra-low voltage / UL Class 2 Supply
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Dimensions / Weight	Mode of operation	Type 1
	Rated impulse voltage	0.8 kV
	Control pollution degree	3
	Ambient temperature range	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
	Ambient humidity range	95% r.h., non-condensating
	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 2
	Weight	Approx. 1 kg

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially 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.
- The cable must not be removed from the device.
- 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.
Manual override	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
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.

Accessories

	Description	Data sheet
Electrical accessories	Auxiliary switch S..A..	T2 - S..A..
	Feedback potentiometer P..A..	T2 - P..A..
Mechanical accessories	Various accessories (clamps, shaft extensions etc.)	T2 - Z-SM..A..

Electrical installation

Wiring diagrams

Notes

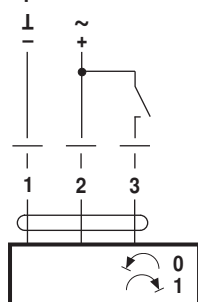
- Connection via safety isolating transformer.
- Other actuators can be connected in parallel. Please note the performance data.



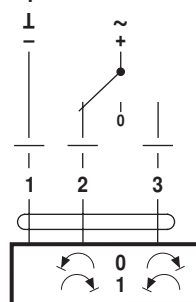
Direction of rotation



Open-close control



3-point control

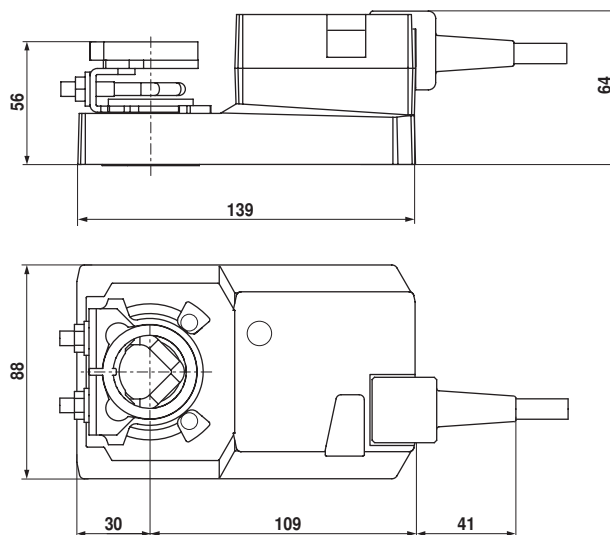







Cable colours:

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

Dimensions [mm]

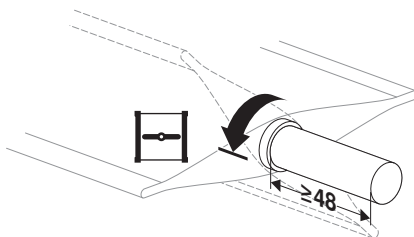
Dimensional drawings



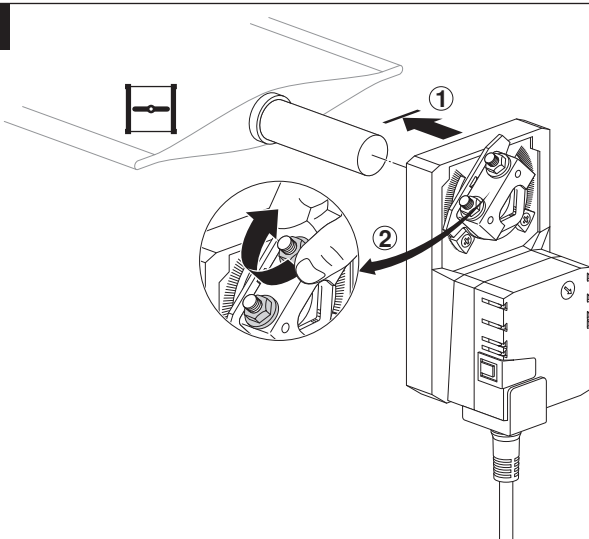
Damper spindle	Length			
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	≥20	10 ... 20 ¹⁾	≥10	≤20

¹⁾ CrNi (INOX) 12 ... 20

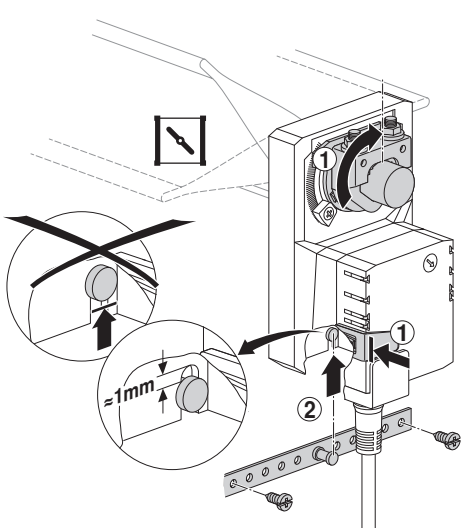
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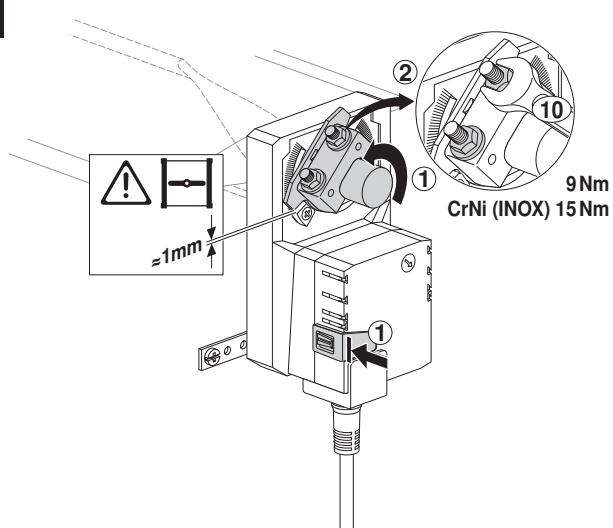
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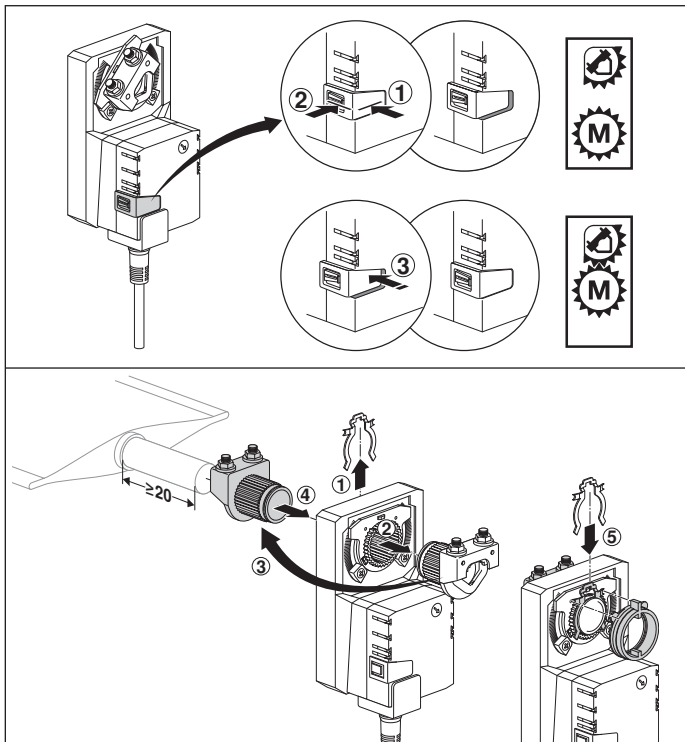
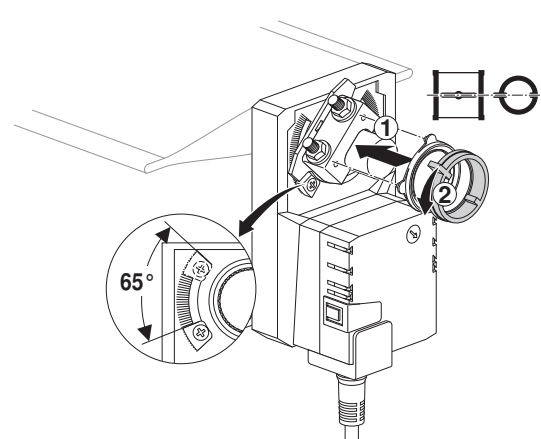
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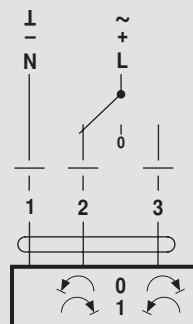
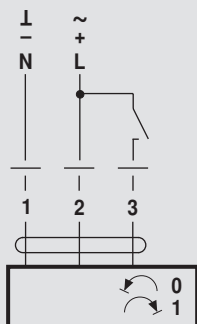


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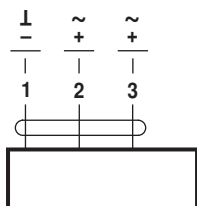
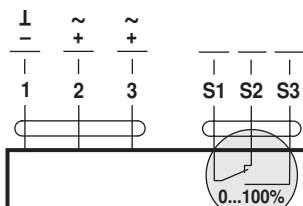


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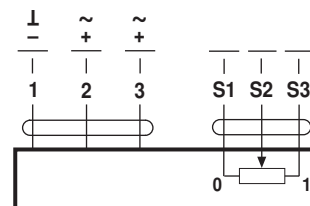




AC 24 V / DC 24 V

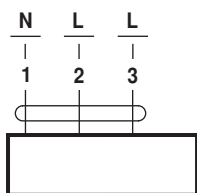
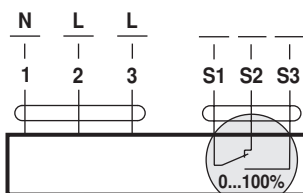
SM24A..
SMD24A..

SM24A-S..

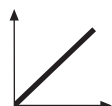
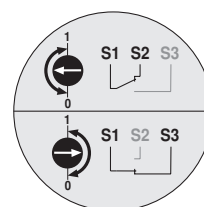


SM24AP5..

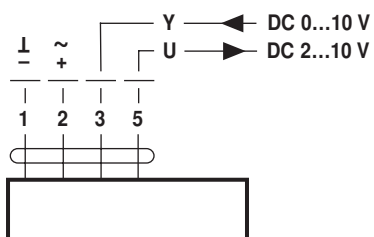
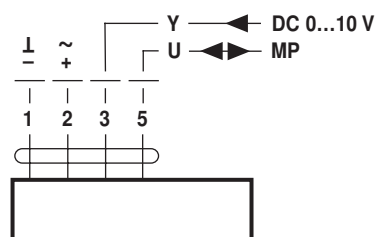
AC 100 ... 240 V ⚠

SM230A..
SMD230A..

SM230A-S..

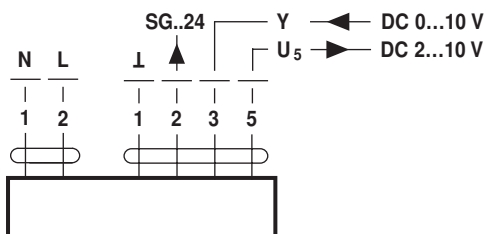


AC 24 V / DC 24 V

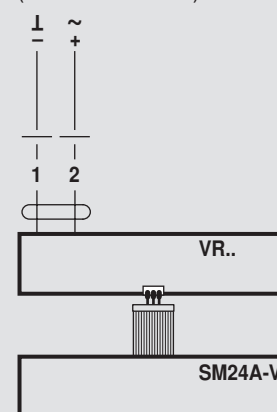
SM24A-SR..
SM24A-MF..

SM24A-MP..

AC 100 ... 240 V ⚠



SM230ASR..

AC 24 V / DC 24 V
(SM24A-V / VR..)

SM24A-V / VR..

Damper actuator for adjusting dampers in technical building installations

- Air damper size up to approx. 4 m²
- Nominal torque 20 Nm
- Nominal voltage AC 230 V
- Control Open-close, 3-point



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...264 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	0.6 W
	Power consumption for wire sizing	6 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 20 Nm
	Direction of motion motor	selectable with switch 0 (ccw rotation) / 1 (cw rotation)
	Manual override	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
	Running time motor	150 s / 90°
	Sound power level motor	45 dB(A)
	Spindle driver	Universal spindle clamp reversible 10...20 mm
Safety	Position indication	Mechanically, pluggable
	Protection class IEC/EN	II reinforced insulation
	Protection class UL	II reinforced insulation
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	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	2.5 kV
	Control pollution degree	3
	Ambient temperature	-30...50°C
	Non-operating temperature	-40...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight	1.1 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.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Caution: Power supply voltage!
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

Safety notes

- 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 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.

Product features

Simple direct mounting	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
Manual override	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
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.

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 140 Ohm, add-on, grey	P140A GR
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 500 Ohm, add-on, grey	P500A GR
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 1 kOhm, add-on, grey	P1000A GR
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 2.8 kOhm, add-on, grey	P2800A GR
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 5 kOhm, add-on, grey	P5000A GR
	Feedback potentiometer 10 kOhm, add-on	P10000A
	Feedback potentiometer 10 kOhm, add-on, grey	P10000A GR
	Description	Type
Mechanical accessories	Actuator arm, for standard spindle clamp (reversible) K-SA	AH-20
	Shaft extension 250 mm for CrNi (INOX)	AV12-25-I
	Shaft extension 250 mm, for damper spindles Ø 8...25 mm	AV8-25
	Angled ball joint with M8, suitable for damper crank arms KH8	KG8
	Straight ball joint with M8, suitable for damper crank arms KH8	KG10A
	Damper crank arm, for damper spindles	KH8
	Spindle clamp, one side for NM..A, SM..A	K-ENSA
	Spindle clamp, one side for SM..A	K-ENSA-I
	Spindle clamp, reversible for SM..A and NMQ..	K-SA
	Universal mounting bracket 180 mm	Z-ARS180
	Universal mounting bracket 230 mm	Z-ARS230
	Angle of rotation limiter, for K-NA	20334-00001
	Form fit insert 10x10 mm, for NM..A / SM..A	ZF10-NSA
	Form fit insert 12x12 mm, for NM..A / SM..A	ZF12-NSA
	Form fit insert 15x15 mm	ZF15-NSA
	Form fit insert 16x16 mm, for NM..A / SM..A	ZF16-NSA
	Mounting kit for linkage operation, SM..A for flat installation	ZG-SMA

Accessories

Description

Position indication for LM..A, NM..A, SM..A, GM..A
Base plate extension from SM..A to SM../AM../SMD24R

Type

Z-PI
Z-SMA

Electrical installation

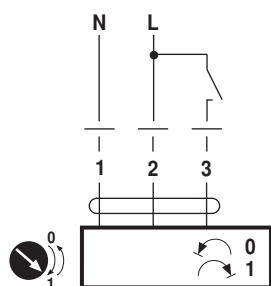


Notes

- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

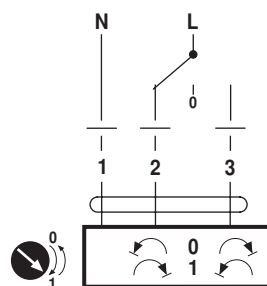
AC 230 V, open-close



Cable colours:

1 = blue
2 = brown
3 = white

AC 230 V, 3-point

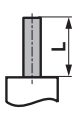

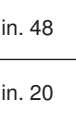


Cable colours:




1 = blue
2 = brown
3 = white

Dimensions [mm]

Spindle length

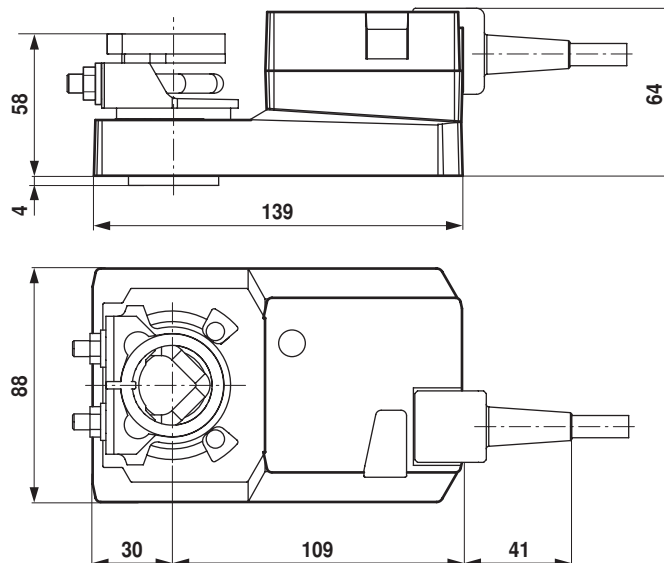
		Min. 48
		Min. 20

Clamping range

			
	10...20	≥10	≤20
CrNi (INOX)	12...20	≥10	≤20

With utilisation of a round spindle made of CrNi (INOX): Ø 12...20 mm

Dimensional drawings



Spring-return actuator with emergency control function for adjusting dampers in technical building installations

- Air damper size up to approx. 0.5 m²
- Nominal torque 2.5 Nm
- Nominal voltage AC/DC 24 V
- Control Open-close



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	2.5 W
	Power consumption in rest position	1.5 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 2.5 Nm
	Torque spring return	Min. 2.5 Nm
	Direction of motion motor	Selectable by mounting L / R
	Direction of motion emergency control function	Selectable by mounting L / R
	Manual override	No
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable starting at 37° in 2.5° steps (with mechanical end stop)
	Running time motor	75 s / 90°
	Running time emergency control position	<25 s / 90°
	Sound power level motor	50 dB(A)
	Spindle driver	Universal spindle clamp 6...12.7 mm
	Position indication	Mechanical
	Service life	Min. 60,000 emergency positions
Safety	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP42
	EMC	CE according to 2004/108/EC
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA
	Overvoltage category	III
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature	-30...50 °C
	Non-operating temperature	-40...80 °C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	0.69 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.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

Safety notes

- 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.
- 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

Mode of operation	The actuator moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted.
Simple direct mounting	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
High functional reliability	The actuator is overload protected and automatically stops when the end stop is reached.
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.

Accessories

	Description	Type
Mechanical accessories	Actuator arm TF..	AH-TF
	Shaft extension 170 mm, for damper spindles Ø 6...20 mm	AV6-20
	Straight ball joint with M8, suitable for damper crank arms KH8	KG10A
	Angled ball joint with M8, suitable for damper crank arms KH8	KG8
	Damper crank arm, for damper spindles	KH8
	Screw fastening kit TF..	SB-TF
	Angle of rotation limiter TF..	ZDB-TF
	Form fit adapter GR, 14x14x40 mm	ZF8-TF
	Mounting kit for linkage operation TF..	ZG-TF1

Electrical installation

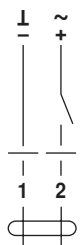


Notes

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

Wiring diagrams

AC/DC 24 V, open-close

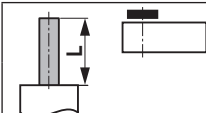


Cable colours:



1 = black
2 = red

Dimensions [mm]

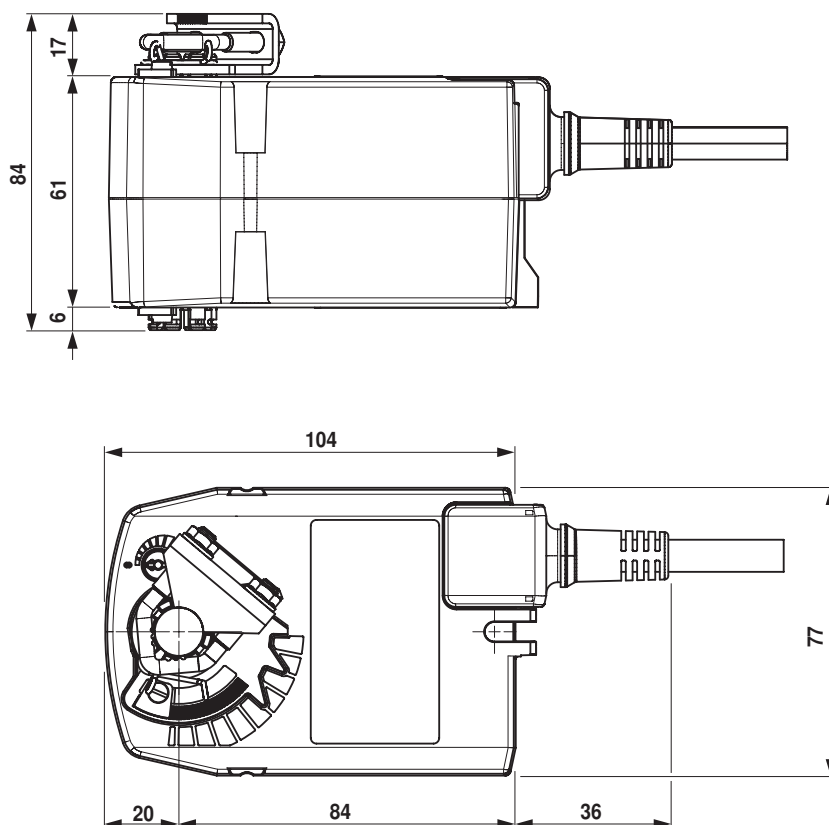
Spindle length

	Min. 84
	-

Clamping range

	
6...12.7	6...12.7

Dimensional drawings



Spring-return actuator for adjusting dampers with safety functions (e.g. frost and smoke control, hygiene, etc.) in technical building installation

- Damper size up to approx. 0.5 m²
- Nominal torque 2.5 Nm
- Nominal voltage AC 230 V
- Control open-close



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85 V ... 265 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	1.5 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ²
Functional data	Torque motor	Min. 2.5 Nm
	Torque spring-return	Min. 2.5 Nm
	Direction of rotation motor	Can be selected by mounting L / R
	Direction of rotation spring-return	Can be selected by mounting L / R
	Angle of rotation	Max. 95°
	Running time motor	75 s / 90°
	Running time emergency control function	<25 s / 90°
	Sound power level motor max.	50 dB (A)
	Spindle driver	Universal spindle clamp 6...12 mm
	Position indication	Mechanical
	Service life	Min. 60,000 security settings
Safety	Protection class IEC/EN	II protective insulated
	Degree of protection IEC/EN	IP42
	EMC	CE in accordance with 2004/108/EC
	Low-voltage directive	CE in accordance with 2006/95/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Principle of operation	Type 1.AA
	Overvoltage category	III
	Control pollution degree	3
	Ambient temperature	-30°C ... 50°C
	Non-operating temperature	-40°C ... 80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	0.6 kg

Safety notes



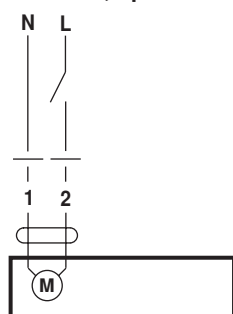
- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with 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.
- The cable must not be removed from the device.
- 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

- Principle of operation** The actuator moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted.
- Direct mounting** Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with a universal mounting bracket to prevent the actuator from rotating.
- High functional reliability** The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Electrical installation**Notes**

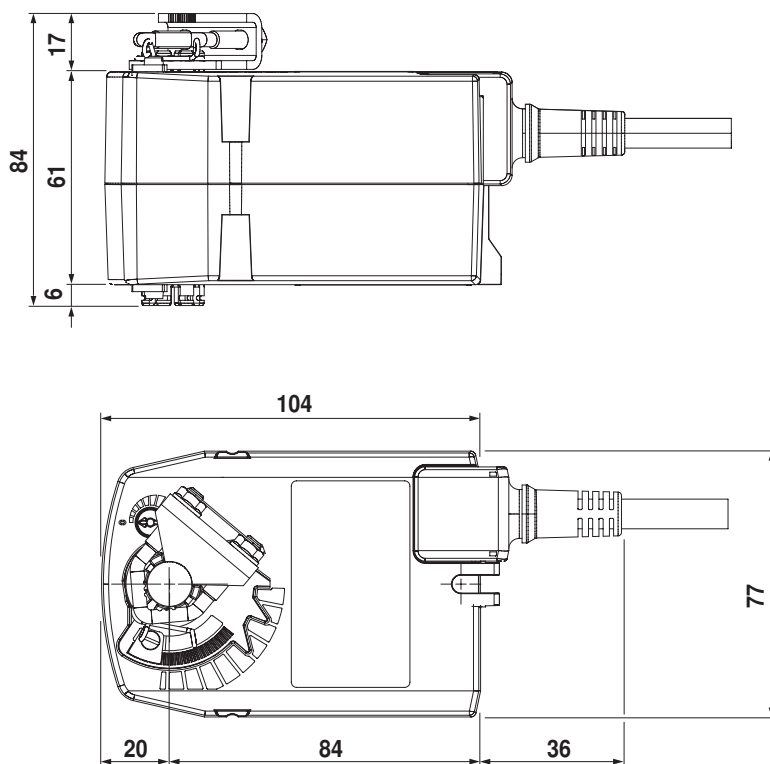
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams**AC 230 V, open-close**

Cable colours:
1 = blue
2 = brown

Dimensions [mm]

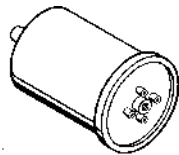
Dimensional drawings



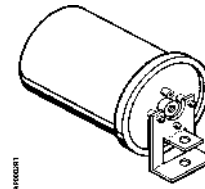
Powers™ Controls

OEM Literature

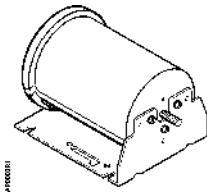
No. 3 Pneumatic Damper Actuator



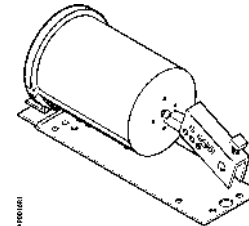
Basic Actuator



Basic Actuator with Pivot Mounting



Typical Actuator with Fixed Bracket Mounting



Typical Actuator with Extended Shaft Mounting


Description	The No. 3 Pneumatic Damper Actuator is a compact, modular, totally enclosed, rolling diaphragm-type actuator designed for modulating or two position actuation.
Features	<ul style="list-style-type: none"> • All metal body modular construction • Fixed or pivot mounting models • Positioning relay available as an option • Variety of mounting/linkage kits to fit any application • Threaded shaft for easy mounting of accessory items
Product Numbers	See Table 1
Application	<p>Typical applications are for control of fire/smoke leakage rated (*) dampers or air valves. Other applications include unit ventilators, unit conditioners, air handlers, and other HVAC applications.</p> <p>* Must be certified by recognized agency.</p> <div>  <p>Certain actuators in Table 1 are UL Recognized Components under UL's Damper Actuator category (EMKU2). This category covers pneumatic damper actuators intended to be employed on fire dampers and fire/smoke leakage rated dampers.</p> </div>

Table 1. Product Numbers for No. 3 Pneumatic Damper Actuators.

Description	Mounting Style	Part Number		
		Nominal Spring Range		
		3-7 psi (21-48 kPa)	5-10 psi (35-69 kPa)	8-13 psi (55-90 kPa)
Basic Actuator only	—	331-4326* 331-4327*	331-4526* 331-4527*	331-4826* 331-4827*
Actuator with pivot bracket	Pivot	331-4322	331-4522	331-4822
Actuator with front mounted fixed bracket	Fixed bracket	331-4323	331-4523	331-4823
Actuator with clevis	Basic	331-4324*	331-4524*	331-4824*
Actuator with clevis and positioner relay	Basic	‡	‡	332-4824
Actuator with pivot bracket, pivot post, clevis, and miscellaneous hardware	Pivot	331-4351	331-4551*	331-4851* 331-4829* 331-4841*
Actuator with pivot bracket, pivot post, clevis, crank assembly, extended shaft mounting plate, damper drive blade, and mounting hardware	Extended shaft mounting	—	—	331-4821*

* UL Recognized Component.

‡ Available upon request.

Specifications	Effective diaphragm area	8 inches ² (51.6 cm ²)
	Stroke	2-3/4 inches (70 mm)
	Housing (totally enclosed)	Aluminum
	Stem	Plated steel
	Diaphragm	Ozone resistant rubber
	Spring	Steel
	Cup	Zytel
	Maximum air pressure	25 psig (172 kPa)
	Nominal spring ranges	See Table 1
	Operating temperature	-20 to 160°F (-29 to 71°C)
	Air Connection	Straight barb fitting for 1/4 inch O.D. plastic tubing installed in 1/8 inch NPT opening
	Type of Mounting	Fixed or pivot
	Thrust and Torque Rating	See Table 2
	Shipping Weight:	
	Basic Actuator	1.3 lbs. (0.58 kg)
	Actuator with Extended Shaft Mounting	3.1 lbs. (1.4 kg)
	Actuator with Fixed Bracket	2.5 lbs. (1.1 kg)
	Actuator with Fixed Bracket and Clevis	2.7 lbs. (1.2 kg)
	Actuator with Extended Shaft Mounting and Positioning Relay	4.8 lbs. (2.2 kg)
	Dimensions	See Figures 4 through 8
	Agency Approvals	Complies with UL555 and UL555S

NOTE: The No. 3 Pneumatic Damper Actuator does not require any periodic cycling. However, it is strongly suggested that all systems are functionally checked periodically, and per local codes and ordinances.

Accessories	Linkage kit (4-inch link and crank)	331-958
	Linkage kit (4-inch rod, ball joint and crank)	331-947
	Damper shaft crank, selectable radius, 45°, 60°, and 90°, angular rotation for 3/8 to 1/2-inch (9.5 to 13 mm) diameter damper shafts	331-941
	Damper shaft crank adjustable radius 3/4 to 2-7/8-inch (19 to 73 mm) for 1/2 inch (13 mm) diameter damper shaft	331-795
	Damper shaft crank adjustable radius 3/4 to 4-5/8-inch (19 to 177 mm) for 3/8 inch (9 mm) diameter damper shaft	331-805
	Damper shaft extension 1/2 inch × 9 inch long	333-042
	Damper shaft extension 1/2 inch shaft	331-631
	Damper shaft extension Adapter for 3/8-inch shaft	331-632
	Pivot mounting bracket only	333-134
	Pivot mounting kit (bracket and three mounting screws)	333-148
	Pivot post	333-139
	Fixed mounting bracket	331-916
	Extended shaft mounting plate	331-033
	Clevis, steel	333-207
	Clevis pin	331-293
	Hitch pin	331-807
	Damper actuator push rods:	
	12 inch	338-041
	15 inch	338-042
	18 inch	338-043
	24 inch	338-044
	36 inch	338-045
	48 inch	338-046
	Damper blade rocker arm	333-034
	Positioning relay	147-2000
	Relay mounting kit	147-104

Table 2. Thrust Torque Ratings.

Nominal Spring Range	Maximum Thrust lbs. (N)				Torque Rating* lb/in (Nm)			
	Full Stroke Forward			Spring Return (No Stroke) 0 psig (0 kPa)	Gradual Operation	2-Position Operation		
	15 psi (103 kPa)	18 psi (124 kPa)	25 psi (172 kPa)			15 psi (103 kPa)	18 psi (124 kPa)	25 psi (172 kPa)
3 To 7 psi (21 to 48 kPa)	64 (285)	88 (391)	144 (641)	24 (107)	10 (1.1)	20.2 (2.3)	20.2 (2.3)	20.2 (2.3)
5 to 10 psi (35 to 69 kPa)	40 (178)	64 (285)	120 (534)	40 (178)	10 (1.1)	33.6 (3.8)	33.6 (3.8)	33.6 (3.8)
8-13 psi (55 to 90 kPa)	16 (71)	40 (178)	96 (427)	64 (285)	10 (1.1)	13.4 (1.5)	33.6 (3.8)	53.8 (6.1)

* With maximum hysteresis of 2.5 psi (17.2 kPa) @ 90° rotation.

Operation

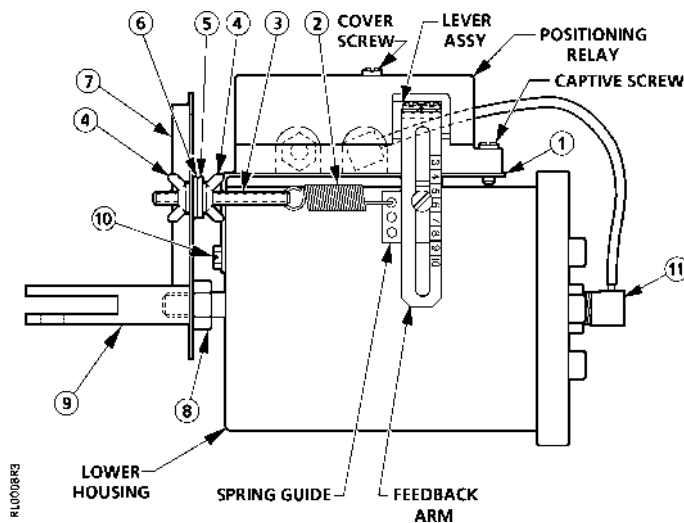
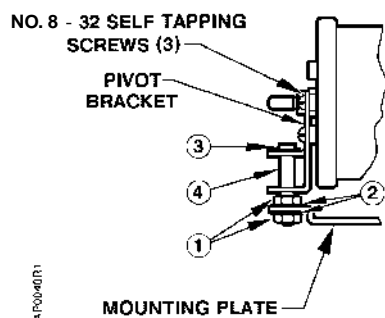
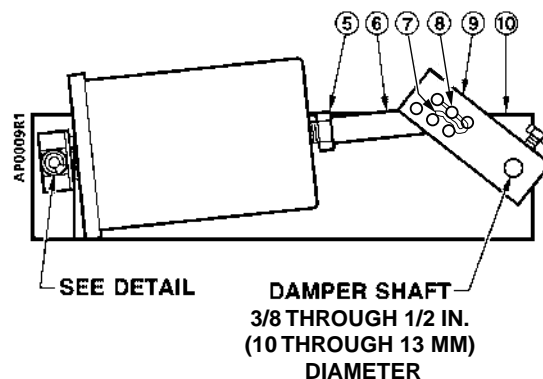


Figure 1.

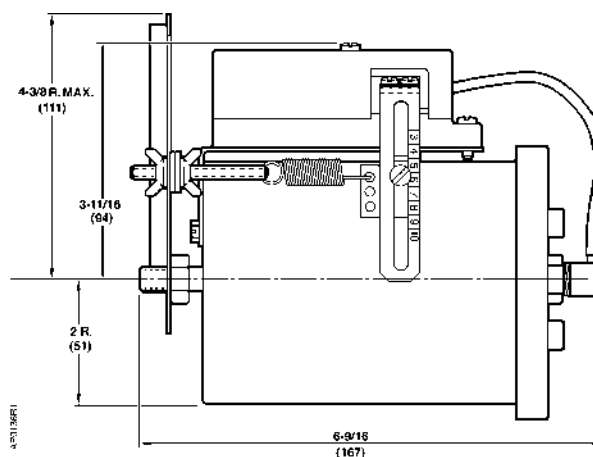
Table 3. No. 3 Damper Actuator with Optional Positioner Relay 147-2000 and Relay Mounting Kit 147-104. (See Figure 1)

Item	Description	Item	Description
1	Positioning relay mounting bracket	7	Spring arm
2	Feedback spring—zinc plate or yellow chr.	8	3/8–24 hex nut
3	Adjusting screw 1-3/4 inch (44 mm) long	9	Clevis
4	Wing nut	10	No. 10 – 16, 1/2-inch (13-mm) slotted hex screw
5	Lock washer	11	90° Elbow connector
6	Flat washer		

**Operation,
Continued****Figure 2.****Figure 3.****Table 4. Extended Shaft Mounting with Pivot and Mounting Plate.**

Item	Description	Part Numbers
1	Nuts (2)	041-133K
2	Lock washers (2)	046-017K
3	E-ring	047-051J
4	Pivot shaft (post)	333-139
5	Jamb nut	041-143K
6	Clevis	333-207
7	Hitch pin	331-807
8	Clevis pin	331-293
9	Crank assembly kit	331-941
10	Extended shaft No. 3 actuator mounting plate	331-033

NOTE: Kit number 331-101 including items 1, 2, 3, and 4, above, plus pivot bracket and self tapping screws, have a minimum order quantity of 50 pieces.

Dimensions**Figure 4. Dimensions Shown in Inches (mm).**

Dimensions, Continued

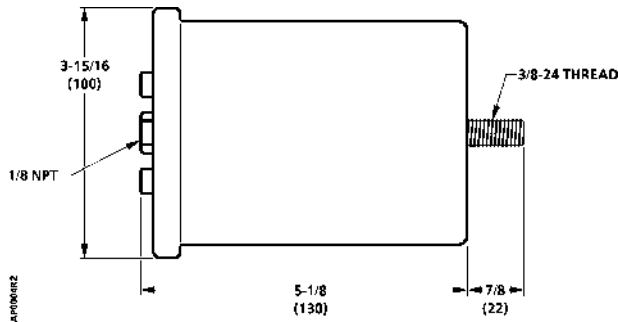


Figure 5. Basic Actuator

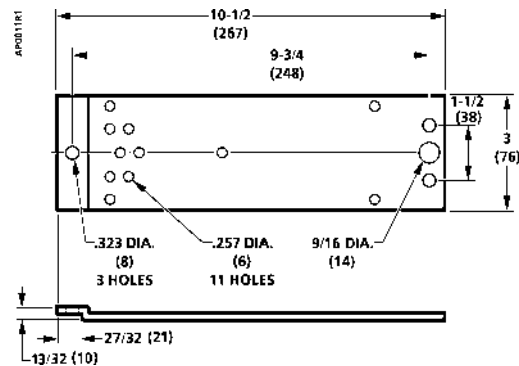


Figure 6. Mounting Plate.

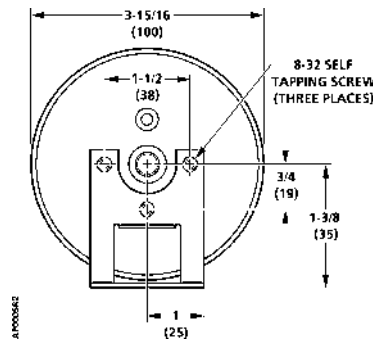


Figure 7. Pivot Mount.

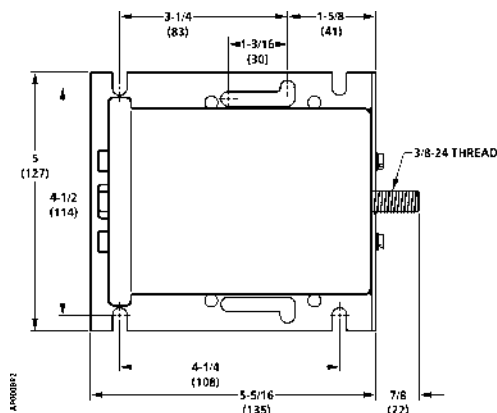
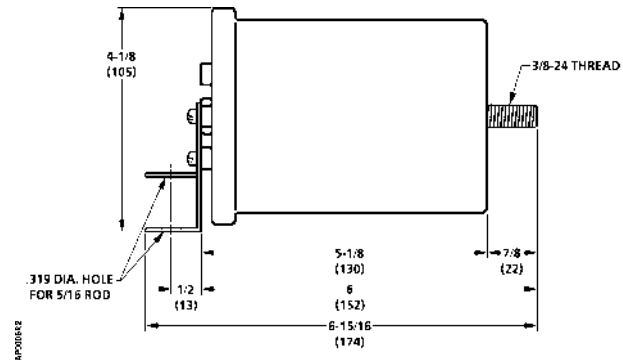
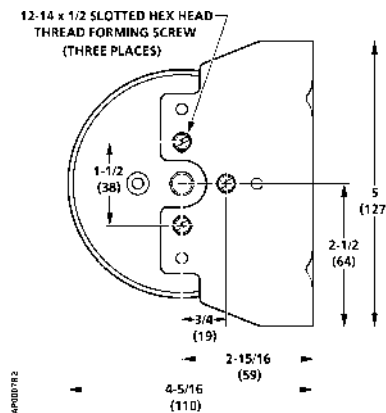


Figure 8. Fixed Bracket Mount.



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