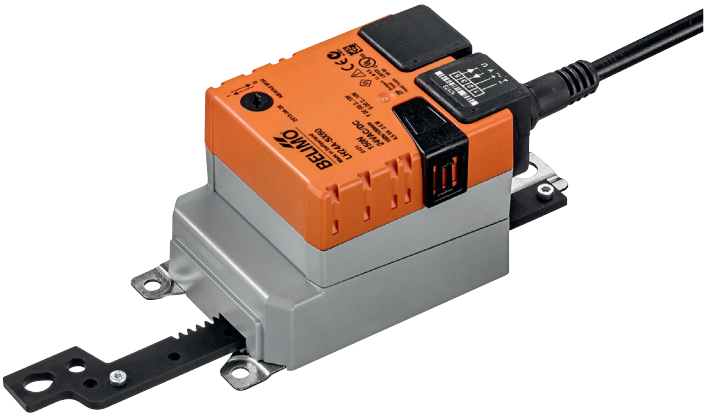
Technical data sheet LH24A60

Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 60 mm, adjustable in 20 mm increments**



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	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 60 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Running time motor note	corresponds to 90 s / 60 mm
	Sound power level motor	45 dB(A)
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	0.43 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.
- 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.

Safety notes

- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

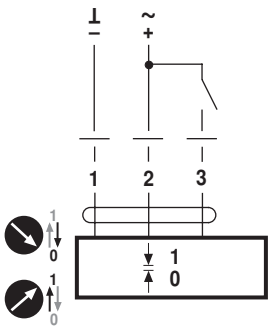
	Description	Type
Mechanical accessories	End stop set for LH	Z-AS2
	Rotary support for compensation of transverse forces	Z-DS1
	Coupling piece M6 for LH, galvanised steel	Z-KS2

Electrical installation

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

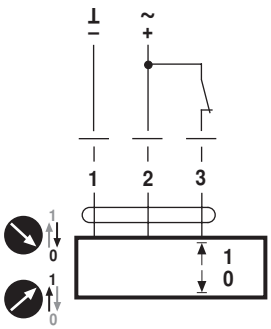
Wiring diagrams

AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red
3 = white

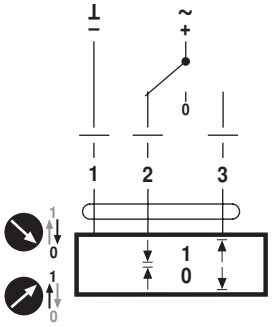
Connection 3 takes priority



Cable colours:
1 = black
2 = red
3 = white

Electrical installation

AC/DC 24 V, 3-point



Cable colours:
1 = black
2 = red
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

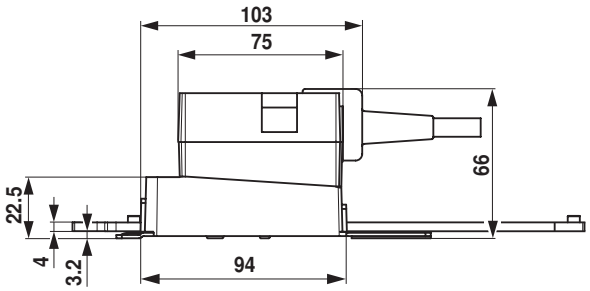
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

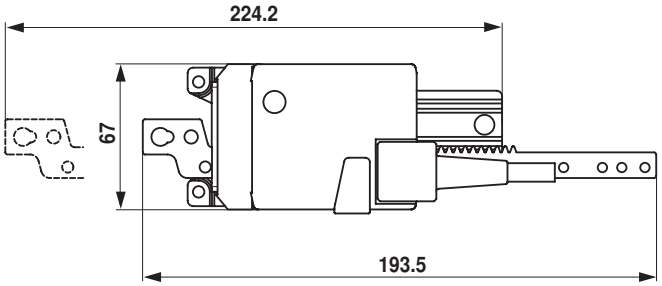
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

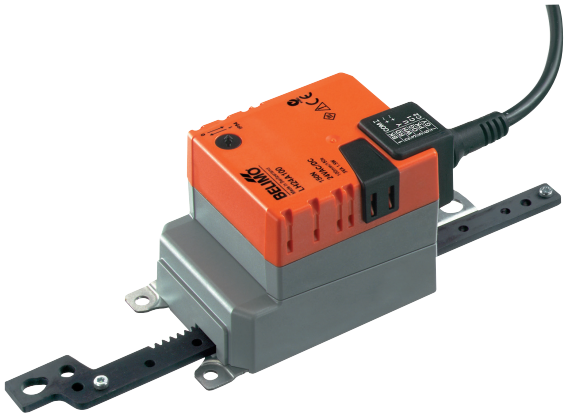
Dimensional drawings





Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 100 mm, adjustable in 20 mm increments**



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	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 100 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	0.45 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.
- 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.

Safety notes

- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

	Description	Type
Mechanical accessories	End stop set for LH	Z-AS2
	Rotary support for compensation of transverse forces	Z-DS1
	Coupling piece M6 for LH, galvanised steel	Z-KS2

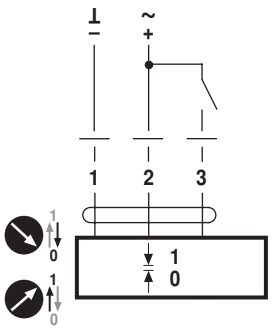
Electrical installation

Notes

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

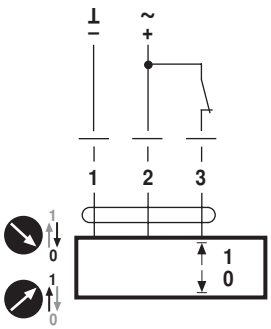
Wiring diagrams

AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red
3 = white

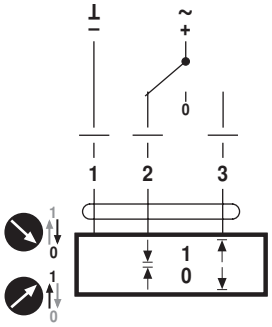
Connection 3 takes priority



Cable colours:
1 = black
2 = red
3 = white

Electrical installation

AC/DC 24 V, 3-point



Cable colours:
1 = black
2 = red
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

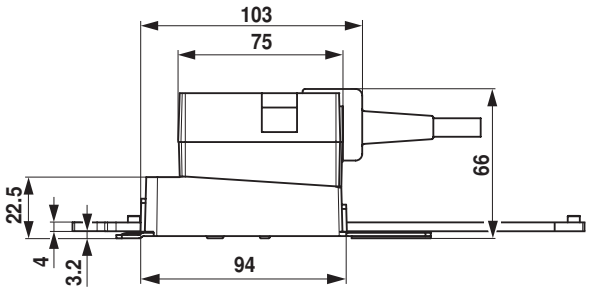
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

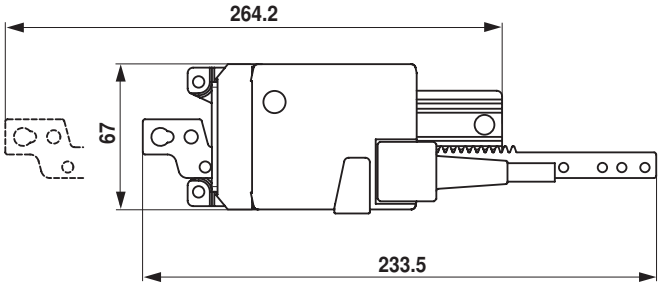
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

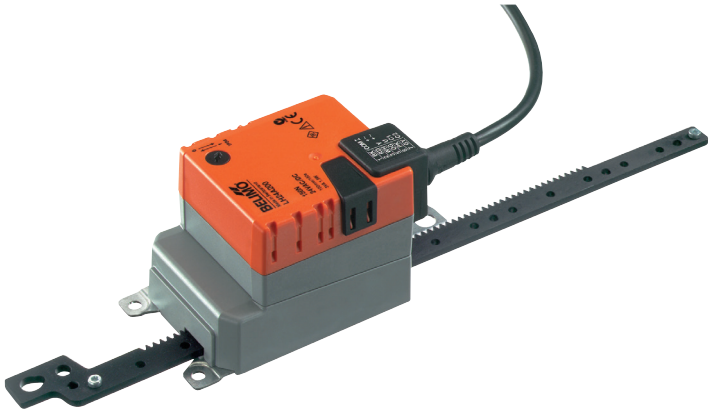
Dimensional drawings





Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 200 mm, adjustable in 20 mm increments**



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	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 200 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	0.48 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.
- 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.

Safety notes

- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

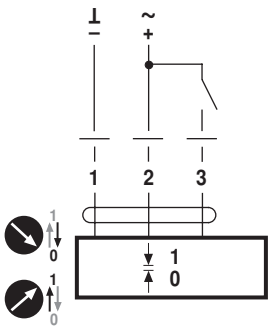
	Description	Type
Mechanical accessories	End stop set for LH	Z-AS2
	Rotary support for compensation of transverse forces	Z-DS1
	Coupling piece M6 for LH, galvanised steel	Z-KS2

Electrical installation

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

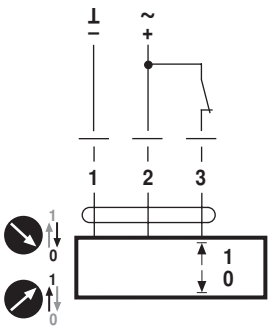
Wiring diagrams

AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red
3 = white

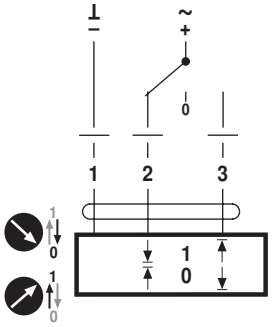
Connection 3 takes priority



Cable colours:
1 = black
2 = red
3 = white

Electrical installation

AC/DC 24 V, 3-point



Cable colours:
1 = black
2 = red
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

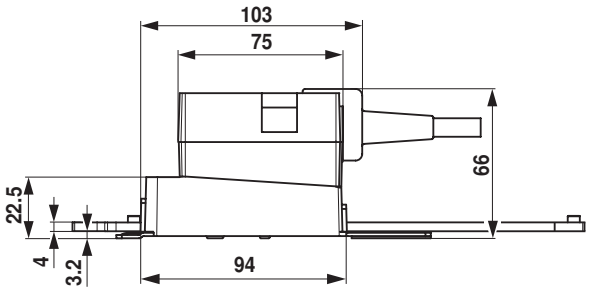
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

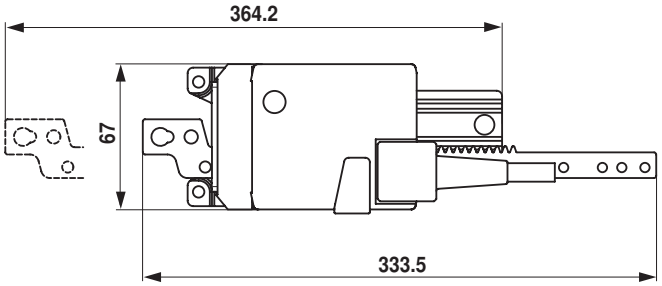
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

Dimensional drawings





Technical data sheet LH24A300

Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 300 mm, adjustable in 20 mm increments**

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	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 300 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	0.52 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.
- 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.

Safety notes

- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

	Description	Type
Mechanical accessories	End stop set for LH	Z-AS2
	Rotary support for compensation of transverse forces	Z-DS1
	Coupling piece M6 for LH, galvanised steel	Z-KS2

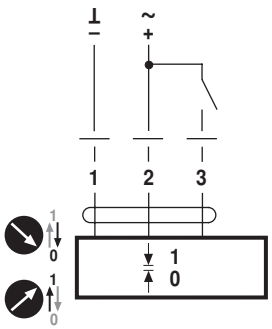
Electrical installation

Notes

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

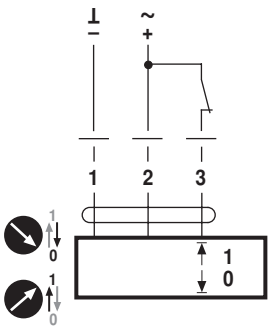
Wiring diagrams

AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red
3 = white

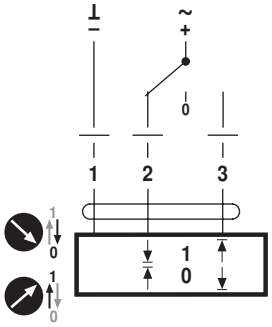
Connection 3 takes priority



Cable colours:
1 = black
2 = red
3 = white

Electrical installation

AC/DC 24 V, 3-point



Cable colours:
1 = black
2 = red
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

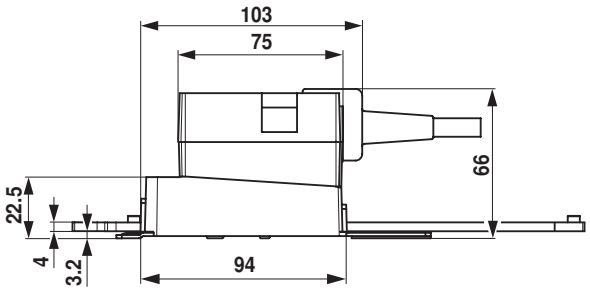
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

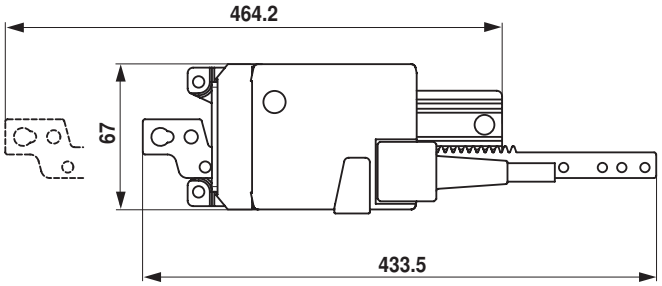
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

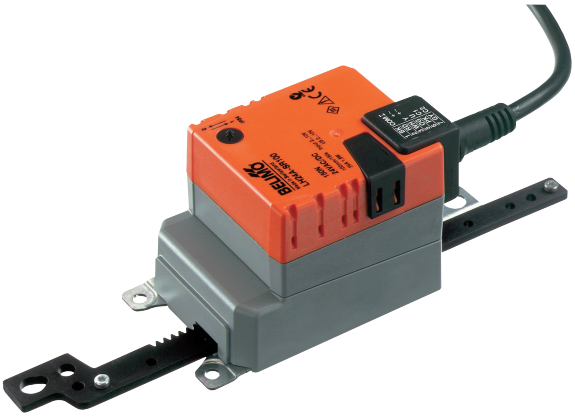
Dimensional drawings





Modulating linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC/DC 24 V**
- **Control Modulating DC (0)2...10 V**
- **Position feedback DC 2...10 V**
- **Length of Stroke Max. 100 mm, fixed setting**



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	1.5 W
	Power consumption in rest position	0.5 W
	Power consumption for wire sizing	3 VA
	Connection supply / control	Cable 1 m, 4 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	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
	Direction of motion note	Y = 0 V: with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 100 mm, fixed setting
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	0.51 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.
- The gear rod and the mechanical end stops must not be removed.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 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.

Simple direct mounting
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

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.

Accessories

Electrical accessories

Description	Type
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
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

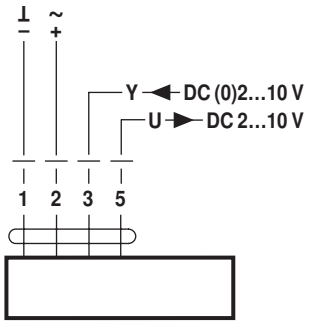
Electrical installation

Notes

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

Wiring diagrams

AC/DC 24 V, modulating



Cable colours:
1 = black
2 = red
3 = white
5 = orange

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

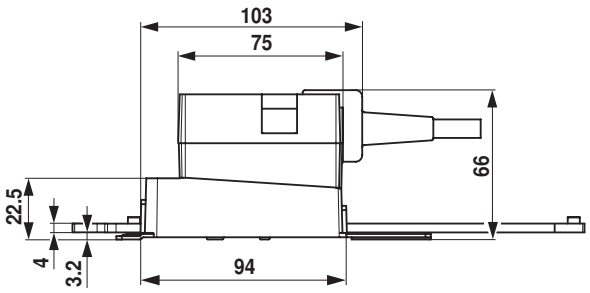
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

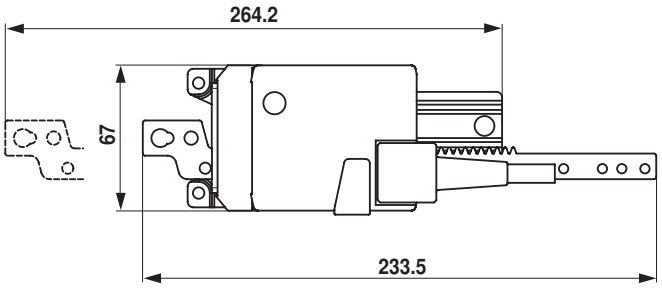
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

Dimensional drawings

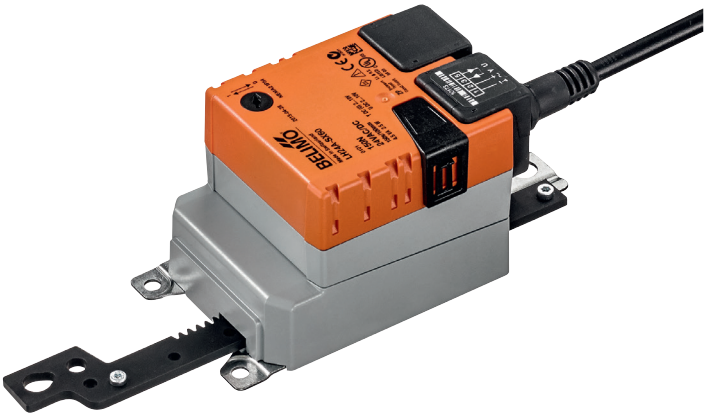




Technical data sheet LH230A60

Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 60 mm, adjustable in 20 mm increments**



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 60 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Running time motor note	corresponds to 90 s / 60 mm
	Sound power level motor	45 dB(A)
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	4 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	0.45 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.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override
Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke
If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability
The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

Mechanical accessories

Description	Type
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

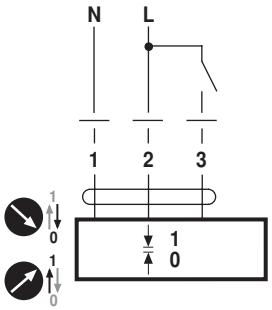
Electrical installation

Notes

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

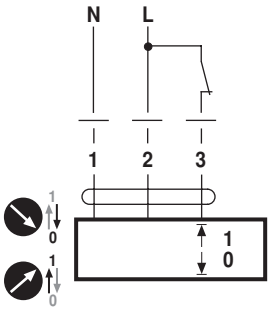
Wiring diagrams

AC 230 V, open-close



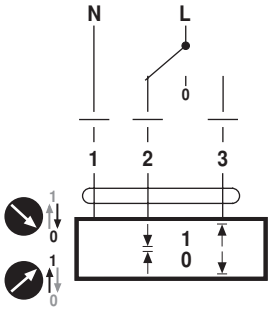
Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, open-close, priority at connection 3



Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, 3-point



Cable colours:
1 = blue
2 = brown
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

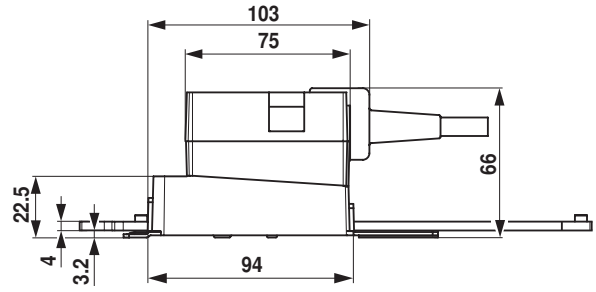
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

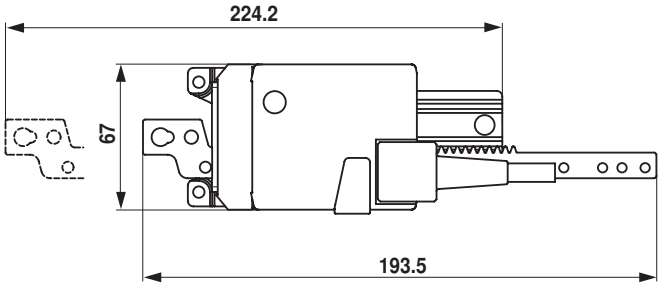
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

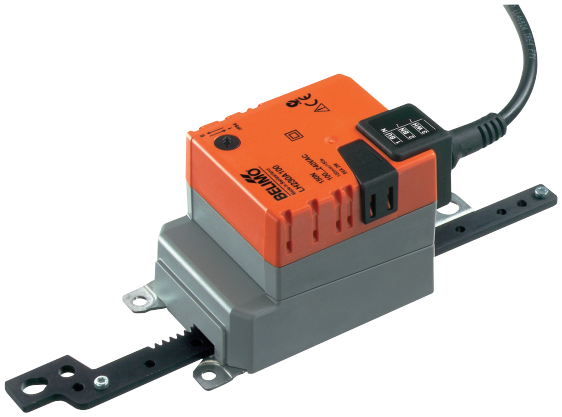
Dimensional drawings





Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 100 mm, adjustable in 20 mm increments**



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 100 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	4 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	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!
- 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.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override
Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke
If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability
The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

Mechanical accessories

Description	Type
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

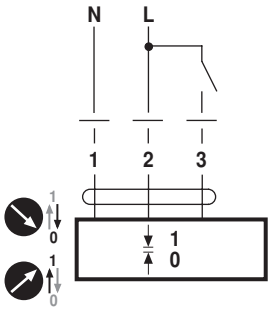
Electrical installation

Notes

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

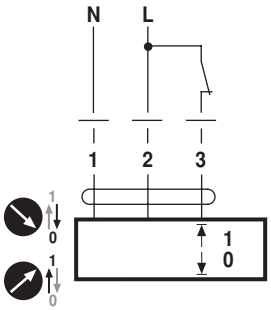
Wiring diagrams

AC 230 V, open-close



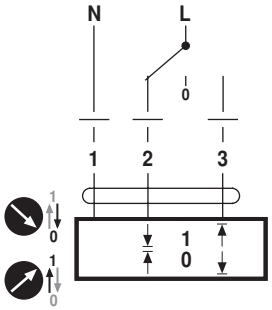
Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, open-close, priority at connection 3



Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, 3-point



Cable colours:
1 = blue
2 = brown
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

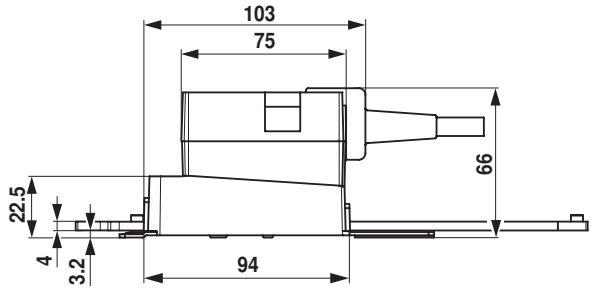
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

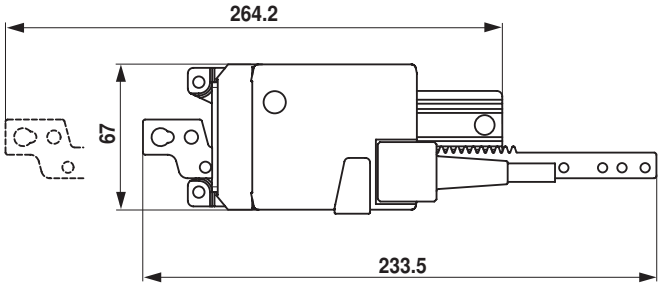
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

Dimensional drawings





Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 200 mm, adjustable in 20 mm increments**

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 200 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	4 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	0.54 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.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override
Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke
If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability
The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

Mechanical accessories

Description	Type
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

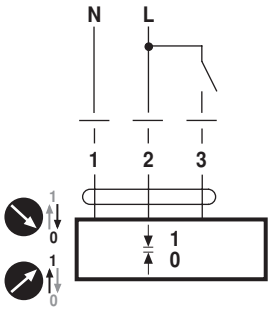
Electrical installation

Notes

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

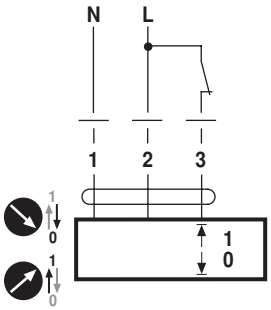
Wiring diagrams

AC 230 V, open-close



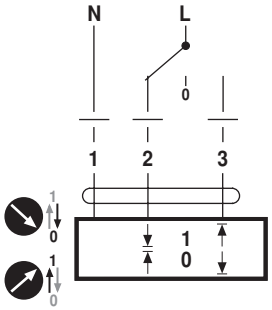
Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, open-close, priority at connection 3



Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, 3-point



Cable colours:
1 = blue
2 = brown
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

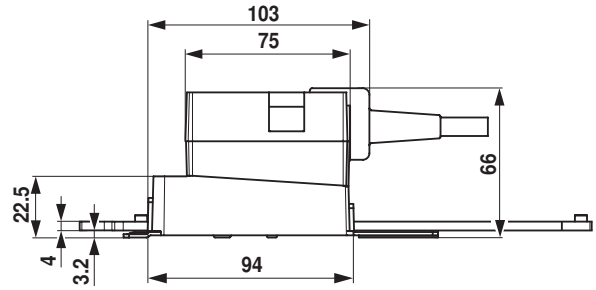
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

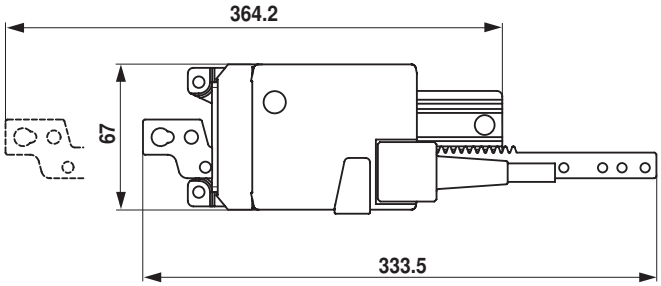
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

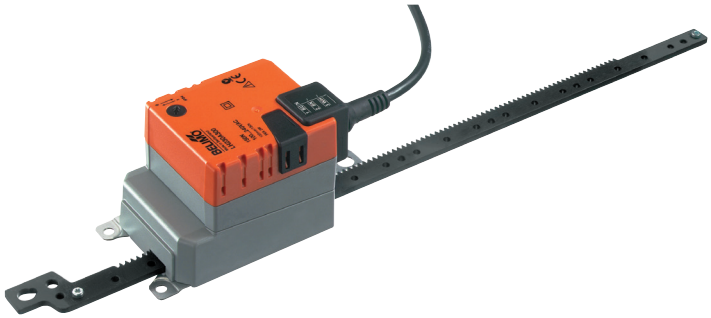
Dimensional drawings





Linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Open-close, 3-point**
- **Length of Stroke Max. 300 mm, adjustable in 20 mm increments**



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	Direction of motion motor	Selectable with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 300 mm, adjustable in 20 mm increments
	Stroke limitation	can be limited on both sides with mechanical end stops
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	4 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	0.57 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.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

Manual override
Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

Adjustable stroke
If a stroke limitation will be adjusted, the mechanical operating range on this side of the gear rod can be used starting with an extension length of 20 mm and then can be limited respectively in increments of 20 mm by means of mechanical end stops Z-AS2.

High functional reliability
The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Accessories

	Description	Type
Mechanical accessories	End stop set for LH	Z-AS2
	Rotary support for compensation of transverse forces	Z-DS1
	Coupling piece M6 for LH, galvanised steel	Z-KS2

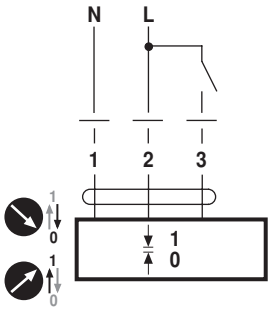
Electrical installation

Notes

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

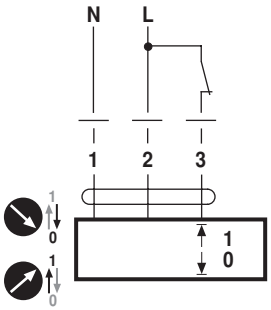
Wiring diagrams

AC 230 V, open-close



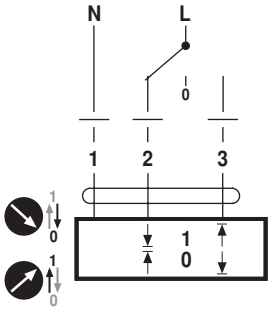
Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, open-close, priority at connection 3



Cable colours:
1 = blue
2 = brown
3 = white

AC 230 V, 3-point



Cable colours:
1 = blue
2 = brown
3 = white

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

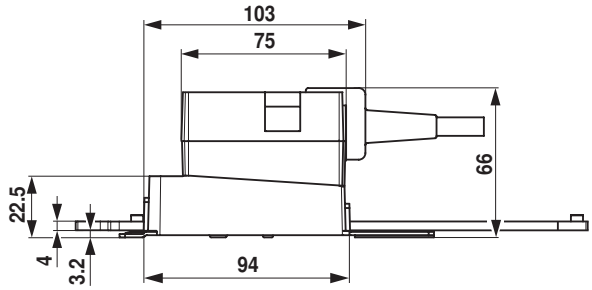
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

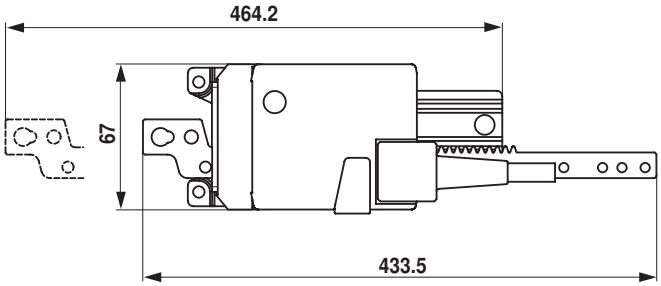
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

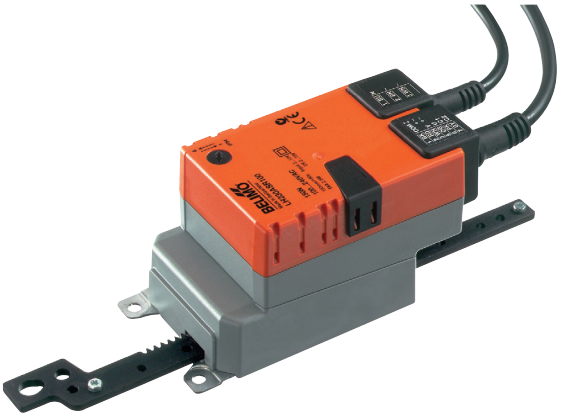
Dimensional drawings





Modulating linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Modulating DC (0)2...10 V**
- **Position feedback DC 2...10 V**
- **Length of Stroke Max. 100 mm, fixed setting**



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply	Cable 1 m, 2 x 0.75 mm²
	Connection control	Cable 1 m, 4 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	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
	Auxiliary supply	DC 24 V ±30%, max. 10 mA
	Position accuracy	±5%
	Direction of motion motor	Selectable with switch
	Direction of motion note	Y = 0 V: with switch 0 (extended) / 1 (retracted)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 100 mm, fixed setting
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	4 kV
	Rated impulse voltage 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	0.52 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.

Safety notes

- 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.
- 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 gear rod and the mechanical end stops must not be removed.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 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.

Simple direct mounting
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

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.

Accessories

Electrical accessories

Description	Type
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
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

Electrical installation

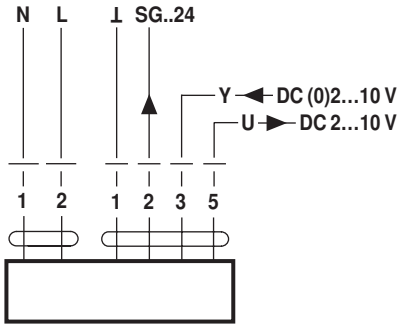
Electrical installation

Notes

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

Wiring diagrams

AC 230 V, modulating



Cable colours:
1 = blue
2 = brown
1 = black
2 = red
3 = white
5 = orange

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

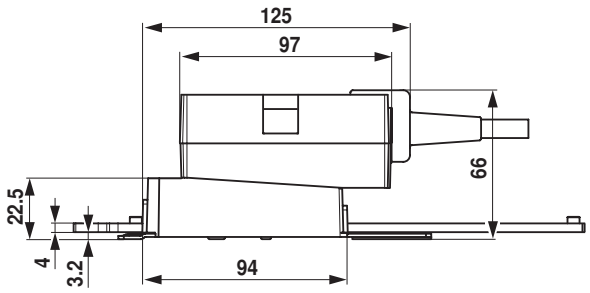
The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

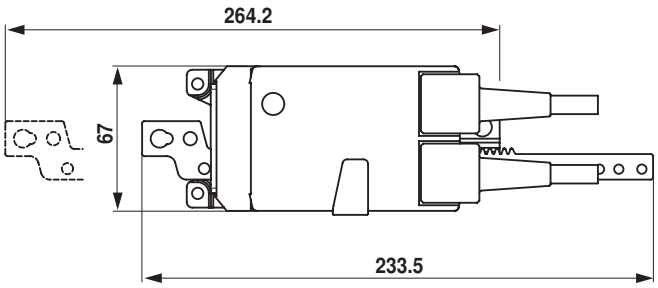
Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

Dimensional drawings





Modulating linear actuator for adjusting dampers and slide valves in technical building installations

- **Air damper size up to approx. 1 m²**
- **Actuating force 150 N**
- **Nominal voltage AC 230 V**
- **Control Modulating DC (0)2...10 V**
- **Position feedback DC 2...10 V**
- **Length of Stroke Max. 200 mm, fixed setting**

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	5 VA
	Connection supply	Cable 1 m, 2 x 0.75 mm²
	Connection control	Cable 1 m, 4 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Actuating force motor	Min. 150 N
	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
	Auxiliary supply	DC 24 V ±30%, max. 10 mA
	Position accuracy	±5%
	Direction of motion motor	Selectable with switch
	Direction of motion note	Y = 0 V: with switch 0 (retracted) / 1 (extended)
	Manual override	Gear disengagement with push-button, can be locked
	Length of Stroke	Max. 200 mm, fixed setting
	Running time motor	150 s / 100 mm
	Sound power level motor	45 dB(A)
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	4 kV
	Rated impulse voltage 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	0.54 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.

Safety notes

- 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.
- 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 gear rod and the mechanical end stops must not be removed.
- The rotary supports and coupling pieces available as accessories must always be used if transverse forces are likely. In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the actuator is exposed to severely contaminated ambient air, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rod from being extended and retracted correctly.
- If not installed horizontally, the gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and slide valves, the specifications supplied by the damper manufacturers concerning the cross section, the design, the installation site and the ventilation conditions must be observed.
- If a rotary support and/or coupling piece is used, actuation force losses are to be expected.
- 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 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.

Simple direct mounting
The actuator can be directly connected with the application using the enclosed screws. The head of the gear rod is connected to the moving part of the ventilating application individually on the mounting side or with the Z-KS2 coupling piece provided.

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.

Accessories

Electrical accessories

Description	Type
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
End stop set for LH	Z-AS2
Rotary support for compensation of transverse forces	Z-DS1
Coupling piece M6 for LH, galvanised steel	Z-KS2

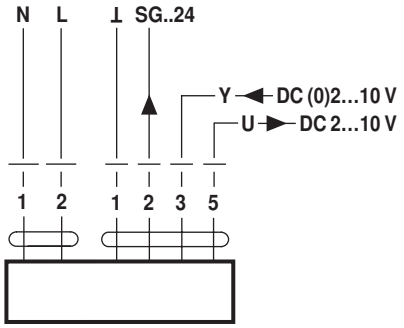
Electrical installation

Notes

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

Wiring diagrams

AC 230 V, modulating



Cable colours:
1 = blue
2 = brown
1 = black
2 = red
3 = white
5 = orange

Installation notes

Notes

- If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

Applications without transverse force

The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

Applications with transverse forces

Connect the coupling piece with the internal thread (Z-KS2) to the head of the gear rod. Screw the rotary support (Z-DS1) to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilating application (e.g. damper or slide valve). The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10°, laterally and upwards.

Dimensions [mm]

Dimensional drawings