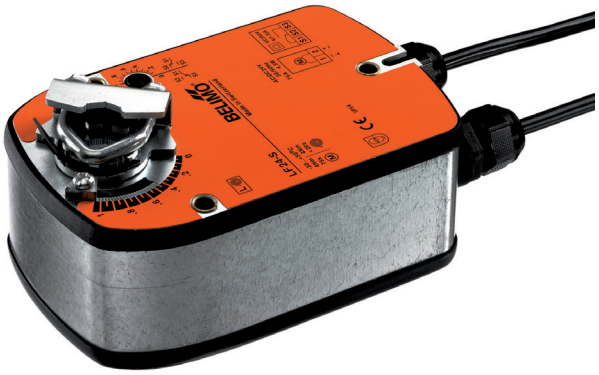
Technical data sheet LF24-S

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**
- **With integrated auxiliary switch**



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	Imax 5.8 A @ 5 ms
	Auxiliary switch	1 x SPDT, 0...100%
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Connection supply / control	Cable 1 m, 2 x 0.75 mm²
	Connection auxiliary switch	Cable 1 m, 3 x 0.75 mm²
	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
	Protection class auxiliary switch IEC/EN	II Protective insulated
	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
	Rated impulse voltage auxiliary switch	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.	1.6 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.
- 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.

Flexible signalization
With adjustable auxiliary switch (0 ... 100%)

Accessories

Electrical accessories

Description	Type
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

Mechanical accessories

Description	Type
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

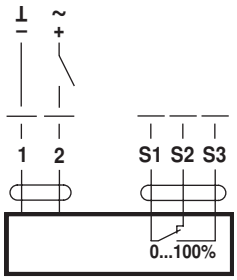
Electrical installation

Notes

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

Wiring diagrams

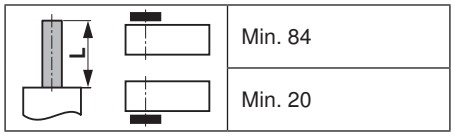
AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red
S1 = white
S2 = white
S3 = white

Dimensions [mm]

Spindle length

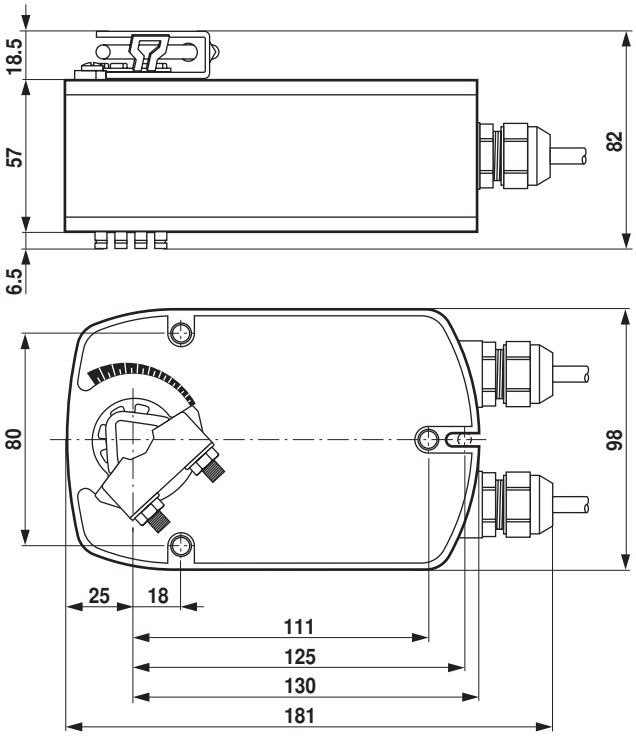


Min. 84
Min. 20

Clamping range

8...16	8...16

Dimensional drawings



Technical data sheet LF24-SR

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 Modulating DC (0)2...10 V**
- **Position feedback DC 2...10 V**

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 W
	Power consumption for wire sizing	5 VA
	Connection supply / control	Cable 1 m, 4 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 4 Nm
	Torque spring return	Min. 4 Nm
	Positioning signal Y	DC 0...10 V
	Positioning signal Y note	Input impedance 100 kΩ
	Operating range Y	DC 2...10 V
	Position feedback U	DC 2...10 V
	Position feedback U note	Max. 0.7 mA
	Position accuracy	±5%
	Direction of motion motor	Selectable with switch 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	150 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	30 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
	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.	1.6 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.
- 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 is connected with a standard modulating signal of DC 0 ... 10 V and moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the emergency position by spring force 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

Electrical accessories

Description	Type
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
Signal converter voltage/current, supply AC/DC 24V	Z-UIC
Digital position indicator for front-panel mounting, 0...99%, front mass 72 x 72 mm	ZAD24
Range controller for wall mounting, adjustable electron. Min./max. angle of rotation limitation	SBG24
Positioner for wall mounting, range 0...100%	SGA24
Positioner in a conduit box, range 0...100%	SGE24
Positioner for front-panel mounting, range 0...100%	SGF24
Positioner for wall mounting, range 0...100%	CRP24-B1

Mechanical accessories

Description	Type
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

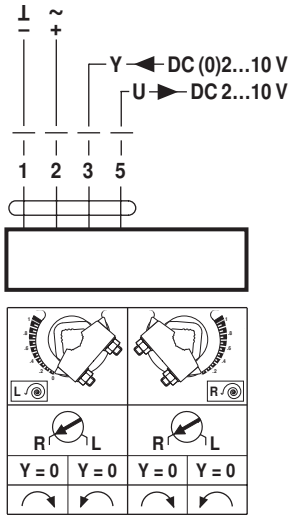
Electrical installation

Notes

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

Wiring diagrams

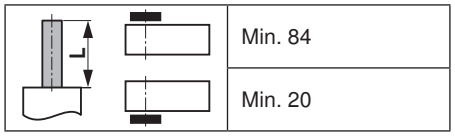
AC/DC 24 V, modulating



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

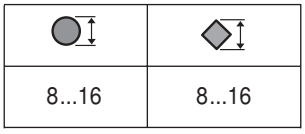
Dimensions [mm]

Spindle length



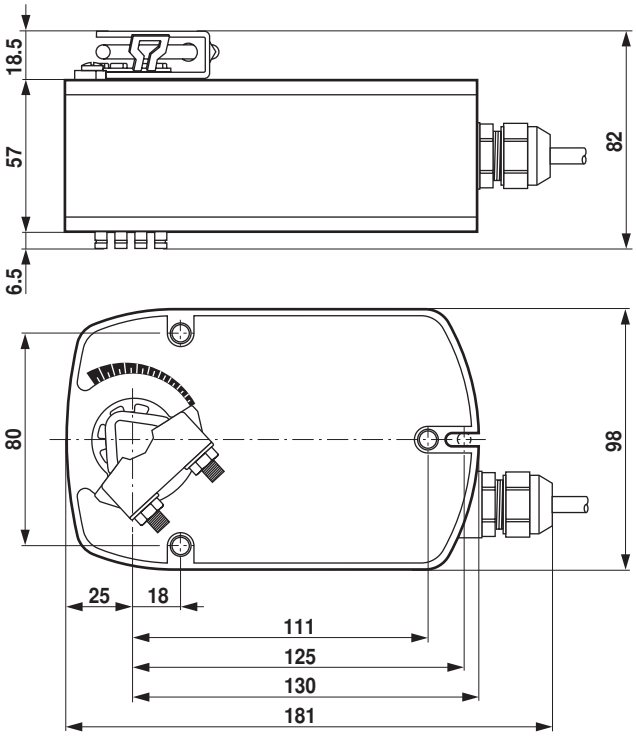
Min. 84
Min. 20

Clamping range



8...16	8...16

Dimensional drawings



Technical data sheet LF230

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 230 V**
- **Control Open-close**

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198...264 V
	Power consumption in operation	5 W
	Power consumption in rest position	3 W
	Power consumption for wire sizing	7 VA
	Power consumption for wire sizing note	Imax 150 mA @ 10 ms
	Connection supply / control	Cable 1 m, 2 x 0.75 mm²
	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	II Protective insulated
	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	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 approx.	1.7 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

- 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.
- 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

Electrical accessories

Description	Type
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

Mechanical accessories

Description	Type
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

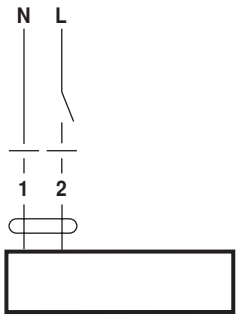
Electrical installation

Notes

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

Wiring diagrams

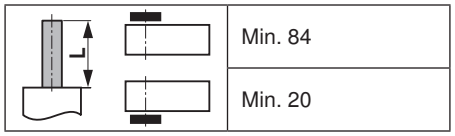
AC 230 V, open-close



Cable colours:
1 = blue
2 = brown

Dimensions [mm]

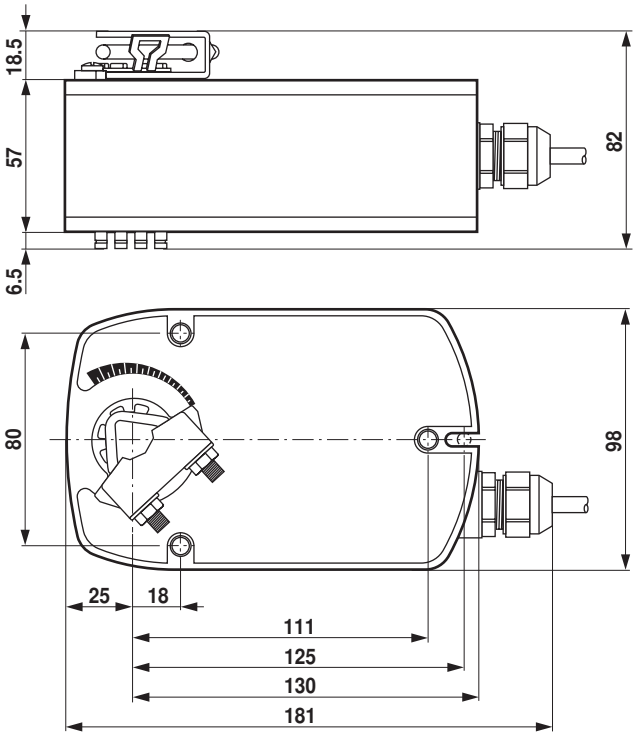
Spindle length



Clamping range

8...16	8...16

Dimensional drawings



BELIMO

Technical data sheet LF230-S

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 230 V**
- **Control Open-close**
- **With integrated auxiliary switch**

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198...264 V
	Power consumption in operation	5 W
	Power consumption in rest position	3 W
	Power consumption for wire sizing	7 VA
	Power consumption for wire sizing note	Imax 150 mA @ 10 ms
	Auxiliary switch	1 x SPDT, 0...100%
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Connection supply / control	Cable 1 m, 2 x 0.75 mm²
	Connection auxiliary switch	Cable 1 m, 3 x 0.75 mm²
	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	II Protective insulated
	Protection class auxiliary switch IEC/EN	II Protective insulated
	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	4 kV
	Rated impulse voltage auxiliary switch	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 approx.	1.8 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.
- 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.

Flexible signalization
With adjustable auxiliary switch (0 ... 100%)

Accessories

Electrical accessories

Description	Type
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

Mechanical accessories

Description	Type
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

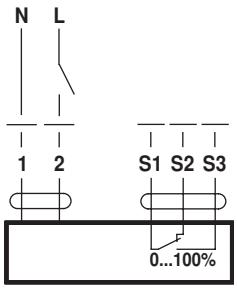
Electrical installation

Notes

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

Wiring diagrams

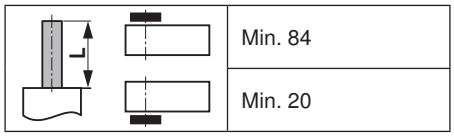
AC 230 V, open-close



Cable colours:
1 = blue
2 = brown
S1 = white
S2 = white
S3 = white

Dimensions [mm]

Spindle length



Min. 84
Min. 20

Clamping range

8...16	8...16

Dimensional drawings