Dep. Ar Condicionado

ACTUADORES PARA VÁLVULAS DE BORBOLETA

BELIMO

SR24A-5

SR230A-5

SRF24A-5 SRF24-S2-5

SRF230A-5 SRF230A-S2-5

GR24A-5

GR230A-5

GRK24A-5

Módulo S2A

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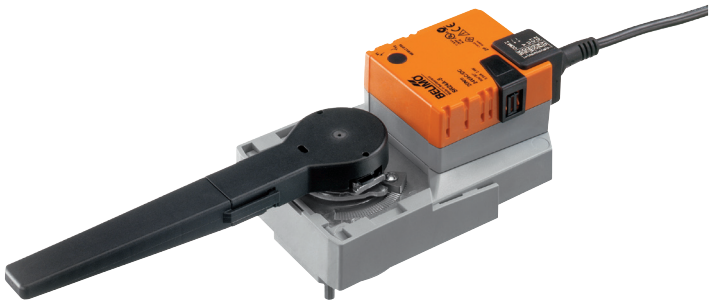
BELIMO

Technical data sheet SR24A-5

Rotary actuator for rotary valves and butterfly valves
- **Nominal torque 20 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close, 3-point**



Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 19.2...28.8 V
	Power consumption in operation	2.5 W
	Power consumption at rest	0.2 W
	Power consumption for wire sizing	5.5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	min. 20 Nm
	Manual override	Gear disengagement with push-button, can be locked
	Running time motor	90 s / 90°
	Sound power level motor max.	45 dB(A)
	Position indication	Mechanical, integrated, two-section
Safety	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	Electromagnetic compatibility	CE according to 2004/108/EC
	Certification IEC/EN	Certified to 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 current voltage motor	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
Mechanical data	Connection flange	F05
Weight	Weight approx.	1 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The switch for changing the direction of rotation may only be operated by authorised specialists. The direction of rotation must not in particular be reversed in a frost protection circuit.
- 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 cables must not be removed from the device.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Direct mounting Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.

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-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve/actuator For valves with the following mechanical specifications in accordance with ISO 5211 F05:
- Square stem head SW = 14 mm for form-fit coupling of the rotary actuator.
- Hole circle d = 50 mm

Accessories

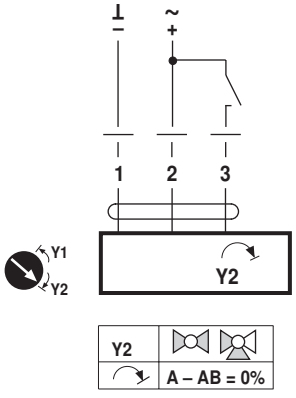
	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

Electrical installation

Notes
- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.
- Direction of rotation switch is covered. Factory setting: Direction of rotation Y2.

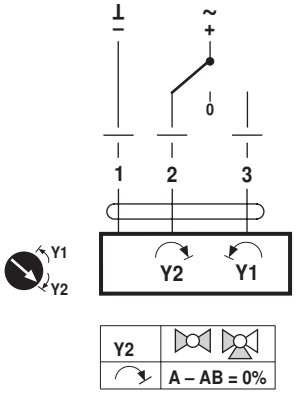
Wiring diagrams

AC/DC 24 V, open-close



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

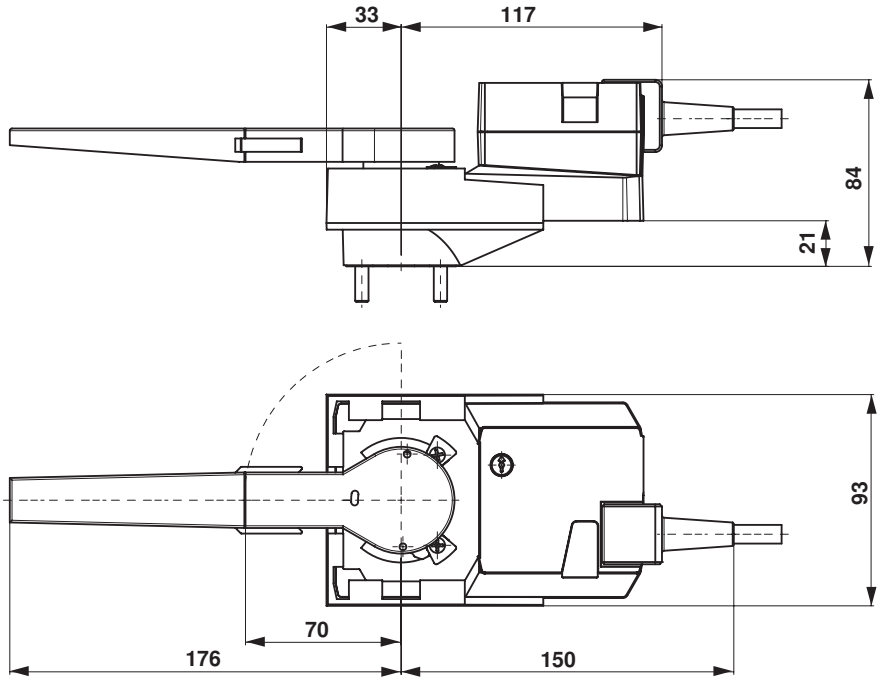
AC/DC 24 V, 3-point



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

Dimensions [mm]

Dimensional drawings



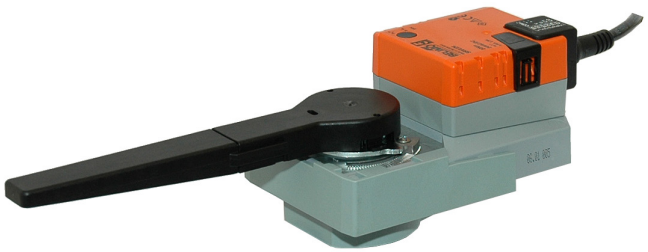
Further documentation

- Data sheets for rotary valves and butterfly valves
- Installation instructions for actuators and/or rotary valves and butterfly valves
- General notes for project planning

BELIMO

Technical data sheet SR230A-5

Rotary actuator for rotary valves and butterfly valves
- **Nominal torque 20 Nm**
- **Nominal voltage AC 230 V**
- **Control Open-close, 3-point**



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	3 W
	Power consumption at rest	0.4 W
	Power consumption for wire sizing	7 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	min. 20 Nm
	Manual override	Gear disengagement with push-button, can be locked
	Running time motor	90 s / 90°
	Sound power level motor max.	45 dB(A)
	Position indication	Mechanical, integrated, two-section
Safety	Protection class IEC/EN	II totally insulated
	Degree of protection IEC/EN	IP54
	Electromagnetic compatibility	CE according to 2004/108/EC
	Low-voltage directive	CE according to 2006/95/EC
	Certification IEC/EN	Certified to 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 current voltage motor	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
Mechanical data	Connection flange	F05
Weight	Weight approx.	1 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The switch for changing the direction of rotation may only be operated by authorised specialists. The direction of rotation must not in particular be reversed in a frost protection circuit.
- 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 cables must not be removed from the device.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Direct mounting
Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.

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-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve/actuator
For valves with the following mechanical specifications in accordance with ISO 5211 F05:
- Square stem head SW = 14 mm for form-fit coupling of the rotary actuator.
- Hole circle d = 50 mm

Accessories

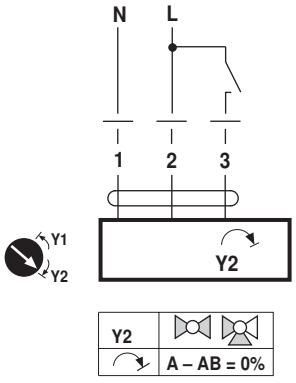
	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

Electrical installation

Notes
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.
- Direction of rotation switch is covered. Factory setting: Direction of rotation Y2.

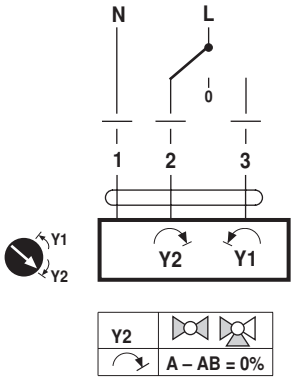
Wiring diagrams

AC 230 V, open-close



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

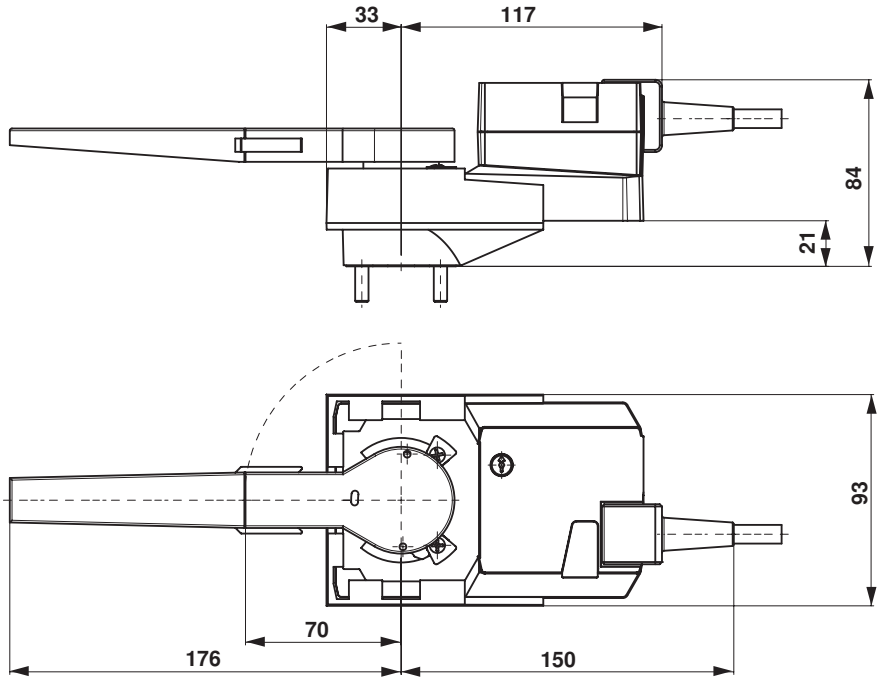
AC 230 V, 3-point



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

Dimensions [mm]

Dimensional drawings



Further documentation

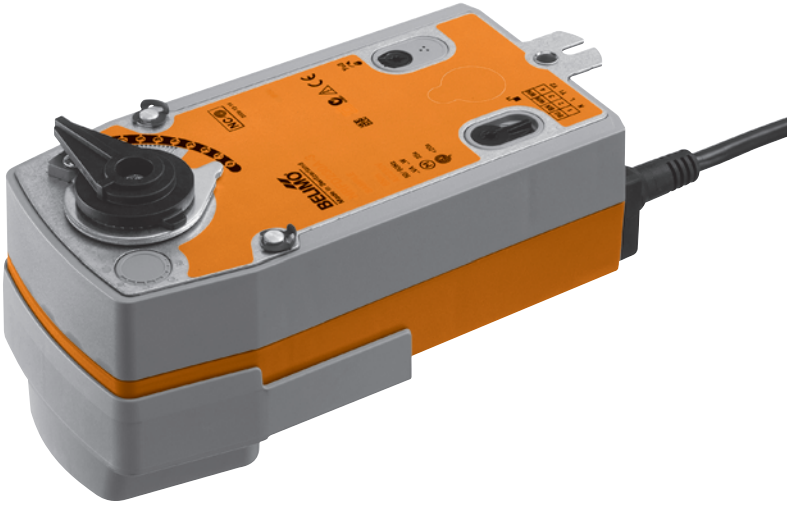
- Data sheets for rotary valves and butterfly valves
- Installation instructions for actuators and/or rotary valves and butterfly valves
- General notes for project planning

BELIMO

Technical data sheet SRF24A-5(-O)

Rotary actuator with emergency function for butterfly valves

- **Torque 20 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control: Open-close**
- **SRF24A-5: Deenergised NC**
  SRF24A-5-O: Deenergised NO



Technical data

Electrical data	Nominal voltage		AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range		AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
	Power consumption	In operation	4.5 W @ nominal torque
		At rest	2.5 W
		For wire sizing	6.5 VA
	Connection		Cable 1 m, 2 x 0.75 mm²
	Parallel connection		Yes (Note performance data for supply!)
Functional data	Torque	Motor	Min. 20 Nm @ nominal voltage
		Spring return	Min. 20 Nm
	Direction of rotation	Spring return	
		– SRF24A-5	Deenergised NC, butterfly valve closed (A – AB = 0%)
		– SRF24A-5-O	Deenergised NO, butterfly valve open (A – AB = 100%)
	Manual override		With hand crank and interlocking switch
	Angle of rotation		Max. 90°∢
	Running time	Motor	≤75 s / 90°∢
		Spring return	≤20 s @ –20 ... 50°C / max. 60 s @ –30°C
	Sound power level	Motor	≤45 dB (A)
		Spring return	≤62 dB (A)
	Position indication		Mechanical
Safety	Protection class		**III** Extra low voltage / UL Class 2 Supply
	Degree of protection		IP54 NEMA 2, UL Enclosure Type 2
	EMC		CE according to 2004/108/EC
	Certification		cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation		Type 1.AA
	Rated impulse voltage		0.8 kV
	Control pollution degree		3
	Ambient temperature		–30 ... +50°C
	Media temperature		+5 ... +100°C (in butterfly valve)
	Non-operating temperature		–40 ... +80°C
	Ambient humidity		95% r.h., non-condensating
	Maintenance		Maintenance-free
Dimensions / Weight	Dimensions		See «Dimensions» on page 3
	Weight		Approx. 2 kg (without butterfly valve)

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **It may only be installed by suitably trained personnel. All applicable legal or institutional installation regulations must be complied with.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Mode of operation
The actuator moves the butterfly valve to the operating position at the same time as tensioning the return spring. The butterfly valve is turned back to the safety position by spring force if the supply voltage is interrupted.

Simple direct mounting
Straightforward direct mounting on the butterfly valve with only one screw. The mounting position in relation to the butterfly valve can be selected in 90°⊲ steps.

Manual override
Manual operation of the valve with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

Adjustable angle of rotation
Adjustable angle of rotation with mechanical end stop.

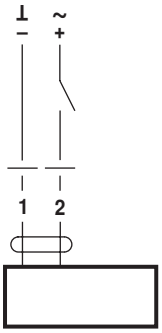
High operational reliability
The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve actuators
Refer to the valve documentation for suitable valves, their permitted media temperatures and closing pressures.

Electrical installation

Wiring diagram

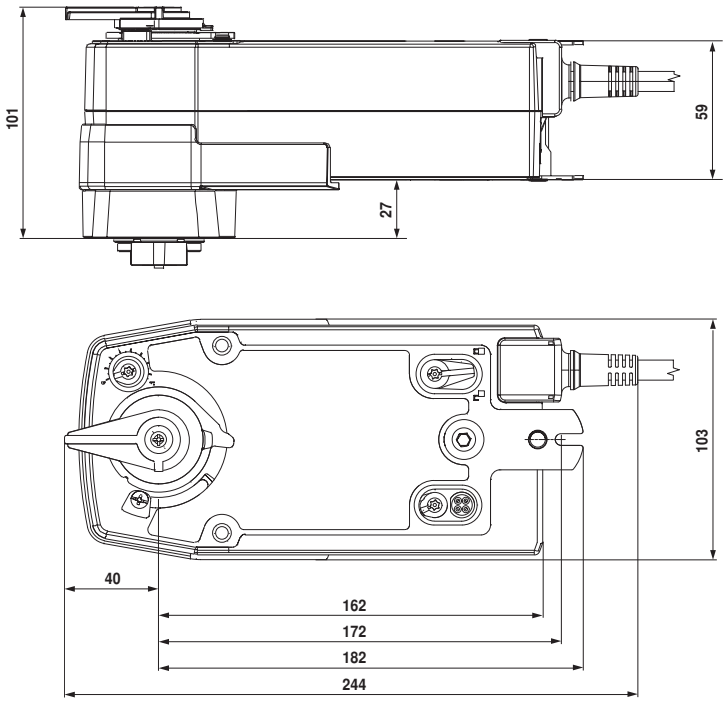
Notes
- Connect via safety isolation transformer.
- Parallel connection of other actuators possible. Note the performance data.



Cable colours:
1 = black
2 = red

Dimensions [mm]

Dimensional drawings



Further documentations

- Complete overview «The comlete range of water solutions»
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)

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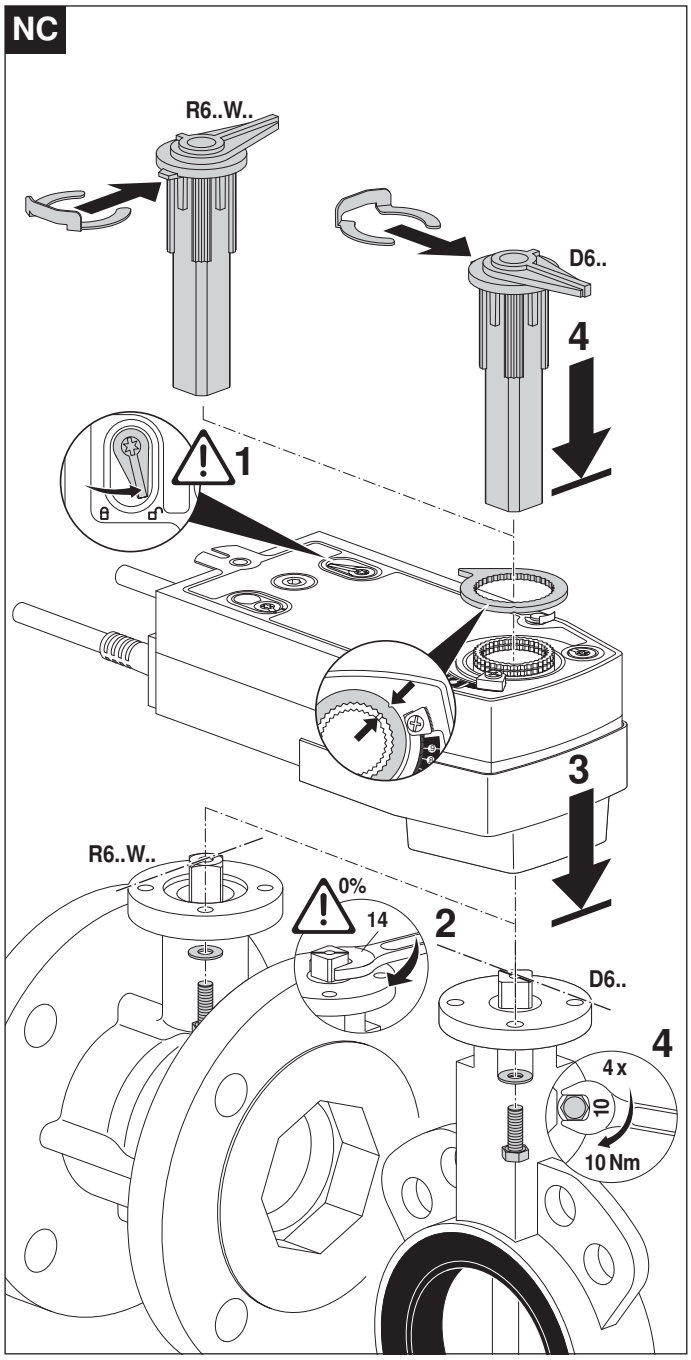
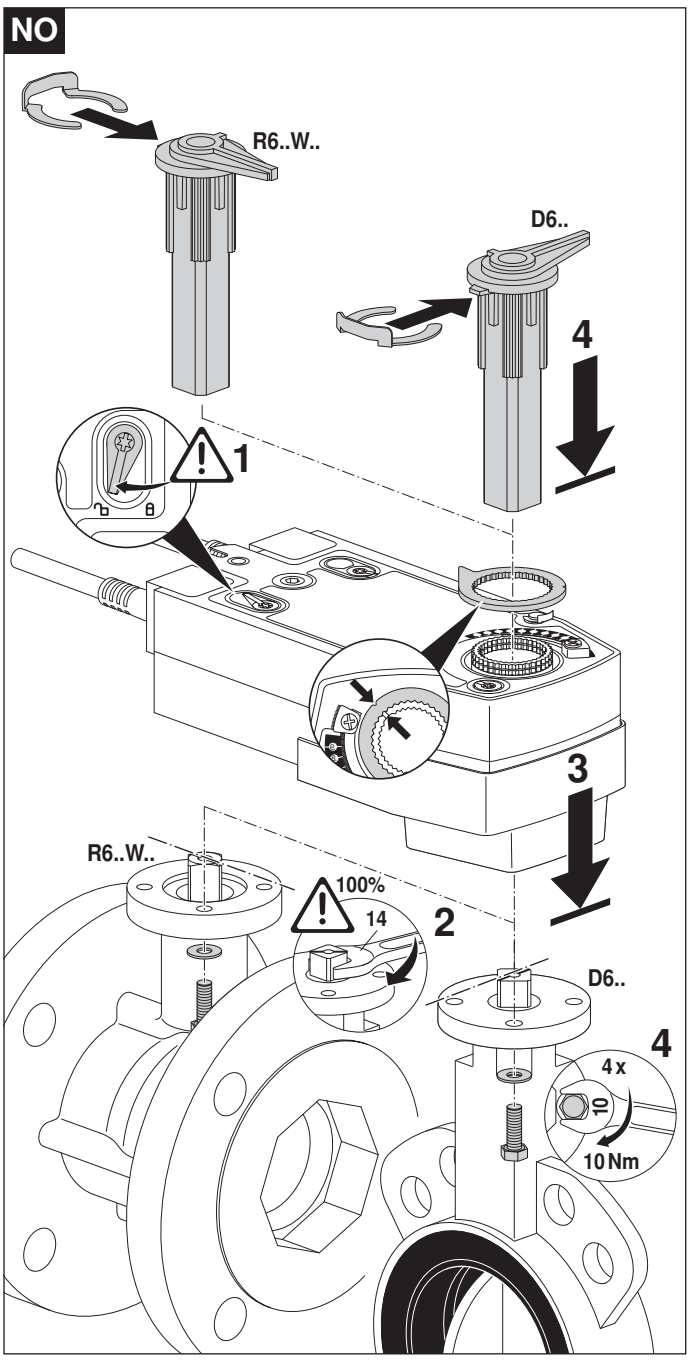
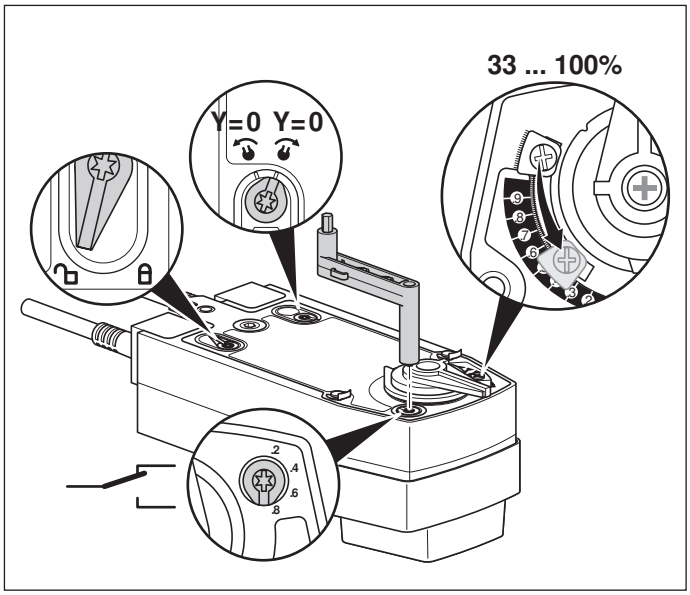
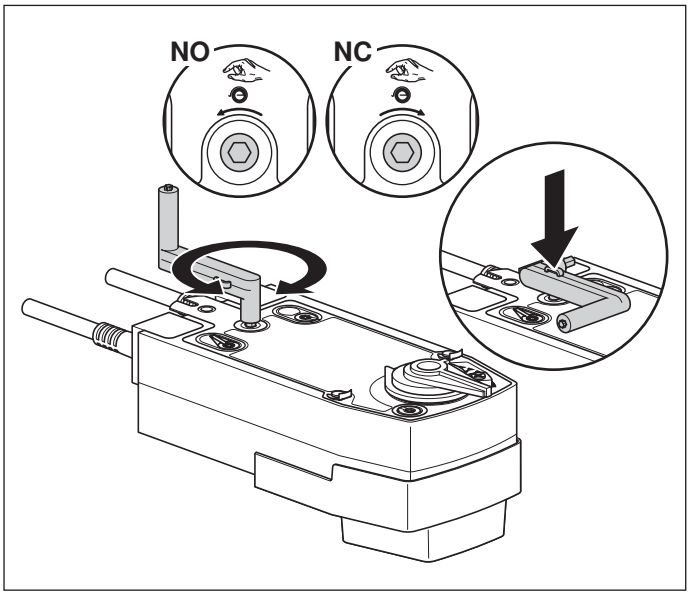
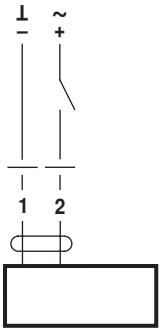




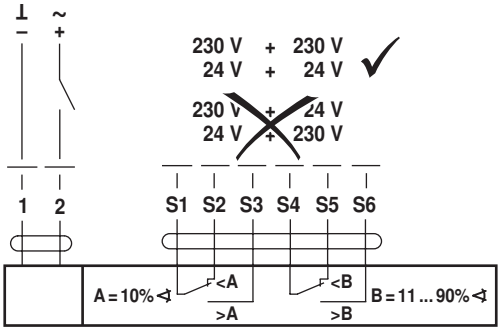




AC 24 V / DC 24 V

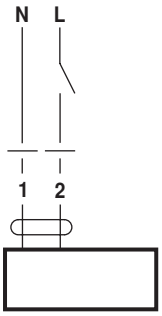


SRF24A-5(-O)

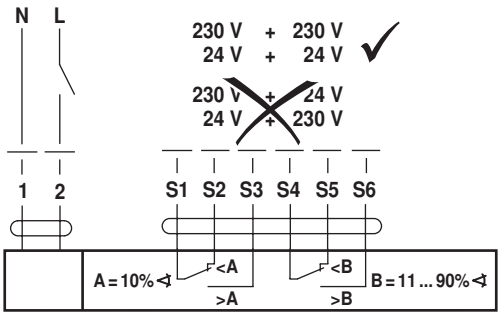


SRF24A-S2-5(-O)

AC 230 V ⚠

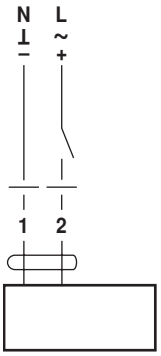


SRF230A-5(-O)

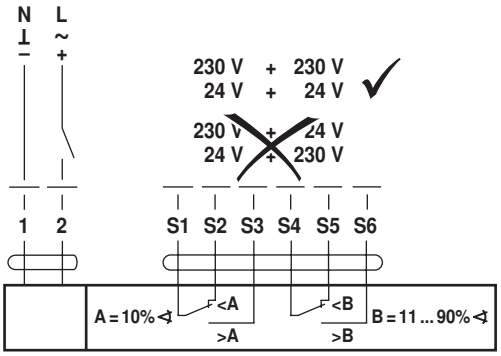


SRF230A-S2-5(-O)

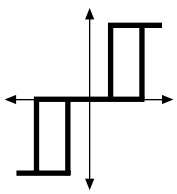
AC 24 ... 240 V / DC 24 ... 125 V ⚠



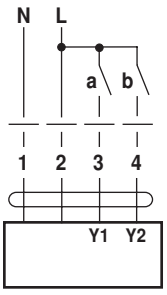
SRFA-5(-O)



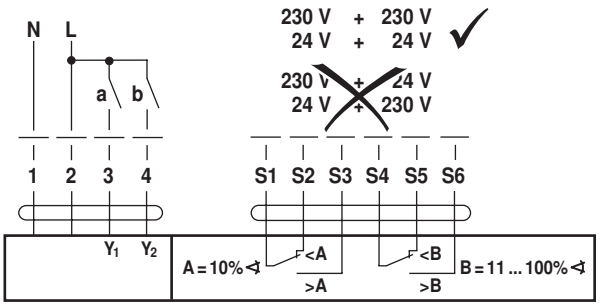
SRFA-S2-5(-O)



AC 230 V ⚠



SRF230A-3-5(-O)



SRF230A-3-S2-5(-O)

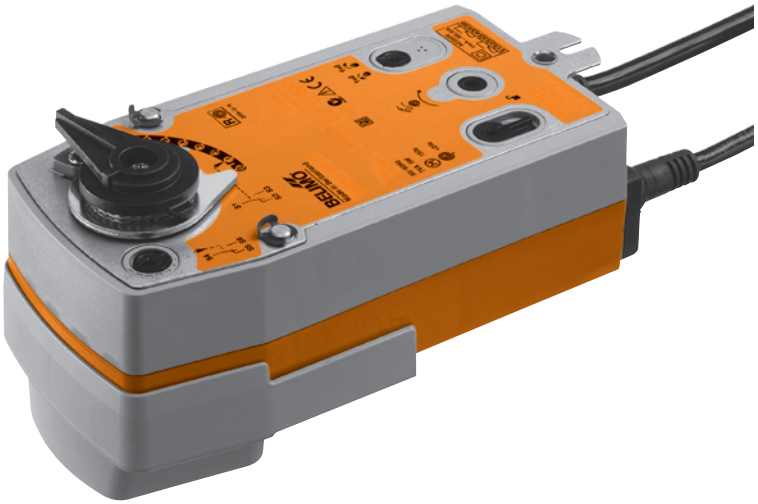
a (Y_1)	b (Y_2)	NO	NC	
⊥	⎽	↶	↶	A – AB = 100%
⎽	⎽	stop	stop	
⎽	⊥	↷	↷	A – AB = 0%
⊥	⊥	↷	↷	

BELIMO

Technical data sheet SRF24A-S2-5(-O)

Rotary actuator with emergency function for butterfly valves

- **Torque 20 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control: Open-close**
- **Two integrated auxiliary switches**
- **SRF24A-S2-5: Deenergised NC**
  SRF24A-S2-5-O: Deenergised NO



Technical data

Electrical data	Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range	AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
	Power consumption In operation	4.5 W @ nominal torque
	At rest	2.5 W
	For wire sizing	6.5 VA
	Auxiliary switch	2 x SPDT, 1 mA ... 3 (0.5) A, AC 250 V ⧈ (1 x fix 10% / 1 x adjustable 11 ... 100%)
	Connection Motor	Cable 1 m, 2 x 0.75 mm²
	Auxiliary switch	Cable 1 m, 6 x 0.75 mm²
	Parallel connection	Yes (Note performance data for supply!)
Functional data	Torque Motor	Min. 20 Nm @ nominal voltage
	Spring return	Min. 20 Nm
	Direction of rotation Spring return	
	– SRF24A-S2-5	Deenergised NC, butterfly valve closed (A – AB = 0%)
	– SRF24A-S2-5-O	Deenergised NO, butterfly valve open (A – AB = 100%)
	Manual override	With hand crank and interlocking switch
	Angle of rotation	Max. 90°∢
	Running time Motor	≤75 s / 90°∢
	Spring return	≤20 s @ –20 ... 50°C / max. 60 s @ –30°C
	Sound power level Motor	≤45 dB (A)
	Spring return	≤62 dB (A)
	Position indication	Mechanical
Safety	Protection class	**III** Extra low voltage / UL Class 2 Supply
	Degree of protection	IP54 NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Low-voltage directive	CE according to 2006/95/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage Actuator	0.8 kV
	Auxiliary switch	2.5 kV
	Control pollution degree	3
	Ambient temperature	–30 ... +50°C
	Media temperature	+5 ... +100°C (in butterfly valve)
	Non-operating temperature	–40 ... +80°C
	Ambient humidity	95% r.h., non-condensating
	Maintenance	Maintenance-free
Dimensions / Weight	Dimensions	See «Dimensions» on page 3
	Weight	Approx. 2.2 kg (without butterfly valve)

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **It may only be installed by suitably trained personnel. All applicable legal or institutional installation regulations must be complied with.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Mode of operation
The actuator moves the butterfly valve to the operating position at the same time as tensioning the return spring. The butterfly valve is turned back to the safety position by spring force if the supply voltage is interrupted.

Simple direct mounting
Straightforward direct mounting on the butterfly valve with only one screw. The mounting position in relation to the butterfly valve can be selected in 90°∢ steps.

Manual override
Manual operation of the valve with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

Adjustable angle of rotation
Adjustable angle of rotation with mechanical end stop.

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

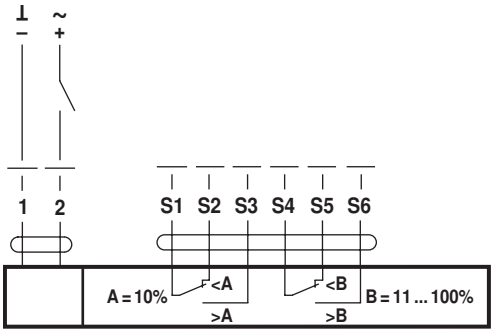
Flexible signalization
The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 11 ... 100% angle of rotation to be signalled.

Combination valve actuators
Refer to the valve documentation for suitable valves, their permitted media temperatures and closing pressures.

Electrical installation

Wiring diagram

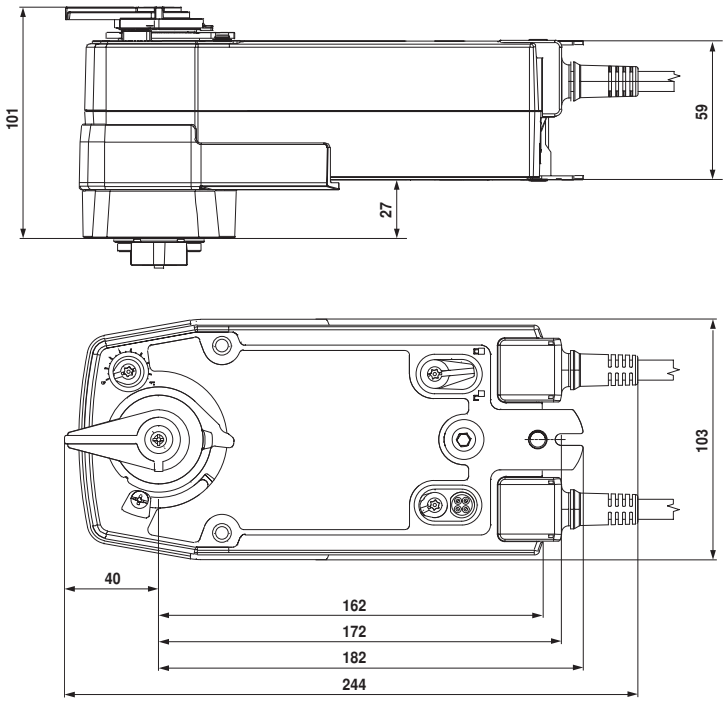
Notes
- Connect via safety isolation transformer.
- Parallel connection of other actuators possible. Note the performance data.



Cable colours:
1 = black
2 = red
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey

Dimensions [mm]

Dimensional drawings



Further documentations

- Complete overview «The comlete range of water solutions»
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)

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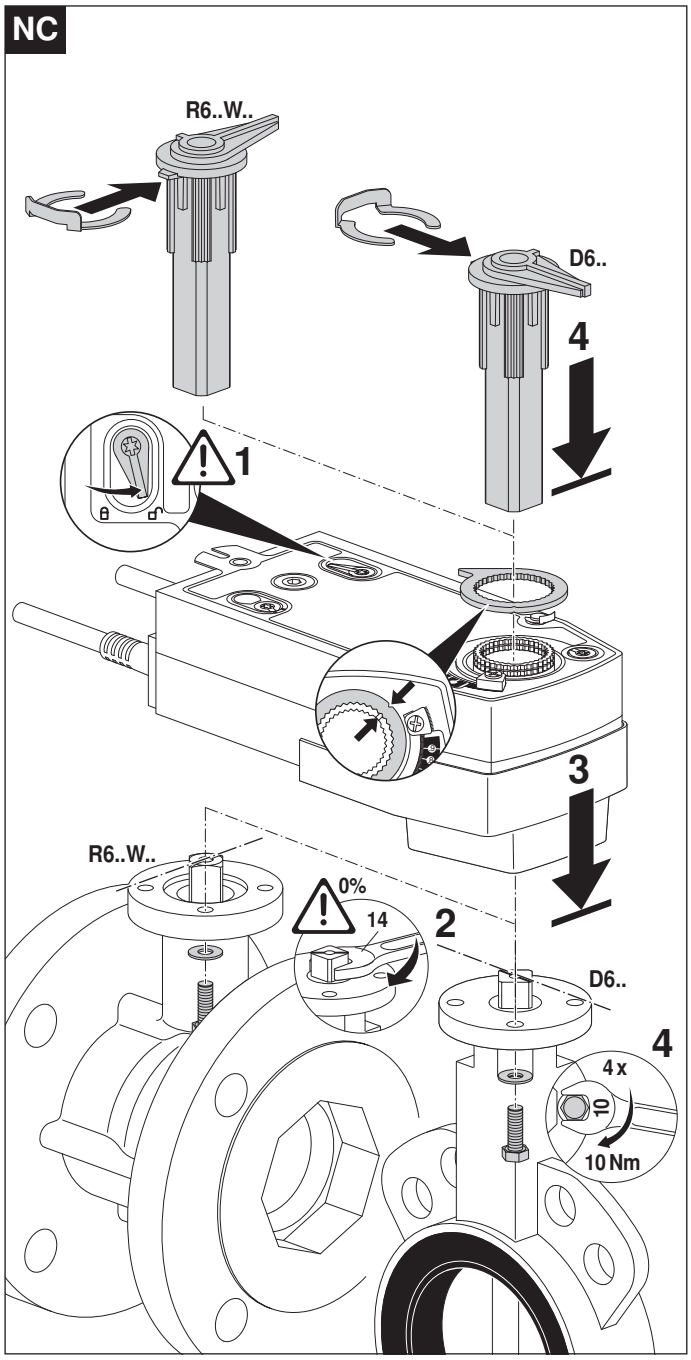
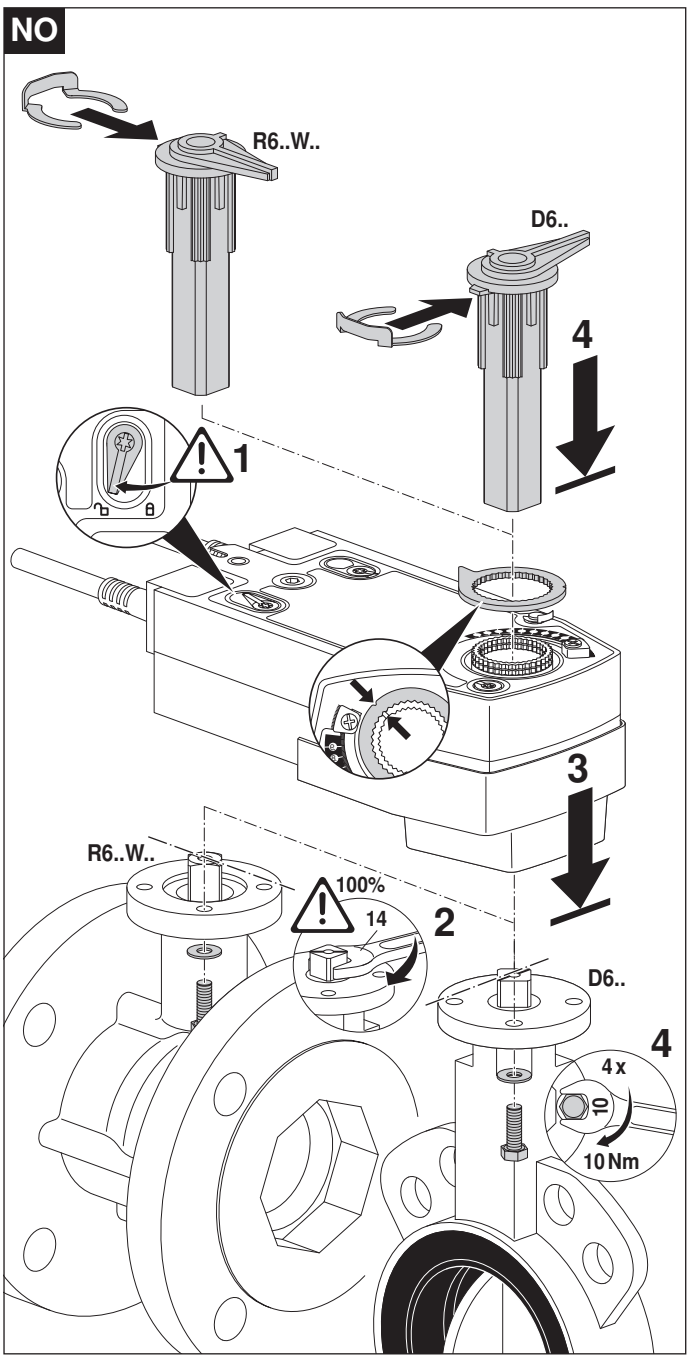
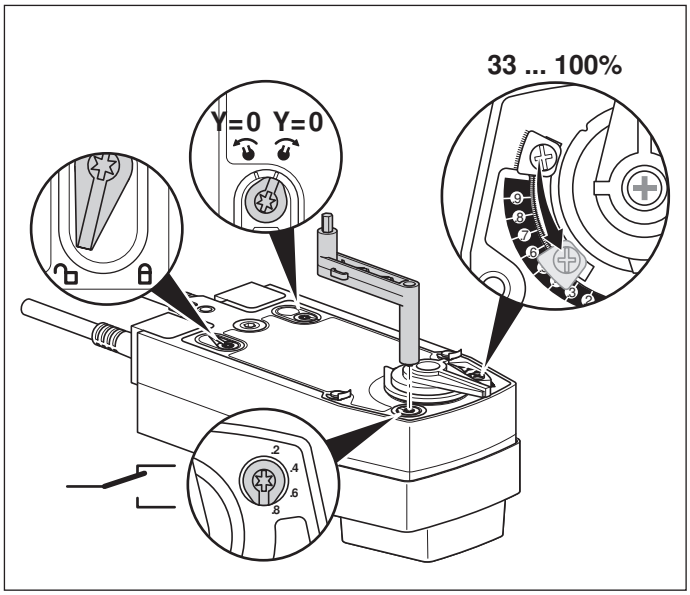
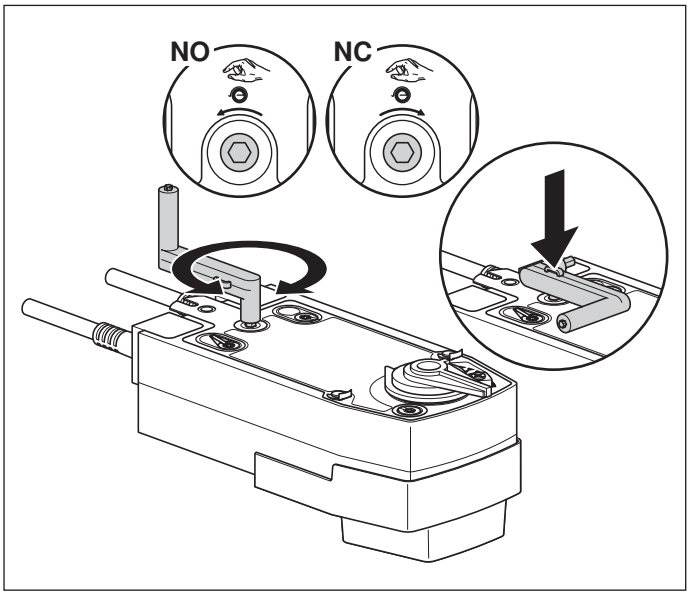
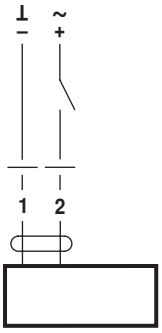




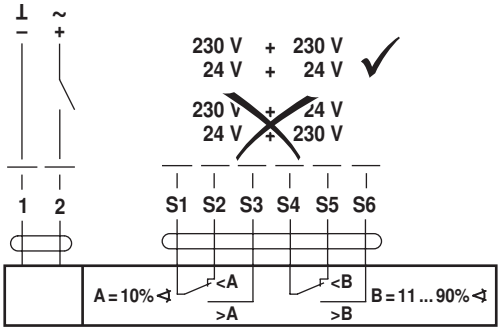




AC 24 V / DC 24 V

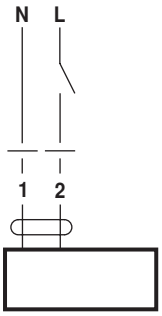


SRF24A-5(-O)



SRF24A-S2-5(-O)

AC 230 V ⚠



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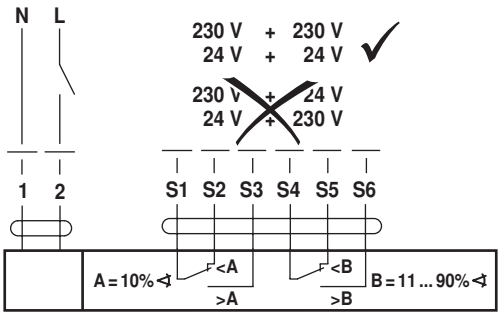
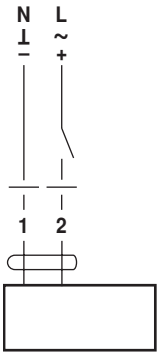
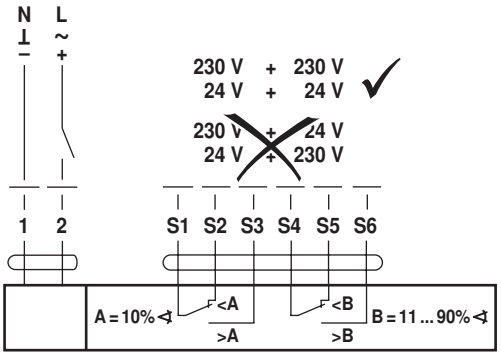


SRF230A-S2-5(-O)

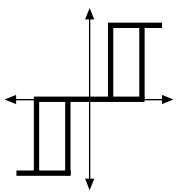
AC 24 ... 240 V / DC 24 ... 125 V ⚠



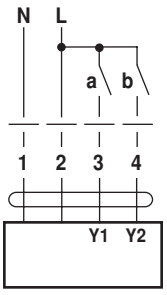
SRFA-5(-O)



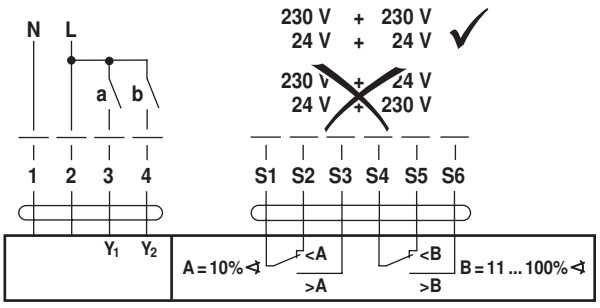
SRFA-S2-5(-O)



AC 230 V ⚠



SRF230A-3-5(-O)



SRF230A-3-S2-5(-O)

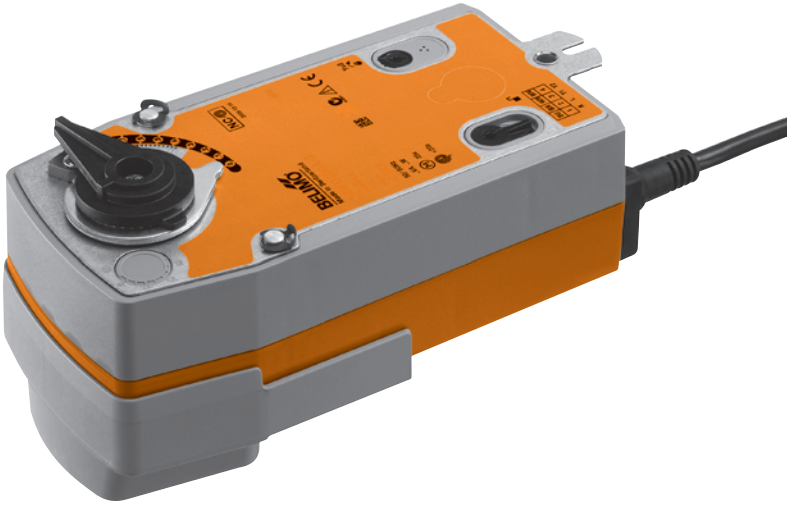
a (Y_1)	b (Y_2)	NO	NC	
⊥	⎽	↶	↶	A – AB = 100%
⎽	⎽	stop	stop	
⎽	⊥	↷	↷	A – AB = 0%
⊥	⊥	↷	↷	

BELIMO

Technical data sheet SRF230A-5(-O)

Rotary actuator with emergency function for butterfly valves

- **Torque 20 Nm**
- **Nominal voltage AC 230 V**
- **Control: Open-close**
- **SRF230A-5: Deenergised NC**
  SRF230A-5-O: Deenergised NO



Technical data

Electrical data	Nominal voltage		AC 230 V, 50/60 Hz
	Nominal voltage range		AC 195 ... 264 V
	Power consumption	In operation	6.5 W @ nominal torque
		At rest	3.5 W
		For wire sizing	18 VA
	Connection		Cable 1 m, 2 x 0.75 mm²
	Parallel connection		Yes (Note performance data for supply!)
Functional data	Torque	Motor	Min. 20 Nm @ nominal voltage
		Spring return	Min. 20 Nm
	Direction of rotation	Spring return	
		– SRF230A-5	Deenergised NC, butterfly valve closed (A – AB = 0%)
		– SRF230A-5-O	Deenergised NO, butterfly valve open (A – AB = 100%)
	Manual override		With hand crank and interlocking switch
	Angle of rotation		Max. 90°∢
	Running time	Motor	≤75 s / 90°∢
		Spring return	≤20 s @ –20 ... 50°C / max. 60 s @ –30°C
	Sound power level	Motor	≤45 dB (A)
		Spring return	≤62 dB (A)
	Position indication		Mechanical
Safety	Protection class		**II** totally insulated ⧈
	Degree of protection		IP54
	EMC		CE according to 2004/108/EC
	Low-voltage directive		CE according to 2006/95/EC
	Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation		Type 1.AA
	Rated impulse voltage		4 kV
	Control pollution degree		3
	Ambient temperature		–30 ... +50°C
	Media temperature		+5 ... +100°C (in butterfly valve)
	Non-operating temperature		–40 ... +80°C
	Ambient humidity		95% r.h., non-condensating
	Maintenance		Maintenance-free
Dimensions / Weight	Dimensions		See «Dimensions» on page 3
	Weight		Approx. 2 kg (without butterfly valve)

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **Caution: Power supply voltage!**
- **It may only be installed by suitably trained personnel. All applicable legal or institutional installation regulations must be complied with.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Mode of operation
The actuator moves the butterfly valve to the operating position at the same time as tensioning the return spring. The butterfly valve is turned back to the safety position by spring force if the supply voltage is interrupted.

Simple direct mounting
Straightforward direct mounting on the butterfly valve with only one screw. The mounting position in relation to the butterfly valve can be selected in 90° steps.

Manual override
Manual operation of the valve with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

Adjustable angle of rotation
Adjustable angle of rotation with mechanical end stop.

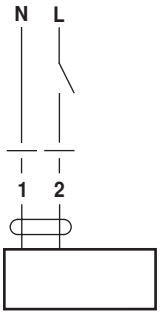
High operational reliability
The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve actuators
Refer to the valve documentation for suitable valves, their permitted media temperatures and closing pressures.

Electrical installation

Wiring diagram

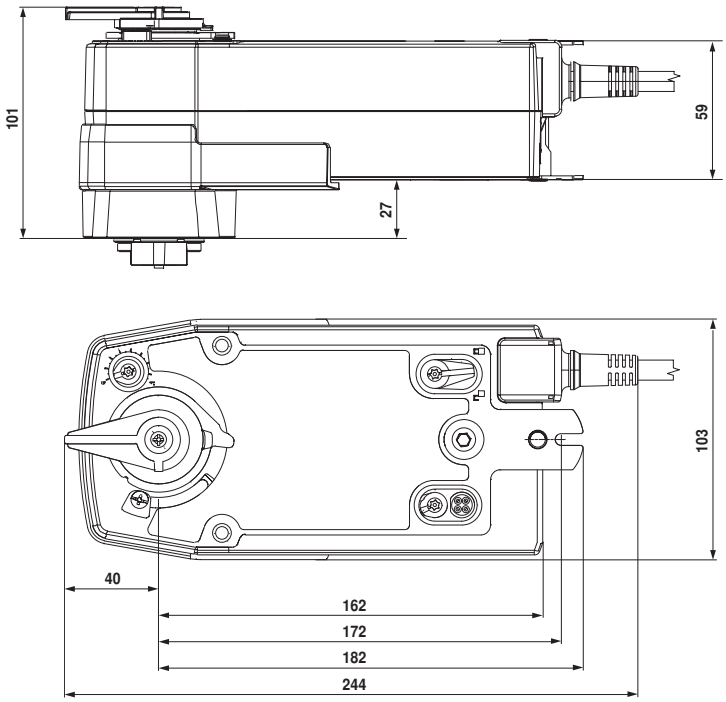
Notes
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Note the performance data.



Cable colours:
1 = black
2 = red

Dimensions [mm]

Dimensional drawings



Further documentations

- Complete overview «The comlete range of water solutions»
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)

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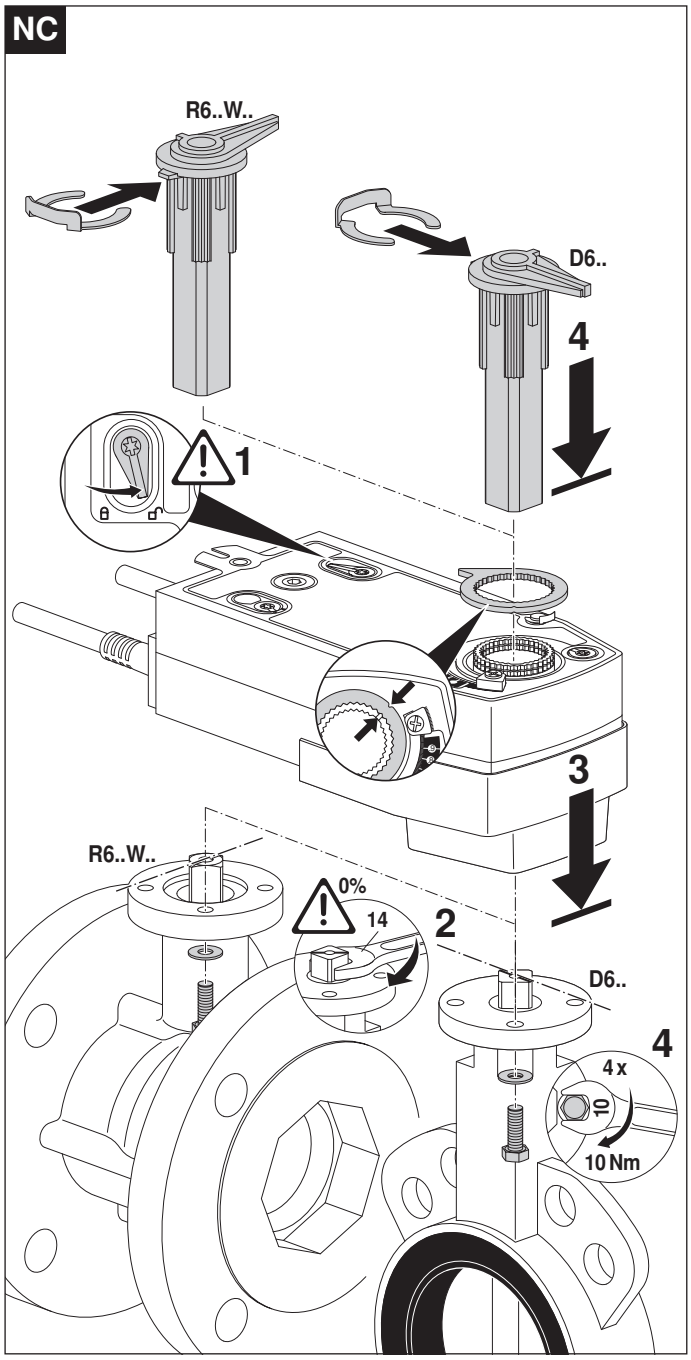
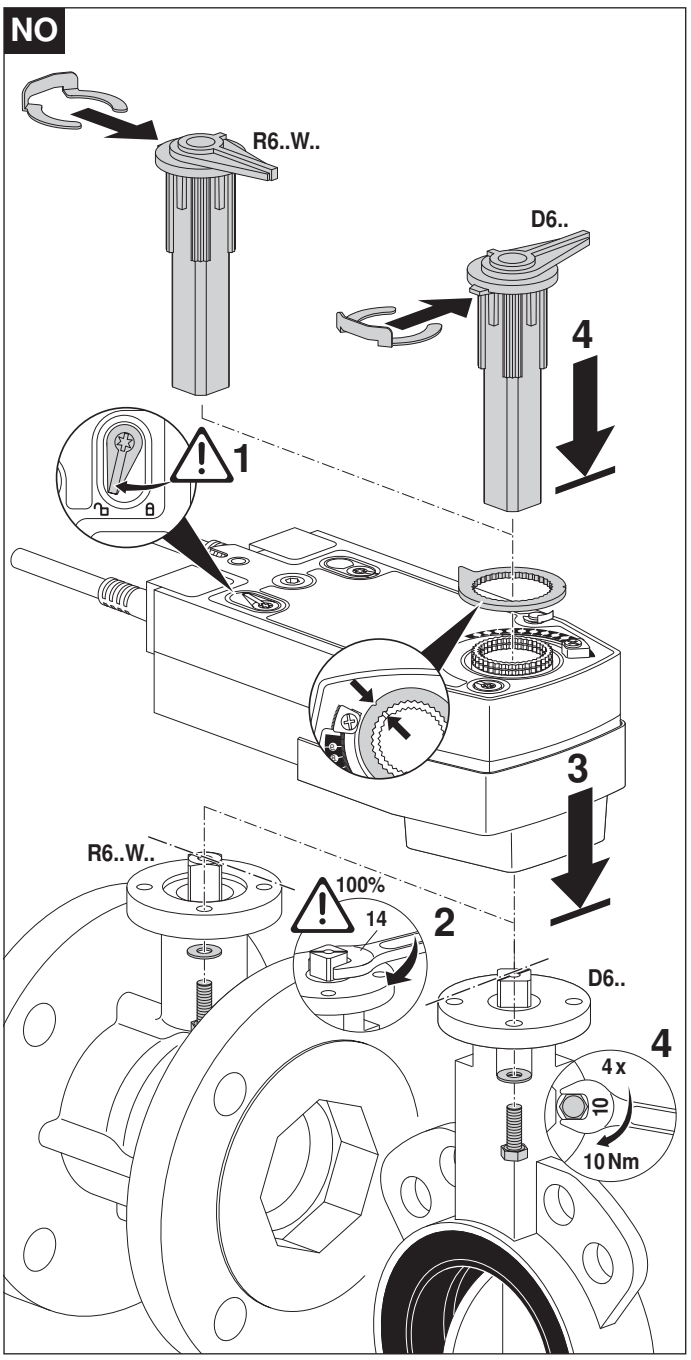
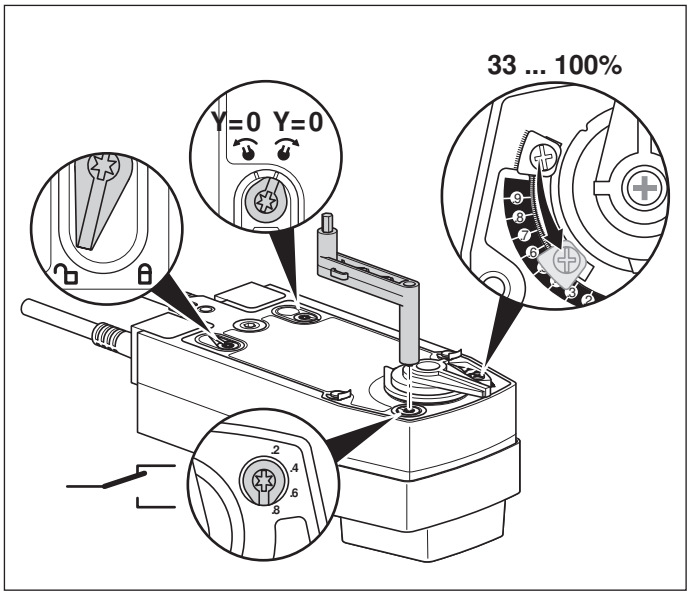
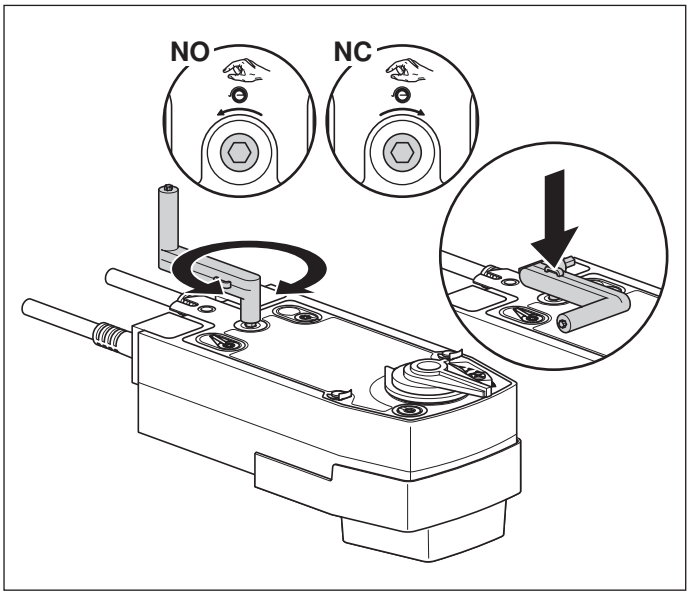
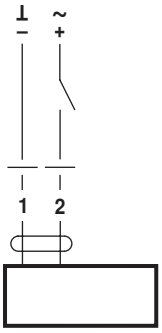




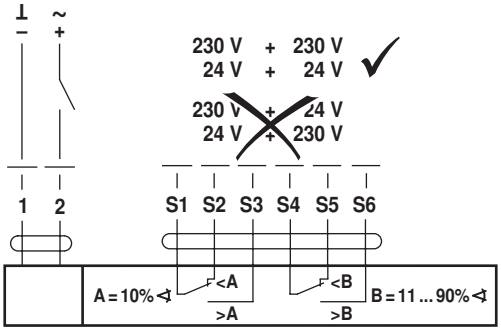




AC 24 V / DC 24 V

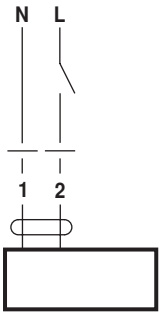


SRF24A-5(-O)



SRF24A-S2-5(-O)

AC 230 V ⚠



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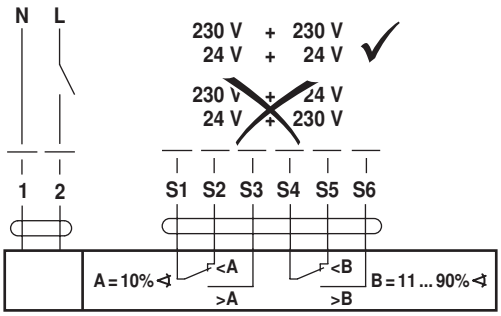
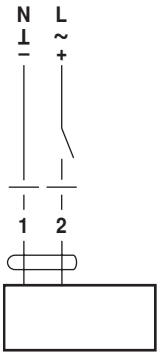
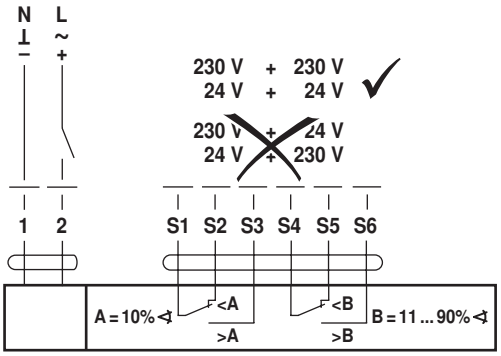


SRF230A-S2-5(-O)

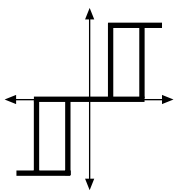
AC 24 ... 240 V / DC 24 ... 125 V ⚠



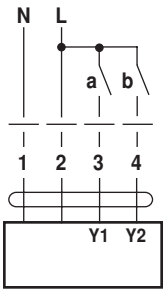
SRFA-5(-O)



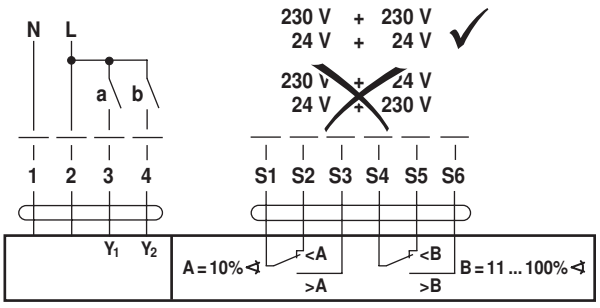
SRFA-S2-5(-O)



AC 230 V ⚠



SRF230A-3-5(-O)



SRF230A-3-S2-5(-O)

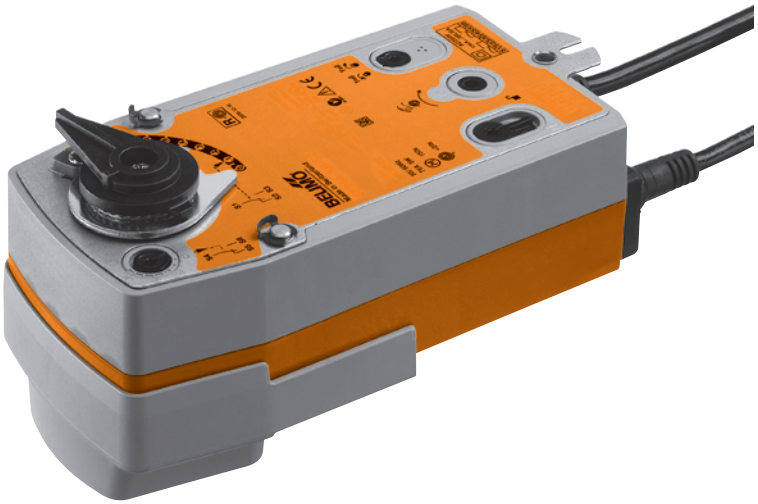
a (Y_1)	b (Y_2)	NO	NC	
⊥	⎽	↶	↶	A – AB = 100%
⎽	⎽	stop	stop	
⎽	⊥	↷	↷	A – AB = 0%
⊥	⊥	↷	↷	

BELIMO

Technical data sheet SRF230A-S2-5(-O)

Rotary actuator with emergency function for butterfly valves

- **Torque 20 Nm**
- **Nominal voltage AC 230 V**
- **Control: Open-close**
- **Two integrated auxiliary switches**
- **SRF230A-S2-5: Deenergised NC**
  SRF230A-S2-5-O: Deenergised NO



Technical data

Electrical data	Nominal voltage		AC 230 V, 50/60 Hz
	Nominal voltage range		AC 195 ... 264 V
	Power consumption	In operation	6.5 W @ nominal torque
		At rest	3.5 W
		For wire sizing	18 VA
	Auxiliary switch		2 x SPDT, 1 mA ... 3 (0.5) A, AC 250 V ⧈ (1 x fix 10% / 1 x adjustable 11 ... 100%)
	Connection	Motor	Cable 1 m, 2 x 0.75 mm²
		Auxiliary switch	Cable 1 m, 6 x 0.75 mm²
	Parallel connection		Yes (Note performance data for supply!)
Functional data	Torque	Motor	Min. 20 Nm @ nominal voltage
		Spring return	Min. 20 Nm
	Direction of rotation	Spring return	
		– SRF230A-S2-5	Deenergised NC, butterfly valve closed (A – AB = 0%)
		– SRF230A-S2-5-O	Deenergised NO, butterfly valve open (A – AB = 100%)
	Manual override		With hand crank and interlocking switch
	Angle of rotation		Max. 90°∢
	Running time	Motor	≤75 s / 90°∢
		Spring return	≤20 s @ –20 ... 50°C / max. 60 s @ –30°C
	Sound power level	Motor	≤45 dB (A)
		Spring return	≤62 dB (A)
	Position indication		Mechanical
Safety	Protection class		**II** totally insulated ⧈
	Degree of protection		IP54
	EMC		CE according to 2004/108/EC
	Low-voltage directive		CE according to 2006/95/EC
	Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation		Type 1.AA.B
	Rated impulse voltage	Actuator	4 kV
		Auxiliary switch	2.5 kV
	Control pollution degree		3
	Ambient temperature		–30 ... +50°C
	Media temperature		+5 ... +100°C (in butterfly valve)
	Non-operating temperature		–40 ... +80°C
	Ambient humidity		95% r.h., non-condensating
	Maintenance		Maintenance-free
Dimensions / Weight	Dimensions		See «Dimensions» on page 3
	Weight		Approx. 2.2 kg (without butterfly valve)

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **Caution: Power supply voltage!**
- **It may only be installed by suitably trained personnel. All applicable legal or institutional installation regulations must be complied with.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Mode of operation
The actuator moves the butterfly valve to the operating position at the same time as tensioning the return spring. The butterfly valve is turned back to the safety position by spring force if the supply voltage is interrupted.

Simple direct mounting
Straightforward direct mounting on the butterfly valve with only one screw. The mounting position in relation to the butterfly valve can be selected in 90° steps.

Manual override
Manual operation of the valve with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

Adjustable angle of rotation
Adjustable angle of rotation with mechanical end stop.

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

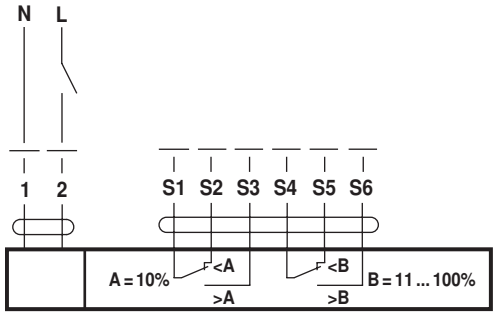
Flexible signalization
The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 11 ... 100% angle of rotation to be signalled.

Combination valve actuators
Refer to the valve documentation for suitable valves, their permitted media temperatures and closing pressures.

Electrical installation

Wiring diagram

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



Cable colours:
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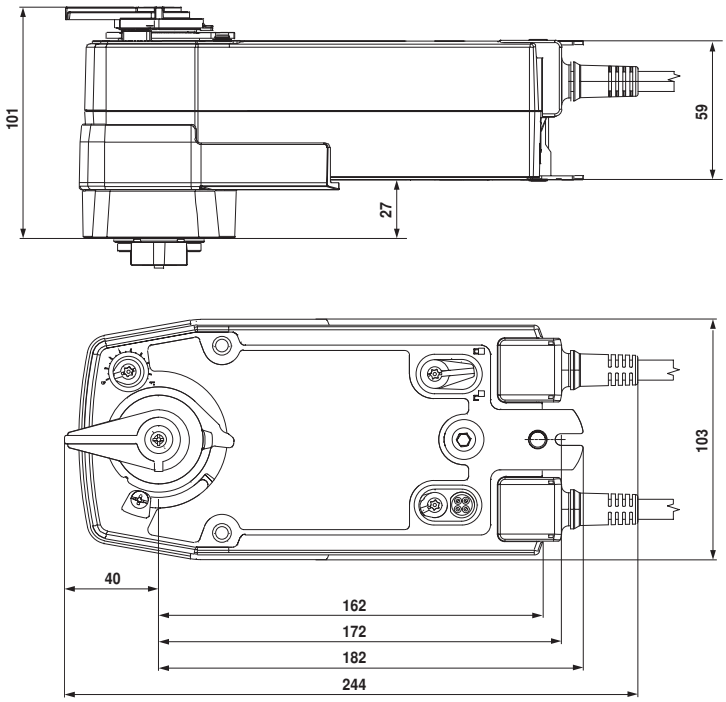
S4 = orange
S5 = pink
S6 = grey

Dimensions [mm]

Dimensional drawings



Further documentations

- Complete overview «The comlete range of water solutions»
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)

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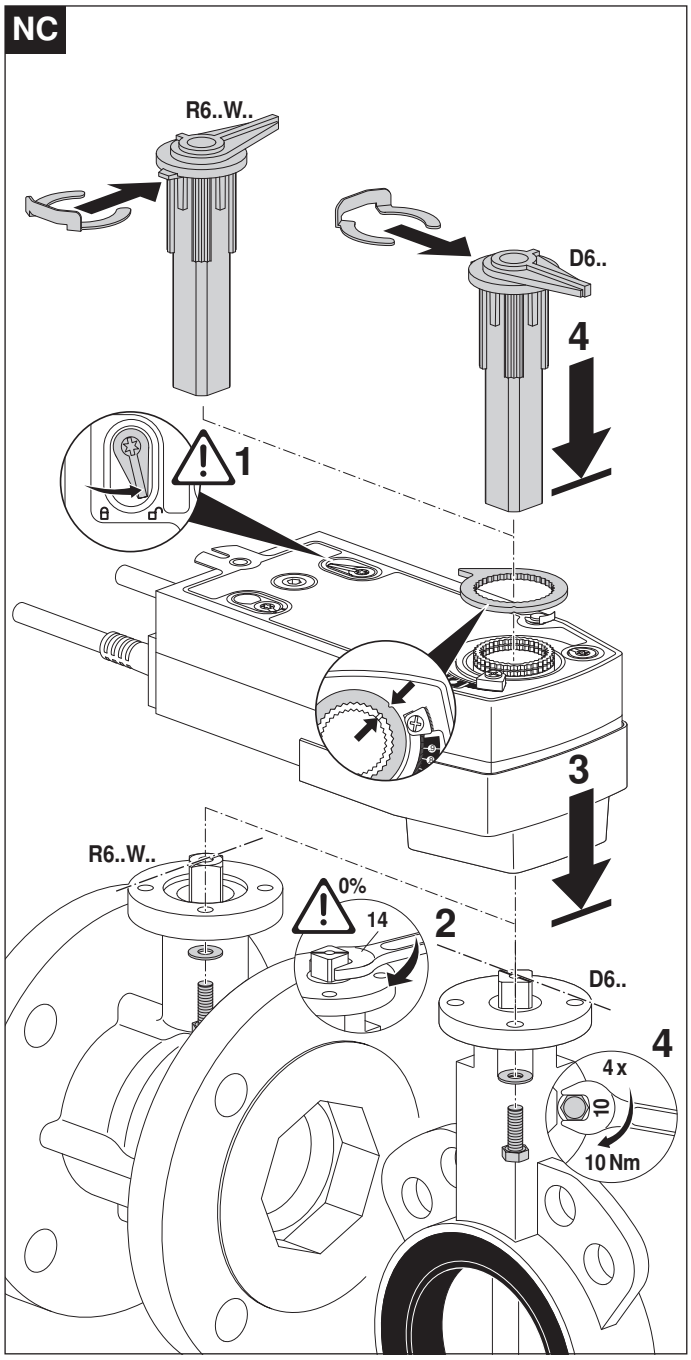
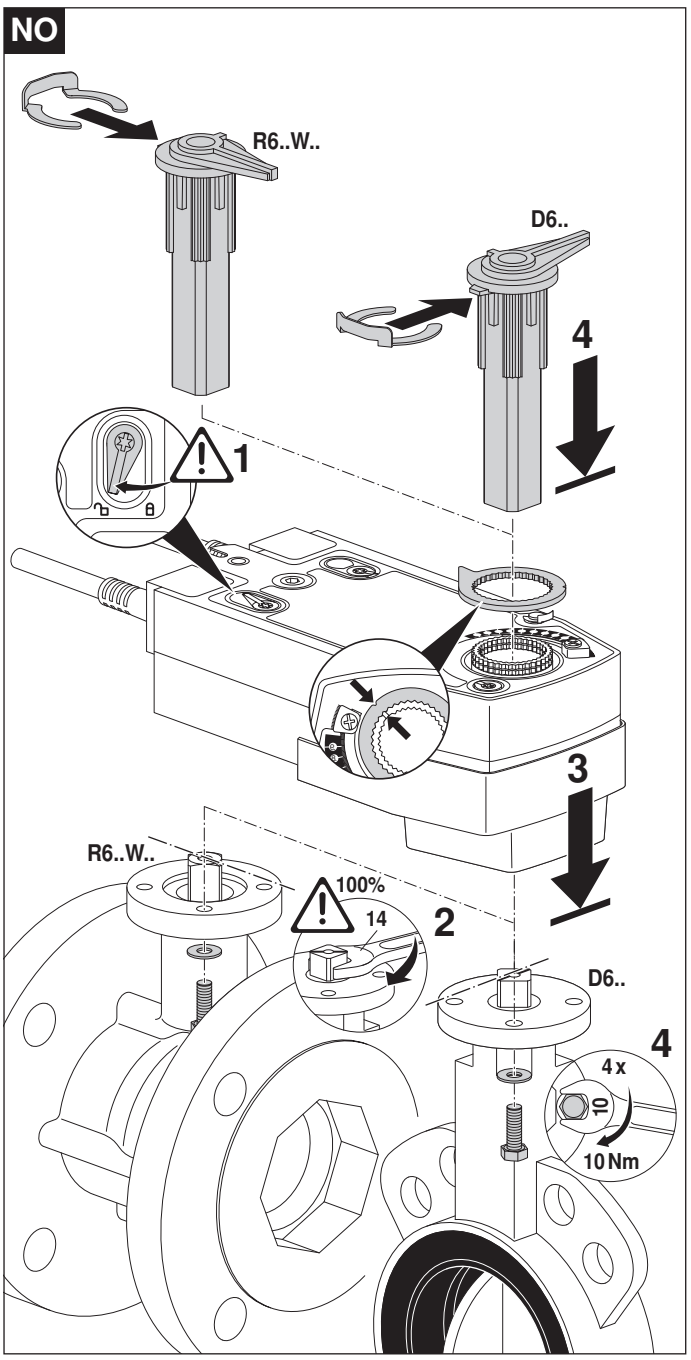
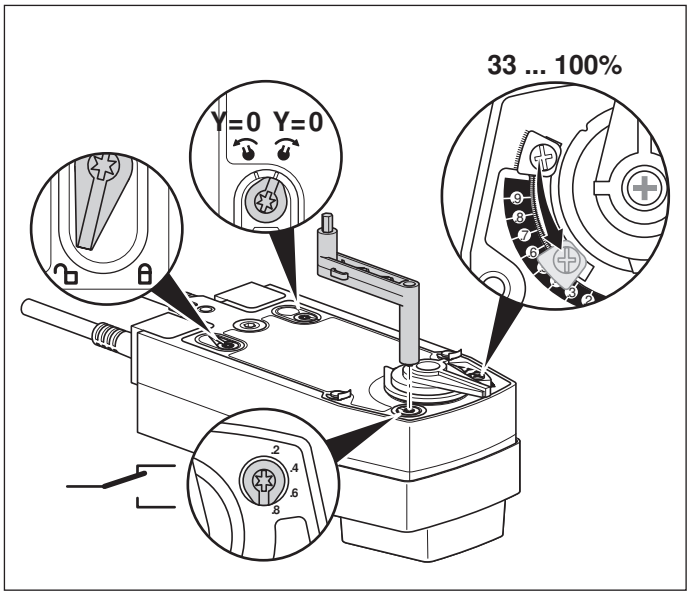
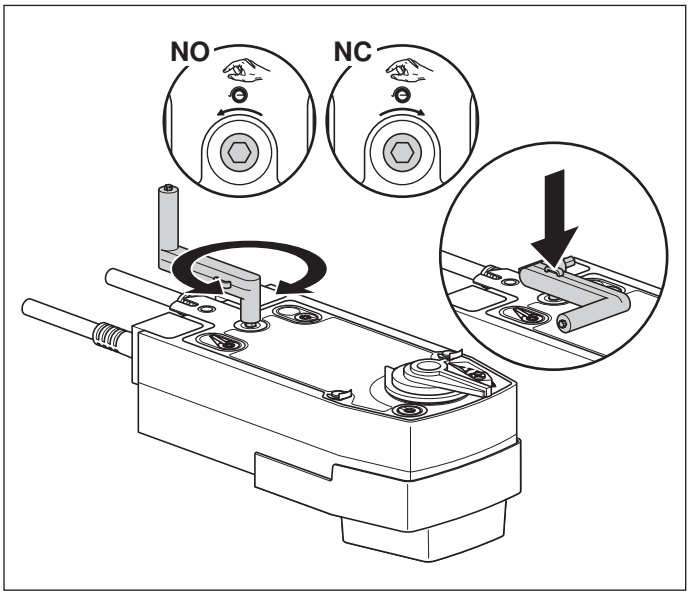
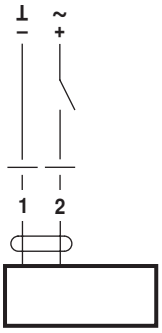




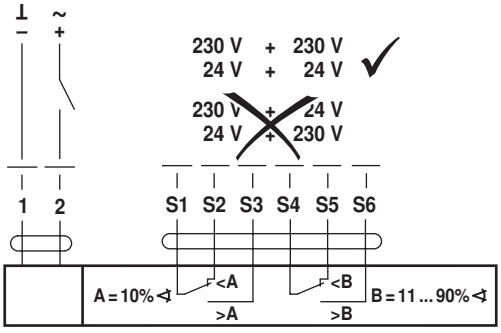




AC 24 V / DC 24 V

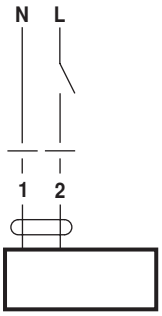


SRF24A-5(-O)

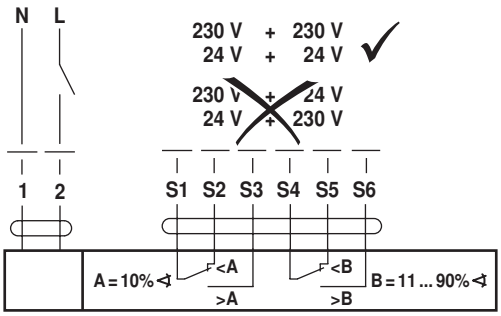


SRF24A-S2-5(-O)

AC 230 V ⚠

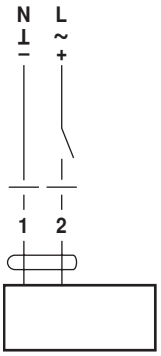


SRF230A-5(-O)

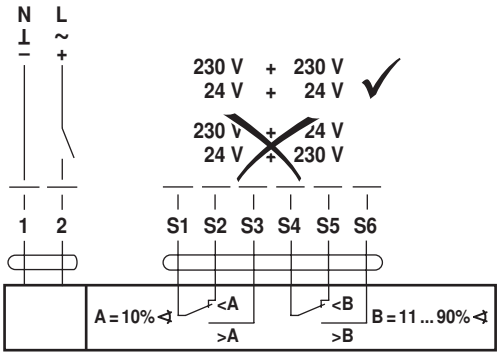


SRF230A-S2-5(-O)

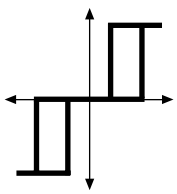
AC 24 ... 240 V / DC 24 ... 125 V ⚠



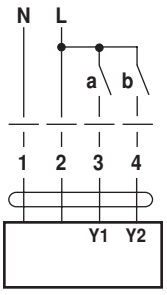
SRFA-5(-O)



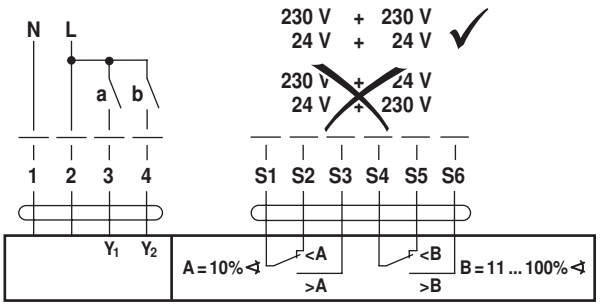
SRFA-S2-5(-O)



AC 230 V ⚠



SRF230A-3-5(-O)



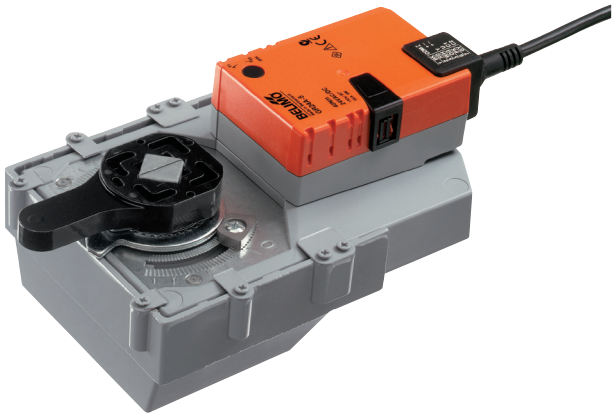
SRF230A-3-S2-5(-O)

a (Y_1)	b (Y_2)	NO	NC	
⊥	⎽	↶	↶	A – AB = 100%
⎽	⎽	stop	stop	
⎽	⊥	↷	↷	A – AB = 0%
⊥	⊥	↷	↷	

BELIMO

Technical data sheet GR24A-5

Rotary actuator for rotary valves and butterfly valves
- **Nominal torque 40 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close**



Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 19.2...28.8 V
	Power consumption in operation	4 W
	Power consumption at rest	2 W
	Power consumption for wire sizing	6 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	min. 40 Nm
	Manual override	Gear disengagement with push-button, can be locked
	Running time motor	150 s / 90°
	Sound power level motor max.	45 dB(A)
	Position indication	Mechanical, pluggable
Safety	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	Electromagnetic compatibility	CE according to 2004/108/EC
	Certification IEC/EN	Certified to 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 current voltage motor	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
Mechanical data	Connection flange	F05
Weight	Weight approx.	1.85 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The switch for changing the direction of rotation may only be operated by authorised specialists. The direction of rotation must not in particular be reversed in a frost protection circuit.
- 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 cables must not be removed from the device.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Direct mounting Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.

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-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve/actuator For valves with the following mechanical specifications in accordance with ISO 5211 F05:
- Square stem head SW = 14 mm for form-fit coupling of the rotary actuator.
- Hole circle d = 50 mm

Accessories

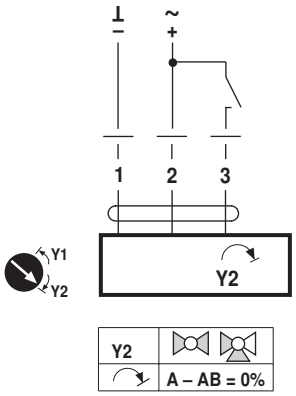
	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

Electrical installation

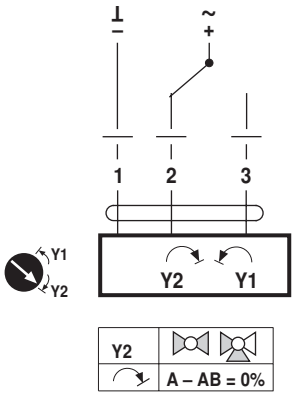
Notes
- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.
- Direction of rotation switch is covered. Factory setting: Direction of rotation Y2.
- 3-point control only with ball valves, not allowed with butterfly valves.

Wiring diagrams

AC/DC 24 V, open-close

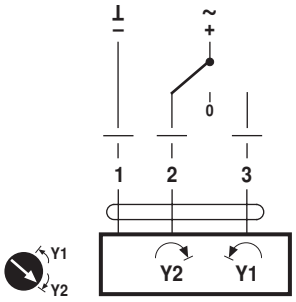


Cable colours:
1 = black
2 = red
3 = white



Electrical installation

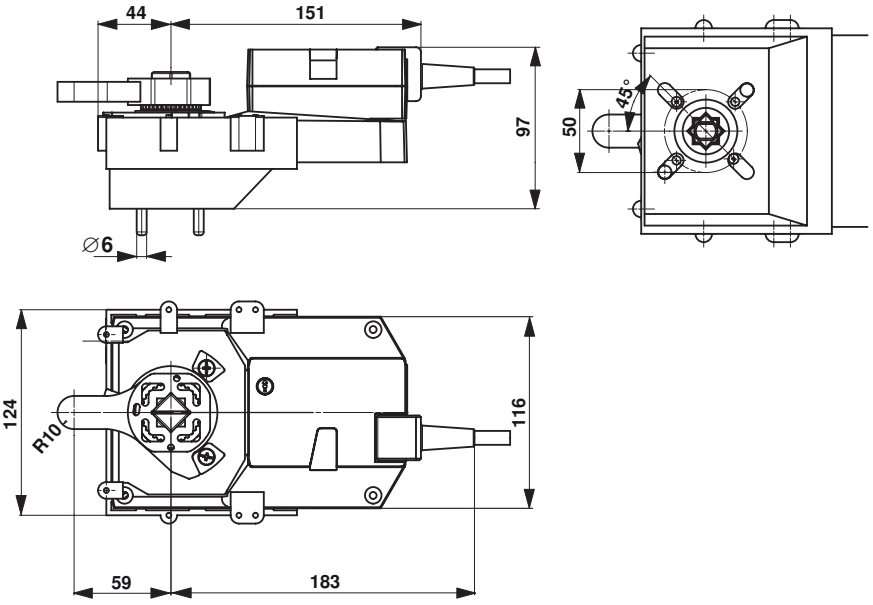
AC/DC 24 V, 3-point



Caution:
only with ball valves, not allowed
with butterfly valves

Dimensions [mm]

Dimensional drawings



Further documentation

- Data sheets for rotary valves and butterfly valves
- Installation instructions for actuators and/or rotary valves and butterfly valves
- General notes for project planning

BELIMO

Technical data sheet GR230A-5

Rotary actuator for rotary valves and butterfly valves

- **Nominal torque 40 Nm**
- **Nominal voltage AC 230 V**
- **Control Open-close**

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...265 V
	Power consumption in operation	5 W
	Power consumption at rest	2 W
	Power consumption for wire sizing	9 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	min. 40 Nm
	Manual override	Gear disengagement with push-button, can be locked
	Running time motor	150 s / 90°
	Sound power level motor max.	45 dB(A)
	Position indication	Mechanical, pluggable
Safety	Protection class IEC/EN	II totally insulated
	Degree of protection IEC/EN	IP54
	Electromagnetic compatibility	CE according to 2004/108/EC
	Low-voltage directive	CE according to 2006/95/EC
	Certification IEC/EN	Certified to 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 current voltage motor	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
Mechanical data	Connection flange	F05
Weight	Weight approx.	1.85 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The switch for changing the direction of rotation may only be operated by authorised specialists. The direction of rotation must not in particular be reversed in a frost protection circuit.
- 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 cables must not be removed from the device.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Direct mounting — Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.

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-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve/actuator — For valves with the following mechanical specifications in accordance with ISO 5211 F05:
- Square stem head SW = 14 mm for form-fit coupling of the rotary actuator.
- Hole circle d = 50 mm

Accessories

	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

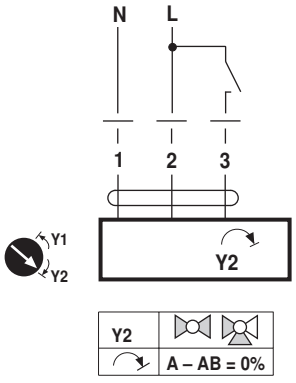
Electrical installation

Notes

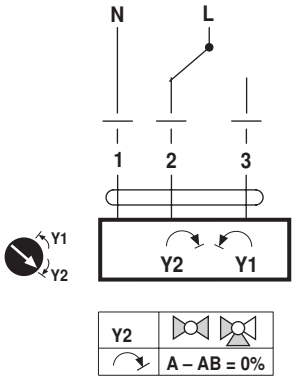
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.
- Direction of rotation switch is covered. Factory setting: Direction of rotation Y2.
- 3-point control only with ball valves, not allowed with butterfly valves.

Wiring diagrams

AC 230 V, open-close

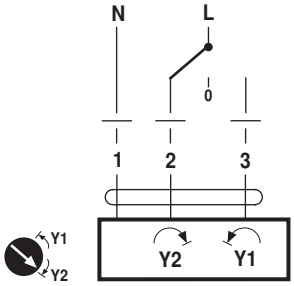


Cable colours:
1 = blue
2 = brown
3 = white



Electrical installation

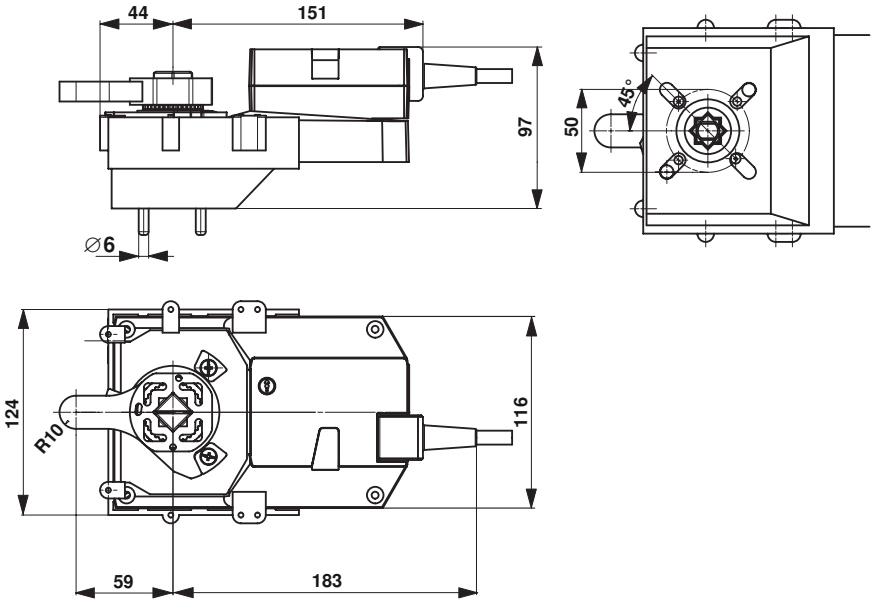
AC 230 V, 3-point



Caution:
only with ball valves, not allowed
with butterfly valves

Dimensions [mm]

Dimensional drawings



Further documentation

- Data sheets for rotary valves and butterfly valves
- Installation instructions for actuators and/or rotary valves and butterfly valves
- General notes for project planning

BELIMO

Technical data sheet GRK24A-5

SuperCap rotary actuator with emergency setting function and extended functionalities for rotary valves and butterfly valves

- **Nominal torque 40 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control Open-close**
- **Design life SuperCaps: 15 years**

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	11 W
	Power consumption at rest	3 W
	Power consumption for wire sizing	21 VA
	Power consumption for wire sizing note	Imax 20 A @ 5 ms
	Connection supply / control	Cable 1 m, 2x 0.75 mm²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	min. 40 Nm
	Setting emergency setting position (POP)	NC / NO, adjustable (POP rotary button)
	Position accuracy	±5%
	Manual override	Gear disengagement with push-button
	Running time motor	150 s / 90°
	Running time emergency setting position	35 s / 90°
	Sound power level motor max.	52 dB(A)
	Sound power level emergency setting position max.	61 dB(A)
	Position indication	Mechanical
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
	Electromagnetic compatibility	CE according to 2004/108/EC
	Certification IEC/EN	Certified to 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.AA
	Rated current voltage motor	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
Mechanical data	Connection flange	F05
Weight	Weight approx.	2.8 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- The cables must not be removed from the device.

Safety notes

- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

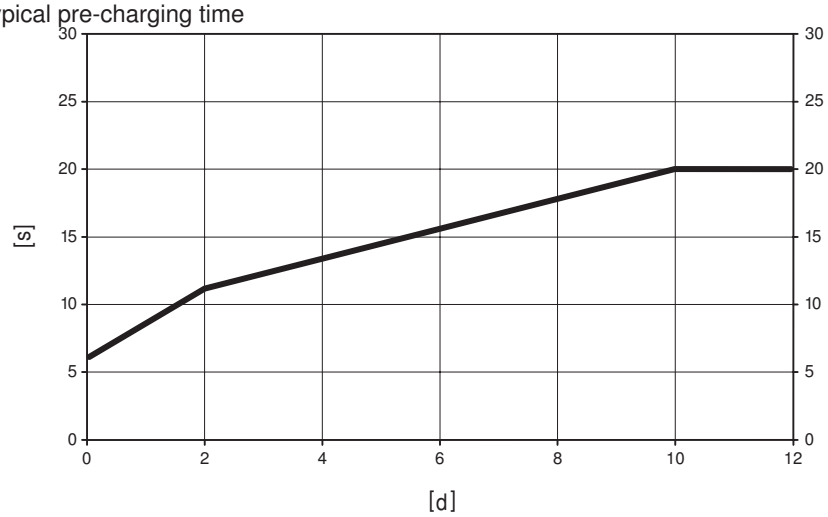
Mode of operation

The actuator moves the valve to the desired operating position at the same time as the integrated capacitors are loaded. Interrupting the supply voltage causes the damper to be rotated back into the emergency setting position (POP) by means of stored electrical energy.

Pre-charging time (start up)

The capacitor actuators require a pre-charging time. This time is used for charging the capacitors up to a usable voltage level. This ensures that, in the event of an electricity interruption, the actuator can move at any time from its current position into the preset emergency setting position (POP). The duration of the pre-charging time depends mainly on how long the power was interrupted.

Typical pre-charging time



	[d]				
	0	1	2	7	≥10
[s]	6	9	11	16	20

[d] = Electricity interruption in days
[s] = Pre-charging time in seconds
PF[s] = Bridging time

Delivery condition (capacitors)

The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 20 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

Direct mounting

Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.

Manual override

Manual control with pushbutton possible - temporary. The gear is disengaged and the actuator decoupled for as long as the button is pressed.

High functional reliability

The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Combination valve/actuator

For valves with the following mechanical specifications in accordance with ISO 5211 F05:
- Square stem head SW = 14 mm for form-fit coupling of the rotary actuator.
- Hole circle d = 50 mm

Rotary knob emergency setting position

The «Emergency setting position» rotary knob can be used to adjust the desired emergency setting position (POP). In the event of an electricity interruption, the actuator will move into the selected emergency setting position, taking into account the bridging time (PF) of 2 s which was set ex-works.

Accessories

	Description	Type
Electrical accessories	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

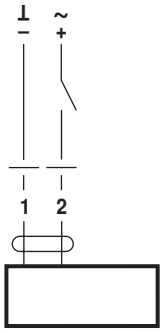
Electrical installation

Notes

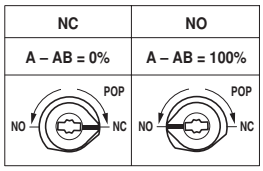
- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

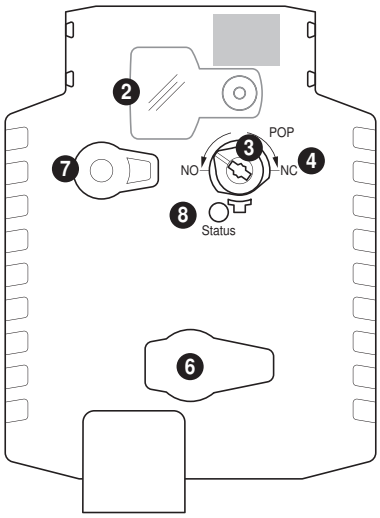
AC/DC 24 V, open-close



Cable colours:
1 = black
2 = red



Operating controls and indicators



2 Cover, POP button

3 POP button

4 Scale for manual adjustment

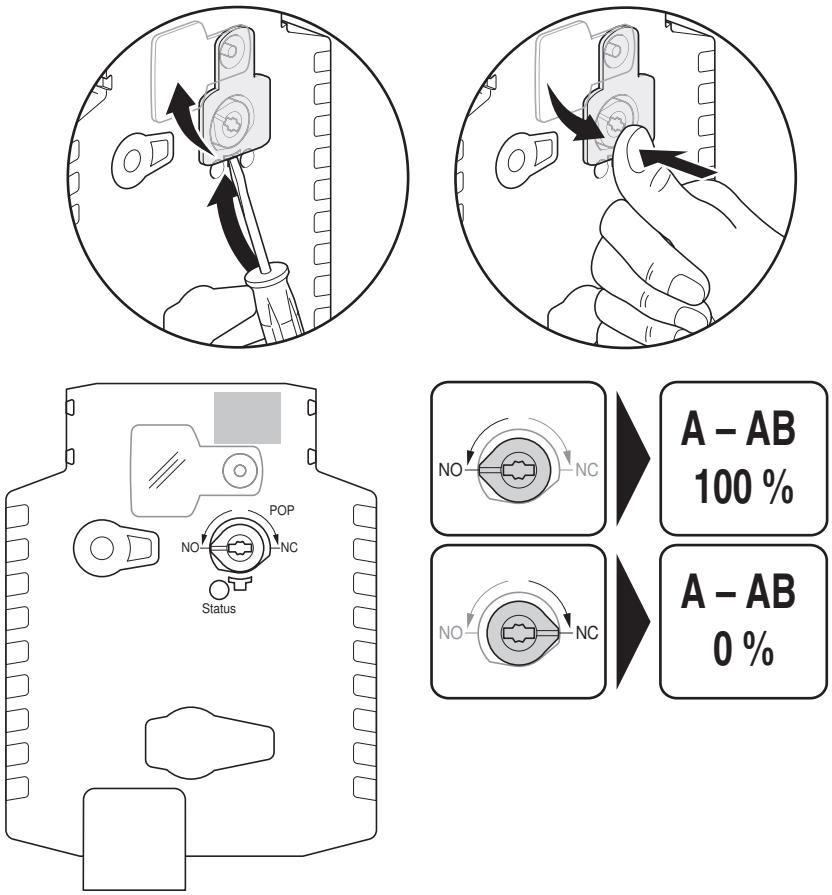
6 (no function)

7 Gear disengagement button

Press button: Gear disengages, motor stops, manual override possible
Release button: Gear engages, standard mode

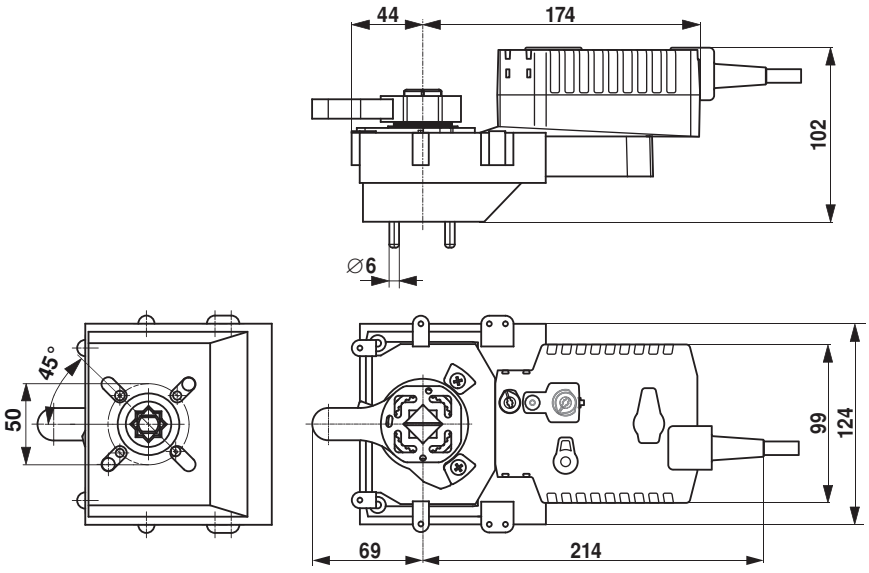
LED displays 8 green	Meaning / Function
Off	Not in operation, pre-charging time SuperCap or fault SuperCap
Illuminated	Operating OK
Blinking	POP function active

Operating controls and indicators



Dimensions [mm]

Dimensional drawings



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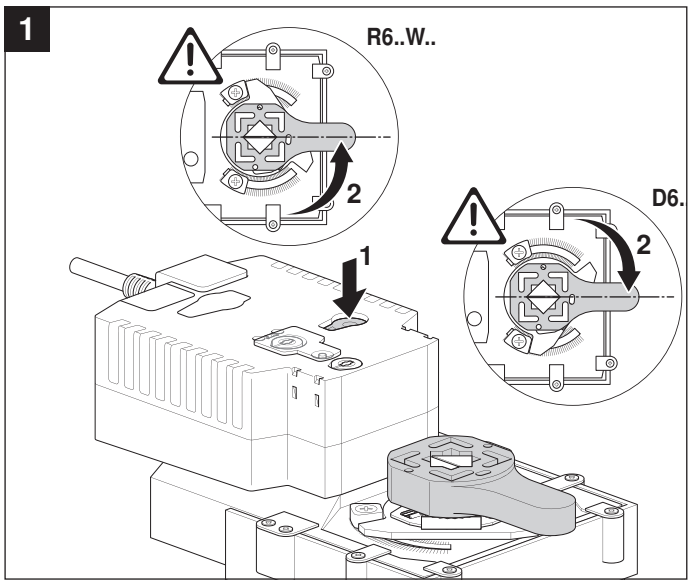
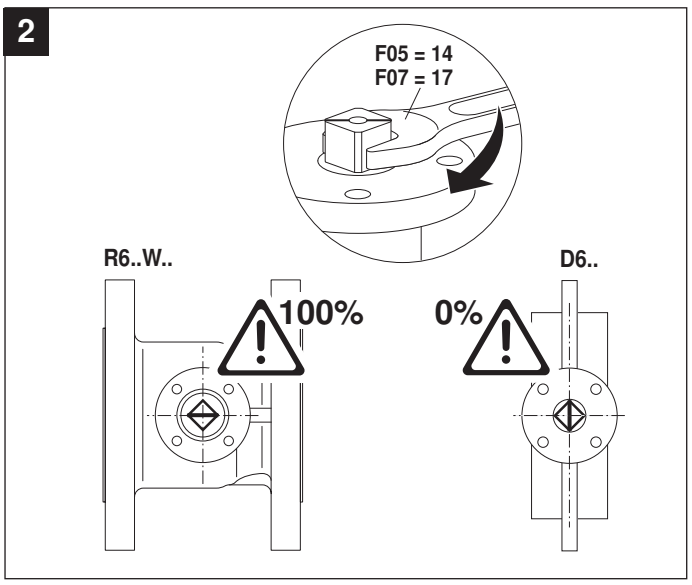


2



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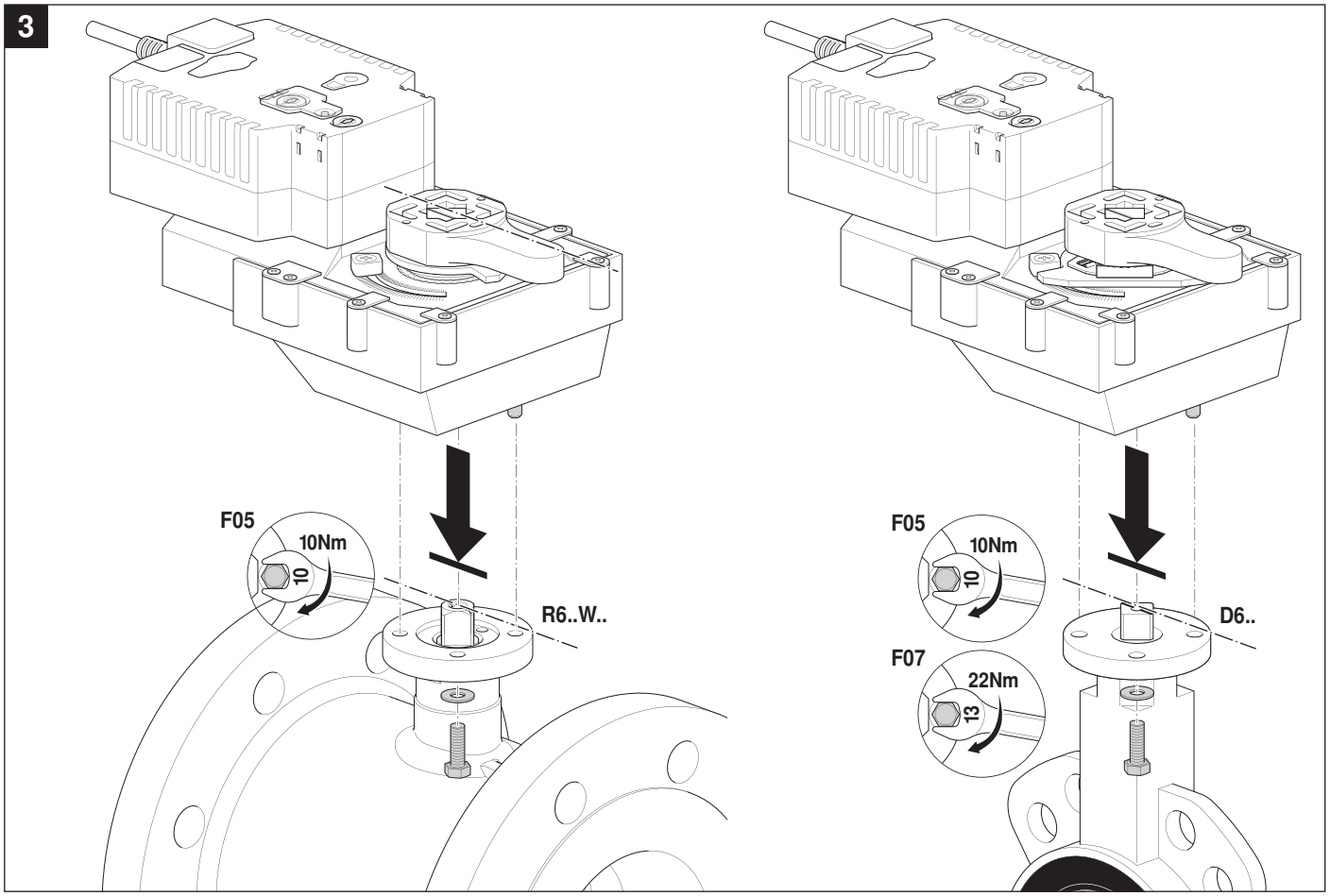

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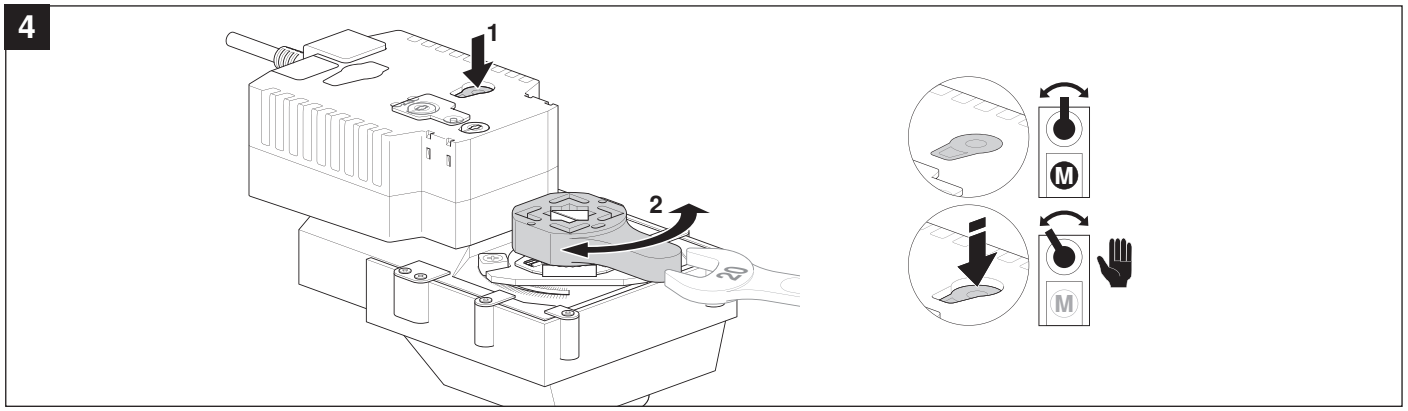
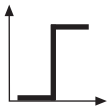
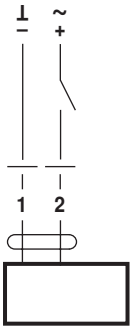
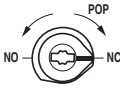
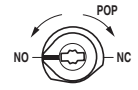


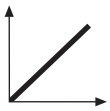


AC 24 V / DC 24 V

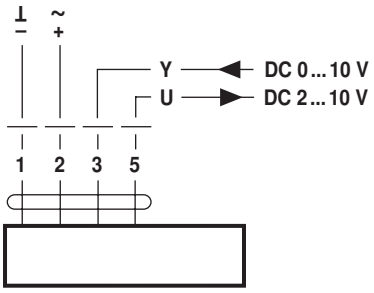


GRK24A-5
GRK24A-7

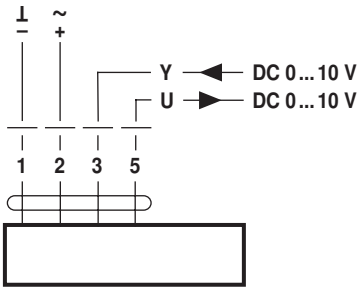
NC	NO
A – AB = 0%	A – AB = 100%
	



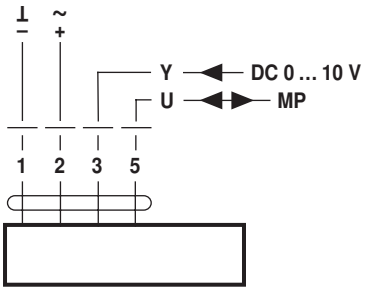
AC 24 V / DC 24 V



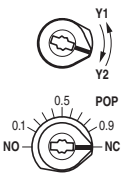
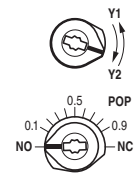
GRK24A-SR-5
GRK24A-SR-7

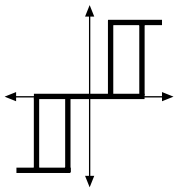


GRK24A-SZ-5 **GRK24A-MF-5**
GRK24A-SZ-7 **GRK24A-MF-7**

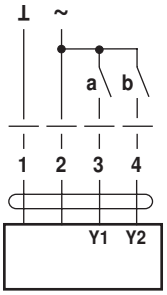


GRK24A-MP-5
GRK24A-MP-7

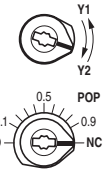
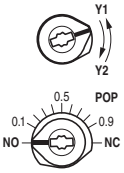
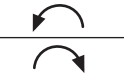
NC	NO
A – AB = 0%	A – AB = 100%
	



AC 24 V

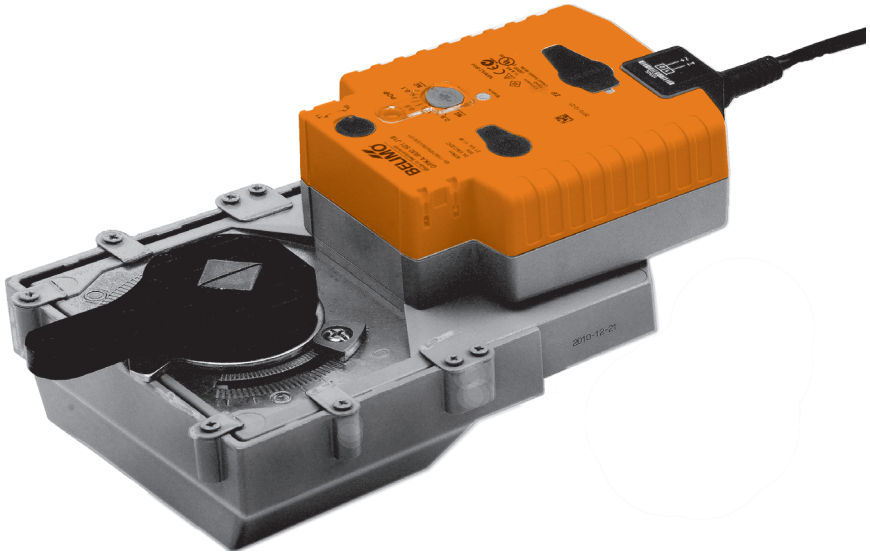


GRK24A-3-5
GRK24A-3-7

3 a (Y1)	4 b (Y2)	NC A – AB = 0%	NO A – AB = 100%
			
		—	—
			
			

Modulating SuperCap rotary actuator with emergency setting function and extended functionalities for butterfly valves and ball valves with mounting flange ISO 5211-F05

- **Torque 40 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control: modulating DC 0 ... 10 V**
- **Position feedback DC 2 ... 10 V**
- **Design life SuperCaps 15 years**



Technical data

Electrical data	Nominal voltage		AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range		AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
	Power consumption	In operation	11 W @ nominal torque
		At rest	3 W
		For wire sizing	21 VA (I_{max} 20 A @ 5 ms)
	Connection		Cable 1 m, 4 x 0.75 mm²
	Parallel operation		Yes (note the performance data)
Functional data	Torque		≥40 Nm
	Control	Control signal Y	DC 0 … 10 V, input impedance 100 kΩ
		Operating range	DC 2 ... 10 V
	Position feedback (Measuring voltage U)		DC 2 ... 10 V, max. 0.5 mA
	Emergency setting position (POP)		NC / NO or adjustable 0...100% (POP rotary button)
	Bridging time with voltage interruption		2 s
	Position accuracy		±5%
	Direction of rotation	Emergency setting position	Reversible with switch 0 ... 100% (end stop ↶ 0%)
	Manual override		Gearing latch disengaged with push button
	Running time	Motor	150 s / 90°
		Emergency setting function	35 s @ 0 ... 50 °C
	Sound power level	Motor	≤53 dB (A) @ 90 s running time ≤52 dB (A) @ 150 s running time
		Emergency setting function	≤61 dB (A)
	Position indication		Mechanical, pluggable
Safety	Protection class		**III** Safety extra-low voltage UL Class 2 Supply
	Degree of protection		IP54 NEMA 2, UL Enclosure Type 2
	EMC		CE according to 2004/108/EC
	Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation		Type 1.AA
	Rated impulse voltage		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
Dimensions / Weight	Dimensions		See «Dimensions» on page 5
	Weight		Approx. 2.8 kg

Terms and abbreviations

POP = Power off position / emergency setting position
PF = Power fail delay time / bridging time

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during installation.**
- **The switch for changing the direction of rotation may only be operated by authorised personnel. The direction of rotation must not in particular be reversed in a frost protection circuit.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Mode of operation

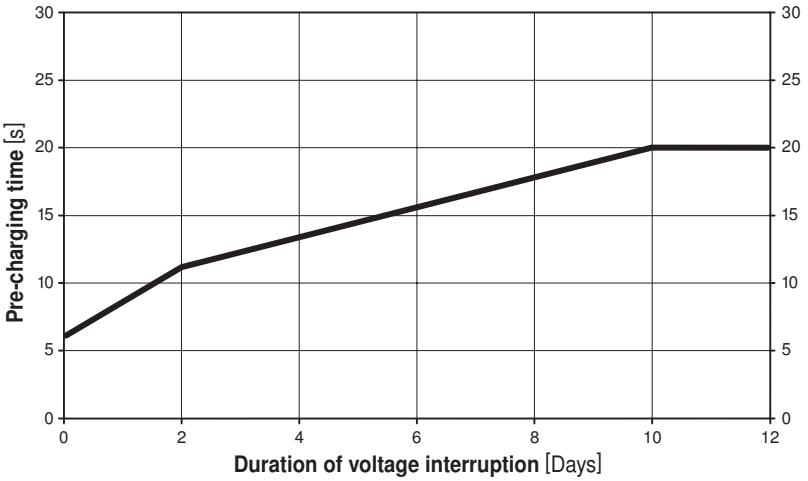
The actuator moves the valve to the desired operating position at the same time as the integrated capacitors are loaded. Interrupting the supply voltage causes the valve to be rotated back into the emergency setting position by means of stored electrical energy.
The actuator is connected with a standard modulating signal of DC 0 ... 10V and travels to the position defined by the positioning signal. The measuring voltage U serves for the electrical display of the ball position 0 ... 100%.

Pre-charging time (start up)

The capacitor actuators require a pre-charging time. This time is used for charging the capacitors up to a usable voltage level. This ensures that, in the event of an electricity interruption, the actuator can be moved at any time from its current position into the preset emergency setting position (POP).
The duration of the pre-charging time depends mainly on how long the power was interrupted.

Typical pre-charging times

	Duration of voltage interruption [Days]				
	0	**1**	**2**	**7**	**≥10**
Pre-charging time [s]	6	9	11	16	20



Delivery condition (capacitors)

The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 20 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

Simple direct mounting

Simple direct mounting on a valve with ISO 5211-F05 mounting flange.
The mounting orientation in relation to the valve can be selected in 90° steps.

Manual override

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

High functional reliability

The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Product features

(continued)

Direction of rotation switch

When actuated, the direction of rotation switch changes the running direction in normal operation.
The direction of rotation switch has no influence on the emergency setting position (POP) which has been set.

Emergency setting position (POP) rotary button

The «Emergency setting position» rotary button can be used to adjust the desired emergency setting position (POP) between 0 and 100% in 10% increments.
The rotary button always refers to an angle of rotation of 90°∢ and does not take into account any retroactively adjusted end stops.
In the event of a voltage interruption, the actuator will move into the selected emergency setting position, taking into account the bridging time (PF) of 2 s which was set ex-works.

Combination valve/actuator

Für Ventile mit folgenden mechanischen Spezifikationen nach ISO 5211 - F05:
– Square stem head (14 mm) for form-fit attachment of the rotary actuator.
– Hole circle d = 50 mm for installation with the butterfly valve.

Accessories

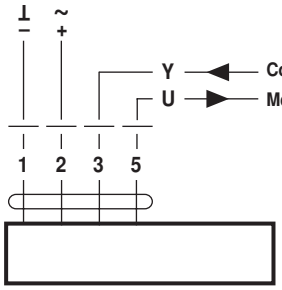
Electrical accessories

Description	Data sheet
Auxiliary switch S..A..	T2/T5 - S..A..
Feedback potentiometer P..A..	T2/T5 - P..A..
Position sensor SGA24, SGE24 and SGF24	T2 - SG..24
Digital position indication ZAD24	T2 - ZAD24
Room temperature controller CR24..	S4 - CR24-..

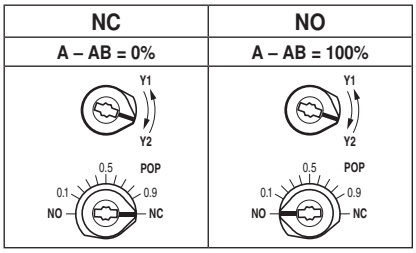
Electrical installation

Wiring diagram

Note
- Connect via safety isolation transformer.
- Factory setting of the direction of rotation switch Y2

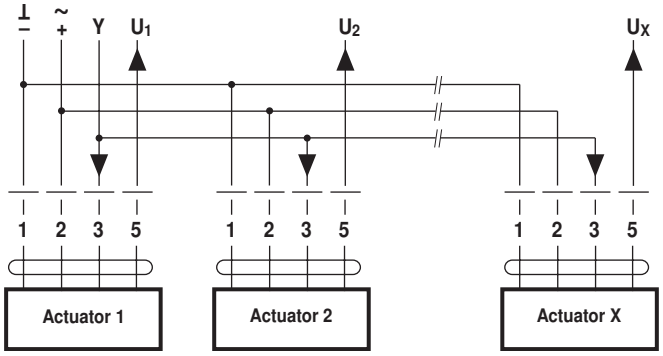


Cable colours:
1 = black
2 = red
3 = white
5 = orange



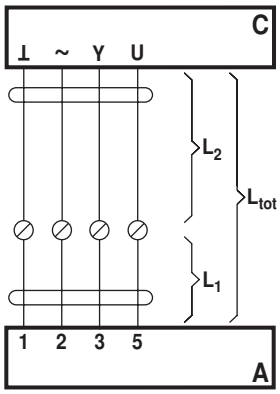
Wiring diagram for parallel operation

Notes
- A maximum of eight actuators can be connected in parallel.
- Parallel operation is permitted only on separated axes.
- It is imperative that the performance data be observed with parallel operation.



Electrical installation *(continued)*

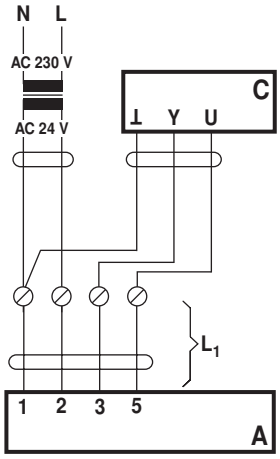
Cable lengths



A = Actuator
C = Control unit
L_1 = Belimo connecting cable, 1 m (4 x 0.75 mm²)
L_2 = Customer cable
L_{tot} = Maximum cable length

Cross-section L_2 ⊥ / ~	Max. cable length $L_{tot} = L_1 + L_2$		Example for DC
	AC	DC	
0.75 mm²	≤40 m	≤20 m	1 m (L_1) + 19 m (L_2)
1.00 mm²	≤50 m	≤30 m	1 m (L_1) + 29 m (L_2)
1.50 mm²	≤80 m	≤45 m	1 m (L_1) + 44 m (L_2)
2.50 mm²	≤130 m	≤80 m	1 m (L_1) + 79 m (L_2)

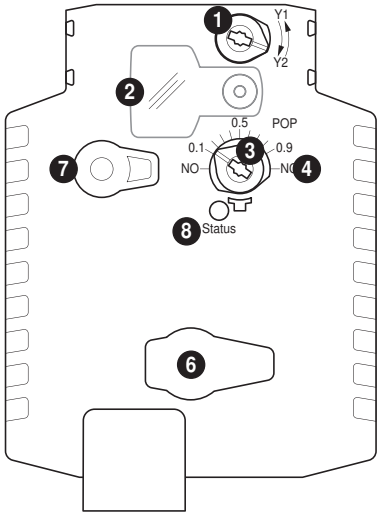
Note
When several actuators are connected in parallel, the maximum cable length must be divided by the number of actuators.



A = Actuator
C = Control unit
L_1 = Belimo connecting cable, 1 m (4 x 0.75 mm²)

Note
There are no special restrictions on installation if the supply and data cable are routed separately.

Operating controls and indicators

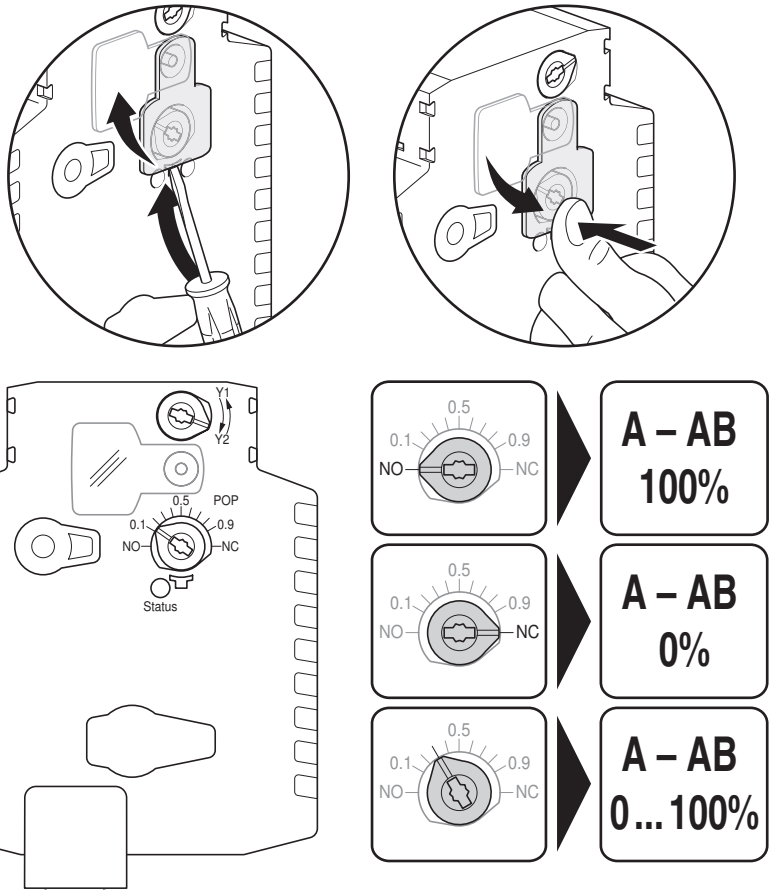


1. **Direction of rotation switch**
2. **Cover, POP button**
3. **POP button**
4. **Scale for manual adjustment**
6. (no function)
7. **Disengagement button**

LED display 8 green	Meaning / function
Illuminated	Operation OK / without fault
Blinking	POP function active
Off	– Not in operation – Pre-charging time SuperCap – Fault SuperCap

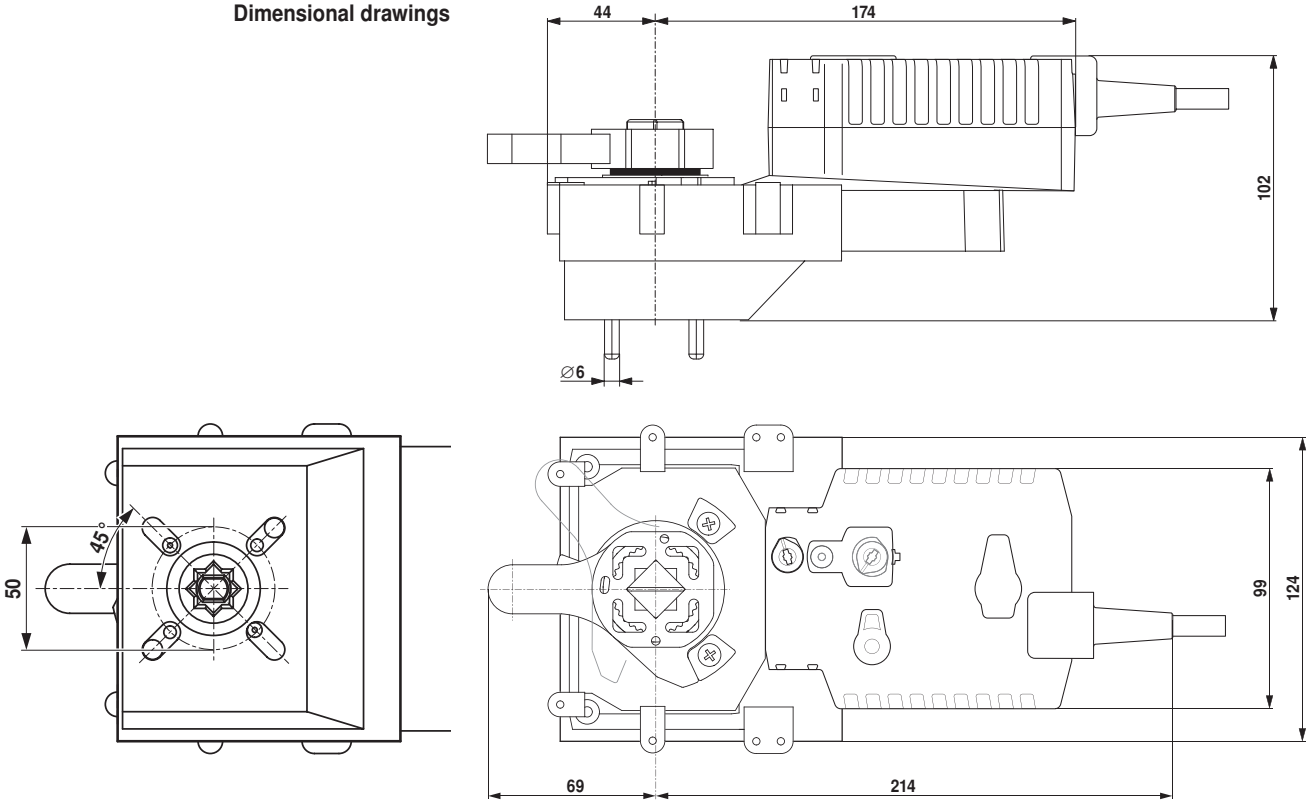
Operating controls and indicators *(continued)*

Setting the POP Power off position



Dimensions [mm]

Dimensional drawings



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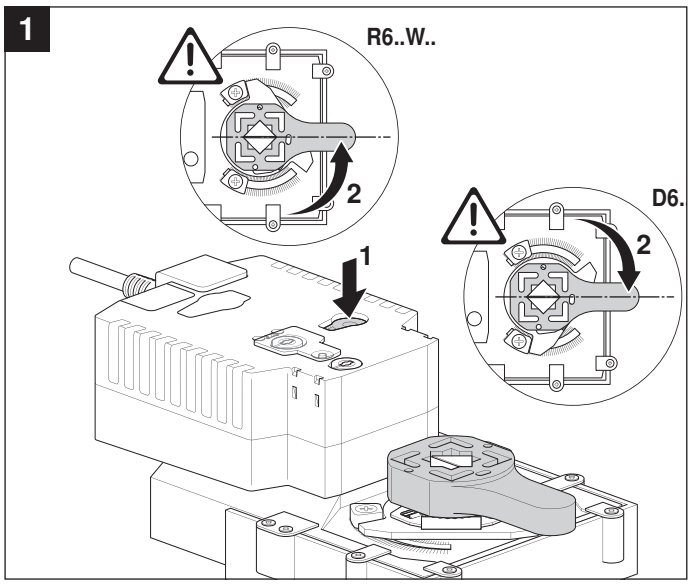

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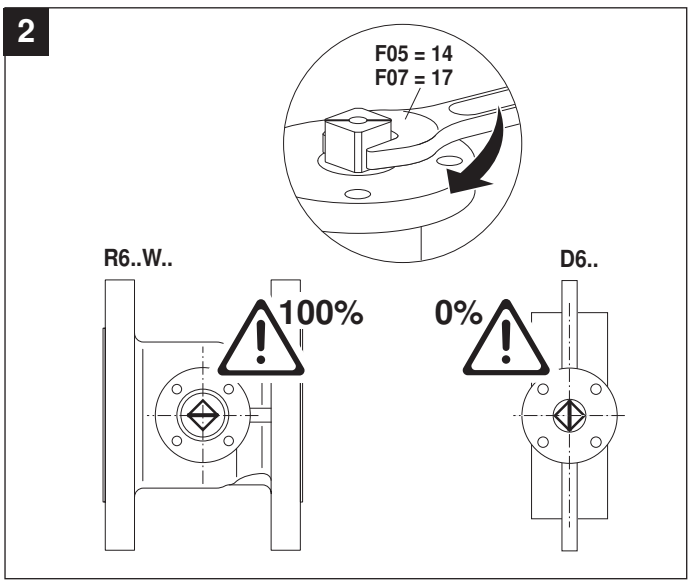

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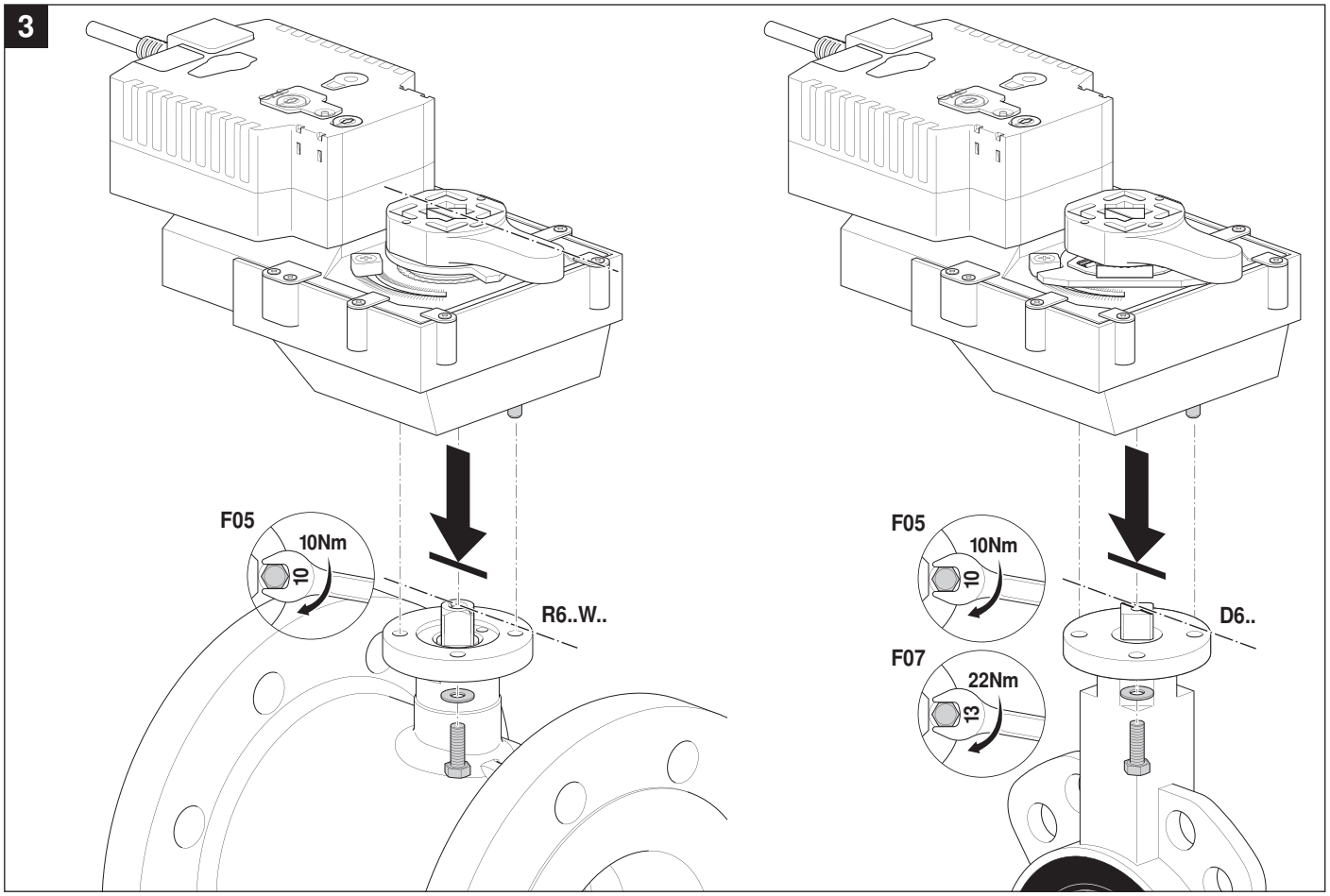

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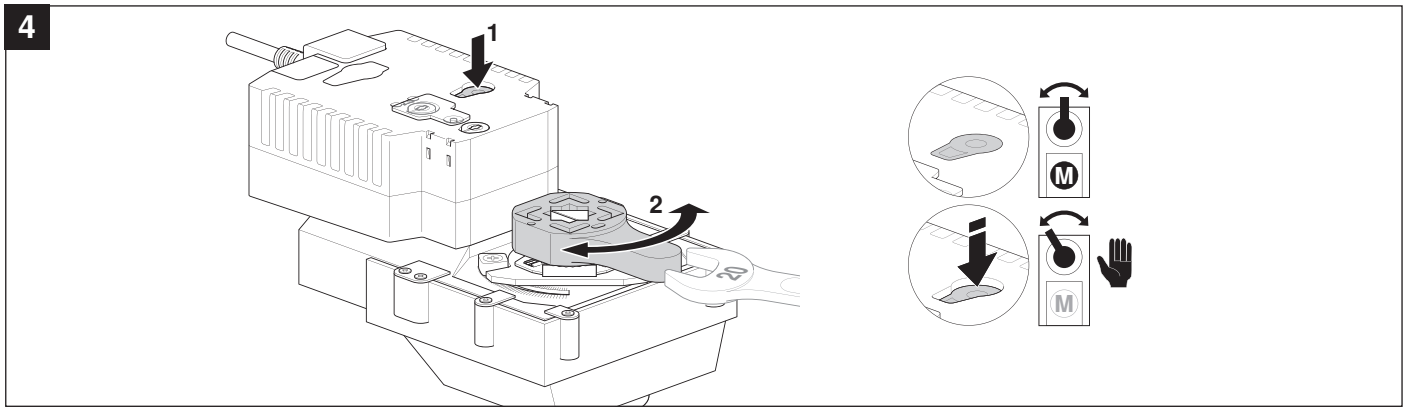
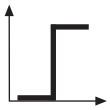
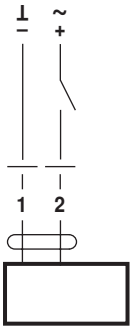
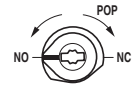


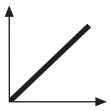


AC 24 V / DC 24 V

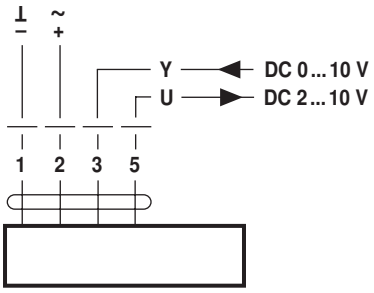


GRK24A-5
GRK24A-7

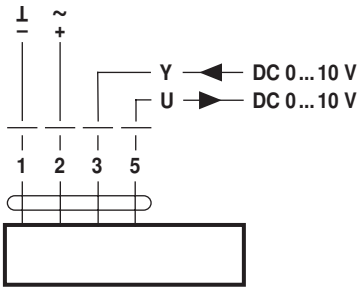
NC	NO
A – AB = 0%	A – AB = 100%
	



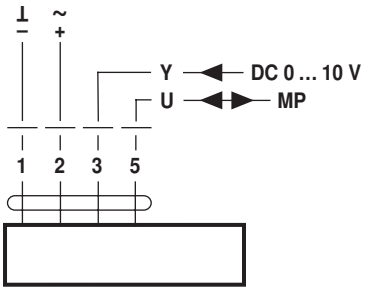
AC 24 V / DC 24 V



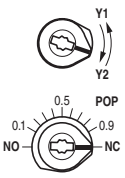
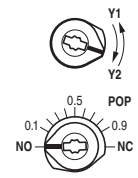
GRK24A-SR-5
GRK24A-SR-7

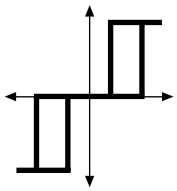


GRK24A-SZ-5 **GRK24A-MF-5**
GRK24A-SZ-7 **GRK24A-MF-7**

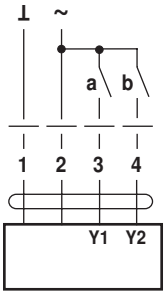


GRK24A-MP-5
GRK24A-MP-7

NC	NO
A – AB = 0%	A – AB = 100%
	



AC 24 V



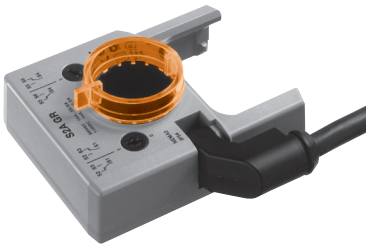
GRK24A-3-5
GRK24A-3-7

3 a (Y1)	4 b (Y2)	NC A – AB = 0%	NO A – AB = 100%
			
		—	—
			
			

BELIMO

Technical data sheet S..A..

Auxiliary switches for damper actuators and rotary actuators
- **One or two switches (SPDT, single-pole double-throw)**
- **Adjustable switching point**



Overview of types

	Type	No. of switches	Cable	Material	Type	No. of switches	Cable	Material
Housing colour, orange	S1A	1 x SPDT	1 m, 3 x 0.75 mm²	PVC	S2A	2 x SPDT	1 m, 6 x 0.75 mm²	PVC
Housing colour, grey					S2A GR	2 x SPDT	1 m, 6 x 0.75 mm²	FRNC [1]
					S2A/300 GR	2 x SPDT	3 m, 6 x 0.75 mm²	FRNC [1]
					S2A/500 GR	2 x SPDT	5 m, 6 x 0.75 mm²	FRNC [1]

[1] FRNC for RobustLine and IP66/NEMA4 actuators necessary

Overview of actuators

	Standard actuators		RobustLine actuators	Very fast running actuators	SuperCap actuators	IP66/NEMA4 actuators
Damper actuators	TM..A..	SM..A..	NM..P..	LMQ..A.. [2]	GK..A.. [2]	GM..G..
	LM..A..	GM..A..	SM..P..	NMQ..A.. [2]	NKQ..A.. [3]	SMQ..G..
	NM..A..			SMQ..A.. [2]		
				SMD..A..		
Rotary actuators	TR..A..	SR..A..	SR..P..	LRQ..A..	GRK..A..	GR..G..
	LR..A..	GR..A..		NRQ..A..		DR..G..
	NR..A..	DGR..A..				
		DR..A..				

[2] For spindle clamp installation on the rear side of the actuator, it is imperative that a Z-SPA adapter be ordered (see «Accessories»)
[3] It is imperative that a Z-SPA adapter be ordered for all installations (see «Accessories»)

Technical data

Functional data	Number of switches	See «Overview of types»
	Switching capacity	1 mA ... 3 (0.5) A, AC 250V ⧈
	Switching point	Adjustable over the full range of rotation of the actuator (0 ... 1). Can be preset by means of the scale.
	Connection	See «Overview of types»
Safety	Protection class	**II** Totally insulated ⧈
	Degree of protection	IP54 NEMA2, UL Enclosure Type 2
	Low-voltage directive	CE according to 2006/95/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 CULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1.B
	Rated impulse voltage	4 kV
	Control pollution degree	3
	Ambient temperature	–30 ... +50°C
	Non-operating temperature	–40 ... +80°C
	Ambient humidity	95% r.h., non-condensating
	Maintenance	Maintenance-free
Dimensions / Weight	Dimensions	See «Dimensions» on page 3
	Weight	S1A: approx. 200 g S2A (GR): approx. 250 g S2A/300 GR: approx. 520 g S2A/500 GR: approx. 720 g

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.**
- **It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during installation.**
- **The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.**
- **The cable must not be removed from the device.**
- **The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.**

Product features

Application

The auxiliary switches are used to signal positions or to execute switching functions in any angular position.

Mode of operation

A form-fit engagement is created between a driver disc and the spindle clamp (Damper actuators) or on the position indicator (Rotary actuators), causing the position to be directly transferred to the trip cams of the microswitches.
The switching points can be freely selected within the specified range of rotation by means of a dial. The current switch position can be read at any time.

Installation

The auxiliary switches are attached directly to the spindle clamp (Damper actuators) or on the position indicator (Rotary actuators). The guiding grooves between the housing and the switch ensure a tightly sealing fit.

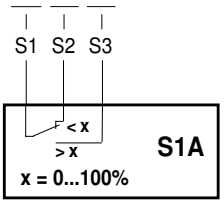
Accessories

	Description
Mechanical accessories	Adapter Z-SPA It is imperative that this adapter be ordered if an auxiliary switch is required for the damper actuators (Very fast running actuators and SuperCap actuators) and if at the same time the spindle clamp is installed on the rear side of the actuator (e.g. with short-axis installation). An adapter must be ordered for all installations with the NKQ..A.. actuators.

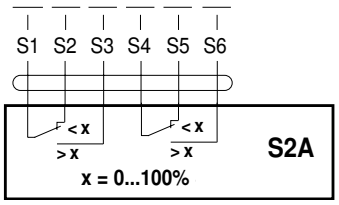
Electrical installation

Wiring diagrams

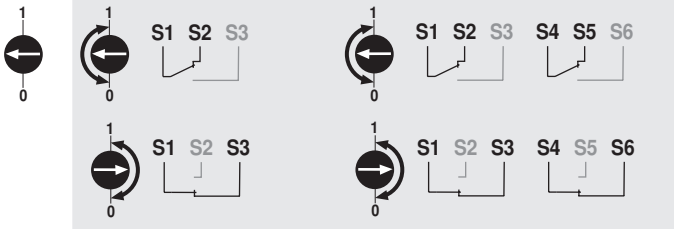
S1A..



S2A..

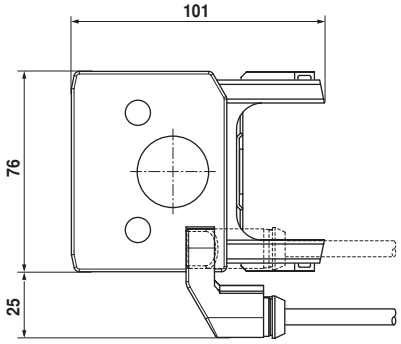


Cable colours:
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey



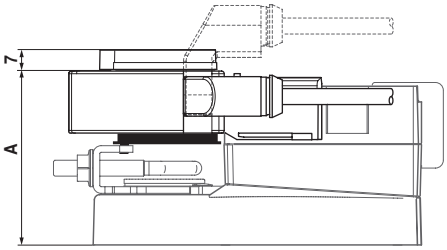
Dimensions [mm]

Dimensional drawings



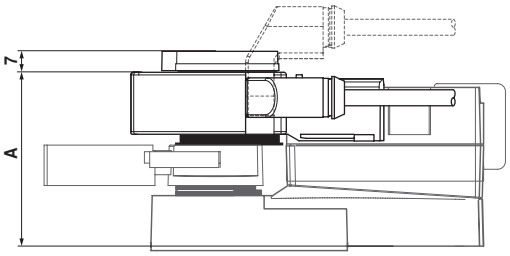
with damper actuators

Damper actuator	A	Damper actuator	A
TM..A.., LM..A..	66	LMQ..A..	80
NM..A..	69	NMQ..A..	83
SM..A..	71	SMQ..A..	89
SMD..A..	71	NKQ..A..	87
GM..A..	78	GK..A..	94

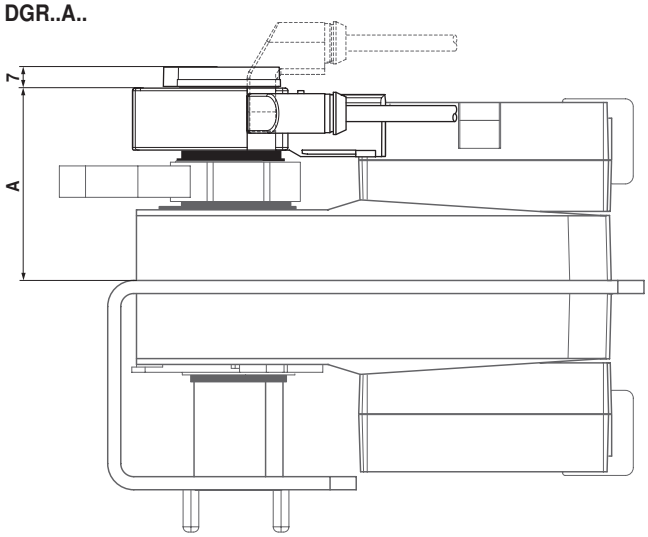


with rotary actuators

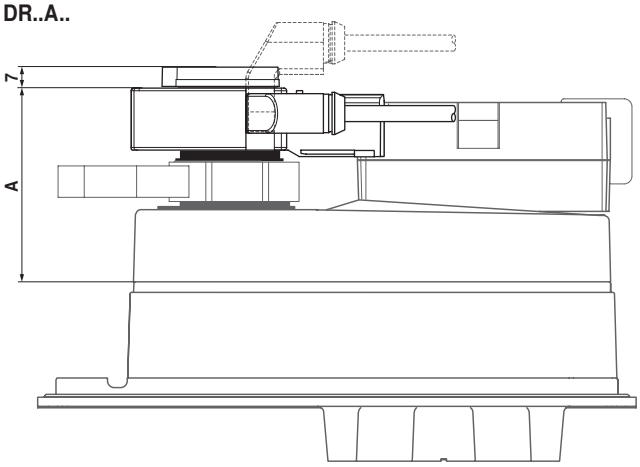
Rotary actuator	A	Rotary actuator	A
TR..A.., LR..A..	66	LRQ..A..	80
NR..A..	69	NRQ..A..	83
SR..A..	71	DR..A..	78
GR..A..	78	GRK..A..	94
DGR..A..	78		



DGR..A..



DR..A..



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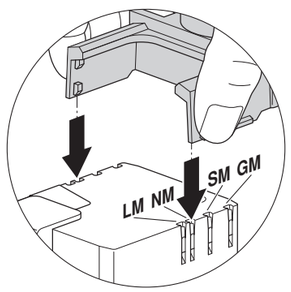
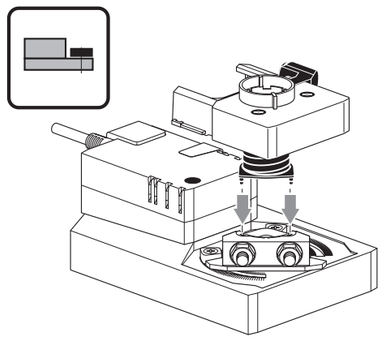
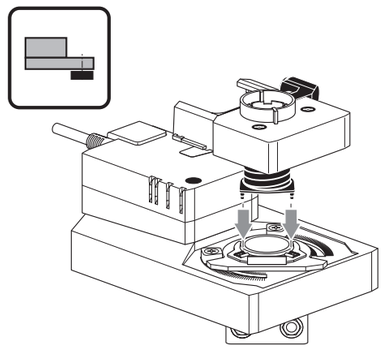
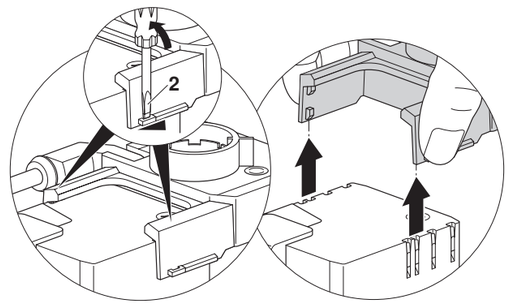
LM / NM / SM / GM

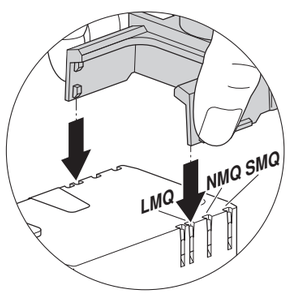


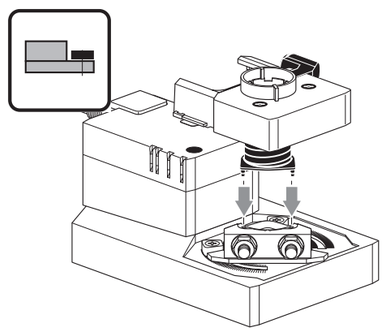


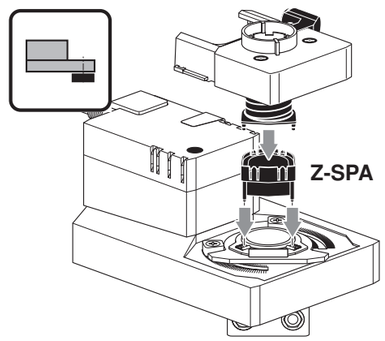


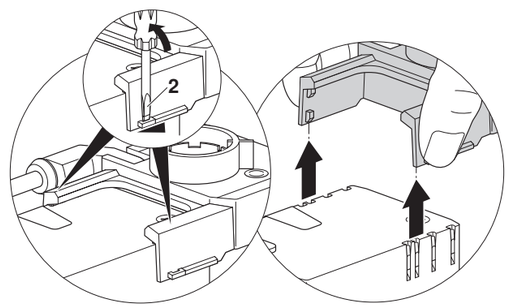


LMQ / NMQ / SMQ

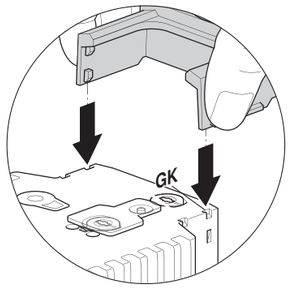


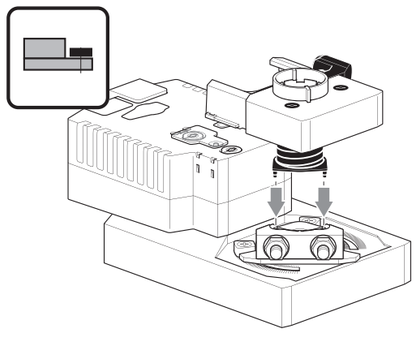


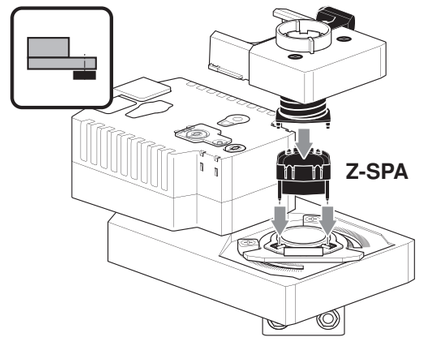


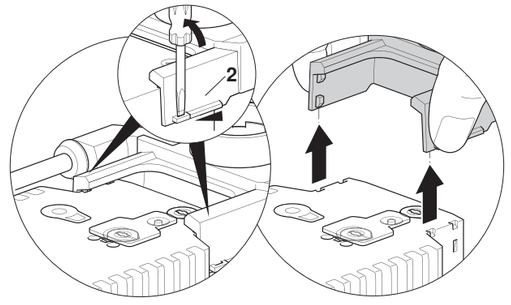


GK

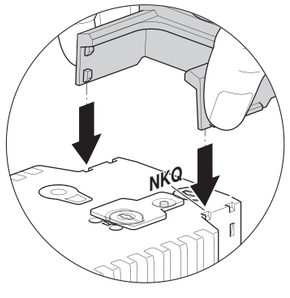


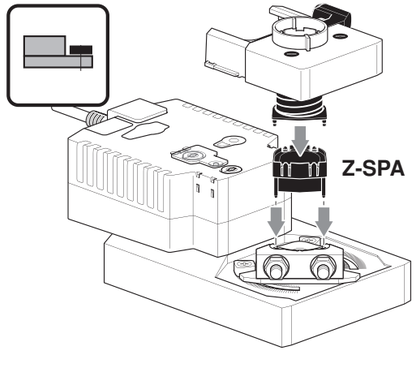


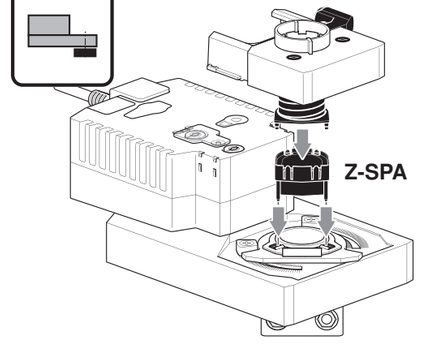


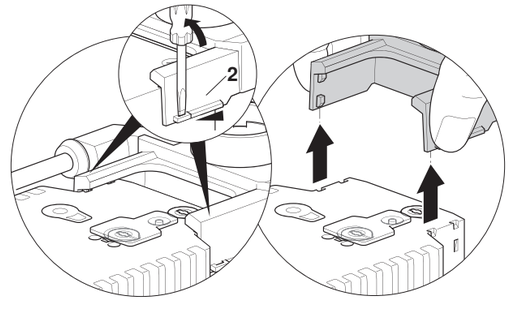


NKQ

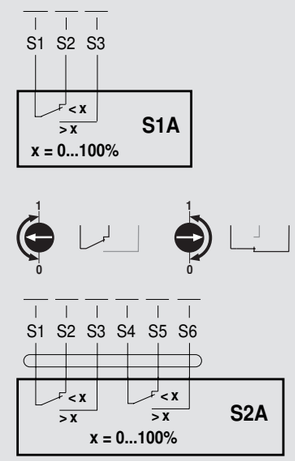








S..A..



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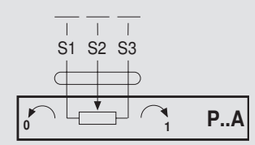

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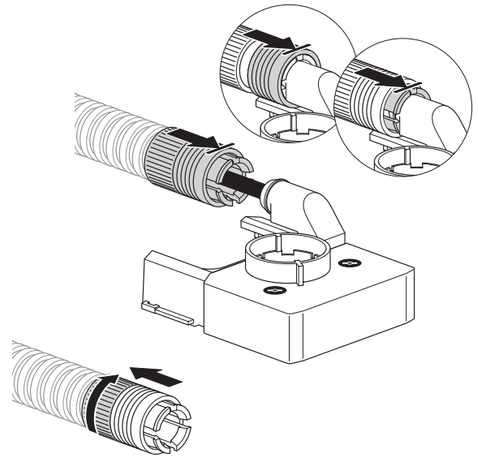

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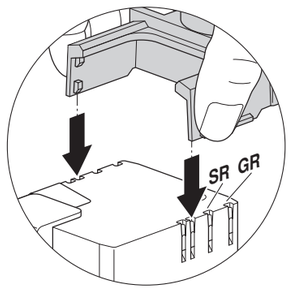
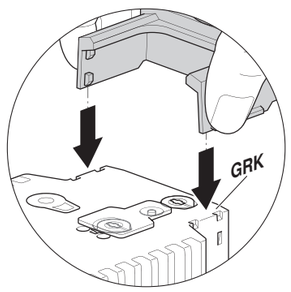
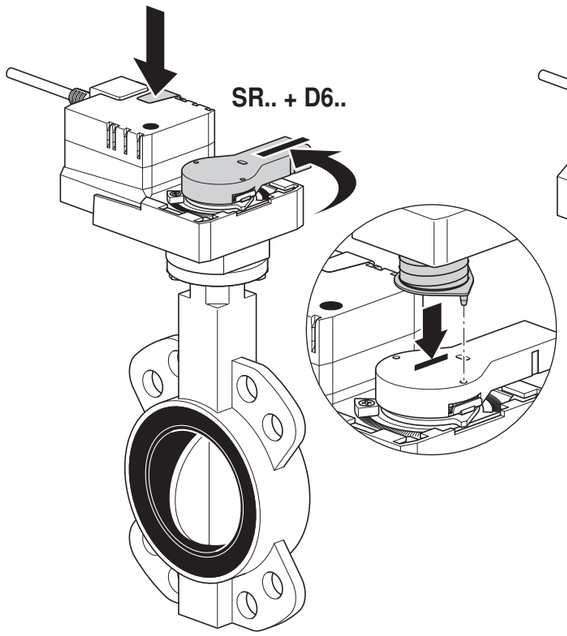
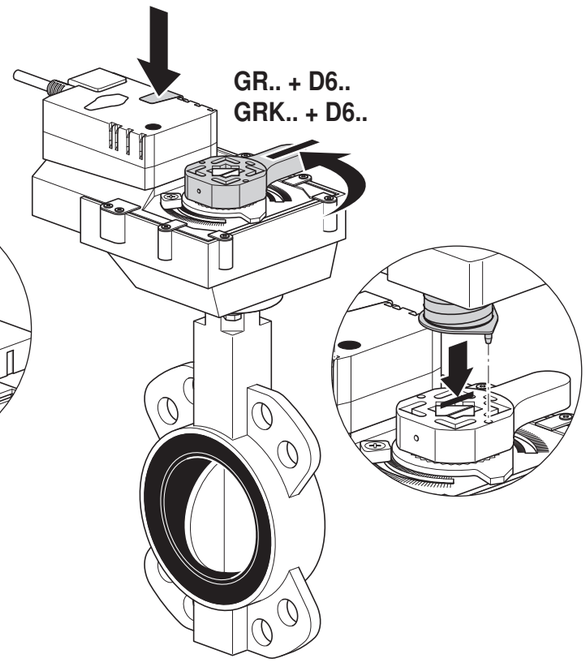
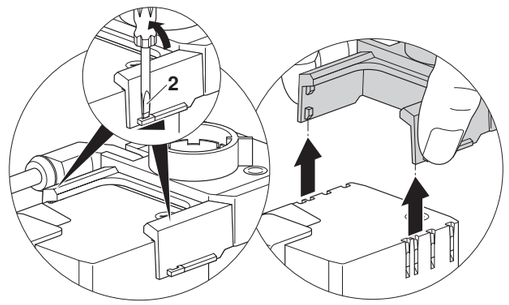


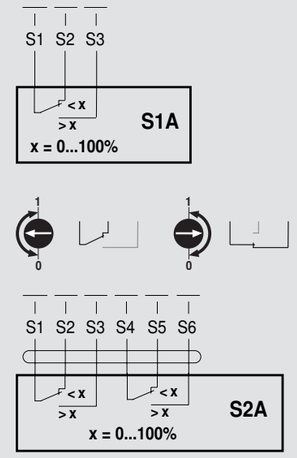








S..A..



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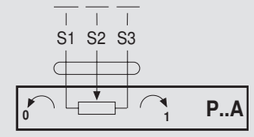

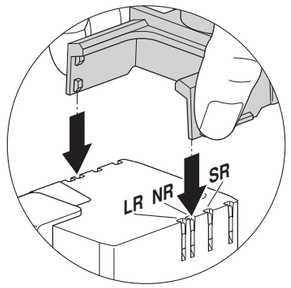

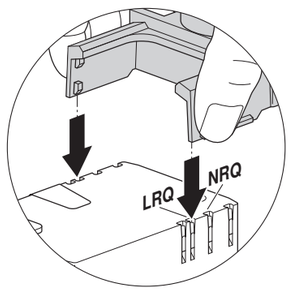

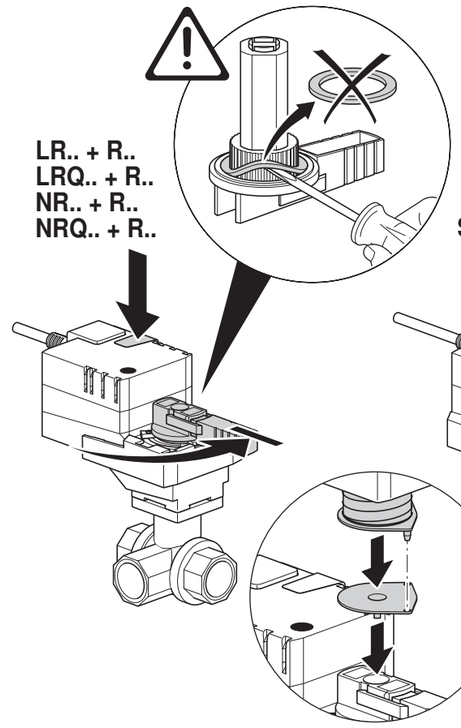

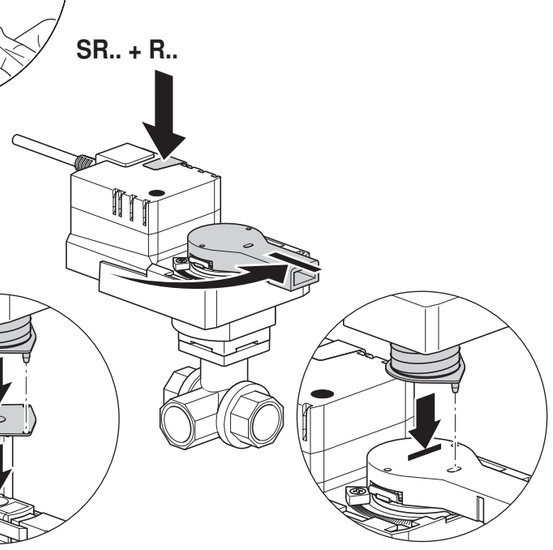

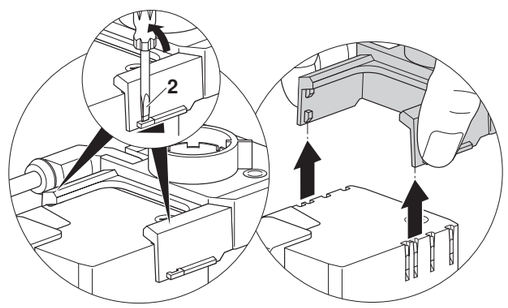

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