



Notes for project
planning

Piggy-back operation: mechanically coupled actuators

Edition 2022-10/B

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Piggy-back operation





General section

"Piggy-back" is a designation used in-house at Belimo. It refers to the operation of mechanically coupled actuators for the purpose of obtaining a correspondingly greater torque for the application. It should be noted that the actuators have to be mechanically and rigidly interconnected. This is the basis for piggy-back operation that is as trouble-free as possible.

The overview table below includes the actuators designed for the piggy-back operation and their versions.

Piggy-back operation is made possible through special programming, which is automatically activated with appropriate actuator wiring (primary/secondary operation). The wiring defines the primary actuator and the related secondary actuators. The primary actuator undertakes the control of the mechanically coupled secondary actuators.

Overview

	SF24A-MF	EF24A-MF	GK24A-MF	GM24A-MF
				
Running time	70...220 s	60...150 s	90...150 s	75...290 s
Wiring	Primary/secondary operation	Primary/secondary operation	Primary/secondary operation	Primary/secondary operation
Piggy-back software	PGB II	PGB II	PGB II	PGB II
Programmable as	Open/close 3-point modulating	Open/close 3-point modulating	Open/close 3-point modulating	Open/close 3-point modulating
Torque	2 x = 40 Nm	2 x = 60 Nm 3 x = 90 Nm	2 x = 80 Nm	2 x = 80 Nm
Full cycles	30'000	30'000	50'000	50'000

2 actuators on one shaft

- The shaft is the mechanical element which interconnects two actuators rigidly.
- **Piggy-back operation: YES**

**2 actuators on 2 shafts with stable mechanical connection**

- Additional mechanical element which interconnects two shafts rigidly. It can also connect the actuators via the shaft clamp.
- The used lever arms, which are connected with a connecting rod, should form a parallelogram.
- **Piggy-back operation: YES**

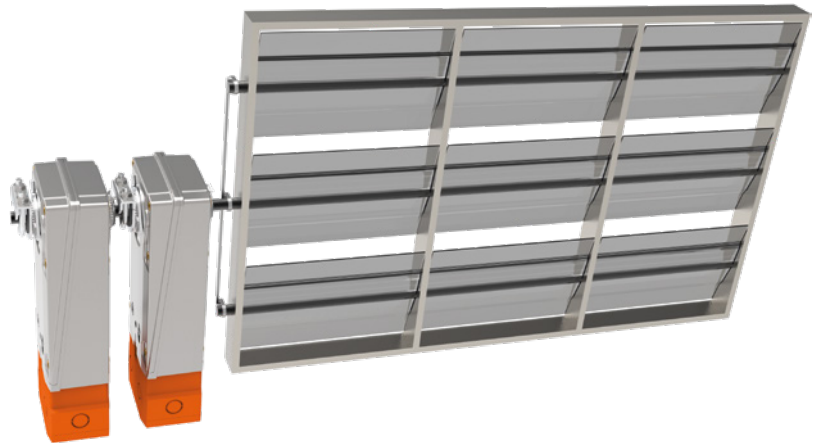
**2 actuators on 2 shafts without mechanical connection**

- There is no mechanical connecting element between the shafts.
- **Piggy-back operation: NO**

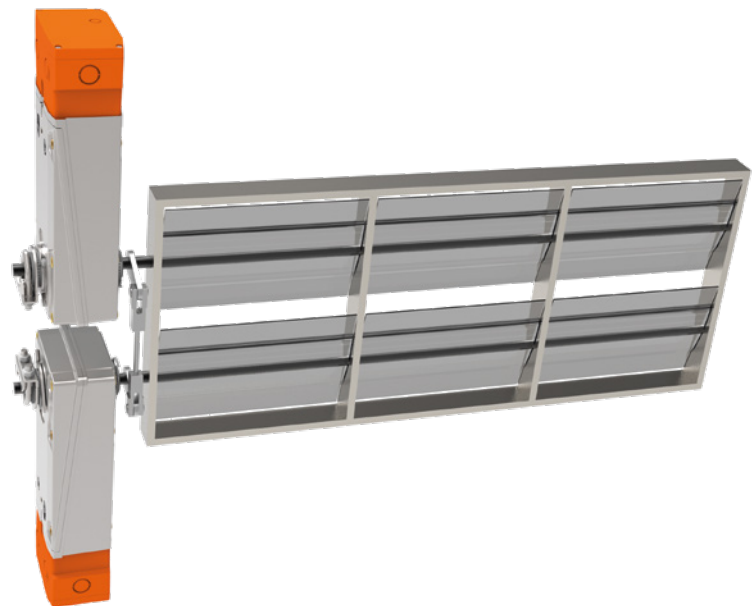


Mechanical requirements

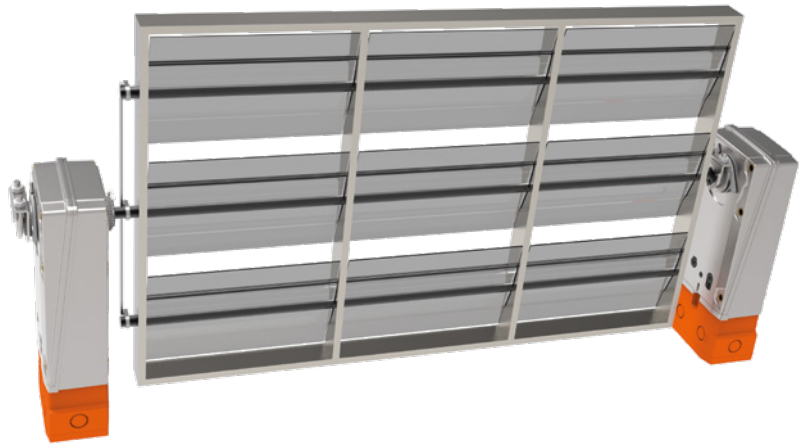
In piggy-back operation, the secondary actuator is directly controlled by the primary actuator. This leads to a relatively even load distribution. The prerequisite is that there is a rigid mechanical connection between primary and secondary actuator. Best results are achieved when both actuators are mounted closely together on the same shaft. This is the recommended mounting type.



It is possible to mount two actuators on different mechanically coupled shafts. The mechanical coupling can be made by a damper crank arm and linkage. Again a rigid connection is of great importance. The damper crank arms should always form a parallelogram.



Increasing the distance between the actuators and adding connecting elements increases the elasticity of the overall system. This can lead to an uneven load distribution on the primary and secondary actuator. This manifests itself in different angular positions of the two actuators and consequently in a deviation of control and feedback signals.

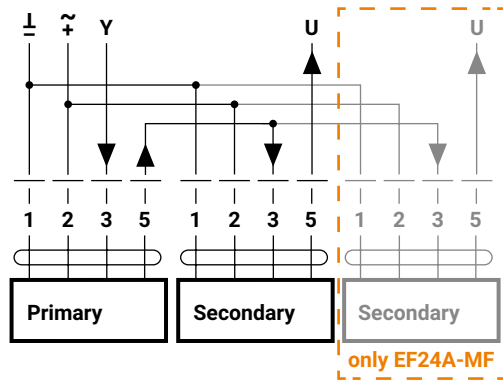


Electrical connection

Power supply

Primary and secondary actuator should use the same power supply. As a result, the actuators are simultaneously supplied with power and the piggy-back operation is started automatically.

Wiring diagram



Settings

The actual piggy-back operation does not need to be adjusted or enabled. The actuators detect this autonomously with the relevant wiring.

If parameters such as running time need to be adjusted, the table below should be noted. The adjustment of parameters that are not listed is not recommended.

Parameter	Tool	Changes required with
Control signal Y (open/close, 3-point, modulating)	PC-Tool / ZTH	Primary actuator ¹⁾
Feedback U5	PC-Tool / ZTH	Secondary actuator ¹⁾
Running time	PC-Tool / ZTH	Primary actuator
POP (fail-safe) (GK24A-MF only)	PC-Tool / ZTH	Primary actuator
Bridging time (GK24A-MF only)	PC-Tool / ZTH	Primary actuator



¹⁾ Control signal and feedback signal can display different values depending on programming.

Angle-of-rotation limitation

For the piggy-back operation the angle of rotation can only be limited by the stable mechanical end stops on the damper. The end stops should be designed so that they can absorb the entire torque of both actuators.



Angle limitations via end stops on the actuator or via programmed angle are not permitted!

Angle-of-rotation adaptation

After installation, the limited angle can be applied through manual adaptation by pressing a button on the primary actuator (see details in chapters on rotary actuators). The adaptation button of the secondary actuator is without function.

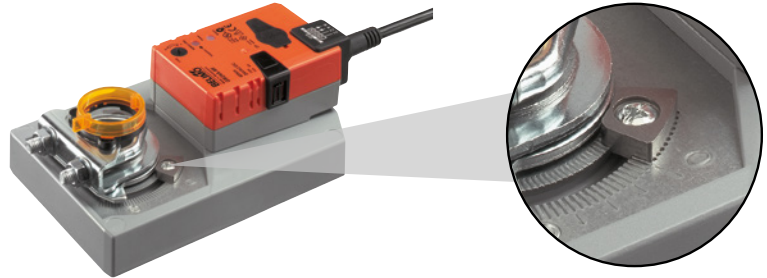


The adaptation can only be triggered with the primary actuator. The secondary actuator moves with the adaptation, but keeps the original angle range. The different angle settings at the primary and secondary actuator lead to deviations between control and feedback signal.

Restrictions

All types

The mechanical end stop of the actuator must not be relocated.



- Neither the manual override button nor the hand crank must be used for the manual adjustment of the coupled actuators.
- The permissible torques according to the overview table should be noted.
- The fail-safe positions and the positions of the direction-of-rotation switch should be noted depending on the installation.
- The actuators should be rigidly interconnected.
- In the event of replacement all coupled actuators should be changed.

Rotary actuator SF24A-MF

Rotary actuator, fail-safe



Parametrisable fail-safe rotary actuator for adjusting dampers in technical building installations

Nominal torque per actuator: 20 Nm

Piggy-back operation: max. 2 actuators = 40 Nm

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	8.5 W
Power consumption in rest position	3.5 W
Power consumption for wire sizing	11 VA
Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
Torque motor	Min. 20 Nm
Torque fail-safe	Min. 20 Nm
Control signal options	Open/close 3-point (AC only) Modulating (0/2...10 V)
Direction of motion motor	Selectable with switch L/R
Direction of motion fail-safe	Selectable by mounting L/R
Angle of rotation	Max. 95°
Running time motor	150 s / 90°
Running time motor variable	70...220 s
Running time fail-safe	<20 s / 90°
Adaptation setting range	Manual
Mechanical interface	Universal shaft clamp 10...25.4 mm

For more information, see data sheet SF24A-MF.

Properties

- A maximum of two actuators can be connected in the primary/secondary operation.
- Both actuators must have the same basis. This means that for special actuators configured by Belimo, both actuators must have the same order code.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.
- The controlled actuator is determined as the primary actuator by the wiring layout.
- The function of the piggy-back installation can be checked by pressing the adaptation button on the primary actuator.

Restrictions

- Full cycles: 30,000
- Adjusting the mechanical end stops of the actuator is not permitted in the piggy-back operation.
- Both actuators must be exactly at the same angular position when mounting.
- The actuators should be operated using the same power supply.

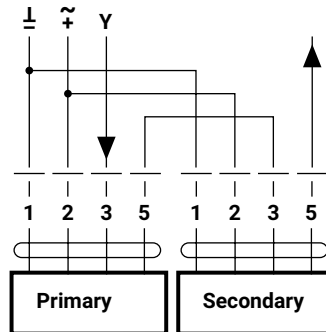
Installation and commissioning

1. Turn the damper to the safety position.
2. Bring both actuators into exactly the same angular position.
3. Position the first actuator.
4. Tighten the shaft clamp manually (shaft can rotate freely).
5. Secure the actuator in a fixed position.
6. Position the second actuator (same fail-safe direction).
7. Tighten the shaft clamp manually (shaft can rotate freely).
8. Secure the second actuator in a fixed position.
9. Tighten all shaft clamps.
10. Perform primary/secondary wiring (same power supply for all actuators).
11. Apply power and remain on the starting position for a few seconds.
12. To record or check the mechanical end stops, press the "Adaption" button on the primary actuator.
13. For an operational check, test different damper positions and check the fail-safe position.



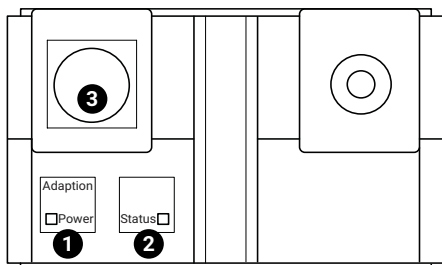
- Always mount actuators with same fail-safe direction.
- Bring the direction-of-rotation switch on primary and secondary actuator into the same position.
- The manual override must not be used with coupled actuators.

Wiring diagram



- A maximum of two actuators can be connected in the primary/secondary operation.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.

Operating controls and indicators



1	Membrane key and LED display green	
	Off:	No power supply or malfunction
	On:	In operation
	Press button:	Triggers angle-of-rotation adaptation, followed by standard mode
2	Membrane key and LED display yellow	
	Off:	Standard mode
	On:	Adaptation or synchronisation process active
	Press button:	No function
3	Service plug	
	For connecting parametrisation and service tools	
Operating elements		
The manual override, locking switch and direction-of-rotation switch elements are available on both sides.		

Rotary actuator EF24A-MF

Rotary actuator, fail-safe



Parametrisable fail-safe rotary actuator for adjusting dampers in technical building installations

Nominal torque per actuator: 30 Nm

Piggy-back operation: max. 3 actuators = 90 Nm

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	9.5 W
Power consumption in rest position	4.5 W
Power consumption for wire sizing	16 VA
Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
Torque motor	Min. 30 Nm
Torque fail-safe	Min. 30 Nm
Control signal options	Open/close 3-point (AC only) Modulating (0/2...10 V)
Direction of motion motor	Selectable with switch L/R
Direction of motion fail-safe	Selectable by mounting L/R
Angle of rotation	Max. 95°
Running time motor	150 s / 90°
Running time motor variable	60...150 s
Running time fail-safe	<20 s / 90°
Adaptation setting range	Manual
Mechanical interface	Universal shaft clamp 12...26.7 mm

For more information, see data sheet EF24A-MF.

Properties

- A maximum of three actuators can be connected in the primary/secondary operation.
- All actuators must have the same basis. This means that with special actuators configured by Belimo, all actuators must have the same ordering code.
- The primary/secondary operation is only permitted on one fixed shaft or on two or a maximum of three mechanically coupled shafts.
- The controlled actuator is determined as the primary actuator by the wiring layout.
- The function of the piggy-back installation can be checked by pressing the adaptation button on the primary actuator.

Restrictions

- Full cycles: 30,000
- Adjusting the mechanical end stops of the actuator is not permitted in the piggy-back operation.
- All actuators should be exactly at the same angular position when mounting.
- The actuators should be operated using the same power supply.

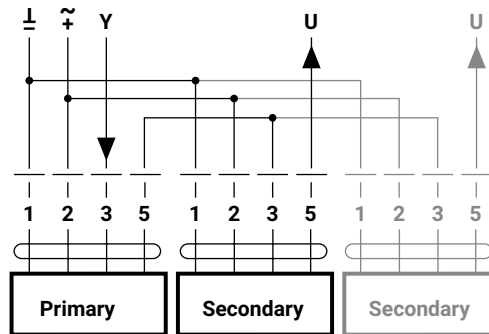
Installation and commissioning

1. Turn the damper to the safety position.
2. Bring all actuators into exactly the same angular position.
3. Position the first actuator.
4. Tighten the shaft clamp manually (shaft can rotate freely).
5. Secure the actuator in a fixed position.
6. Position the second actuator (same fail-safe direction).
7. Tighten the shaft clamp manually (shaft can rotate freely).
8. Secure the second actuator in a fixed position.
9. If necessary, repeat the process for the third actuator.
10. Tighten all shaft clamps.
11. Perform primary/secondary wiring (same power supply for all actuators).
12. Apply power and remain on the starting position for a few seconds.
13. To record or check the mechanical end stops, press the "Adaption" button on the primary actuator.
14. For an operational check, test different damper positions and check the fail-safe position.



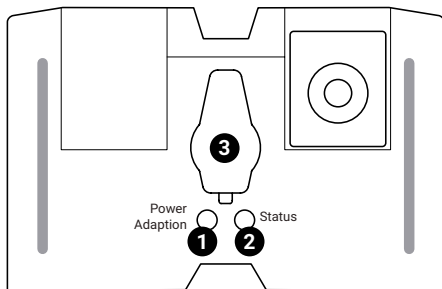
- Always mount actuators with same fail-safe direction.
- Bring the direction-of-rotation switch on primary and secondary actuator into the same position.
- The manual override must not be used with coupled actuators.

Wiring diagram



- Two or a maximum of three actuators can be connected in the primary/secondary operation.
- The primary/secondary operation is only permitted on one fixed shaft or two or a maximum of three mechanically coupled shafts.

Operating controls and indicators



1	Membrane key and LED display green
Off:	No power supply or malfunction
On:	In operation
Press button:	Triggers angle-of-rotation adaptation, followed by standard mode
2	Membrane key and LED display yellow
Off:	Standard mode
On:	Adaptation or synchronising process active
Press button:	No function
3	Service plug
For connecting parametrisation and service tool	
Check power supply connection	
1 Off and 2 On	Possible wiring error in power supply

Rotary actuator GK24A-MF

Rotary actuator, fail-safe



Parametrisable fail-safe rotary actuator with extended functionalities for adjusting dampers in technical building installations

Nominal torque per actuator: 40 Nm

Piggy-back operation: max. 2 actuators = 80 Nm

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 in rest position	3 W
Power consumption for wire sizing	21 VA
Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
Torque motor	Min. 40 Nm
Torque fail-safe	Min. 40 Nm
Control signal options	Open/close 3-point (AC only) Modulating (0/2...10 V)
Setting fail-safe position (POP)	0...100%, adjustable in increments of 10% (POP rotary knob on 0 corresponds to left end stop)
Bridging time (PF)	2 s
Bridging time (PF) variable	0...10 s
Direction of motion motor	Selectable with switch 0/1
Direction of motion fail-safe	Selectable with POP rotary knob
Angle of rotation	0...100%
Running time motor	Max. 95°
Running time motor variable	150 s / 90°
Running time fail-safe	90...150 s
Adaptation setting range	35 s / 90°
Mechanical interface	Manual
Abbreviations	Universal shaft clamp reversible 12...26.7 mm POP=Power off position / fail-safe position PF=Power fail delay time/bridging time

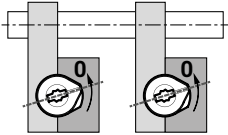
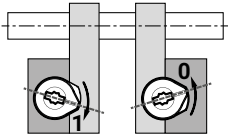
For more information, see data sheet GK24A-MF.

Properties

- A maximum of two actuators can be connected in the primary/secondary operation.
- Both actuators must have the same basis. This means that with special configured actuators from Belimo both actuators must have the same order code.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.
- The controlled actuator is determined as the primary actuator by the wiring layout.
- The function of the piggy-back installation can be checked by pressing the adaptation button on the primary actuator.

Restrictions

- Full cycles: 50,000
- Adjusting the mechanical end stops of the actuator is not permitted in the piggy-back operation.
- Both actuators must be exactly at the same angular position when mounting.
- It is not permitted to push on the manual override button under voltage.
- The actuators should be operated using the same power supply.
- During the operation the direction-of-rotation switch must not be adjusted. An adjustment of the direction-of-rotation switch should be performed in the deenergised state and always on both actuators.

Parameter	Interface	Settings
POP	POP rotary knob / PC-Tool	Primary actuator
Bridging time PF	PC-Tool/ZTH	Primary actuator
Direction-of-rotation switch and positioning of the hollow shaft	 <p>Actuators mounted with same direction</p>	<p>Direction-of-rotation switch is the same on primary and secondary actuator</p> <p>Hollow shafts positioned on the same end stop (down or up) when mounting the actuators</p>
	 <p>Actuators mounted with opposite direction</p>	<p>Direction-of-rotation switch should be different on primary and secondary actuator</p> <p>Align the hollow shafts exactly in the opposite direction when mounting the actuators.</p>

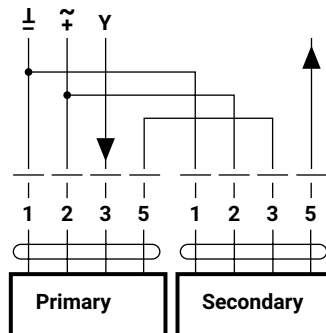
Installation and commissioning

1. Turn the damper to the starting position.
2. Bring both actuators into exactly the same angular position.
3. Bring the direction-of-rotation switch of the first actuator to the desired direction.
4. Position the first actuator.
5. Tighten the shaft clamp manually (shaft can rotate freely).
6. Secure the actuator in a fixed position.
7. Bring the direction-of-rotation switch of the second actuator to the desired direction.
8. Position the second actuator.
9. Tighten the shaft clamp manually (shaft can rotate freely).
10. Secure the actuator in a fixed position.
11. Tighten the shaft clamps of both actuators.
12. Perform primary/secondary wiring (same power supply for all actuators).
13. Apply power and remain on the starting position for a few seconds.
14. To record or check the mechanical end stops, press the "Adaption" button on the primary actuator.
15. For an operational check, test different damper positions.



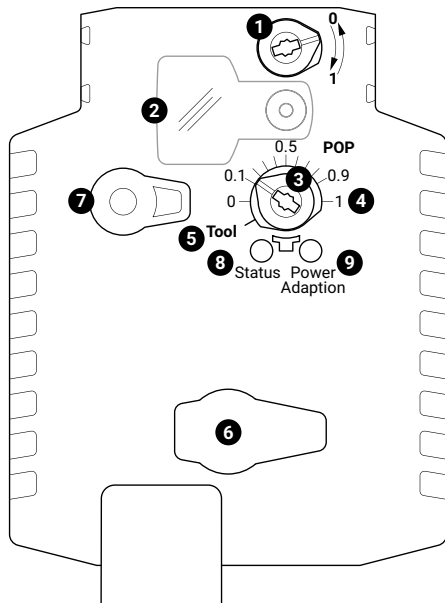
- Mount the actuators always with same fail-safe direction.
- The manual override button must not be used with coupled actuators.

Wiring diagram



- A maximum of two actuators can be connected in the primary/secondary operation.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.

Operating controls and indicators



1	Direction-of-rotation switch	
Switch over:	Direction of rotation changes	
2	Cover, POP button	
3	POP button	
4	Scale for manual adjustment	
5	Position for adjustment with tool	
6	Service plug	
	For connecting parametrisation and service tools	
7	Manual override button	
Press button:	Gear train disengages, motor stops, manual override possible	
Release button:	Gear train engages, standard mode	
LED displays		
8 yellow	9 green	Meaning / function
Off	On	Operation OK
Off	Flashing	POP function active
On	Off	Fault
Off	Off	Not in operation
On	On	Adaptation process active
Flashing	On	Communication with programming tool
9	Push-button (LED green)	
Press button:	Triggers angle-of-rotation adaptation, followed by standard mode	

Rotary actuator GM24A-MF

Rotary actuator, non fail-safe



Parametrisable damper actuator for adjusting dampers in technical building installations

Nominal torque per actuator: 40 Nm

Piggy-back operation: max. 2 actuators = 80 Nm

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	4 W
Power consumption in rest position	1.6 W
Power consumption for wire sizing	7 VA
Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
Torque motor	Min. 40 Nm
Control signal options	Open/close 3-point (AC only) Modulating (0/2...10 V)
Direction of motion motor	Selectable with switch L/R
Angle of rotation	Max. 95°
Running time motor	150 s / 90°
Running time motor variable	75...290 s
Adaptation setting range	Manual
Mechanical interface	Universal shaft clamp 12...26.7 mm

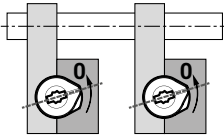
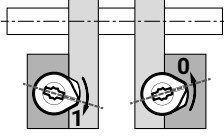
For more information, see data sheet GM24A-MF.

Properties

- A maximum of two actuators can be connected in the primary/secondary operation.
- Both actuators must have the same basis. This means that with special configured actuators from Belimo both actuators must have the same order code.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.
- The controlled actuator is determined as the primary actuator by the wiring layout.
- The function of the piggy-back installation can be checked by pressing the adaptation button on the primary actuator.

Restrictions

- Full cycles: 50,000
- Adjusting the mechanical end stops of the actuator is not permitted in the piggy-back operation.
- Both actuators must be exactly at the same angular position when mounting.
- It is not permitted to push on the manual override button under power.
- The actuators should be operated using the same power supply.
- During the operation the direction-of-rotation switch must not be adjusted. An adjustment of the direction-of-rotation switch should be performed in the deenergised state and always on both actuators.

Parameter	Direction-of-rotation switch	Settings
Direction-of-rotation switch and positioning of the hollow shaft	 <p>Actuators mounted with same direction</p>	<p>Direction-of-rotation switch is the same on primary and secondary actuator</p> <p>Hollow shafts positioned on the same end stop (down or up) when mounting the actuators</p>
	 <p>Actuators mounted with opposite direction</p>	<p>Direction-of-rotation switch should be different on primary and secondary actuator</p> <p>Align the hollow shafts exactly in the opposite direction when mounting the actuators.</p>

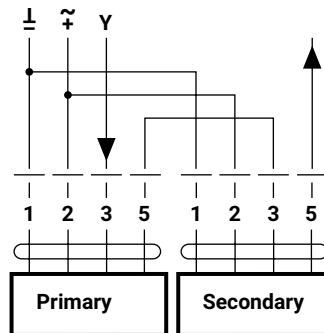
Installation and commissioning

1. Turn the damper to the starting position.
2. Bring both actuators into exactly the same angular position.
3. Bring the direction-of-rotation switch of the first actuator to the desired direction.
4. Position the first actuator.
5. Tighten the shaft clamp manually (shaft can rotate freely).
6. Secure the actuator in a fixed position.
7. Bring the direction-of-rotation switch of the second actuator to the desired direction.
8. Position the second actuator (same fail-safe direction).
9. Tighten the shaft clamp manually (shaft can rotate freely).
10. Secure the second actuator in a fixed position.
11. Tighten the shaft clamps of both actuators.
12. Perform primary/secondary wiring (same power supply for all actuators).
13. Apply power and remain on the starting position for a few seconds.
14. To record or check the mechanical end stops, press the "Adaption" button on the primary actuator.
15. For an operational check, move to different damper positions.



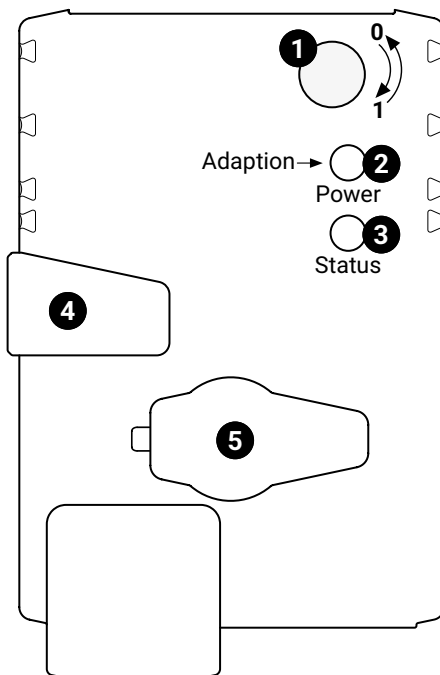
- The manual override button must not be pushed with coupled actuators.

Wiring diagram



- A maximum of two actuators can be connected in the primary/secondary operation.
- The primary/secondary operation is only permitted on one fixed shaft or two mechanically coupled shafts.
- The programming of the primary actuator is adopted by the secondary actuators.

Operating controls and indicators



1	Direction-of-rotation switch	
	Switch over:	Direction of rotation changes
2	Push-button and LED display green	
	Off:	No power supply or malfunction
	On:	In operation
	Press button:	Triggers angle-of-rotation adaptation, followed by standard mode
3	Push-button and LED display yellow	
	Off:	Standard mode
	On:	Adaptation or synchronising process active
	Press button:	No function
4	Manual override button	
	Press button:	Gear train disengages, motor stops, manual override possible
	Release button:	Gear train engages, synchronisation starts, followed by standard mode
5	Service plug	
		For connecting the parametrisation and service tools
Check power supply connection		
	2 Off and 3 On	Possible wiring error in power supply




Open/close and modulating actuators

Open/close and modulating actuators in piggy-back operation

Alternatively to the -MF actuators, specific open/close and -SR actuators can be operated in piggy-back operation. In contrast to the -MF actuators, open/close and -SR actuators have no piggy-back algorithm (PGB II). The table below shows an overview of the actuators. Please note that partially limited torques according to the table below apply to these actuators.

Overview

Open/close types
Modulating types
Running time
Torque
Full cycles

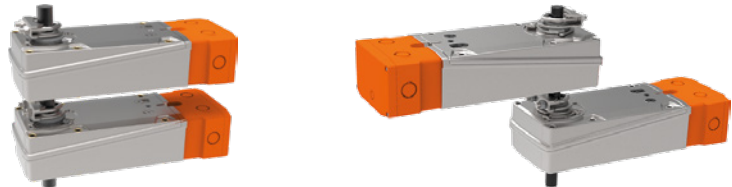
SF..	EF..	GM..
		
SF24A SFA	EF24A EF230A	GM24A GM230A
X	X	GM24A-SR
75 s	75 s	150 s
2 x = 30 Nm	2 x = 60 Nm	2 x = 60 Nm
30'000	30'000	50'000



– No other actuators are suitable for use in piggy-back applications.

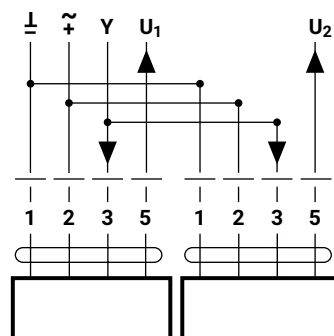
Mechanical requirements for open/close and -SR actuators

Open/close and -SR actuators must not be operated on multiple mechanically coupled shafts for piggy-back operation. **Only the mounting on one shaft is permissible.**



Electrical connection of open/close and -SR actuators

The actuators should be wired in parallel according to the diagram below.



Frequently Asked Questions (FAQ)

Which actuators are designed for the piggy-back operation?

The following actuators have been expanded especially for piggy-back applications with the PGB II software:

- SF24A-MF
- EF24A-MF
- GK24A-MF
- GM24A-MF

Detailed information can be found on the overview table on page 4.

Are all -MF actuators suitable for the piggy-back operation?

No, only -MF actuators that are listed on page 4 of this document are suitable for the piggy-back operation.

Which bus actuators are suitable for the piggy-back operation?

Bus actuators do not have PGB II software and are thus not suitable for the piggy-back operation.

Can different actuator types be connected together in piggy-back operation?

No, only the listed actuators of the same type can be operated together in piggy-back operation.

Is the piggy-back operation possible without a fixed mechanical coupling?

The piggy-back operation requires a compulsory fixed mechanical connection between the actuators. If there is no fixed mechanical connection, the actuators should be operated in parallel.

Which restrictions are there in relation to service life and guarantee?

If the installation is done correctly there is no restriction related to the guarantee. The relevant cycle numbers of the individual actuators are listed in this document.

Is the piggy-back operation also possible with a 3-point control (floating)?

On the primary actuator the control can be adjusted with the ZTH EU or PC-Tool. At the secondary actuator no adjustment has to be performed as it adopts the necessary information directly from the primary actuator.

Can I adjust the running time of the actuators also with the piggy-back operation?

On the primary actuator the running time can be adjusted with the ZTH EU or PC-Tool. The adjusted running time is adopted by the secondary actuator automatically but is not visible with the tools.

Can I supply the two piggy-back actuators from different voltage sources?

No, both actuators must be supplied from the same voltage source.

How can I test the piggy-back installation?

By pushing on the adaptation button on the primary actuator. If the actuators move in parallel, the actuators are in piggy-back operation. If only the primary actuator moves, the piggy-back operation has not been detected. The wiring should be checked and the power supply should be switched off and again on.

Can I check the connection between the primary and secondary actuator with the voltmeter?

No, this is an internal control line and the measured signals do not comply with the usual control signal of 2...10 V.

The feedback signal of the secondary actuator does not comply with the control signal on the primary actuator despite manually adapted angle of rotation?

With a manual adaptation only the primary actuator adapts the control signal to the adapted angle range. The secondary actuator relates its feedback signal still to 95°. If needed the U5 signal on the secondary actuator must be adjusted manually (with PC-Tool).

How does manual override work, especially for fail-safe actuators?

The manual override must not be used with coupled actuators.

How can I limit the angle of rotation with the piggy-back operation?

In the piggy-back operation the angle of rotation at the actuator should be limited neither mechanically nor electronically (with the PC-Tool). The angle of rotation must be limited with stable mechanical end stops at the damper. These end stops must absorb the entire torque. After mounting the actuators an adaptation must be triggered on the primary actuator.

Can I trigger an adaptation of the angle of rotation despite piggy-back operation?

Yes, an angle-of-rotation adaptation can be triggered on the primary actuator.

The GM24A is too weak. What can I do?

The best way is to use two GM24A-MFs, which are firmly mechanically connected to each other. The wiring must be performed according to the specification for the primary/secondary operation. Alternatively a second GM24A can be mounted as well. However, the restrictions and the adapted wiring must be observed here (see page 21).

If the torque of an actuator is too low, can I retrofit the piggy-back operation?

It is recommended to use the relevant -MF actuators for piggy-back applications. In exceptional cases, with the relevant restrictions, the actuators listed on page 21 can be used as well.

Why is the number of actuators restricted?

The restriction results from the increased mechanical loads on the gear train of the actuators due to the piggy-back installation. To ensure a reasonable service life the number of actuators is restricted.

Only one actuator has been replaced. Why are the actuators no longer synchronised?

Generally, we do not recommend to change only one actuator. All actuators of this piggy-back application should always be replaced at once. This ensures that the installed actuators fit together.

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