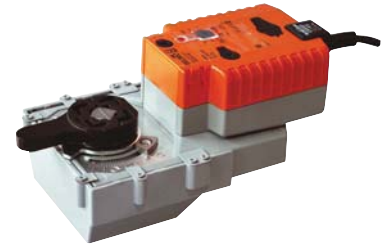


- Electronic Fail-Safe Rotary Actuators for operation of:
- Torque:
- Open/Close control:
- Modulating control:

DN100...150 CCV
40Nm
GRKU24-7 (AC/DC 24V)
GRKU24-MF-7 (AC/DC)



Technical data

Basic technical data

Torque		40Nm @ nominal voltage	
Angle of rotation		90°	
Sound power level	-motor	~52dB(A)	
	-POP	~61dB(A)	
Position indicator		Mechanical	
Running time	-motor	150s	
	-POP	35s @ 0...50°C	
Mode of operation		Type 1.AA (EN60730-1)	
Ambient temp.		-30...+50°C	
Non-operation temp.		-40...+80°C	
Humidity		5...95% RH, non-condensing	
Degree of protection		IP54	
EMC		CE according to 2004/108/EC	
Maintenance		Maintenance-free	
GRKU24-MF-7	Nominal voltage	AC 24V 50/60Hz, DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	-running 12W	
		-holding 3W	
	For transformer sizing	21VA (I _{max} 20A @ 5ms)	
	Connecting cable	Cable 1m, 5x0.75mm ²	
	Control signal Y	DC 2(0)...10V @ input impedance 100kΩ	
	Position feedback signal U	DC 2(0)...10V @ max. 0.5mA	
	Position accuracy	± 5%	
	Manual override	Gearing disengaged by pressing the push button, manual operation while the button is held depressed	
Protection class	III (safety extra-low voltage)		
Weight	2.2kg		
GRKU24-7	Nominal voltage	AC 24V 50/60Hz, DC 24V	
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	Power consumption	-running 12W	
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	For transformer sizing	21VA	
	Connecting cable	Cable 1m, 2x0.75mm ²	
	Manual override	Gearing disengaged by pressing the push button, manual operation while the button is held depressed	
	Protection class	III (safety extra-low voltage)	
Weight	2.2kg		

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- The device may only be opened at the manufacturer's factory. 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 permitted to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Mode of operation

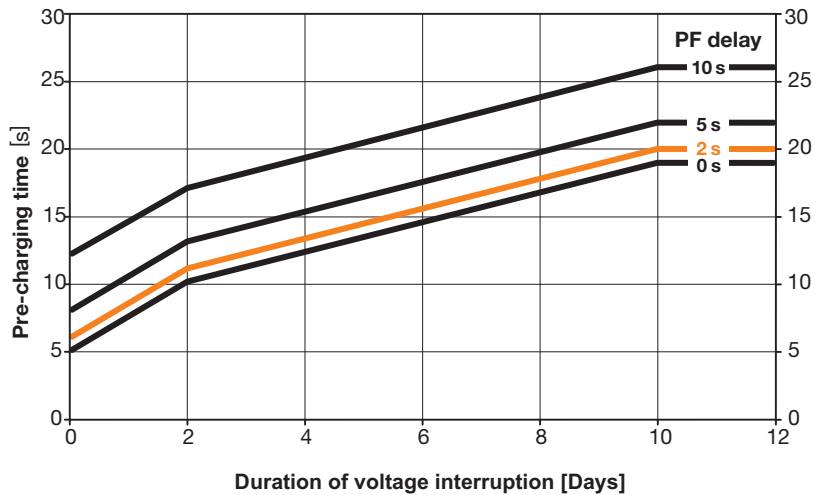
The actuator moves the valve to the position at the same time as the intergrated capacitors are loaded. Interrupting the supply voltage causes the valve to be rotated back into emergency setting position by means of stored electrical energy. GRKU24-MF-7 is controlled by a standard signal DC 2(0)...10V and travels to the position defined by the signal. The measuring voltage U serves for the electrical display of the valve 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 a voltage 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 the following factors:
 –Duration of the voltage interruption
 –PF delay time (bridging time)

Typical pre-charging times

PF delay [s]	Duration of voltage interruption [Days]				
	0	1	2	7	≥10
0	5	8	10	15	19
2	6	9	11	16	20
5	8	11	13	18	22
10	12	15	17	22	26
Pre-charging time[s]					



Calculation example:

In the event of a voltage interruption of 3 days and a set bridging time (PF) of 5s, the actuator requires a pre-charging time of 14s after the voltage has been reconnected.

Delivery condition (capacitors)

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

High functional reliability

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

Home position / Start

The angle of rotation of the actuator is set ex-works to 0°
 After the supply voltage has been applied, the actuator moves into the position defined by the control signal.

Product features (continued)

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 applies only to the adapted angle of rotation range of between 30° and 95° <. No minimum or maximum set values are taken into account. In the event of a voltage interruption, the actuator will move into the selected emergency setting position, taking into account the bridging time.

Settings The rotary button must be set to the "Tool" position for retroactive settings of the emergency setting position with PC-Tool V3.5 or upper. Once the rotary button is set back to the range 0...100%, the manually set value will have positioning authority.

Bridging time (PF)

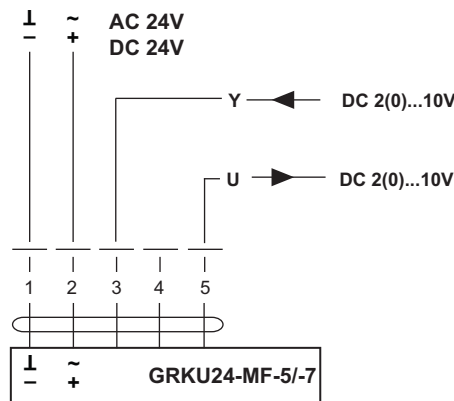
Voltage interruptions can be bridged up to a maximum of 10s. In the event of a voltage interruption, the actuator will remain stationary in accordance with the set bridging time. If the voltage interruption is greater than the set bridging time, then the actuator will move into the selected emergency setting position (POP). The bridging time set ex-works is 2s. This can be modified at the site of operations with the use of PC-Tool V3.5 or upper.

Settings The rotary button must not be set to the "Tool" position! Only the values need to be entered for retroactive adjustments of the bridging time with PC-Tool V3.5 or upper.

Wiring diagrams

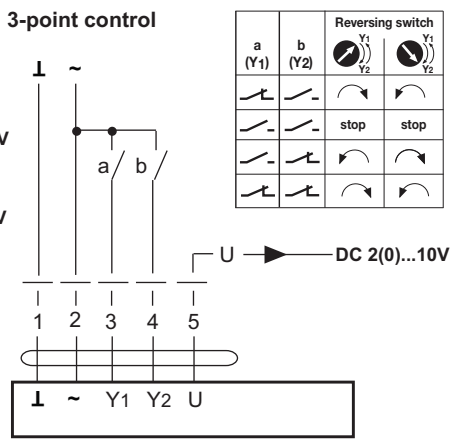
GRKU24-MF-7

Modulating control



Note: Connect via safety isolation transformer.

3-point control

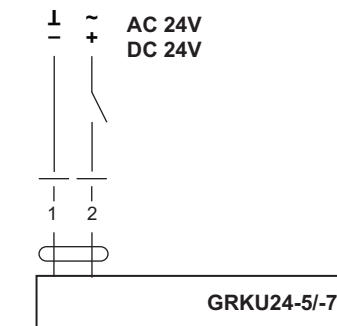


		Reversing switch	
a (Y1)	b (Y2)		
		stop	stop

*3-point control set by PC-Tool V3.5 or upper

GRKU24-7

Open/Close control

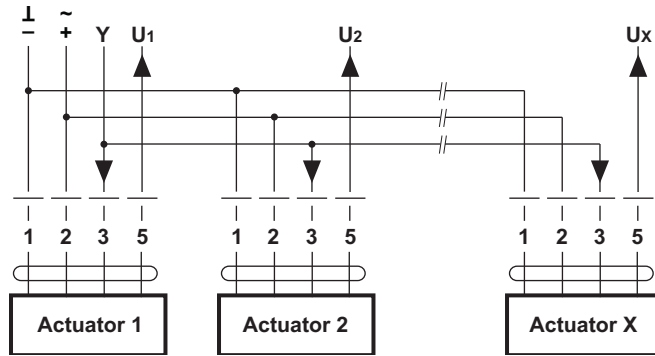


Notes:
 • Connection via safety isolating transformer.
 • Other actuators can be connected in parallel.
 Please note the performance data.

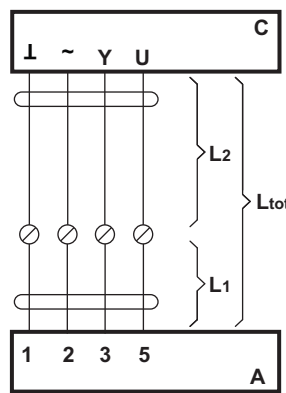
Electrical installation

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.



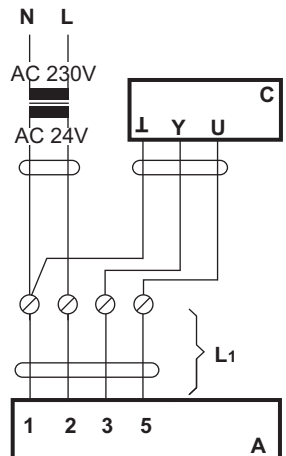
Cable lengths



- A = Actuator
- C = Control unit
- L1 = Belimo connecting cable, 1m (4x 0.75mm²)
- L2 = Customer cable
- Ltot = Maximum cable length

Cross section L2 ∟ / ~	Max. cable length Ltot = L1 + L2		Example for DC
	AC	DC	
0.75mm ²	≤40m	≤20m	1m (L1) + 19m (L2)
1.00mm ²	≤50m	≤30m	1m (L1) + 29m (L2)
1.50mm ²	≤80m	≤45m	1m (L1) + 44m (L2)
2.50mm ²	≤130m	≤80m	1m (L1) + 79m (L2)

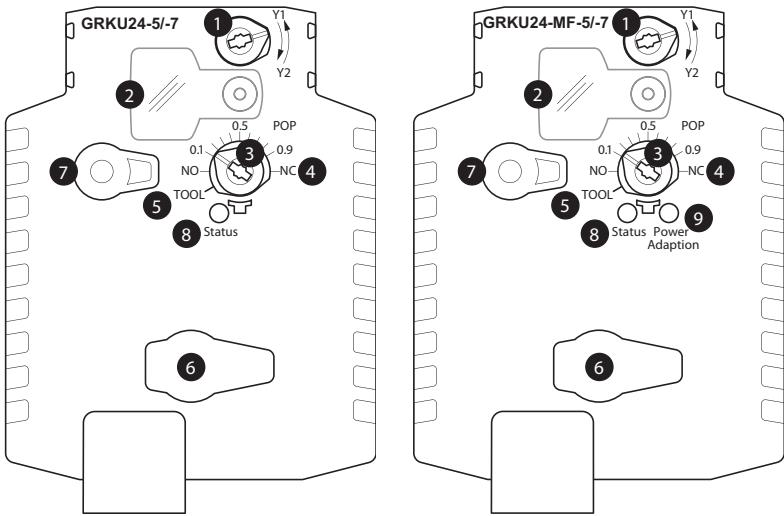
- Note:**
- When several actuators are connected in parallel, the maximum cable length must be divided by the number of actuators.



- A = Actuator
- C = Control unit
- L1 = Belimo connecting cable, 1m (4x 0.75mm²)

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

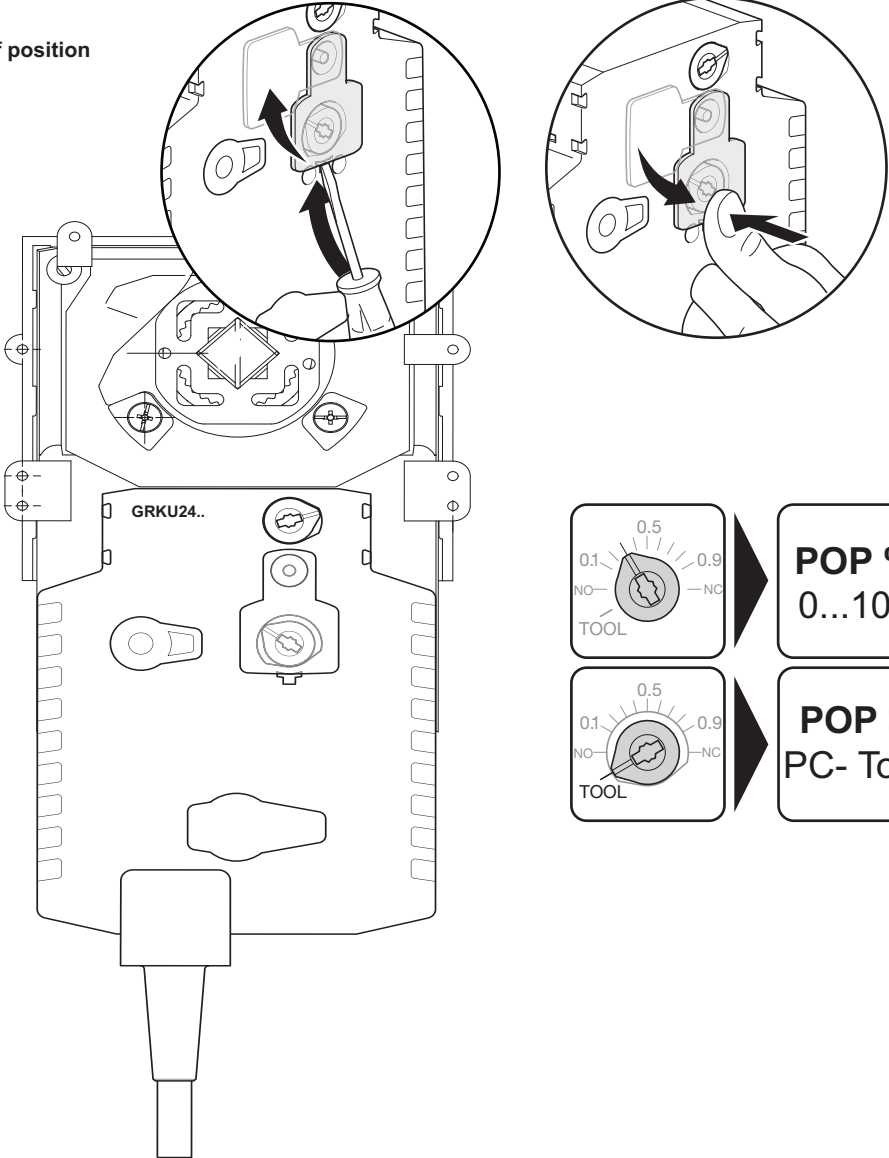
Operating controls and indicators



- 1** Direction of rotation switch
- 2** Cover, POP button
- 3** POP button
- 4** Scale for manual adjustment
- 5** Position for adjustment with tool
- 6** Tool socket
- 7** Disengagement switch

LED displays		Meaning / function
8 yellow	9 green	
Off	Illuminated	Operation OK / without fault
Illuminated	Off	Fault
Off	Off	Not in operation
Illuminated	Illuminated	Adaptation procedure running
Blinking	Illuminated	Communication with programming tool

Setting the POP Power Off position



Dimensions [mm]

GRKU24-7
GRKU24-MF-7

