

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

**DN100...125 Butterfly Valves  
40Nm  
GRKU24-MF-5/-7 (AC/DC 24V)  
GRKU24-5/-7 (AC/DC 24V)**



## 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
<b>GRKU24-MF-5/-7</b>		
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 <sub>max</sub> 20A @ 5ms)
Connecting cable		Cable 1m, 5x0.75mm <sup>2</sup>
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
<b>GRKU24-5/-7</b>		
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
Connecting cable		Cable 1m, 2x0.75mm <sup>2</sup>
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**

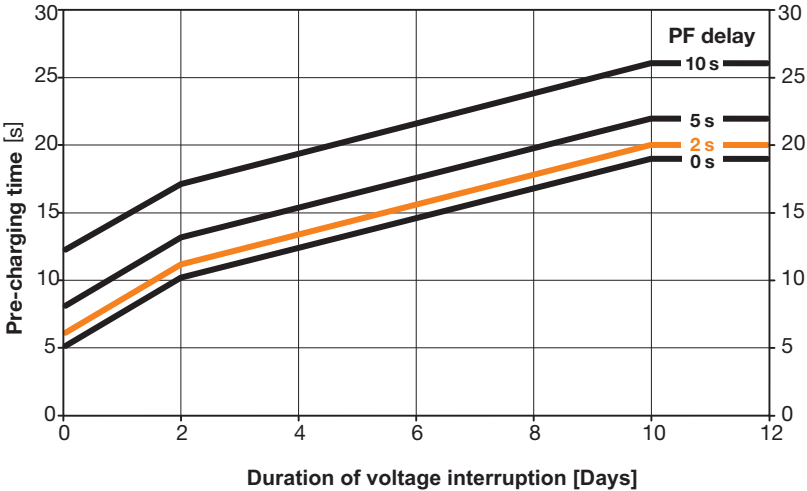
The actuator moves the valve to the position at the same time as the integrated capacitors are loaded. Interrupting the supply voltage causes the valve to be rotated back into emergency setting position by means of stored electrical energy. GRKU24-MF-5/-7 is controlled by a standard signal DC 2(0)...10V 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 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 operation with the use of PC-Tool V3.5 or upper.

Settings

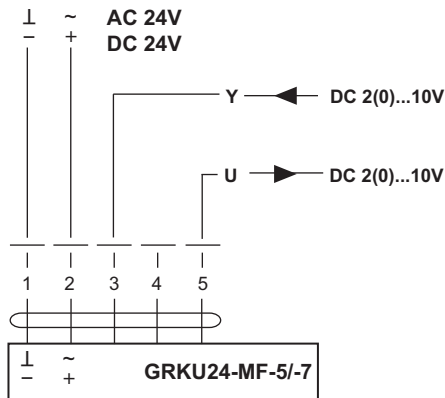
The rotary button must not be set to the "Tool" position! Only the values need to be entered for retroactive adjustments of the bridging time with PC-Tool V3.5 or upper.

**Wiring diagrams**

**GRKU24-MF-5/-7**

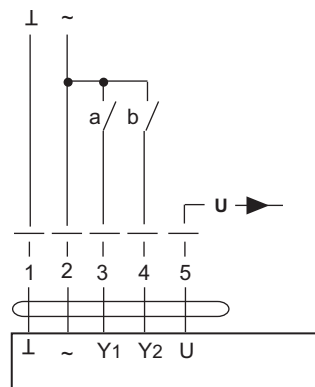
**Modulating control**

**Note:**  
Connect via safety isolation transformer.



NC	NO
A - AB = 0%	A - AB = 100%

**3-point control**



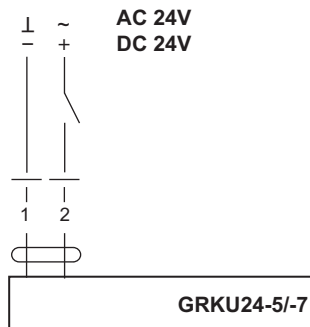
		NC	NO
		A - AB = 0%	A - AB = 100%
3 a (Y1)	4 b (Y2)		

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

**GRKU24-5/-7**

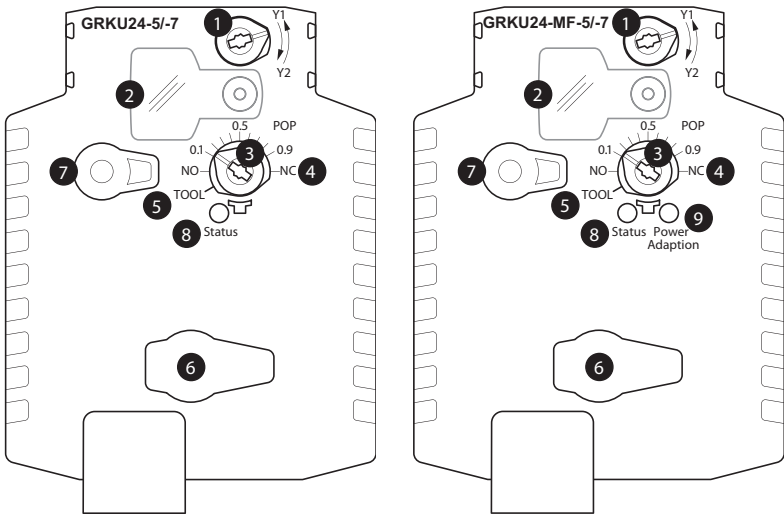
**Open/Close control**

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



NC	NO
A - AB = 0%	A - AB = 100%

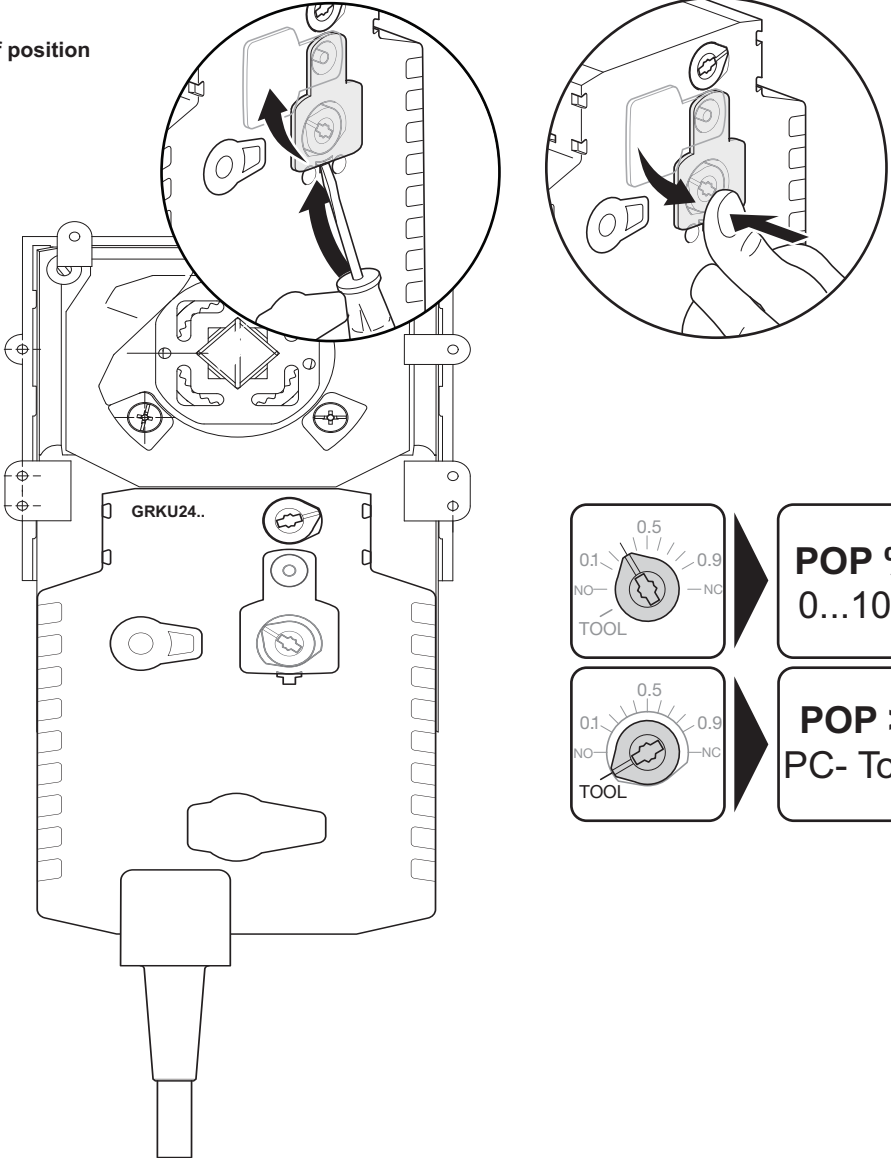
**Operating controls and indicators**



- 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]

GRKU24-5/-7  
GRKU24-MF-5/-7

