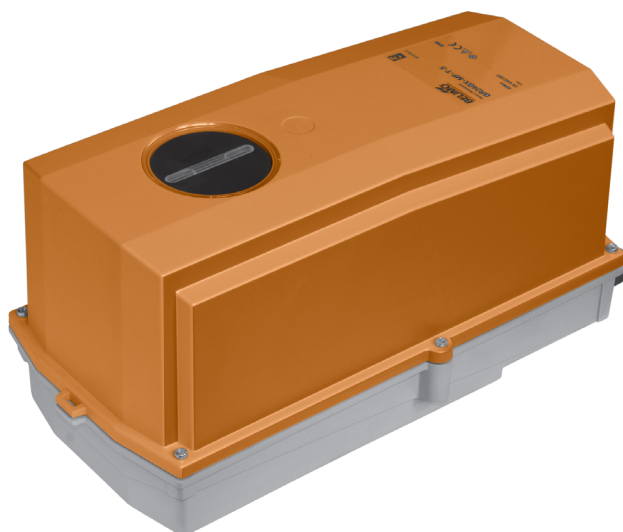


Programmable rotary actuator for butterfly valves and R6..W..-S8 for outdoor applications

- Torque 40 Nm
- Nominal voltage AC/DC 24 V
- Control: modulating DC 0 ... 10 V or variable
- Position feedback DC 0 ... 10 V or variable
- IP66

Optimum protection against

- moisture
- UV radiation
- dirt and dust



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	8 W @ nominal torque
At rest	2.5 W
For wire sizing	11 VA
Connection	Terminals 4 mm ² (cable Ø 4 ... 10 mm)

Functional data	Factory settings	Variable	Setting
Torque (nominal torque)	40 Nm @ nominal voltage		
Control Control signal Y	DC 0 ... 10 V, input impedance 100 kΩ	Open-close / 3-point (only AC), modulating (DC 0 ... 32 V)
Operating range	DC 0.5 ... 10 V	Start point DC 0.5 ... 30 V End point DC 2.5 ... 32 V
Position feedback (measuring voltage U)	DC 0.5 ... 10 V, max. 0.5 mA	Start point DC 0.5 ... 8 V End point DC 2.5 ... 10 V
Position accuracy	±5%		
Manual override	Gearing disengagement with push-button, can be locked		
Running time	≤35 s / 90° ↯	90 ... 150 s
Angle of rotation limitation	MAX (maximum position) = 100% MIN (minimum position) = 0% ZS (intermediate position, only AC) = 50%	MAX = (MIN + 30° ↯) ... 100% MIN = 0% ... (MAX - 30° ↯) ZS = MIN ... MAX
Sound power level	max. 35 dB (A) (without fitting)	With a running time of 90 s = 45 dB (A) 150 s = 35 dB (A)	
Position indication	Yes		

Safety

Protection class	III Safety extra-low voltage UL Class 2 Supply
Degree of protection	IP66 NEMA 4, UL Enclosure Type 4
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
Rated impulse voltage	0.8 kV
Control pollution degree	4
Ambient temperature	-30 ... +50 °C
Medium temperature	-20 ... +120 °C (in the valve)
Non-operating temperature	-40 ... +80 °C
Ambient humidity	100% r.h.
Maintenance	Maintenance-free

Dimensions / weight

Dimensions	See «Dimensions» on page 4
Weight	Approx. 3.3 kg



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 assembly.
- The switch for changing the direction of rotation may only be operated by authorised personnel. The direction of rotation must not be reversed in a frost protection circuit.
- The angle of rotation is not permitted to be subjected to mechanical limitation. It is forbidden to alter the mechanical end stops.
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight.
- The device on the inside may only be opened up in the factory. It does not contain any parts that can be replaced or repaired by the user.
- 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.
- The actuator is not designed for applications where chemical influences (gases, fluids) are present or for utilisation in corrosive environments (e.g. seawater coastal areas) in general.
- The actuator may not be used in plenary applications (e.g. suspended ceilings or raised floors).
- The materials used may be subjected to external influences (temperature, pressure, constructional fixture), that cannot be simulated in laboratory test or field trials. In case of doubt, we definitely recommend that you carry out a test.
This information does not however imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- Cabling: flexible metallic cable conduits or threaded cable conduits of equal value if the cables are not certified for UL (NEMA) type 4 applications.

Product features

Mode of operation	The actuator is controlled with a standard modulating signal of DC 0 ... 10 V and travels to the position defined by the control signal. Measuring voltage U serves for the electrical display of the damper or ball position 0 ... 100% and as slave control signal for other actuators.
Adjustable-parameter actuators	The factory settings cover the most common applications. Input and output signals and other parameters can be altered with the ZTH-GEN parameterising device or the BELIMO Service Tool, MFT-P.
Fields of application	The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions: <ul style="list-style-type: none"> – UV radiation – rain / snow – dirt / dust – humidity – Changing atmosphere / frequent and severe temperature fluctuations (recommendation: use the actuator with integrated factory-installed heating which can be ordered separately to prevent internal condensation (see «Accessories»)).
Simple direct mounting	Simple direct mounting on butterfly valves or R6..W..-S8 with ISO 5211-F05 mounting flange. The mounting position 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). The cover must be removed for this purpose.
High operational reliability	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.
Home position	When the supply voltage is switched on for the first time, i.e. at commissioning or after pressing the "gear disengagement" switch, the actuator moves to the home position. Factory default: Y2 (clockwise rotation)

Actuator	Valve
	A – AB = 0%
	A – AB = 100%

The actuator then moves into the position defined by the control signal.

Accessories

Electrical accessories

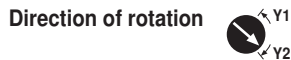
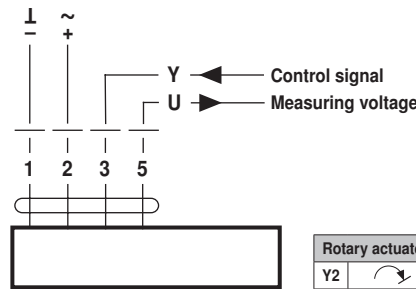
Description	Data sheet
Auxiliary switch S..A..	T2 - S..A..
Feedback potentiometer P..A..	T2 - P..A..
Parameterising device ZTH-GEN	T2 - ZTH-GEN
PC-Tool MFT-P starting with version 3.3	T2 - MFT-P
Heating with mechanical hygrostat HH24-MG	T2/T5 - HH24-MG
Heating with adjustable thermostat HT24-MG	T2/T5 - HT24-MG

Electrical installation

Connection diagrams

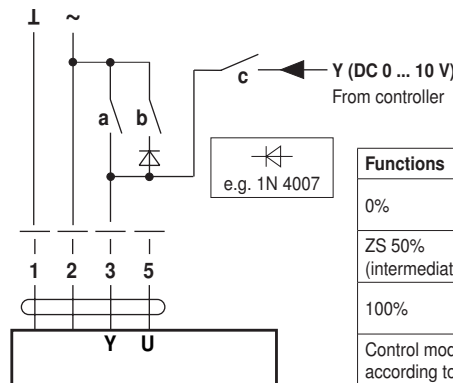
Notes

- Connection via safety isolation transformer.
- Direction of rotation switch is covered. Factory default: Direction of rotation Y2.



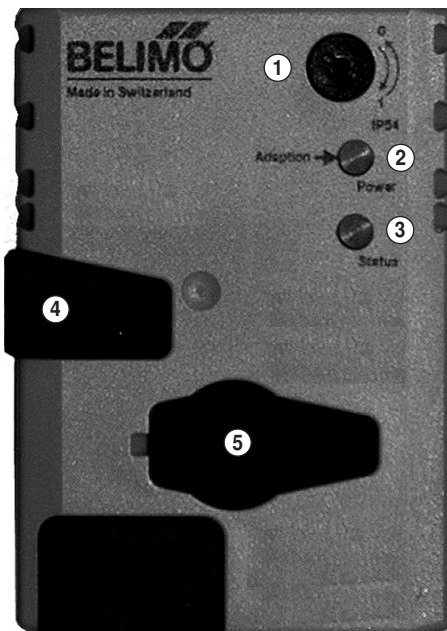
Rotary actuator	Rotary valve
Y2	A - AB = 0%

Override control with AC 24 V with relay contacts



Functions	a	b	c
0%	—	—	—
ZS 50% (intermediate position)	—	—	—
100%	—	—	—
Control mode according to Y	—	—	—

Operating controls and indicators



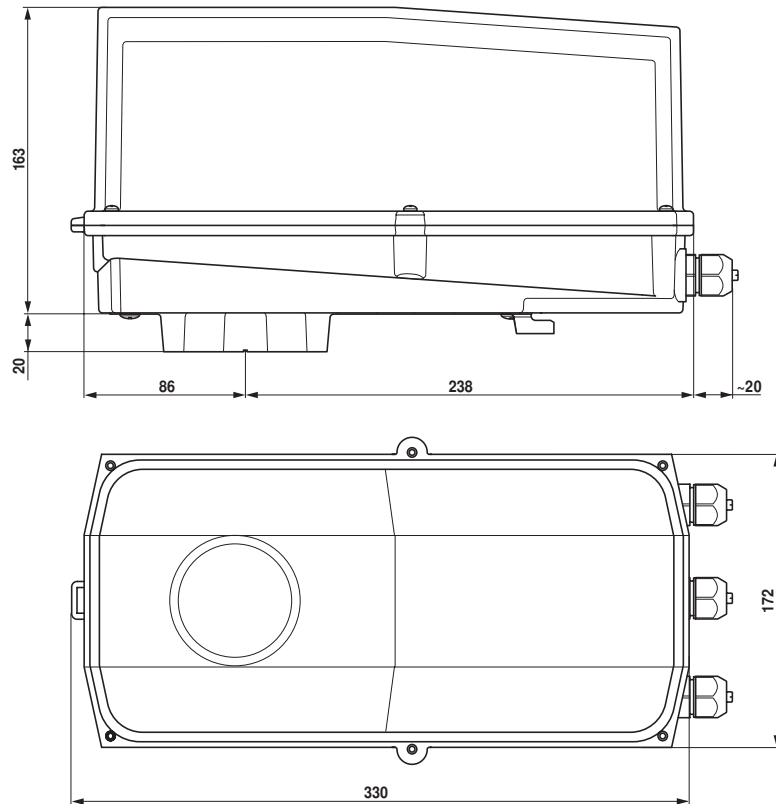
- Direction of rotation switch**
Switching over: Direction of rotation changes
- Push-button and green LED display**
Off: No voltage supply or fault
Illuminated: Operation
Press key: Switches on angle of rotation adaptation followed by standard operation
- Push-button and yellow LED display**
Off: Standard operation
Illuminated: Adaptation or synchronising process active
Press key: No function
- Gear disengagement key**
Press key: Gear disengaged, motor stops, manual override possible
Release key: Gear engaged, synchronisation starts, followed by standard operation
- Service plug**
For connecting parameterising and service tools

Check voltage supply connection

- Off and illuminated } Check the supply connections.
- Flashing and illuminated } L and N may possibly have been switched.
- Flashing

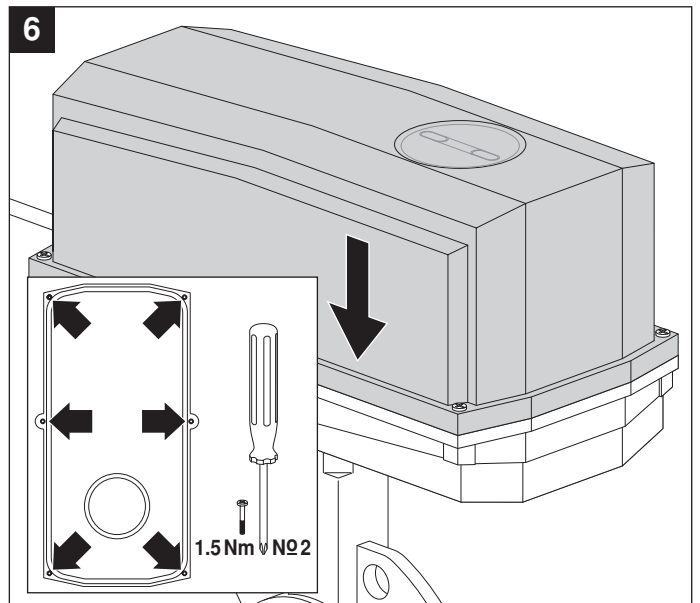
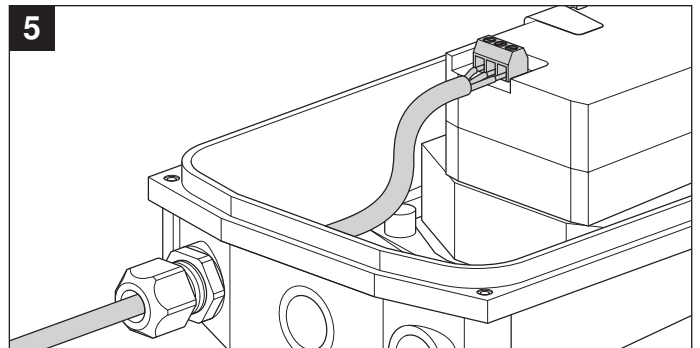
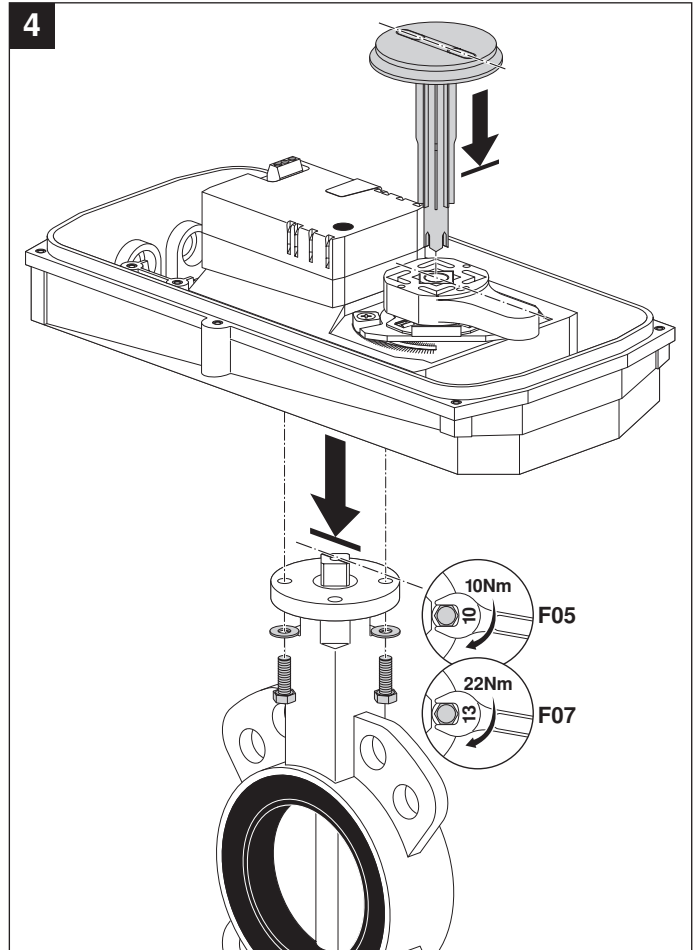
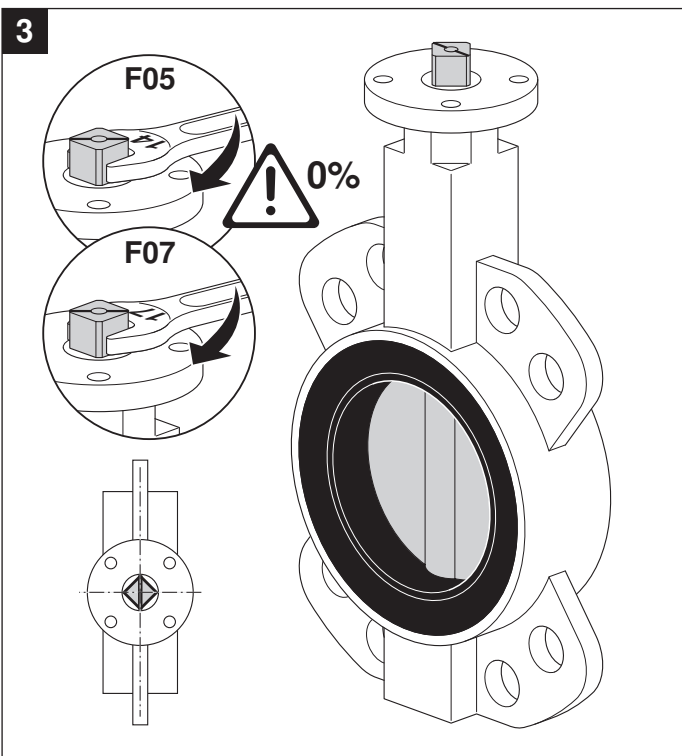
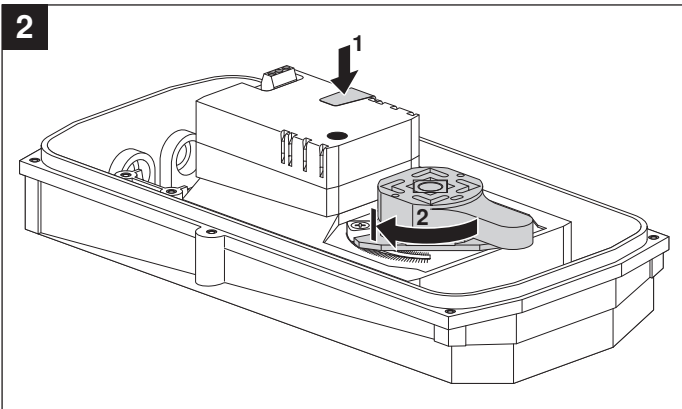
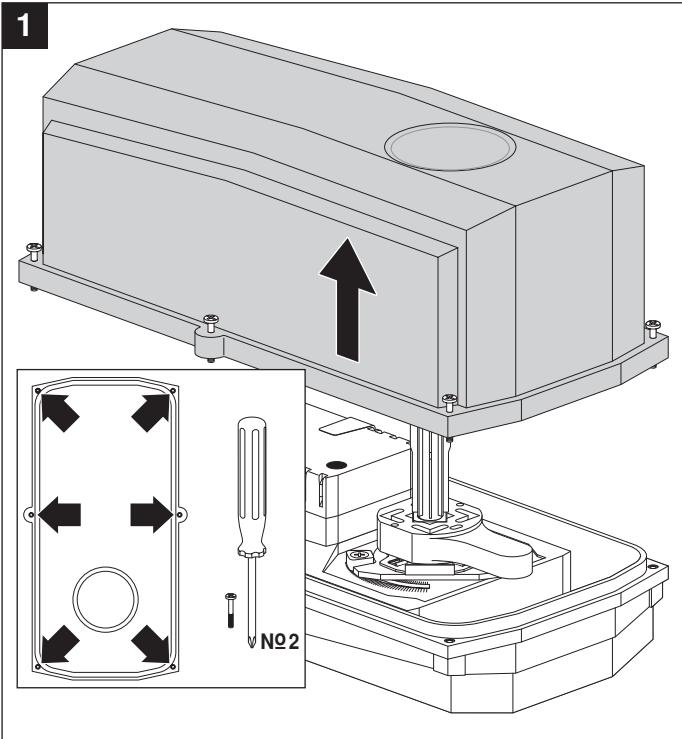
Dimensions [mm]

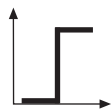
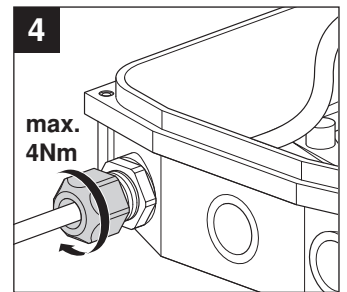
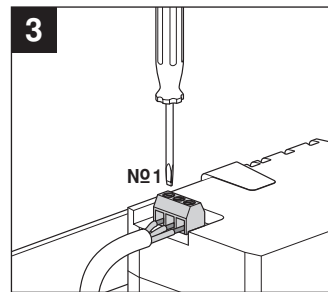
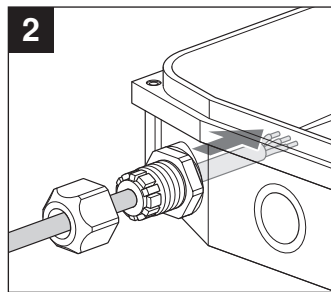
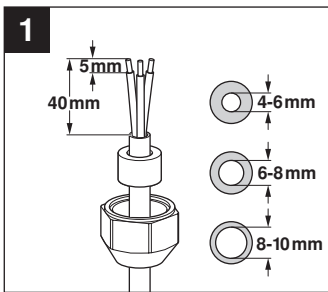
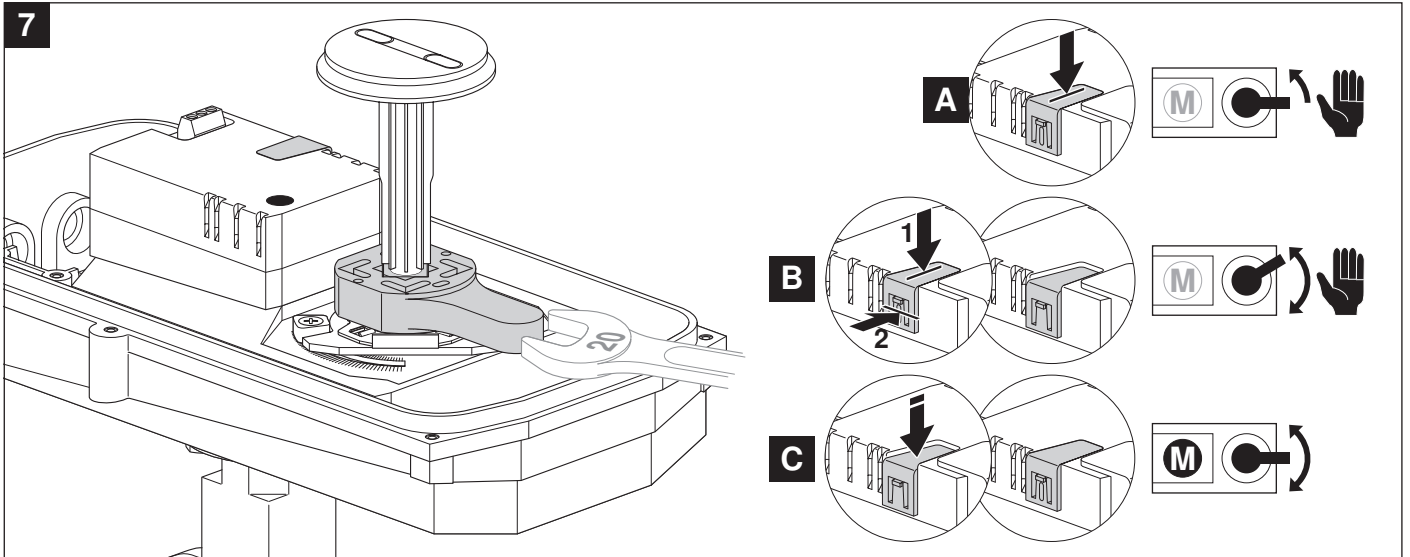
Dimensional drawings

**Further documentation**

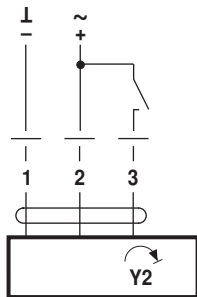
- Complete overview «The complete product range of water solutions»
- Data sheets, butterfly valves and R6..W..-S8
- Installation instructions for actuators or butterfly valves and R6..W..-S8, respectively
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance, etc.)

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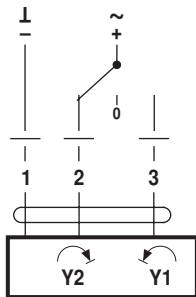




AC 24 V / DC 24 V

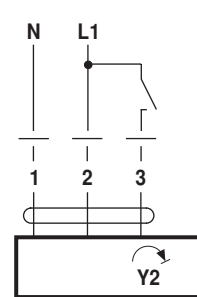


DR(C)24G(X)-T-7
GR24GX-T-5
GR24GX-T-7

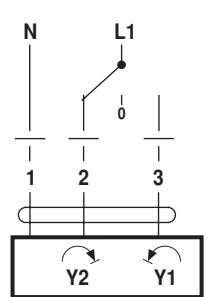


DR24G(X)-T-7
GR24GX-T-5
GR24GX-T-7

AC 230 V



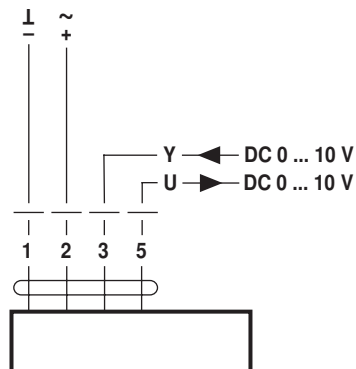
DR230GX-T-7
GR230GX-T-5
GR230GX-T-7



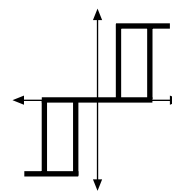
DR230GX-T-7
GR230GX-T-5
GR230GX-T-7



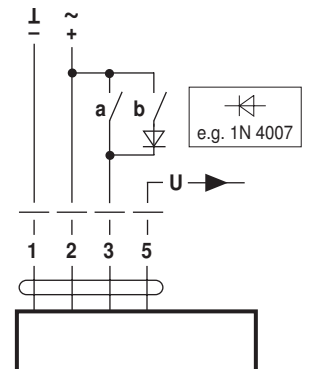
AC 24 V / DC 24 V



DRC24GX-MF-T-7
GRC24G(X)-MF-T-5
GRC24G(X)-SZ-T-5



AC 24 V / DC 24 V



DRC24GX-MF-T-7
GRC24G(X)-MF-T-5