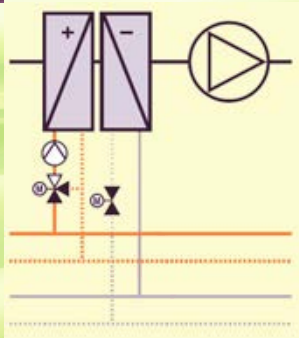
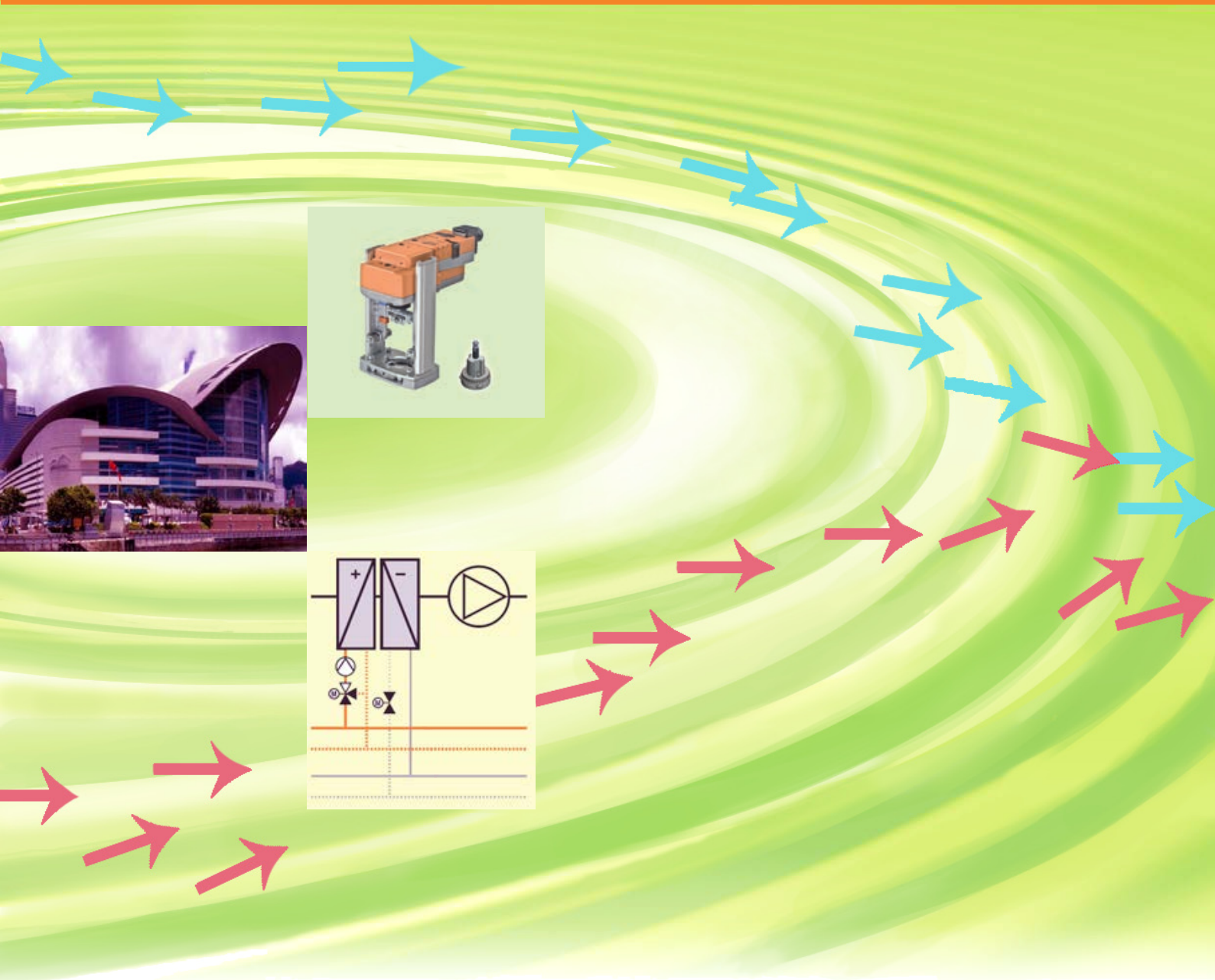


# Retrofit Solutions



## *Technical Databook*

Version 1.1





<b>Globe Valve Solutions</b>	
<b>General Information</b>	
<b>Globe Valve Actuators</b>	<b>4</b>
<b>Universal Linkage Selection Guide (For NV.-RE, SV.-RE only)</b>	<b>5</b>
<b>Globe Valve Actuators, 1000N</b>	
<b>NV24A-RE</b>	<b>8</b>
<b>NV230A-RE</b>	<b>11</b>
<b>NV24A-MP-RE</b>	<b>14</b>
<b>Globe Valve Actuators, 1500N</b>	
<b>SV24A-RE</b>	<b>20</b>
<b>SV230A-RE</b>	<b>23</b>
<b>SV24A-MP-RE</b>	<b>26</b>
<b>Electronic Globe Valve Actuators, 1000N</b>	
<b>NVK230A-3-RE</b>	<b>32</b>
<b>Mounting Instructions</b>	<b>36</b>

**Retrofit Globe Valve Actuator**

Adaptation push-button and LED status indicators

Direction of stroke switch

Slot for hand crank

Slot for auxiliary switch (optional)

Newly developed secondary gearing

New, universal valve neck adaption for third-party valves

New, universal valve stem adaption for third-party valves

IP54 connecting terminals

Service tool socket for Parameterisation

Temporary and permanent gear disengagement

Actuator technology based on the tried and tested Belimo rotary actuators

Bracket for the plug-in module of the actuator

Hexagon allen key for all installation and adjustment work



			DN25 or below, Actuating force: 1000N			DN80 or below, Actuating force: 1500N		
Control Valve Manufacturer	Valve Range	DN[mm] min. / max.	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V
ARI / Johnson EU	BR485/486/487	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	BR486	15 / 50						
Belimo	S6..	20 / 80	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Cazzaniga	V2BM	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	V3BM	15 / 50						
Controlli	VSB	15 / 50						
	VMB	15 / 50						
	VSB...F	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	VMB...F	15 / 50						
Danfoss	(H)VF2	25 / 50						
	(H)VF3	15 / 50						
	(H)VL2	15 / 50						
	(H)VL3	15 / 50						
	(H)VRB2	15 / 50						
	(H)VRB3	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	(H)VRG2	15 / 50						
	(H)VRG3	15 / 50						
	(H)VE2	25 / 50						
	(H)VFS2	15 / 20						
Elesta	VR2	15 / 25						
	BKG	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Honeywell	BKF	15 / 50						
	V5011R	15 / 50						
HORA	V5013R	15 / 50						
	V5015	25 / 80						
	V5049A	15 / 65						
	V5050A	15 / 80	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	V5095A	20 / 80						
	V5328A	15 / 80						
	V5329A	15 / 80						
	V5329C	15 / 80						
	BR206GF	15 / 50						
BR206GG	15 / 50							
BR216GF	15 / 50							
BR216GG	15 / 50							
BR216RA	15 / 50							
BR216RA-TW	15 / 50							
BR216RGA	1/2" / 2"							
BR225RG	15 / 25	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE	
BR306GF	15 / 50							
BR306GG	15 / 50							
BR316GF	15 / 50							
BR316GG	15 / 50							
BR316RA	15 / 50							
BR316RA-TW	15 / 50							
BR316RGA	15 / 50							
BR316RGA MS	3/4"							

**Notes:**

The list of linkages is continually growing; if the valve is not on the list, contact your nearest Belimo representative.

			DN25 or below, Actuating force: 1000N			DN80 or below, Actuating force: 1500N		
Control Valve Manufacturer	Valve Range	DN[mm] min. / max.	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V
Johnson	VB7216	20 / 20						
	VB7216	15 / 25						
	VB7216	32 / 50						
	VB7816	15 / 25						
	VB7816	32 / 50						
	VBD-4xx4	15 / 40						
	VBD-4xx8	15 / 40						
	VBF-0xx4	15 / 50						
	VBF-0xx8	15 / 50						
	VBF-2xx4	15 / 50						
	VBF-2xx8	15 / 50						
	VG7201	15 / 20						
	VG7201	25 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	VG7203	15 / 20						
	VG7203	25 / 50						
	VG7401	15 / 20						
	VG7401	25 / 50						
	VG7403	15 / 20						
	VG7403	25 / 50						
	VG7802	15 / 20						
	VG7802	25 / 50						
	VG7804	15 / 20						
	VG7804	25 / 50						
VG7 xx 1	15 / 50							
VG82xx/	15 / 40							
VG88xx/	15 / 40							
Kieback & Peter	RB	15 / 50						
	RB..BK	15 / 50						
	RB..SO17	15 / 50						
	RB..SO17-BK	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	RF	15 / 50						
	RF..BF	15 / 50						
	RK	15 / 50						
	RK..BF	15 / 50						
LDM	RV102 EBK	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
MUT	MK	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Osby	MTV	15 / 50						
	MTR	15 / 50						
	GTV	25 / 40	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	RTV	25 / 40						
	BTV	25 / 40						
Ram	Ram	15 / 40	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Riccus+Seibt	RGV315 /4	15 / 15	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Samson	V2001	15 / 50	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
Satchwell	MJF	15 / 32						
	MZ	15 / 15	NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	VSF	15 / 32						
	VZ	15 / 50						

**Notes:**

The list of linkages is continually growing; if the valve is not on the list, contact your nearest Belimo representative.

			DN25 or below, Actuating force: 1000N			DN80 or below, Actuating force: 1500N			
Control Valve Manufacturer Valve Range		DN[mm] min. / max.	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V	On/Off AC/DC 24V	MP-Bus / Modulating AC/DC 24V 2..10V/0..10V	On/Off AC 230V	
Sauter	B6F..F	15 / 50							
	B6G..F	15 / 50							
	B6R..F	15 / 50							
	B6S..F	15 / 50							
	B4F..F	20 / 32							
	BT43B	15 / 40							
	BXD..F	15 / 40							
	BXE..F	15 / 50		NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	V1T	15 / 15							
	V6F..F	15 / 50							
	V6G..F	15 / 50							
	V6R..F	15 / 50							
	V6S..F	15 / 50							
	VXD..F	15 / 50							
VXE..F	15 / 50								
Siemens	VPF52E	15 / 40							
	VPF52F	15 / 40							
	VVF21	15 / 80							
	VVF31	25 / 80							
	VVF40	15 / 80							
	VVF41	15/80							
	VVF45	50							
	VVF52	15 / 40		NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	VVF61	15 / 32							
	VVG41	15 / 50							
	VXF21	20 / 80							
	VXF31	25 / 80							
	VXF40	15 / 80							
	VXF41	15 / 40							
VXF61	15 / 32								
VXG41	15 / 50								
SpiraxSarco	B Series	15 / 50							
	K Series	15 / 50							
	LE31	15 / 50							
	LE33	15 / 50		NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	KE43	15 / 50							
	KE71	15 / 50							
	KE73	15 / 50							
	MKII	15 / 50							
TAC	V241	15 / 50							
	V294	15 / 15							
	V294	20 / 32		NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	V341	15 / 50							
Trend	V348	15 / 50							
	GIBT/21	15 / 50							
	GIBT/31	15 / 50		NV24A-RE	NV24A-MP-RE	NV230A-RE	SV24A-RE	SV24A-MP-RE	SV230A-RE
	GIBF/21	15 / 50							
	GIBF/31	15 / 50							

**Notes:**

The list of linkages is continually growing; if the valve is not on the list, contact your nearest Belimo representative.

**Globe valve actuator for 2-way and 3-way globe valves**

- Actuating force 1000N
- Nominal voltage AC/DC 24V
- Control: Open-close, 3-point
- Nominal stroke 20mm



**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption in operation	1.5W
	Power consumption in rest position	0.5W
	Power consumption for wire sizing	3VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
<b>Functional data</b>	Parallel operation	Yes
	Actuating force	1000N
	Manual override	Gear disengagement with push-button, can be locked
	Nominal stroke	20mm
	Actuating time	150s/20mm
	Sound power level motor max.	45dB(A)
	Position indication	Mechanical 5...20mm stroke
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage supply / control	0.8kV
	Control pollution degree	3
<b>Weight</b>	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
	Weight approx.	2.53kg

**Safety notes**



- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, providing it is permitted by the size of the installed

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.


**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Accessories**

	Description	Type
Electrical accessories	Auxiliary switch add-on, 2 x SPDT	S2A-H

**Electrical installation**



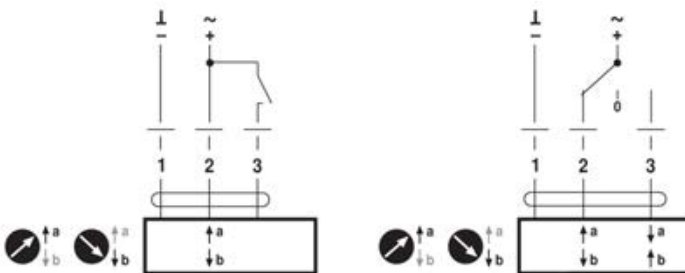
Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible.
- Direction of stroke switch factory setting: Actuator spindle retracted.

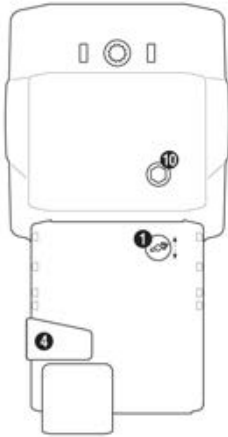
**Wiring diagrams**

AC/DC 24V, open-close (one-wire)

AC/DC 24V, 3-point



Indicators and operating controls



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(4) Gear disengagement button**

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

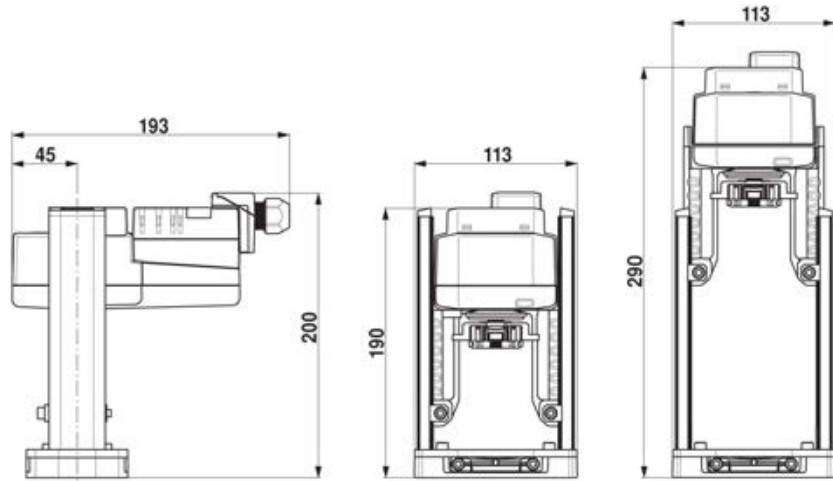
**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

Dimensions [mm]

Dimensional drawings



**Globe valve actuator for 2-way and 3-way globe valves**

- Actuating force 1000N
- Nominal voltage AC 230V
- Control: Open-close, 3-point
- Nominal stroke 20mm


**RETROFIT**
**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 230V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 198...264V
	Power consumption in operation	2W
	Power consumption in rest position	1W
	Power consumption for wire sizing	4.5VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
<b>Functional data</b>	Parallel operation	Yes
	Actuating force	1000N
	Manual override	Gear disengagement with push-button, can be locked
	Nominal stroke	20mm
	Actuating time	150s/20mm
	Sound power level motor max.	45dB(A)
	Position indication	Mechanical 5...20mm stroke
<b>Safety</b>	Protection class IEC/EN	II Protective insulated
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated current voltage supply	4kV
	Control pollution degree	3
<b>Weight</b>	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
	Weight approx.	2.53kg

**Safety notes**


- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, providing it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Accessories**

**Electrical accessories**

**Description**

**Type**

Auxiliary switch add-on, 2 x SPDT

S2A-H

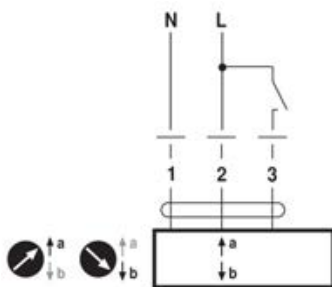
**Electrical installation**



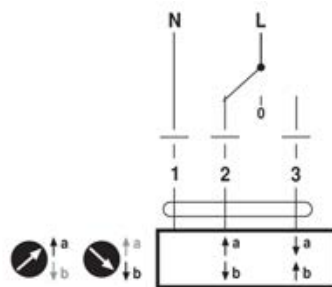
- Notes • Parallel connection of other actuators possible.
- Direction of stroke switch factory setting: Actuator spindle retracted.

**Wiring diagrams**

AC 230V, open-close (one-wire)

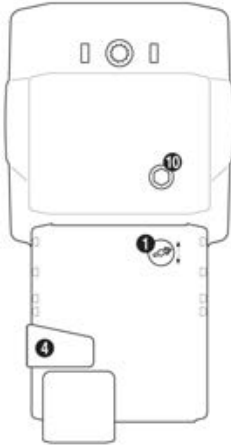


AC 230V, 3-point



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

**Indicators and operating controls**



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(4) Gear disengagement button**

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

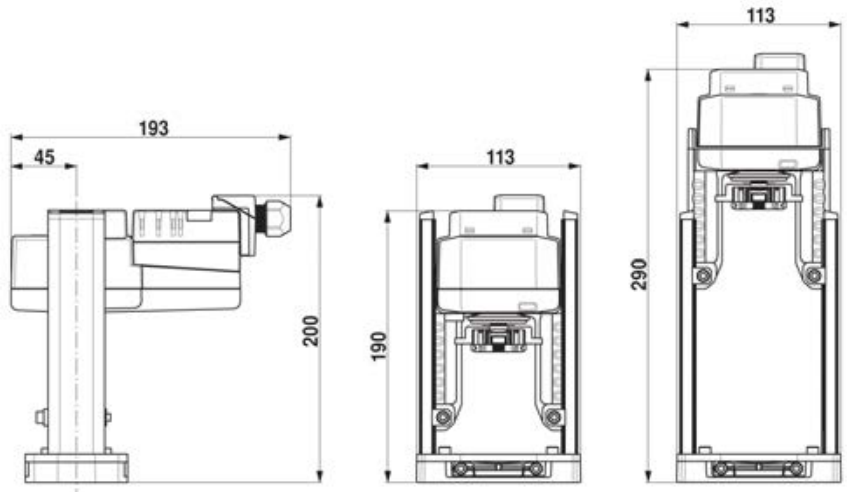
**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

**Dimensions [mm]**

**Dimensional drawings**



**Communication-capable globe valve actuator  
for 2-way and 3-way globe valves**

- Actuating force 1000N
- Nominal voltage AC/DC 24V
- Control modulating DC (0)0.5V...10V, variable
- Nominal stroke 20mm



**MP** **BUS**<sup>®</sup>  
**RETRO** **FIT**

**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption in operation	3W
	Power consumption in rest position	1.5W
	Power consumption for wire sizing	4.5VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
	Parallel operation	Yes
	<b>Functional data</b>	Actuating force
Positioning signal Y		DC 0...10V
Positioning signal Y note		Input impedance 100kΩ
Operating range Y		DC 0.5...10V
Operating range Y variable		Start point DC 0.5...30V
		End point DC 2.5...32V
Position feedback U		DC 0.5...10V
Position feedback U note		max. 0.5mA
Position feedback U variable		Start point DC 0.5...8V
		End point DC 2.5...10V
Position accuracy		5% absolute
Manual override		Gear disengagement with push-button, can be locked
Nominal stroke		20mm
Actuating time		150s/20mm
Override control MAX (maximum position)		100%
Override control MIN (minimum position)		0%
Override control ZS (intermediate position, only AC)		50%
Override control ZS variable		ZS = MIN...MAX
Sound power level motor max.		45dB(A)
Sound power level motor note		55dB(A) @ 90s running time
Position indication		Mechanical 5...20mm stroke
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage supply / control	0.8kV
	Control pollution degree	3
	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
	<b>Weight</b>	Weight approx.

**Safety notes**



- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Principle of operation**

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 actuator 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 PC-Tool MFT-P or with the service tool ZTH-GEN.

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, provided it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Adaption of stroke range**

The first time the supply voltage is switched on, i.e. at the time of commissioning, the actuator carries out a stroke adaption, which is when the operating range and position feedback adjust themselves to the mechanical stroke.  
Manual triggering of the adaption can be carried out by pressing the "Adaption" button or with the PC-Tool.  
The actuator then moves into the position defined by the positioning signal.

**Accessories**

	Description	Type
<b>Electrical accessories</b>	Auxiliary switch add-on, 2 x SPDT	S2A-H
<b>Service tools</b>	Manual parameterising device, for MF/MP/Modbus/LonWorks actuators and VAV-Control	ZTH-GEN
	Belimo PC-Tool, software for adjustments and diagnostics	MFT-P

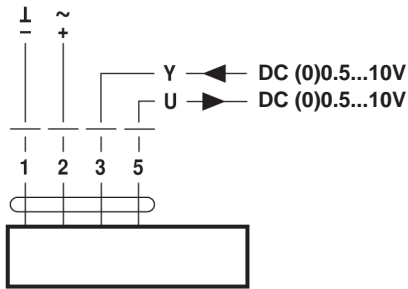
Electrical installation



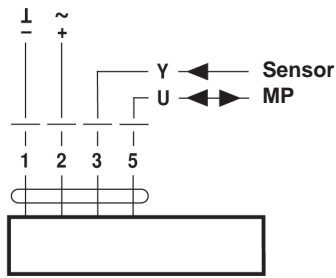
- Notes
- Connection via safety isolating transformer.
  - Parallel connection of other actuators possible.
  - Direction of stroke switch factory setting: Actuator spindle retracted.

Wiring diagrams

AC/DC 24V, modulating



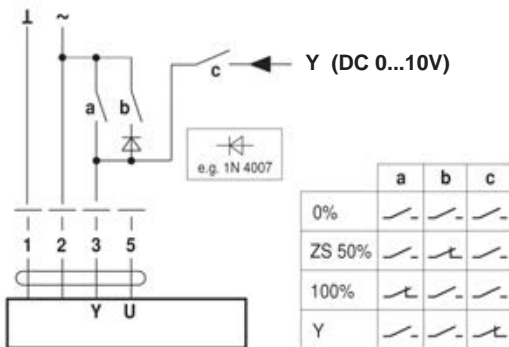
Operation on the MP-Bus



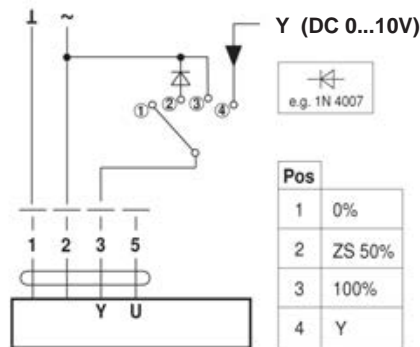
Functions

Functions with basic values

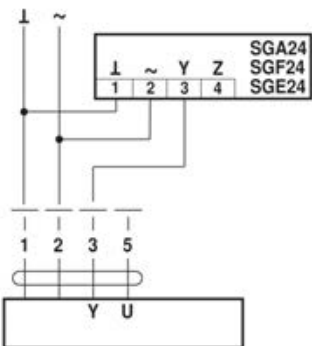
Override control with AC 24V with relay contacts



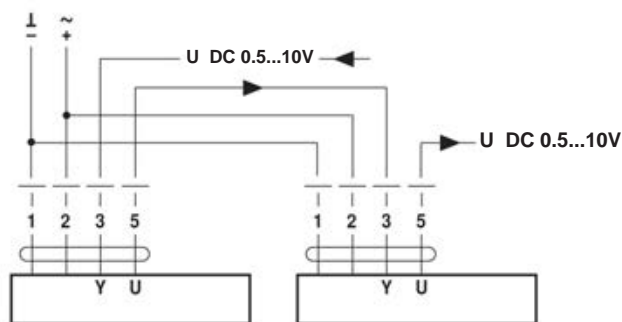
Override control with AC 24V with rotary switch



Remote control 0...100%



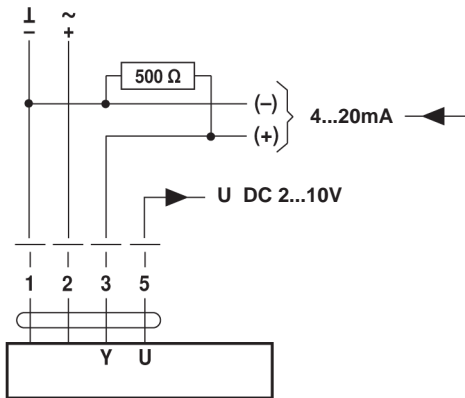
Follow-up control (position-dependent)





**Functions**

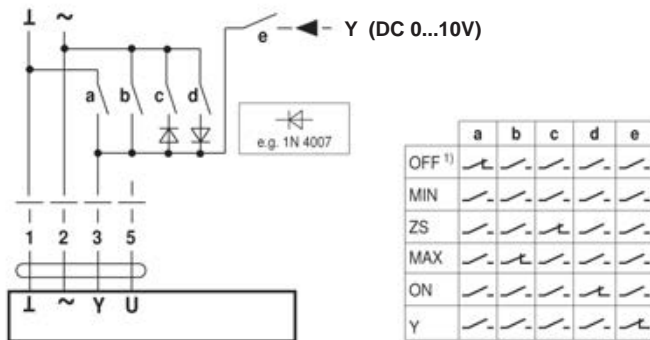
**Control with 4...20mA via external resistor**



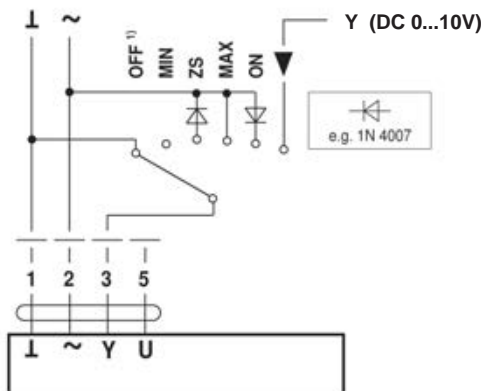
The 500Ω resistor converts the 4...20mA current signal to a voltage signal DC 2...10V

**Functions for actuators with specific parameters**

**Override control and limiting with AC 24V with relay contacts**



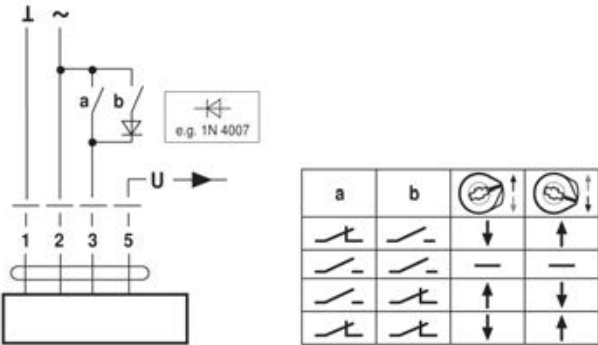
**Override control and limiting with AC 24V with rotary switch**



1) Caution: This function is guaranteed only if the start point of the operating range is defined as min. 0.6V.

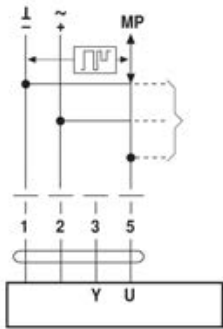
Functions

AC 24V, 3-point



Functions when operated on MP-Bus

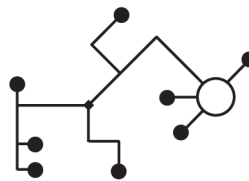
Connection on the MP-Bus



Supply and communication in one and the same 3-wire cable

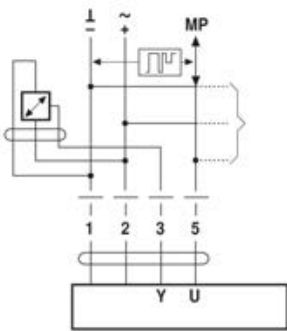
- no shielding or twisting required
- no terminating resistor required

Power topology



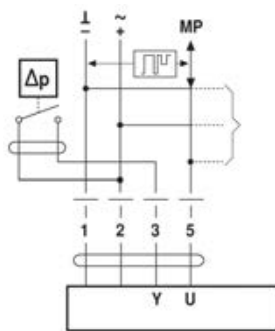
There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).

Connection of active sensors



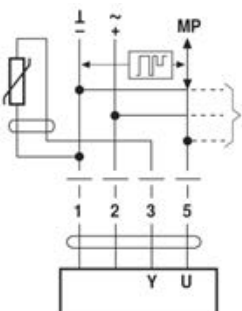
- Supply AC/DC 24A
- Output signal DC 0...10V (max. DC 0...32V)
- Resolution 30mV

Connection of external switching contact



- Switching current 16mA @24V
- Start point of the operating range must be parameterised on the MP actuator as  $\geq 0.6V$

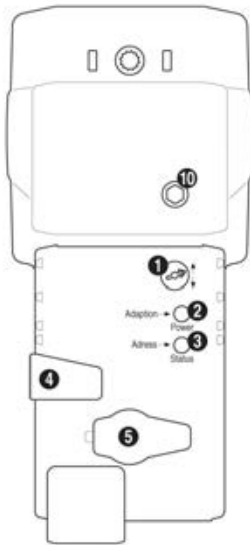
Connection of passive sensors



Ni1000	-28 ... +98 °C	850 ... 1600 $\Omega^{2)}$
PT1000	-35 ... +155 °C	850 ... 1600 $\Omega^{2)}$
NTC	-10 ... +160 °C <sup>1)</sup>	200 $\Omega$ ... 50 k $\Omega^{2)}$

- 1) Depending on the type  
2) Resolution 1 Ohm

**Indicators and operating controls**



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(2) Push-button and LED display green**

Off: No power supply or malfunction

Illuminated in green: In operation

Press button: Triggers stroke adaption, followed by standard mode

**(3) Push-button and LED display yellow**

Off: Standard mode

Flickering: MP communication active

Illuminated: Adaption procedure active

Blinking: Request for addressing from MP master

Press button: Confirmation of addressing

**(4) Gear disengagement button**

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

**(5) Service plug**

For connecting the parameterisation and service tools

**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

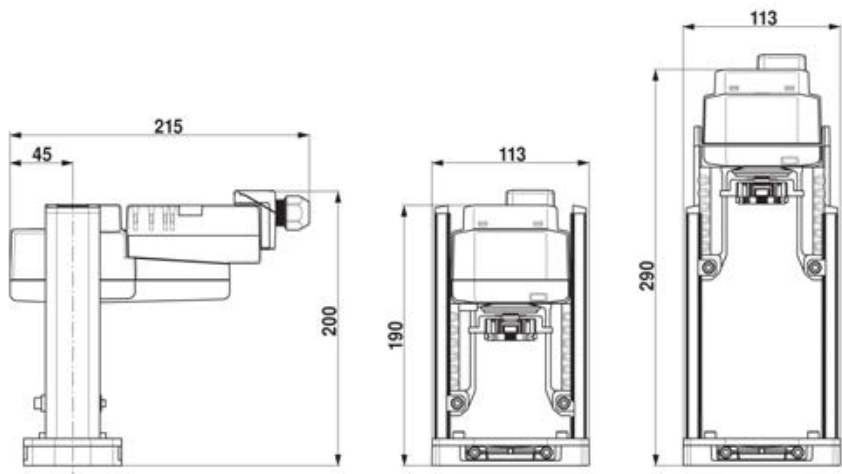
**LED displays (2, green) and (3, yellow)**

green: Off; yellow: Illuminated;

Check the supply connections. The phases may have been switched.

**Dimensions [mm]**

**Dimensional drawings**



**Globe valve actuator for 2-way and 3-way globe valves**

- Actuating force 1500N
- Nominal voltage AC/DC 24V
- Control: Open-close, 3-point
- Nominal stroke 20mm


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption in operation	2.5W
	Power consumption in rest position	0.5W
	Power consumption for wire sizing	5VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
	Parallel operation	Yes
<b>Functional data</b>	Actuating force	1500N
	Manual override	Gear disengagement with push-button, can be locked
	Nominal stroke	20mm
	Actuating time	150s/20mm
	Sound power level motor max.	35dB(A)
	Position indication	Mechanical 5...20mm stroke
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage supply / control	0.8kV
	Control pollution degree	3
	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
<b>Weight</b>	Maintenance	Maintenance-free
	Weight approx.	2.54kg

**Safety notes**


- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, providing it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Accessories**

**Electrical accessories**

Description	Type
Auxiliary switch add-on, 2 x SPDT	S2A-H

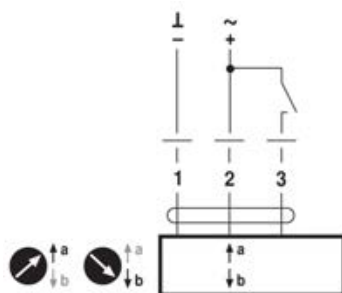
**Electrical installation**

Notes

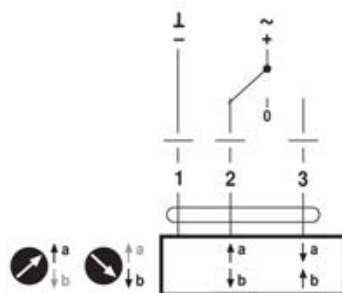
- Connection via safety isolating transformer.
- Parallel connection of other actuators possible.
- Direction of stroke switch factory setting: Actuator spindle retracted.

**Wiring diagrams**

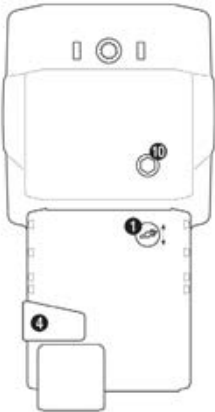
AC/DC 24V, open-close (one-wire)



AC/DC 24V, 3-point



## Indicators and operating controls



### (1) Direction of stroke switch

Switching: Direction of stroke changes

### (4) Gear disengagement button

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

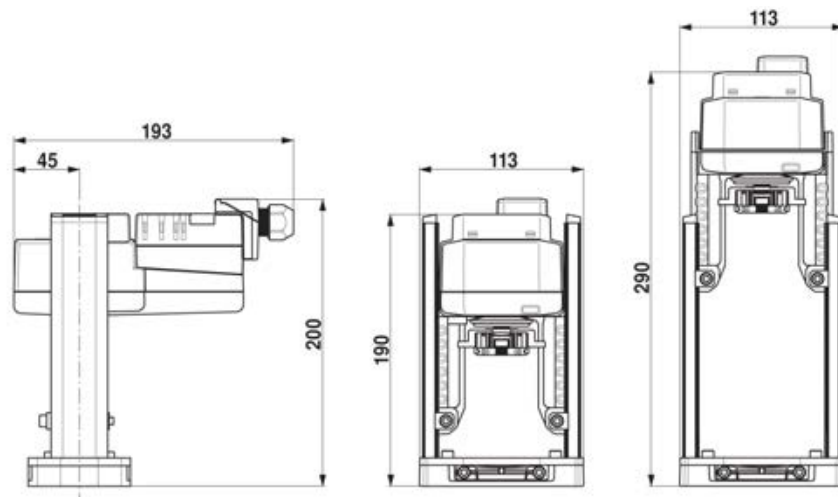
### (10) Manual override

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

## Dimensions [mm]

### Dimensional drawings



**Globe valve actuator for 2-way and 3-way globe valves**

- Actuating force 1500N
- Nominal voltage AC 230V
- Control: Open-close, 3-point
- Nominal stroke 20mm



**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 230V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 198...264V
	Power consumption in operation	2W
	Power consumption in rest position	1W
	Power consumption for wire sizing	4VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
<b>Functional data</b>	Parallel operation	Yes
	Actuating force	1500N
	Manual override	Gear disengagement with push-button, can be locked
	Nominal stroke	20mm
	Actuating time	150s/20mm
	Sound power level motor max.	35dB(A)
	Position indication	Mechanical 5...20mm stroke
<b>Safety</b>	Protection class IEC/EN	II Protective insulated
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated current voltage supply	4kV
	Control pollution degree	3
<b>Weight</b>	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
	Weight approx.	2.6kg

**Safety notes**


- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, providing it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Accessories**

**Electrical accessories**

**Description**

**Type**

Auxiliary switch add-on, 2 x SPDT

S2A-H

**Electrical installation**

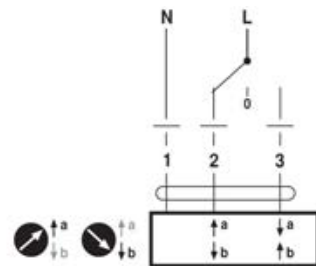
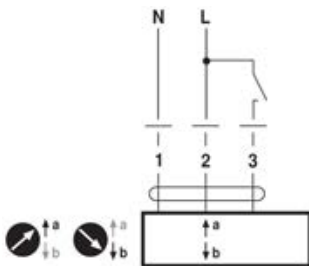


- Parallel connection of other actuators possible.
- Direction of stroke switch factory setting: Actuator spindle retracted.

**Wiring diagrams**

AC 230V, open-close (one-wire)

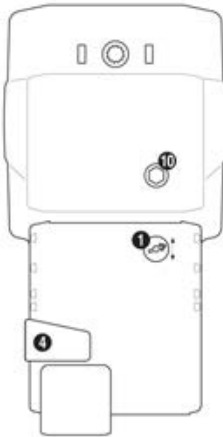
AC 230V, 3-point



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



**Indicators and operating controls**



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(4) Gear disengagement button**

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

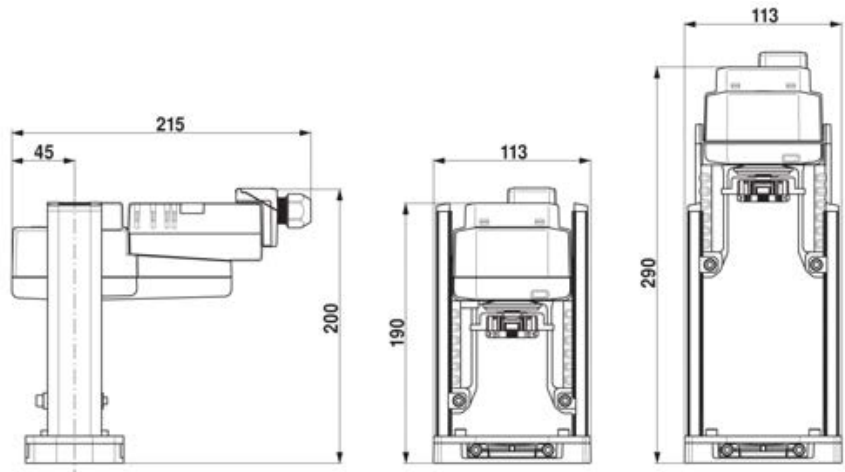
**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

**Dimensions [mm]**

**Dimensional drawings**



**Communication-capable globe valve actuator  
for 2-way and 3-way globe valves**

- Actuating force 1500N
- Nominal voltage AC/DC 24V
- Control modulating DC (0)0.5 V...10 V, variable
- Nominal stroke 20mm


**MP**  **BUS**  
**RETRO**  **FIT**
**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption in operation	2W
	Power consumption in rest position	1.5W
	Power consumption for wire sizing	3.5VA
	Connection supply / control	Terminals 4mm <sup>2</sup>
<b>Functional data</b>	Parallel operation	Yes
	Actuating force	1500N
	Positioning signal Y	DC 0...10V
	Positioning signal Y note	Input impedance 100kΩ
	Operating range Y	DC 0.5...10V
	Operating range Y variable	Start point DC 0.5...30V
		End point DC 2.5...32V
	Position feedback U	DC 0.5...10V
	Position feedback U note	max. 0.5mA
	Position feedback U variable	Start point DC 0.5...8V
		End point DC 2.5...10V
	Position accuracy	5% absolute
	Manual override	Gear disengagement with push-button, can be locked
	Nominal stroke	20mm
	Actuating time	150s/20mm
	Override control MAX (maximum position)	100%
	Override control MIN (minimum position)	0%
	Override control ZS (intermediate position, only AC)	50%
	Override control ZS variable	ZS = MIN...MAX
	Sound power level motor max.	35dB(A)
Sound power level motor note	45dB(A) @ 90s running time	
Position indication	Mechanical 5...20mm stroke	
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54
	EMC	CE in accordance with 2004/108/EC
	Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage supply / control	0.8kV
	Control pollution degree	3
	Ambient temperature	0°C...50°C
	Non-operating temperature	-40°C...80°C
	Ambient humidity	95% r.h., non-condensing
<b>Weight</b>	Maintenance	Maintenance-free
	Weight approx.	2.55kg

**Safety notes**



- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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**

**Principle of operation**

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 actuator 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 PC-Tool MFT-P or with the service tool ZTH-GEN.

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, provided it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

Manual override with push-button possible - temporary, permanently. The gear is disengaged and the actuator decoupled for as long as the button is pressed / latched. The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

When actuated, the direction of stroke switch changes the running direction in normal operation.

**Adaption of stroke range**

The first time the supply voltage is switched on, i.e. at the time of commissioning, the actuator carries out a stroke adaption, which is when the operating range and position feedback adjust themselves to the mechanical stroke.  
Manual triggering of the adaption can be carried out by pressing the “Adaption” button or with the PC-Tool.  
The actuator then moves into the position defined by the positioning signal.

**Accessories**

	Description	Type
<b>Electrical accessories</b>	Auxiliary switch add-on, 2 x SPDT	S2A-H
<b>Service tools</b>	Manual parameterising device, for MF/MP/Modbus/LonWorks actuators and VAV-Control	ZTH-GEN
	Belimo PC-Tool, software for adjustments and diagnostics	MFT-P

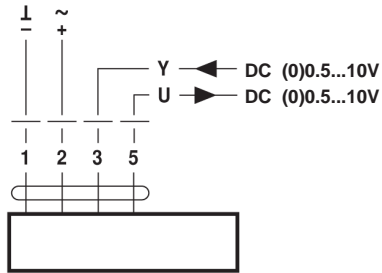
Electrical installation



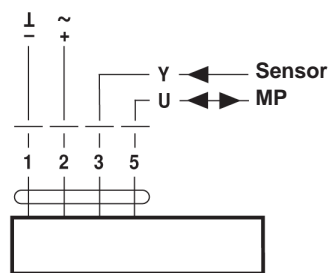
- Notes
- Connection via safety isolating transformer.
  - Parallel connection of other actuators possible.
  - Direction of stroke switch factory setting: Actuator spindle retracted.

Wiring diagrams

AC/DC 24V, modulating



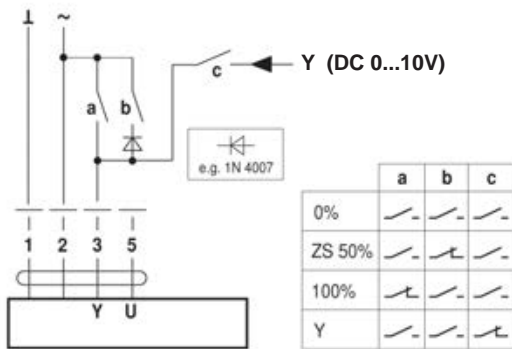
Operation on the MP-Bus



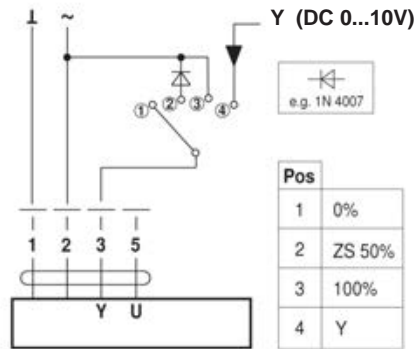
Functions

Functions with basic values

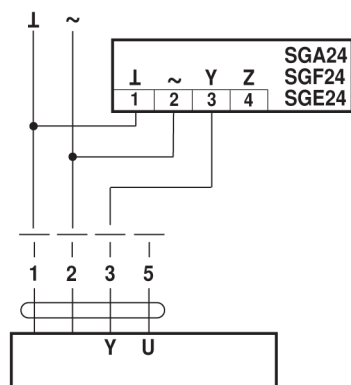
Override control with AC 24V with relay contacts



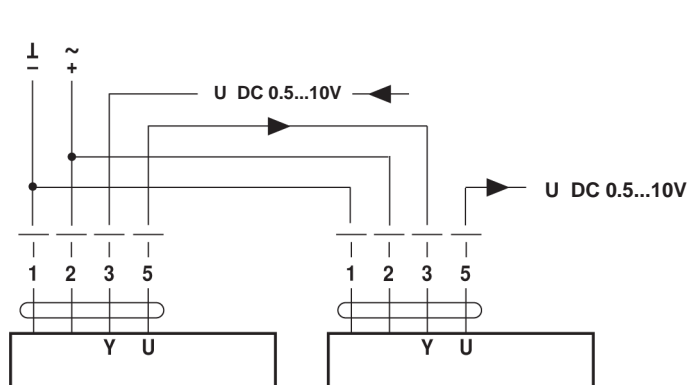
Override control with AC 24V with rotary switch



Remote control 0...100%

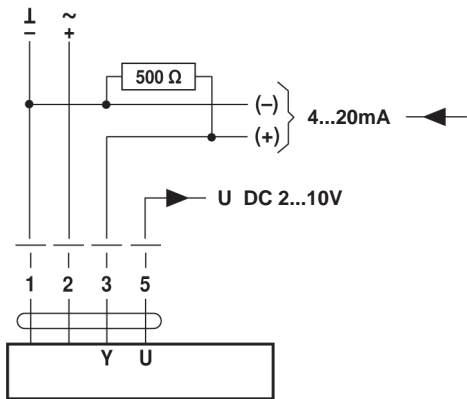


Follow-up control (position-dependent)



**Functions**

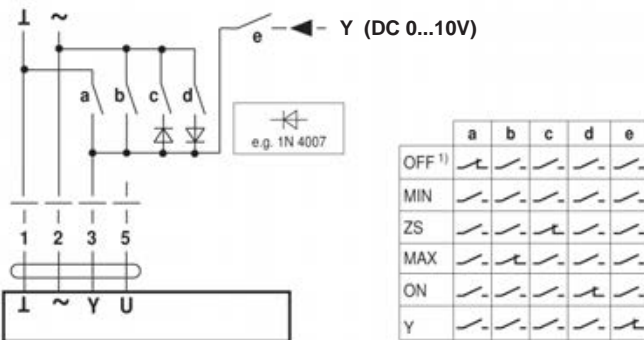
**Control with 4...20mA via external resistor**



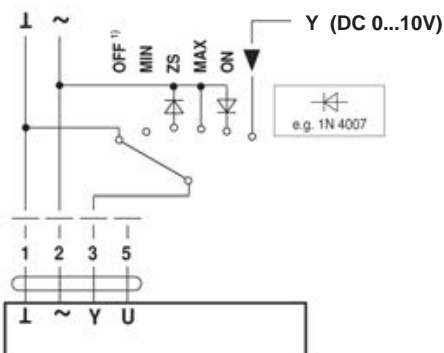
The 500Ω resistor converts the 4...20mA current signal to a voltage signal DC 2 ... 10V

**Functions for actuators with specific parameters**

**Override control and limiting with AC 24V with relay contacts**



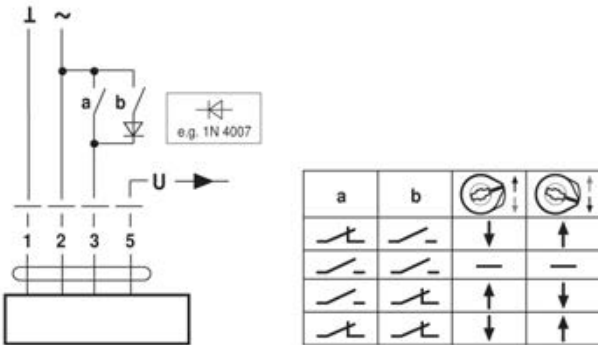
**Override control and limiting with AC 24V with rotary switch**



1) Caution: This function is guaranteed only if the start point of the operating range is defined as min. 0.6V.

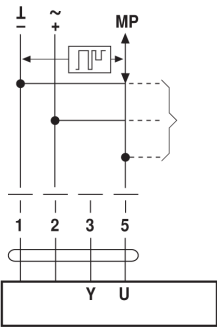
Functions

AC 24V, 3-point



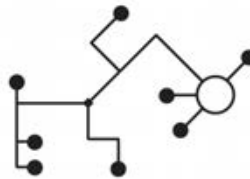
Functions when operated on MP-Bus

Connection on the MP-Bus



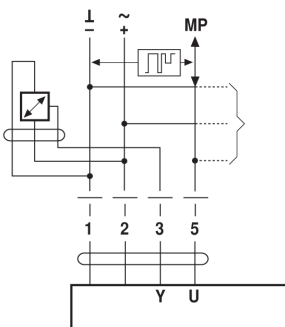
- Supply and communication in one and the same 3-wire cable
- no shielding or twisting required
  - no terminating resistor required

Power topology



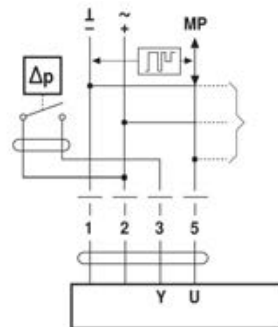
There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).

Connection of active sensors



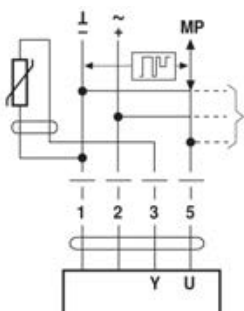
- Supply AC/DC 24A
- Output signal DC 0...10V (max. DC 0...32V)
- Resolution 30mV

Connection of external switching contact



- Switching current 16mA @ 24V
- Start point of the operating range must be parameterised on the MP actuator as  $\geq 0.6V$

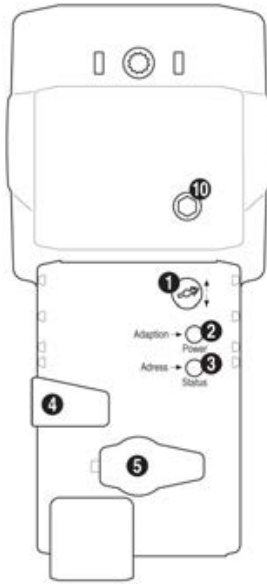
Connection of passive sensors



Ni1000	-28 ... +98 °C	850 ... 1600 $\Omega^2$
PT1000	-35 ... +155 °C	850 ... 1600 $\Omega^2$
NTC	-10 ... +160 °C <sup>1)</sup>	200 $\Omega$ ... 50 k $\Omega^2$

1) Depending on the type  
2) Resolution 1 Ohm

**Indicators and operating controls**



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(2) Push-button and LED display green**

Off: No power supply or malfunction

Illuminated in green: In operation

Press button: Triggers stroke adaption, followed by standard mode

**(3) Push-button and LED display yellow**

Off: Standard mode

Flickering: MP communication active

Illuminated: Adaption procedure active

Blinking: Request for addressing from MP master

Press button: Confirmation of addressing

**(4) Gear disengagement button**

Press button: Gear disengages, motor stops, manual override possible

Release button: Gear engages, standard mode

**(5) Service plug**

For connecting the parameterisation and service tools

**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

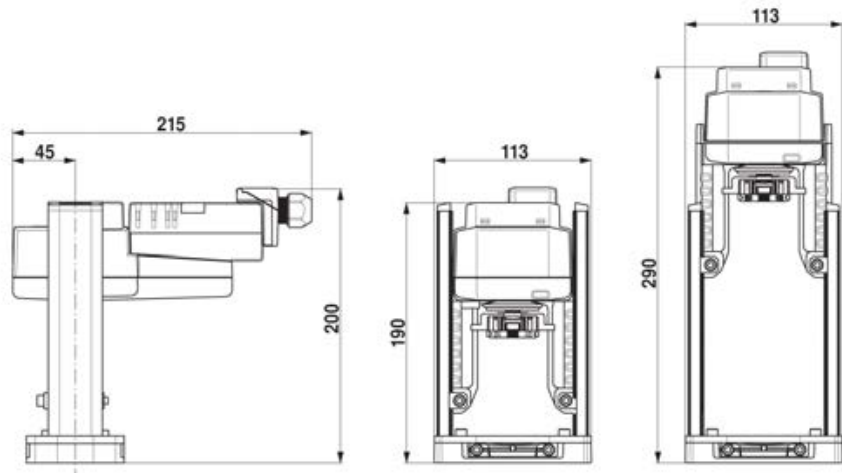
**LED displays (2, green) and (3, yellow)**

green: Off; yellow: Illuminated;

Check the supply connections. The phases may have been switched.

**Dimensions [mm]**

**Dimensional drawings**



**Globe valve actuator with emergency control function  
for 2-way and 3-way globe valves**

- Actuating force 1000N
- Nominal voltage AC 230V
- 3-point control
- Nominal stroke 20mm
- Design life SuperCaps 15 years



RETROFIT

**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 230V	
	Nominal voltage frequency	50/60Hz	
	Nominal voltage range	AC 198...264V	
	Power consumption in operation	2W	
	Power consumption in rest position	1W	
	Power consumption for wire sizing	4.5VA	
	Connection supply / control	Cable 1m, 4 x 0.75mm <sup>2</sup>	
	Parallel operation	Yes	
<b>Functional data</b>	Actuating force	1000N	
	Adjusting emergency setting position	Actuator spindle retracted / extended, adjustable (POP rotary knob)	
	Manual override	Gear disengagement with push-button	
	Nominal stroke	20mm	
	Actuating time	150s/20mm	
	Actuating time emergency control function	35s/20mm	
	Sound power level motor max.	56dB(A)	
	Sound power level emergency setting position max.	60dB(A)	
	Position indication	Mechanical 5...20mm stroke	
	<b>Safety</b>	Protection class IEC/EN	II protective insulated
		Degree of protection IEC/EN	IP54
		EMC	CE in accordance with 2004/108/EC
Certification IEC/EN		Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14	
<b>Weight</b>	Mode of operation	Type 1.AA	
	Rated impulse voltage supply / control	4kV	
	Control pollution degree	3	
	Ambient temperature	0°C...50°C	
	Non-operating temperature	-40°C...80°C	
	Ambient humidity	95% r.h., non-condensing	
	Maintenance	Maintenance-free	
	Weight approx.	2.83kg	

**Safety notes**



- This actuator has been designed for application 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 with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 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.

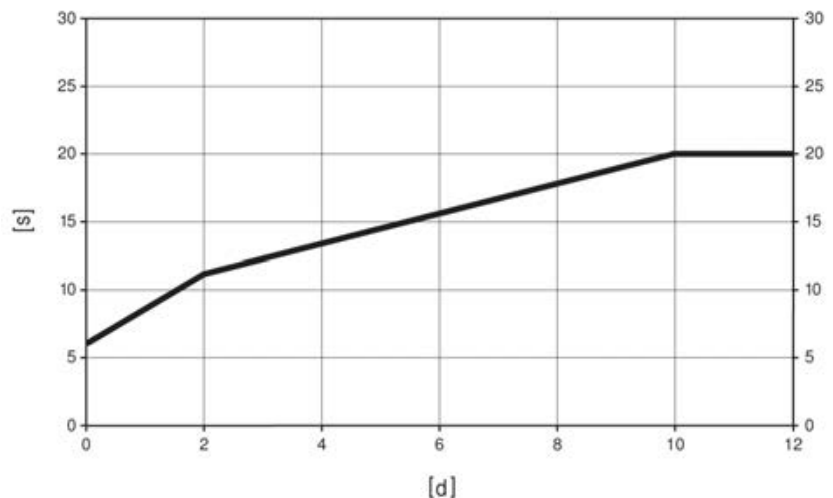
Interrupting the supply voltage causes the valve to be moved to the selected emergency setting position (POP) by means of stored electrical energy.

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

	[d]				
	0	1	2	7	≥10
[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 20s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

**Installation on third-party valves**

The retrofit actuators for installation on a wide range of valves from various manufacturers are comprised of an actuator, bracket, universal valve neck adapter and universal valve stem adapter. Adapt the valve neck and valve stem to begin with, then attach the retrofit bracket to the valve neck adapter. Now fit the retrofit actuator into the bracket and connect it to the valve. Whilst taking the position of the valve closing point into account, secure the actuator to the bracket and then conduct the commissioning process. The valve neck adapter/actuator can be rotated through 360° on the valve neck, providing it is permitted by the size of the installed valve.

**Installation on Belimo valves**

Please use standard actuators from Belimo for installation on Belimo globe valves. The installation of retrofit actuators on Belimo globe valves is technically possible.

**Manual override**

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

The stroke can be adjusted by using a hexagon socket screw key (4mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

**High functional reliability**

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

**Position indication**

The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.

**Home position**

Setting ex-works: Actuator spindle is retracted.

**Direction of stroke switch**

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

**Rotary knob emergency setting position**

The "Emergency setting position" rotary knob can be used to adjust the desired emergency setting position (POP). The POP range is in reference to the maximum height of stroke of the actuator.

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 2s which was set ex-works.

Accessories

Electrical accessories

Description

Auxiliary switch add-on, 2 x SPDT

Type

S2A-H

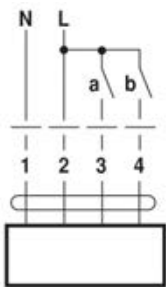
Electrical installation



- Notes
- Parallel connection of other actuators possible
  - Direction of stroke switch factory setting: Actuator spindle retracted.

Wiring diagrams

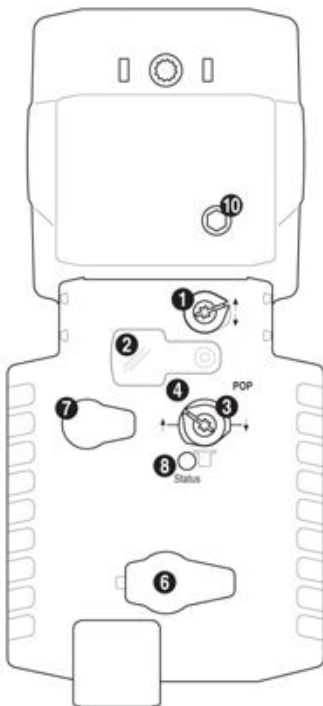
AC 230V, 3-point



3 a	4 b		

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

Indicators and operating controls



(1) Direction of stroke switch

Switching: Direction of stroke changes

(2) Cover, POP button

(3) POP button

(4) Scale for manual adjustment

(6) No function

(7) Gear disengagement button, temporary

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

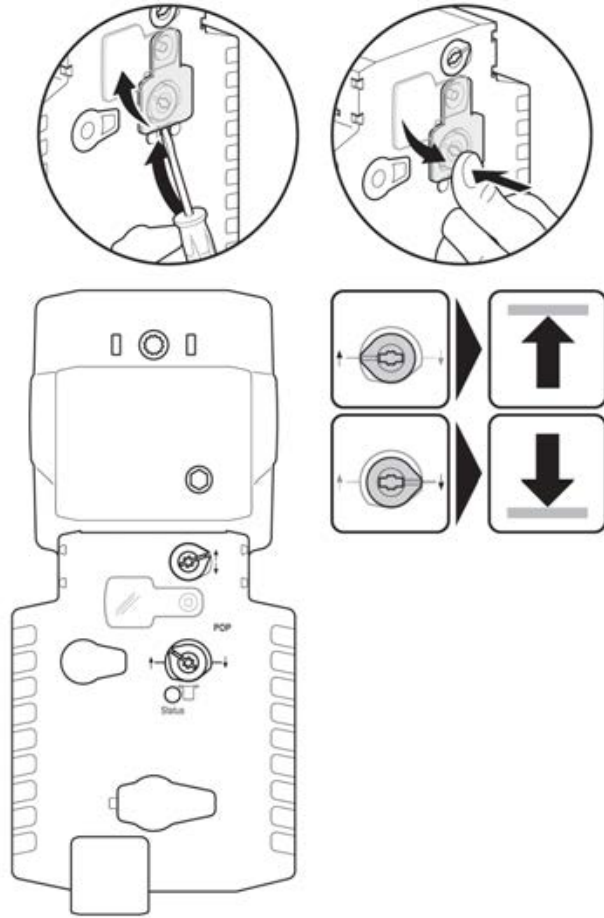
(8) LED displays

Green: Off, Not in operation / Pre-charging time SuperCap / Faulty SuperCap  
 Green: Illuminated, in operation OK  
 Green: Blinking, POP function active

(10) Manual override

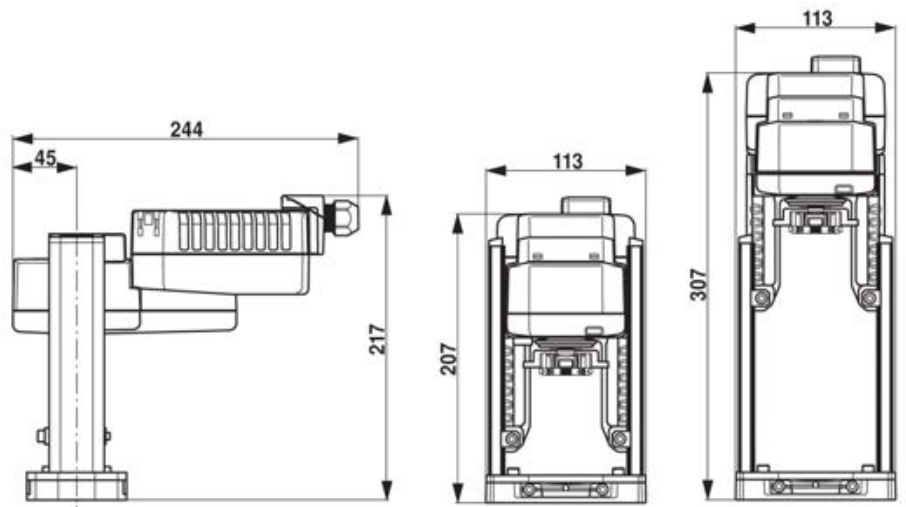
Clockwise: Actuator spindle extends  
 Counterclockwise: Actuator spindle retracts

**Indicators and operating controls**



**Dimensions [mm]**

Dimensional drawings



**1**

**optional**

- 1 x 4-6mm
- 1 x 8-10mm
- 1 x UNF 3/8" - 24
- 1 x UNF 1/4" - 28
- 1 x UNF 1/4" - 32
- 1 x M10
- 1 x M8
- 1 x M6
- 2 x
- 2 x M8 x 12
- 2 x M8

**2**

4 mm/9 Nm

**optional**

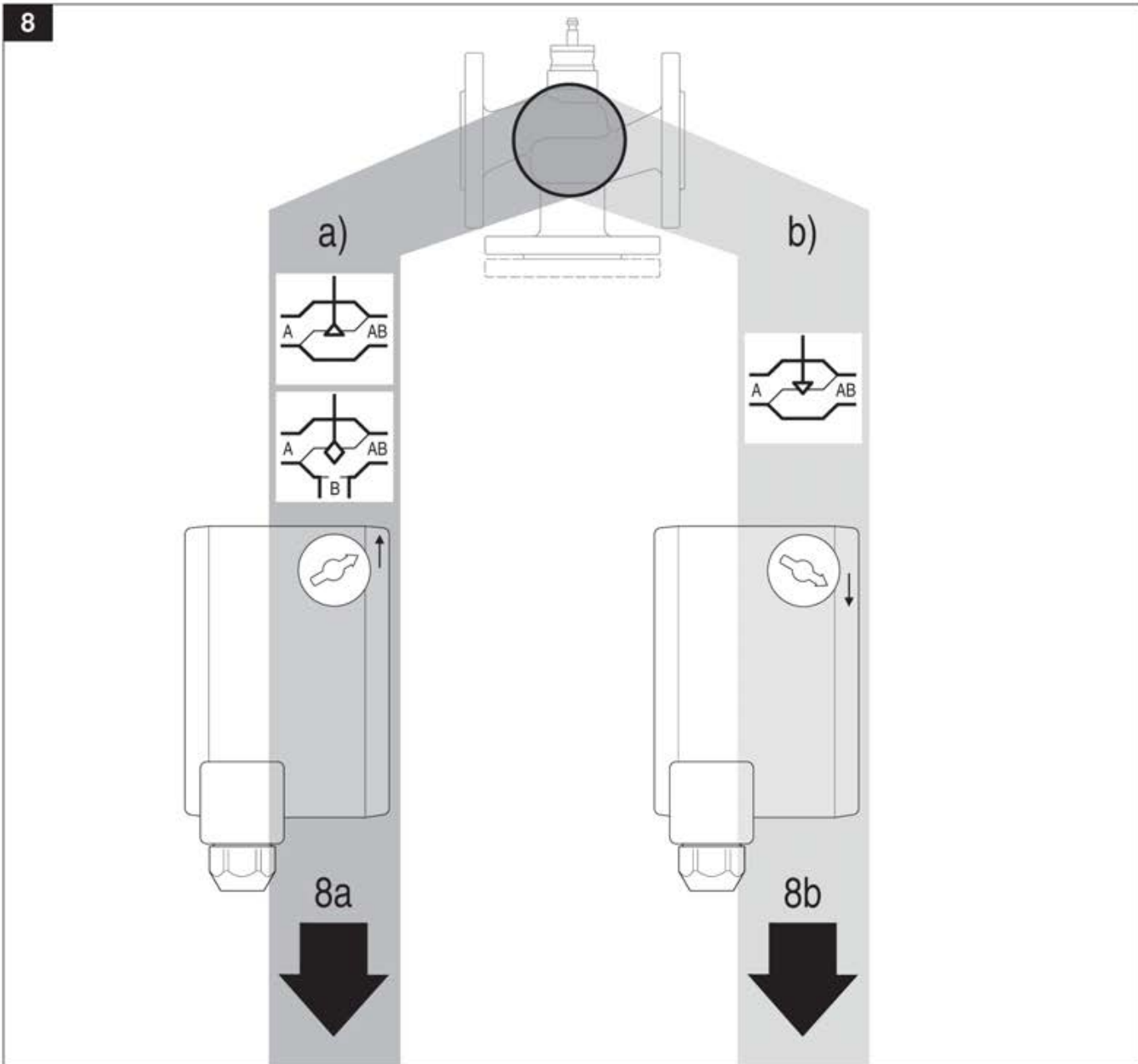
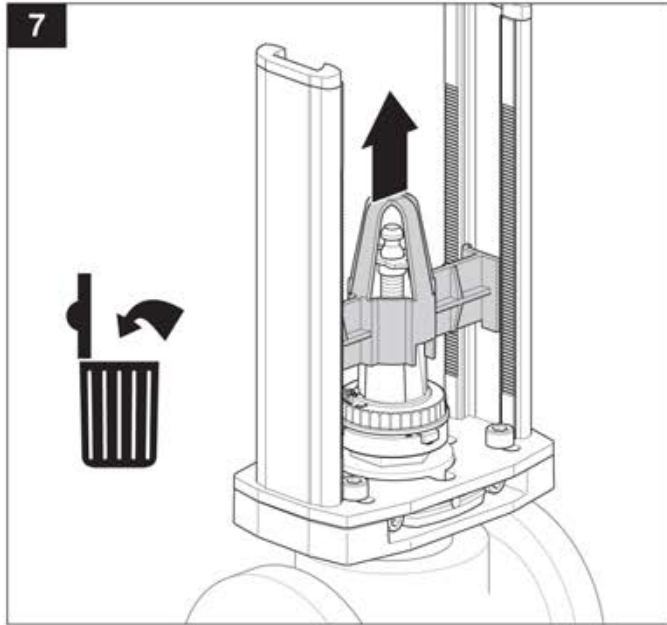
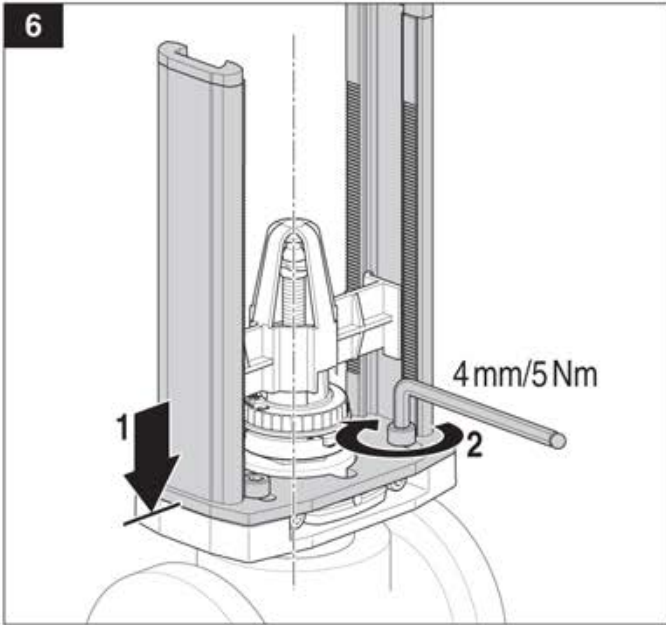
M8

**3**

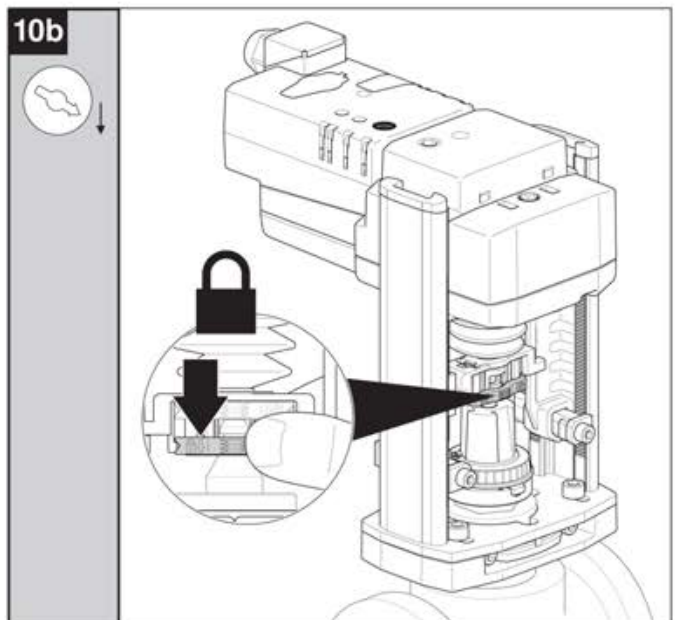
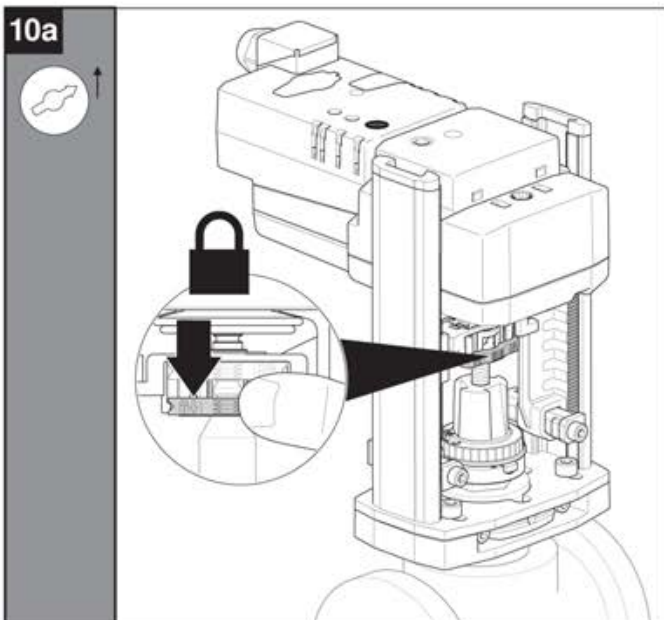
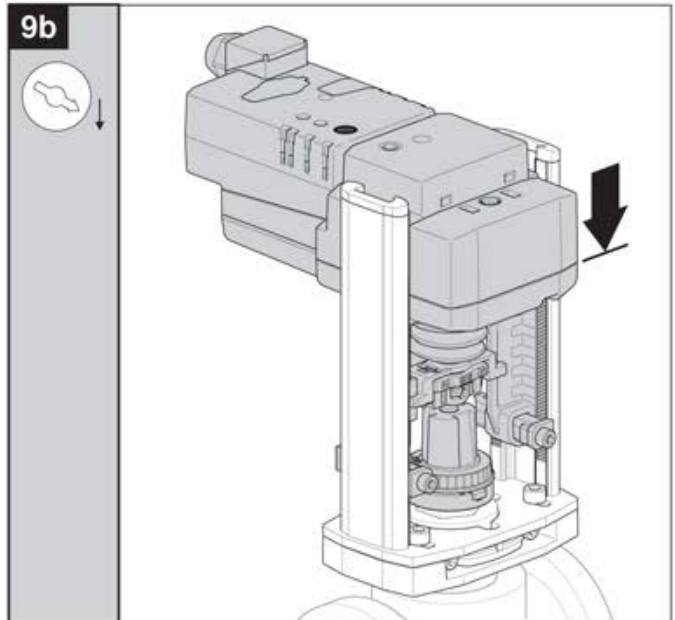
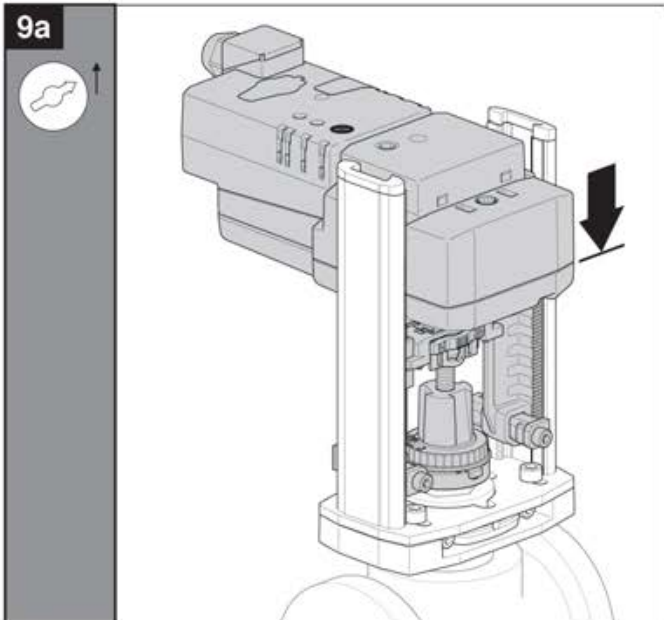
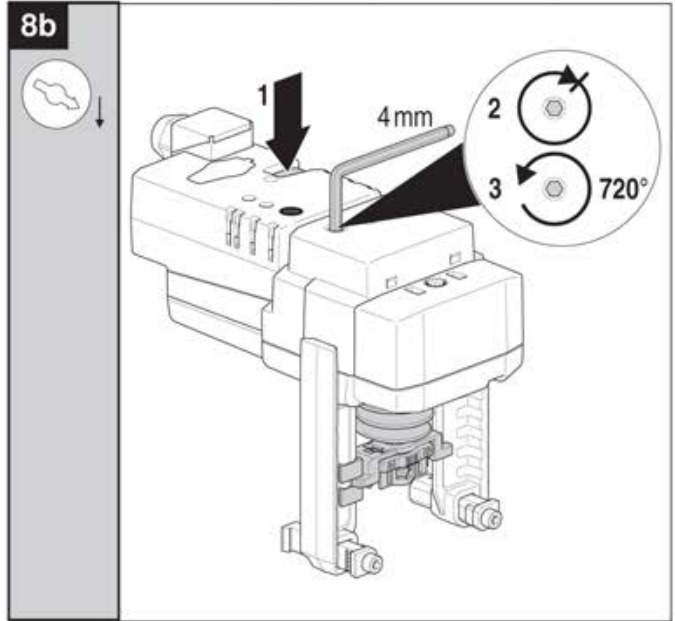
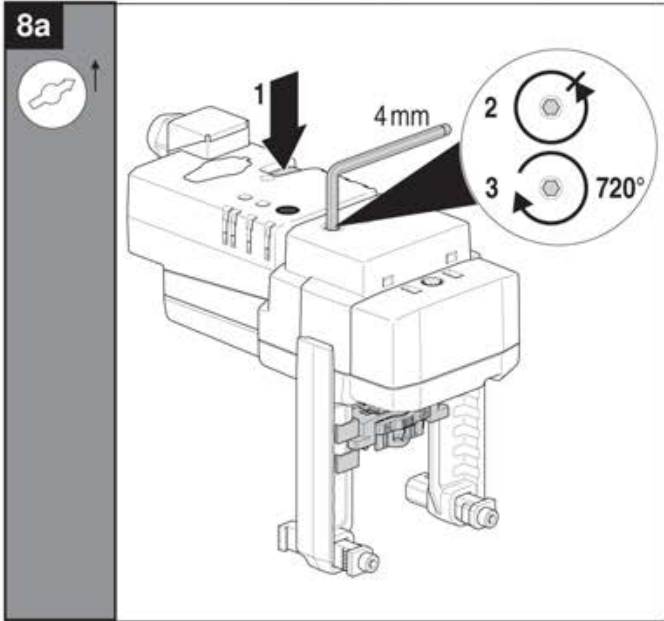
**4**

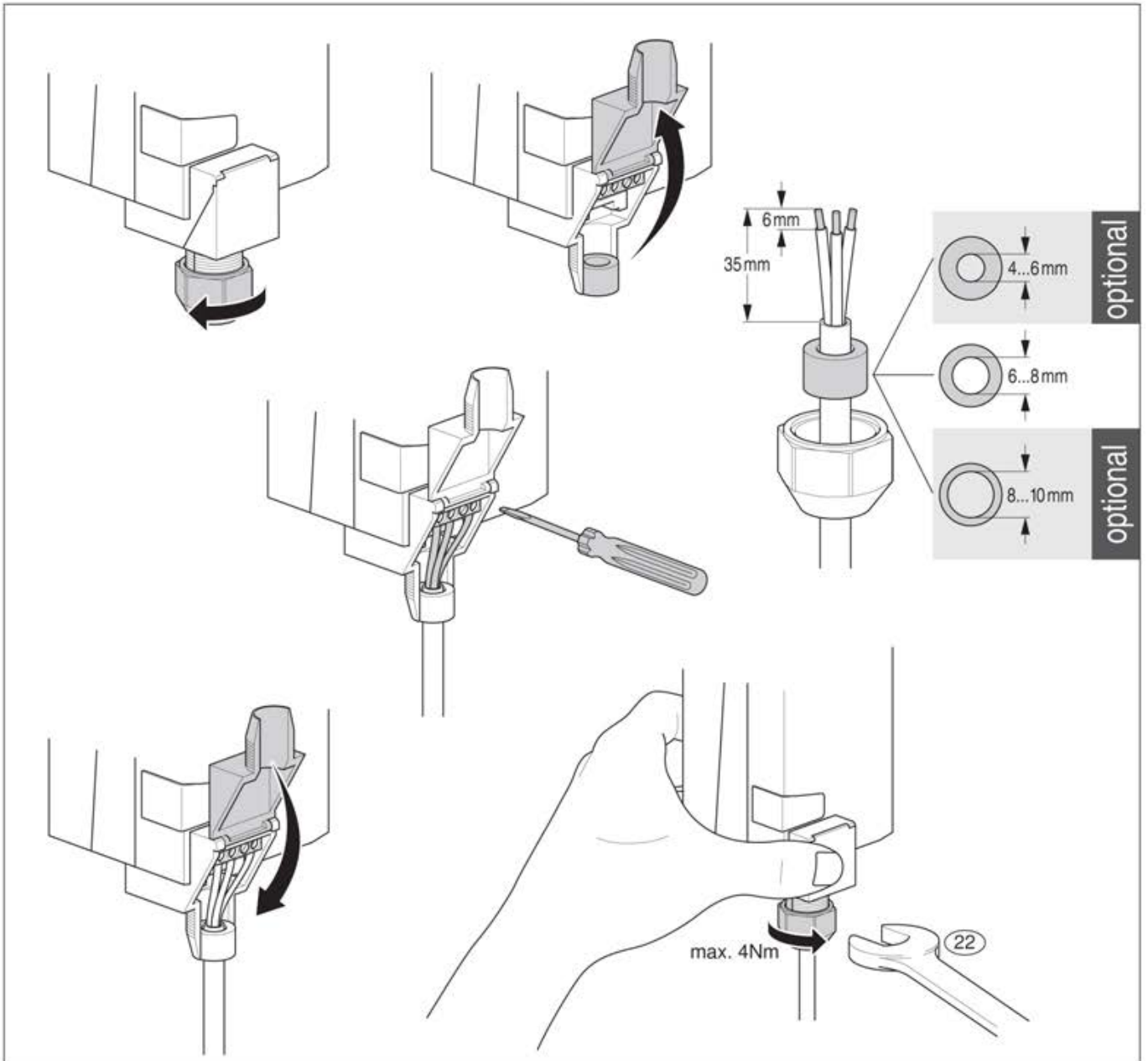
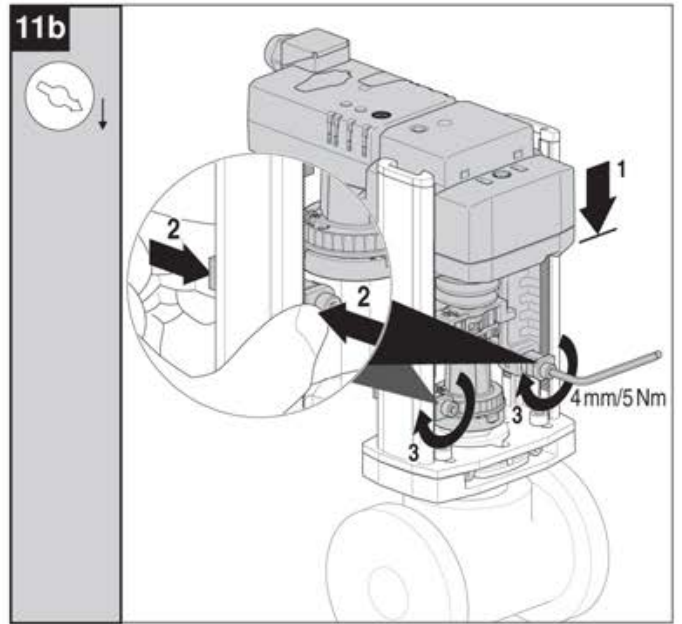
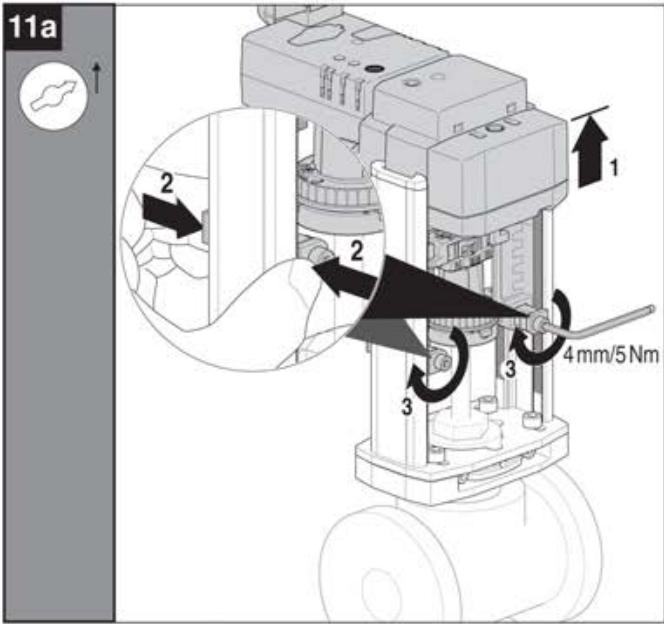
**optional**

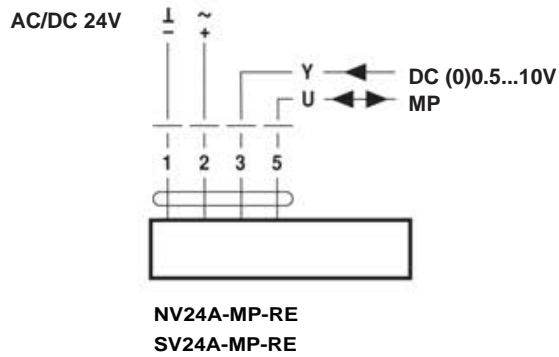
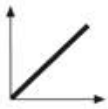
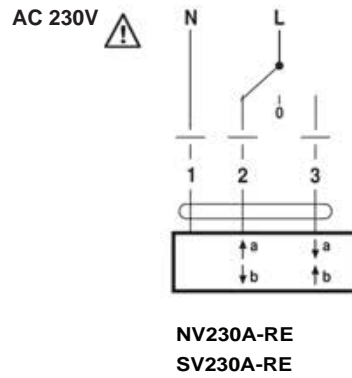
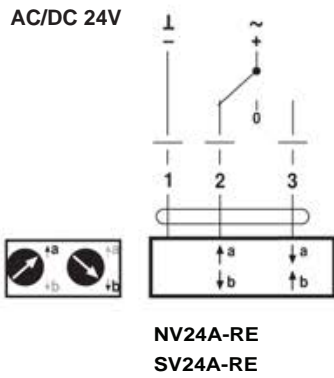
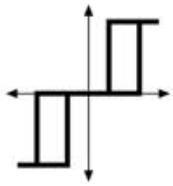
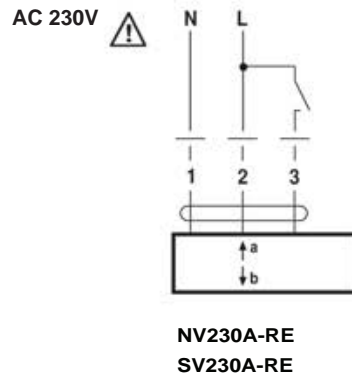
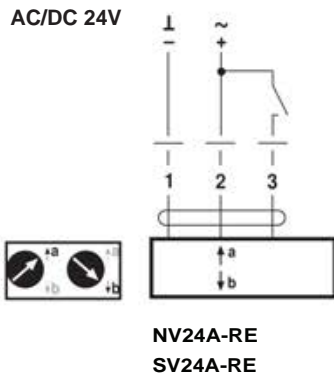
**5**













**ASIA PACIFIC HEADQUARTERS**

Belimo Actuators Ltd.  
Room 207, 2/F, New Commerce Centre  
19 On Sum Street, Shatin, N.T.  
Hong Kong  
Tel: +852 2687 1716  
Fax: +852 2687 1795  
E-mail: info.asiapacific@belimo.ch

**Belimo AUSTRALIA****Melbourne Office:**

Belimo Actuators Pty. Ltd.  
12 Enterprise Court  
Mulgrave Business Park  
Mulgrave, VIC 3170, Australia  
Tel: +61-(0)3-8585 7800  
Fax: +61-(0)3-8585 7811  
E-mail: info.australia@belimo.ch

**Sydney Office:**

Belimo Actuators Pty. Ltd.  
Suite 2.20, 32 Delhi Road  
North Ryde, NSW 2113, Australia  
Tel: +61 (0)2 9805 1777  
Fax: +61 (0)2 9805 1722  
E-mail: info.australia@belimo.ch

**Belimo CHINA****Shanghai Office:**

Belimo Actuators (Shanghai) Trading Ltd.  
479 Chun Dong Road, Building C-2  
Xin Zhuang Industry Park  
Shanghai 201108, P.R. China  
Tel: +86 21 5483 2929  
Fax: +86 21 5483 2930  
E-mail: info.shanghai@belimo.ch

**Beijing Office:**

Belimo Actuators Ltd.  
Unit 1528-1530, 15F, Tower A,  
Jiatai International Mansion,  
No. 41, Middle East Fourth Ring Road,  
Chaoyang District, Beijing, 100025, P.R. China  
Tel: +86 10 6462 1382/1386  
Fax: +86 10 6462 1383  
E-mail: info.beijing@belimo.ch

**Chongqing Office:**

Belimo Actuators Ltd.  
Room 4, 9th floor, Unit 7, Luoma Jiari Gardan  
No. 36, Qing Ling Road, Nan'an District  
Chongqing 400060, P.R. China  
Tel: +86 23 6275 3155  
Fax: +86 23 6280 3380 \*519  
E-mail: info.chongqing@belimo.ch

**Guangzhou Office:**

Belimo Actuators Ltd.  
Room 1202, Skyline Plaza  
644 Tong Fu East Road, Haizhu Area  
Guangzhou 510240, P.R. China  
Tel: +86 20 3435 1860  
Fax: +86 20 3435 1870  
E-mail: info.guangzhou@belimo.ch

**Belimo HONG KONG****Hong Kong Office:**

Belimo Actuators Ltd.  
Room 207, 2/F, New Commerce Centre  
19 On Sum Street, Shatin, N.T.  
Hong Kong  
Tel: +852 2687 1716  
Fax: +852 2687 1795  
E-mail: info.hongkong@belimo.ch

**Indonesia Office:**

Belimo Actuators Ltd.  
Graha Kencana Building 8th Floor Block B  
Jl. Raya Perjuangan 88  
Kebon Jeruk - Jakarta Barat 11530  
Indonesia  
Tel: +62 21 5367 8278  
Fax: +62 21 5366 0688  
E-mail: info.indonesia@belimo.ch

**Japan Office:**

Belimo Actuators Ltd.  
7th Floor, Honjo-Azumabashi DJ Building  
4-19-3, Honjo, Sumida-ku  
Tokyo 130-0004, Japan  
Tel: +81-3-6823-6961  
Fax: +81-3-3626-3911  
E-mail: info.japan@belimo.ch

**Malaysia Office:**

Belimo Actuators Ltd  
S-13-12, First Subang,  
Jalan SS15/4G,  
47500 Subang Jaya,  
Selangor, Malaysia.  
Tel: +03-56125833  
Fax: +03-56125233  
E-mail: info.malaysia@belimo.ch

**Singapore Office**

Belimo Actuators Ltd.  
1 Tannery Road #08-04  
One Tannery, Singapore 347719  
Tel: +65 6842 1626  
Fax: +65 6842 1630  
E-mail: info.singapore@belimo.ch

**Taiwan Office:**

Belimo Actuators Ltd.  
7F-2, No.343,  
Jhonghe Road, Yonghe City,  
Taipei County 234, Taiwan  
Tel: +886 2 2922 8805  
Fax: +886 2 2922 8806  
E-mail: info.taiwan@belimo.ch

**Thailand Office:**

Belimo Actuators Ltd.  
90/2 Pensiri Place  
Soi Phaholyothin 32,  
Phaholyothin Road,  
Chandrasek, Jatujak  
Bangkok 10900, Thailand  
Tel: +662 9415582-3  
Fax: +662 9415584  
E-mail: info.thailand@belimo.ch

**Belimo INDIA****Mumbai Office:**

Belimo Actuators India Pvt. Ltd.  
23/ ABCD, Govt. Industrial Estate  
Charkop, Kandivali West  
Mumbai 400067, India  
Tel: +91 22 4025 4800  
Fax: +91 22 4025 4899  
E-mail: info.india@belimo.ch

**Bangalore office:**

Belimo Actuators India Pvt. Ltd.  
Sreerama Complex,  
No. 13, 2nd Floor, 5th Cross Road,  
6th Block, Koramangala,  
Bangalore – 560097, India  
Tel: +91-80-40906311  
Fax: +91-80-40906288  
E-mail: info.india@belimo.ch

**New Delhi Office:**

Belimo Actuators India Pvt. Ltd.  
Flat No. 515, DLF Tower – B  
Jasola Distt. Centre, Jasola  
New Delhi 110025, India  
Tel: +91 11 41078501  
Fax: +91 11 41078508  
E-mail: info.india@belimo.ch

**Chennai Office:**

Belimo Actuators India Pvt. Ltd.  
Flat no.3B, Urmilla House  
#15, ARK Colony, Eldams Road  
Chennai-600 018, India  
Tel: +91 44 24355154/5153  
E-mail: info.india@belimo.ch

FIRE &  
SMOKE



DAMPER



PICCV  
EPIV  
EV



CCV



BUTTERFLY  
VALVE



GLOBE  
VALVE



# Innovation, Quality and Consultancy:

## A partnership for motorising HVAC actuators



5 year warranty



On site around the globe



A complete range of  
products from one source



Tested quality



Short delivery  
times



Comprehensive  
support

### Belimo regional head offices

EU BELIMO Automation AG  
Brunnenbachstrasse 1  
8340 Hinwil, Switzerland  
Tel: +41 43 843 61 11  
Fax: +41 43 843 62 68  
E-mail: info@belimo.ch

AP Belimo Actuators Ltd.  
Room 207, 2/F, New Commerce Centre  
19 On Sum Street, Shatin, N.T., Hong Kong  
Tel: +852 2687 1716  
Fax: +852 2687 1795  
E-mail: info.asiapacific@belimo.ch

US BELIMO Aircontrol (USA), Inc.  
43 Old Ridgebury Road  
Danbury, CT 06813-2928  
USA  
Tel: +800 543-9038 / 203 791-9915  
Fax: +800 228-8283 / 203 791-9919

Or contact your nearest Sales Representative

[www.belimo.com](http://www.belimo.com)

