

# Damper Actuators

Non-Spring Return SMU... series



## *Technical Databook*



New Generation Non-spring return actuator	CMU..	LMU..	NMU..	SMU..	GMU..
Open/Close, 3-point	<b>2 Nm</b>	<b>5 Nm</b>	<b>10 Nm</b>	<b>20 Nm</b>	<b>40 Nm</b>
AC 24 V 50/60 Hz, DC 24 V	CMU24(-F8/-F10)(-T)	LMU24(-F/-T)	NMU24(-F/-T)	SMU24(-F/-T)	GMU24*
Auxiliary switch build-in 1 SPDT		LMU24-S	NMU24-S	SMU24-S	
AC 100..240 V 50/60 Hz	CMU230(-F8/-F10)	LMU230	NMU230	SMU230	GMU230*
AC 230 V 50 Hz (Open/Close)	CMU230(-F8/-F10)-RES*				
Auxiliary switch build-in 1 SPDT		LMU230-S	NMU230-S	SMU230-S	
Modulating					
Control signal DC 2(0)..10 V, feedback DC 2...10 V					
AC 24 V 50/60 Hz, DC 24 V	CMU24-SR-R**	LMU24-SR	NMU24-SR	SMU24-SR	GMU24-SR
AC 100..240 V 50/60 Hz		LMU230SR	NMU230SR	SMU230SR	
Running time	75s	150s			
Shaft diameter	6...12.7mm	6... 20mm	8... 26mm	10... 20mm	14... 26mm
Sound power level	Max. 35 dB(A)	Max. 35 dB(A)	Max. 35 dB(A)	Max. 48 dB(A)	Max. 48 dB(A)
Manual override	Disengaging the gearing latch by means of a pushbutton, self-resetting				
Electrical connection	Cable 1 m (-T: Terminal)				
Direction of rotation	Selected by switch				
Angle of rotation	Max. 95°, can be limited at both ends with mechanical adjustable end stops				
Position indication	Mechanical, plug-on				
Degree of protection	IP54 in any direction (-T: IP20)				
EMC	CE according to 89/336/EEC				
Ambient temperature	- 30°C... + 50°C				
Non-operation temperature	- 40°C... + 80°C				
Humidity test	95% RH, non condensing (to EN 60730-1)				

\* Only Open/Close, no 3-point.

\*\* CMU24-SR-R: control signal 2(0) V at the right side, and the left side is available if request.

**Note:**

**Using Belimo Damper actuators:**

- The actuators listed in this catalogue are intended for the operation of air dampers in HVAC systems.
- The damper actuator is not allowed to be used outside the specified field of application, especially in aircraft.
- The enclosure of the actuator equipment may only be opened by the manufacturer. It contains no components which the user can replace or repair.
- 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.

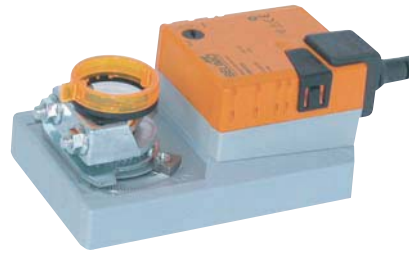
**Torque requirements:**

- When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow condition.

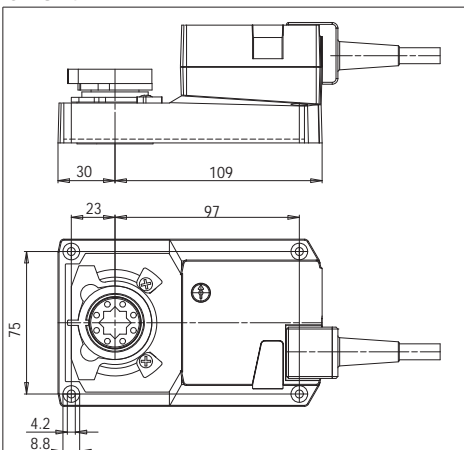
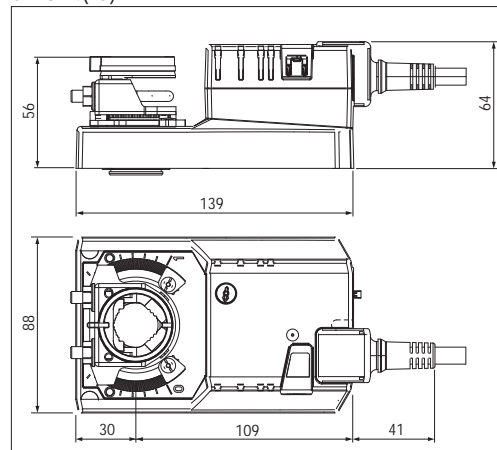
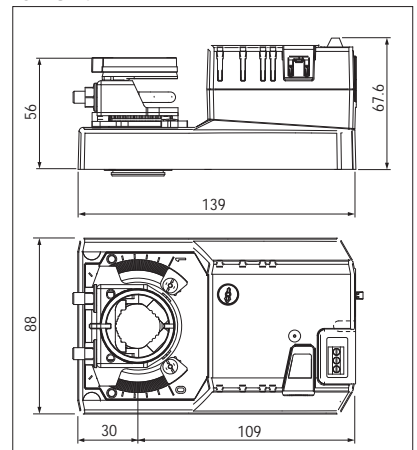
**Non-spring return actuators NMU..**

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- For operation of air control dampers in HVAC systems.
- Torque 20 Nm
- Nominal voltage AC/DC 24 V
- Control: Open/Close or 3-point


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24 V 50/60 Hz, DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	2 W @ running / 0.2 W @ holding
	Wire/transformer sizing	4 VA
	Max. peak current	2.7 A @ 5 ms
	Auxiliary switch SMU24-S	1 SPDT, 1 mA ... 3 (0.5) A, AC 250 V, adjustable <input type="checkbox"/>
	Connection : Motor	Cable 1 m, 3 x 0.75 mm <sup>2</sup>
	Auxiliary switch (SMU24-S)	Cable 1 m, 3 x 0.75 mm <sup>2</sup>
	Terminals (SMU24-T)	Max. 3 x 1.5 mm <sup>2</sup>
<b>Functional data</b>	Torque	20 Nm
	Direction of rotation	Selectable by switch
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°, adjustable by mechanical stops
	Running time	150 s for 95°
	Sound power level	Max. 45 dB (A)
	Position indication	Mechanical, remote visible
<b>Working conditions</b>	Protection class	III (safety low voltage)
	Degree of protection: SMU24(-S/-F)	IP54 in any direction
	SMU24-T	IP20
	EMC	CE according to 89/336/EEC
	Mode of operation	Type 1 to EN 60730-1
<b>Dimensions / weight</b>	Ambient temperature	-30 ... +50°C
	Non-operation temperature	-40 ... +80°C
	Humidity test	95% RH, non condensing (EN 60730-1)
	Maintenance	Maintenance free
	Dimensions (L x W x H)	See 'Dimensions'
	Shaft length	Min. 42 mm (20mm for reverse mounting)
	Shaft: SMU24(-T/-S)	⌀ 10 ... 20 mm (10 ... 26.7 mm with K-ENSA - optional)
	SMU24-F	12 x 12 mm
	Weight	Approx. 1050 g

**Dimensions [mm]**
**SMU24-F**

**SMU24(-S)**

**SMU24-T**


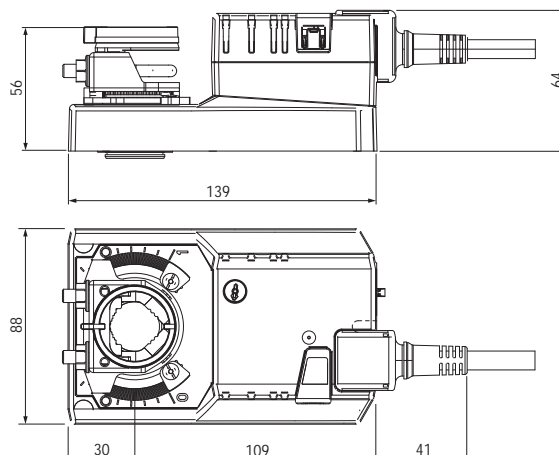


- For operation of air control dampers in HVAC systems.
- Torque 20 Nm
- Nominal voltage AC/DC 24 V
- Control signal: DC 2(0) ...10 V
- Position feedback: DC 2 ... 10 V

Technical data

<b>Electrical data</b>	Nominal voltage	AC 24 V 50/60 Hz, DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	2 W @ running / 0.4 W @ holding
	Wire/transformer sizing	4 VA
	Max. peak current	2.7 A @ 5 ms
<b>Functional data</b>	Connection cable	Cable 1 m, 4 x 0.75 mm <sup>2</sup>
	Torque	20 Nm
	Control Signal	2(0)...10 VDC (input impedance 100kΩ)
	Operating range	2...10 VDC
	Measurement Voltage	2...10 VDC, max. 1 mA
	Direction of rotation	Selectable by switch
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°, adjustable by mechanical stops
	Running time	150 s for 95°
	Sound power level	Max. 45 dB (A)
<b>Working conditions</b>	Position indication	Mechanical, remote visible
	Protection class	III (safety low voltage)
	Degree of protection	IP54 in any direction
	EMC	CE according to 89/336/EEC
	Mode of operation	Type 1 to EN 60730-1
	Ambient temperature	-30 ... +50°C
	Non-operation temperature	-40 ... +80°C
	Humidity test	95% RH, non condensing (EN 60730-1)
<b>Dimensions / weight</b>	Maintenance	Maintenance free
	Dimensions (L x W x H)	180x 88 x 64 mm
	Shaft length	Min. 42 mm (20 mm for reverse mounting)
	Shaft	⌀ 10 ... 20 mm (10 ... 26.7 mm with K-ENSA - optional)
	Weight	Approx. 1050 g

Dimensions [mm]



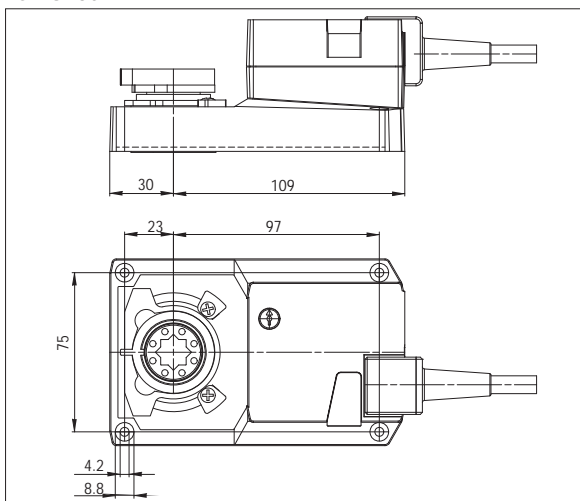
- For operation of air control dampers in HVAC systems.
- Torque 20 Nm
- Nominal voltage AC 100...240 V
- Control: Open/Close or 3-point


**Technical data**

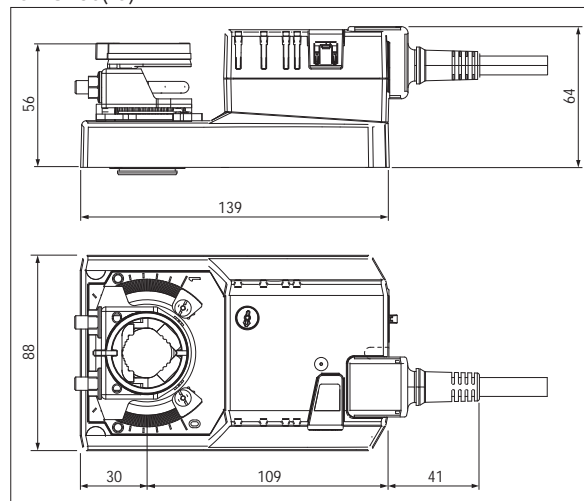
<b>Electrical data</b>	Nominal voltage	AC 100...240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	2.5 W @ running / 0.6 W @ holding
	Wire/transformer sizing	6 VA
	Max. peak current	3.5 A @ 230VAC
	Auxiliary switch SMU230-S	1 SPDT, 1 mA ... 3 (0.5) A, AC 250 V, adjustable <input type="checkbox"/>
<b>Functional data</b>	Connection : Motor	Cable 1 m, 3 x 0.75 mm <sup>2</sup>
	Auxiliary switch (SMU230-S)	Cable 1 m, 3 x 0.75 mm <sup>2</sup>
	Torque	20 Nm
	Direction of rotation	Selectable by switch
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°, adjustable by mechanical stops
	Running time	150 s for 95°
	Sound power level	Max. 45 dB (A)
	Position indication	Mechanical, remote visible
	<b>Working conditions</b>	Protection class
Degree of protection		IP54 in any direction
EMC		CE according to 89/336/EEC CE according to 73/23/EEC
Low voltage directive		
Mode of operation		Type 1 to EN 60730-1
Ambient temperature		-30 ... +50°C
Non-operation temperature		-40 ... +80°C
Humidity test		95% RH, non condensing (EN 60730-1)
<b>Dimensions / weight</b>	Maintenance	Maintenance free
	Dimensions (L x W x H)	180 x 88 x 64 mm
	Shaft length	Min. 42 mm (20mm with for reverse mounting)
	Shaft: SMU230(-S)	⌀10 ... 20 mm (10 ... 26.7 mm with K-ENSA - optional)
	SMU230-F	12 x 12 mm
Weight	Approx. 1050 g	

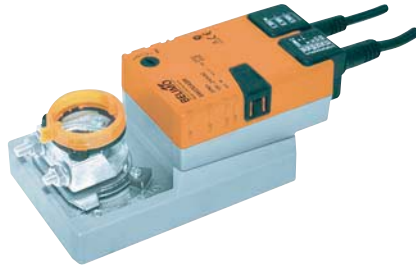
**Dimensions [mm]**

SMU230-F



SMU230(-S)



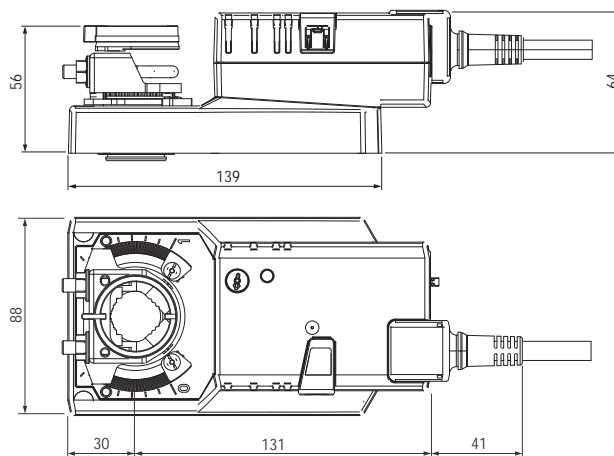


- For operation of air control dampers in HVAC systems.
- Torque 20 Nm
- Nominal voltage AC 100 ... 240 V
- Control signal: DC 2(0)...10 V
- Position feedback: DC 2 ... 10 V

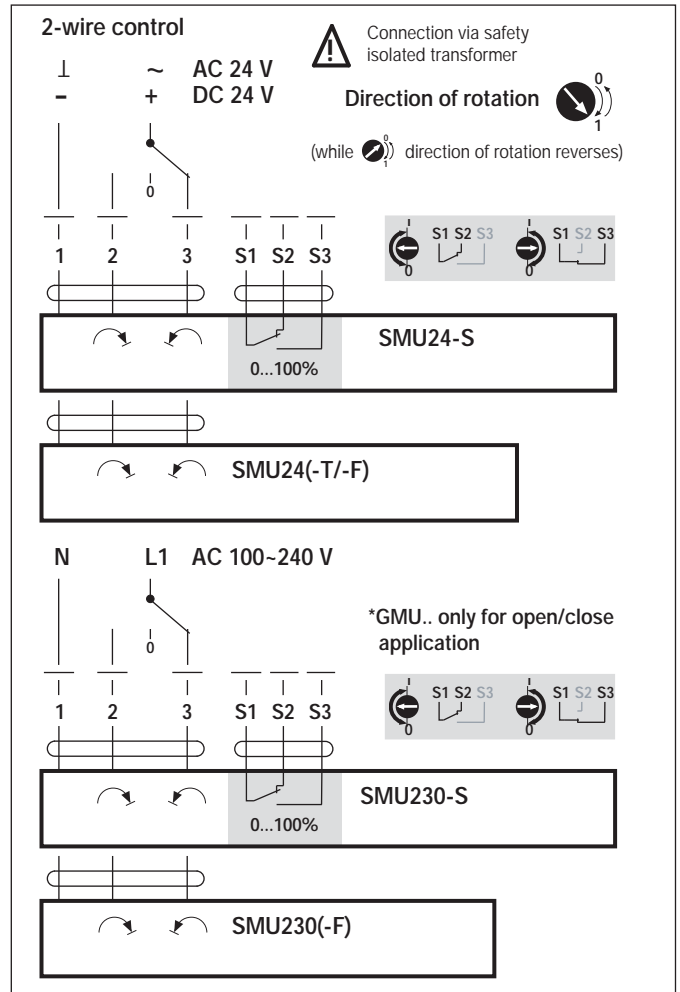
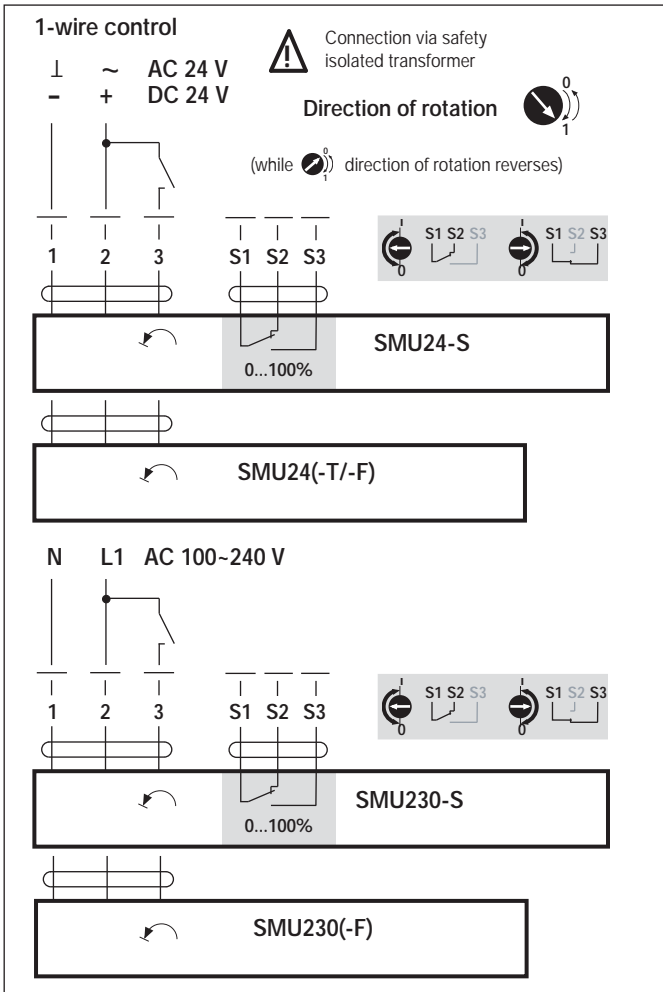
Technical data

Electrical data	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	3.5 W @ running / 1 W @ holding
	Wire/transformer sizing	6.5 VA
	Max. peak current	3.5 A @ 230VAC
	Connection cable: Power supply	Cable 1 m, 2 x 0.75 mm <sup>2</sup>
	Signals	Cable 1 m, 4 x 0.75 mm <sup>2</sup>
Functional data	Torque	20 Nm
	Control signal	2(0)...10 VDC (input impedance 100kΩ)
	Operating range	2...10 VDC
	Measurement voltage	2...10 VDC, max. 1 mA
	Direction of rotation	Selectable by switch
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°, adjustable by mechanical stops
	Running time	150 s for 95°
	Sound power level	Max. 45 dB (A)
	Position indication	Mechanical, remote visible
Working conditions	Protection class	II (Totally insulated) <input type="checkbox"/>
	Degree of protection	IP54 in any direction
	EMC	CE according to 89/336/EEC
	Low voltage directive	CE according to 73/23/EEC
	Mode of operation	Type 1 to EN 60730-1
	Ambient temperature	-30 ... +50°C
	Non-operation temperature	-40 ... +80°C
	Humidity test	95% RH, non condensing (EN 60730-1)
Maintenance	Maintenance free	
Dimensions / weight	Dimensions (L x W x H)	202 x 88 x 64 mm
	Shaft length	Min. 42 mm (20mm for reverse mounting)
	Shaft	●I◇ 10 ... 20 mm (10 ... 26.7 mm with K-ENSA - optional)
	Weight	1200 g

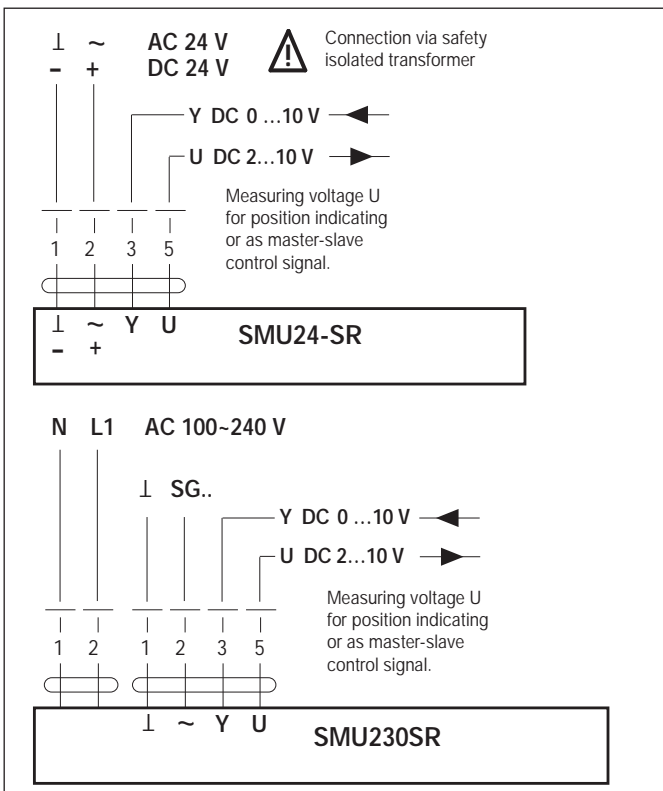
Dimensions [mm]



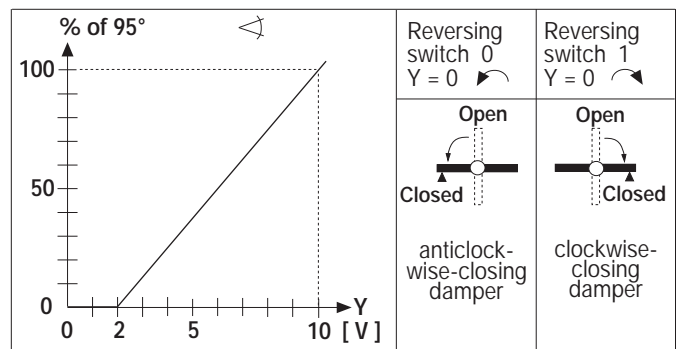
Wiring diagram: SMU..




Wiring diagram: Modulating actuators. Parallel connection possible, please note the performance data



Position - signal voltage

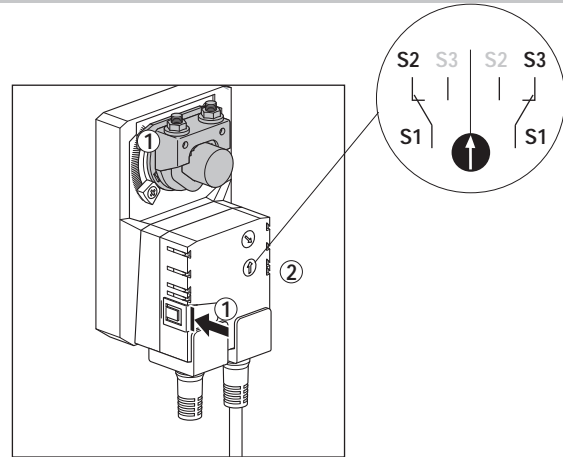


Direction of rotation 

Auxiliary switch adjustment for Non-Spring Return actuators

1. Press the pushbutton, manually operate the universal clamp to desired switch position.
2. Turn switch pointer to the middle line.
3. When actuator moves clockwise (counterclockwise) to switch position, switch indicator passes the middle line counterclockwise (clockwise), the contact between S1 and S3 is broken (made) and the contact between S1 and S2 is made (broken).

Note: The switching point should be about 5° from the mechanical end stops (1 short step on the scale).





## Innovation, Quality and Consultancy: A partnership for motorizing HVAC actuators



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