

Damper Actuators

Non-Spring Return LMU... series



Technical Databook



New Generation Non-spring return actuator	CMU..	LMU..	NMU..	SMU..	GMU..
Open/Close, 3-point	2 Nm	5 Nm	10 Nm	20 Nm	40 Nm
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 LMU..

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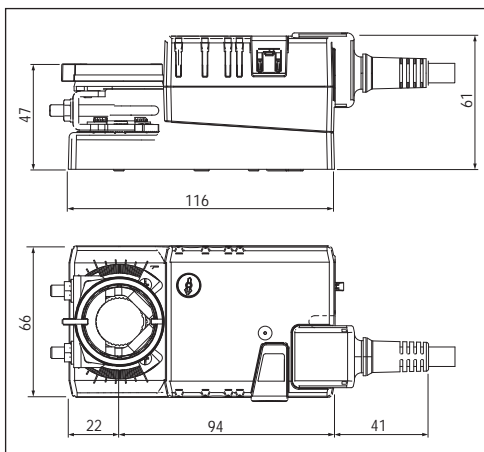
- For operation of air control dampers in HVAC systems.
- Torque 5 Nm
- Nominal voltage AC/DC 24 V
- Control: Open/Close or 3-point


Technical data

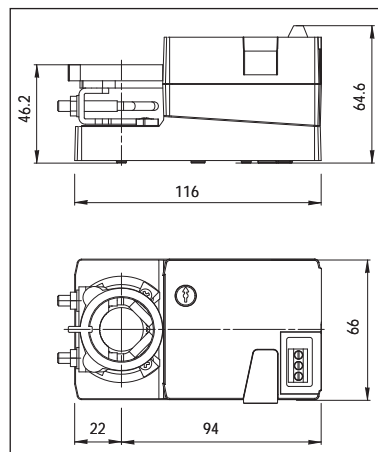
Electrical data	Nominal voltage	AC 24 V 50/60 Hz, DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	1 W @ running / 0.2 W @ holding
	Wire/transformer sizing	1.5 VA
	Max. peak current	1 A @ 5 ms
	Auxiliary switch LMU24-S	1 SPDT, 1 mA ... 3 (0.5) A, AC 250 V, adjustable <input type="checkbox"/>
	Connection : Motor LMU24(-S/-F)	Cable 1 m, 3 x 0.75 mm ²
	Auxiliary switch LMU24-S	Cable 1 m, 3 x 0.75 mm ²
	Terminals LMU24-T	Max. 3 x 1.5 mm ²
Functional data	Torque	5 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. 35 dB (A)
	Position indication	Mechanical, remote visible
Working conditions	Protection class	III (safety low voltage)
	Degree of protection: LMU24(-S/-F)	IP54 in any direction
	LMU24-T	IP20
	EMC	CE according to 89/336/EEC
	Mode of operation	Type 1 to EN 60730-1
Dimensions / weight	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. 37 mm
	Shaft : LMU24(-T/S)	⌀I◇ 6 ... 20 mm
LMU24-F	8 x 8 mm	
Weight	Approx. 500 g	

Dimensions [mm]

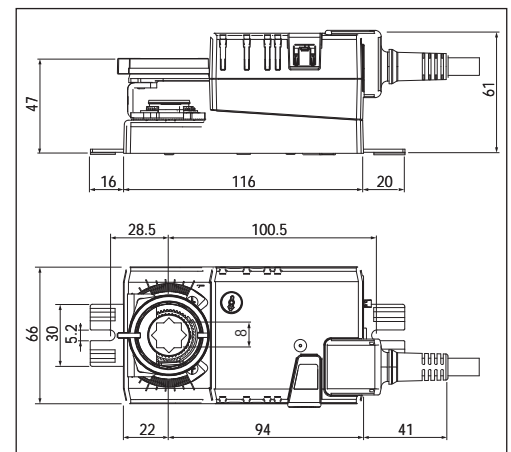
LMU24(-S)



LMU24-T



LMU24-F



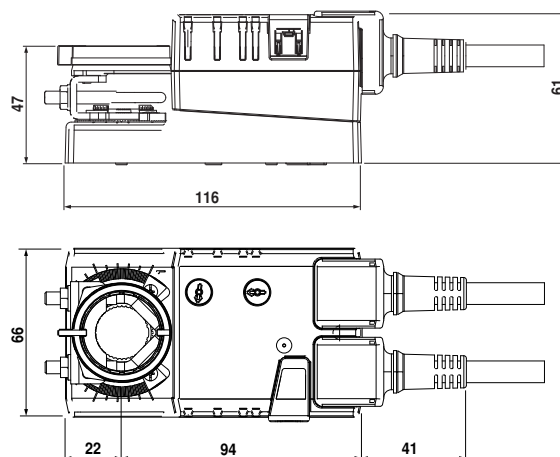
- For operation of air control dampers in HVAC systems.
- Torque 5 Nm
- Nominal voltage AC/DC 24 V
- Control: Open-close or 3-point
- Integrated feedback potentiometer



Technical data

Electrical data	Nominal voltage	AC 24 V, 50/60 Hz DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	In operation 1 W @ nominal torque / 0.2 W at rest For wire sizing 2 VA
	Feedback potentiometer	5 kΩ ±5% 1 W
Functional data	Connection Motor	Cable 1 m, 3 x 0.75 mm ²
	Feedback potentiometer	Cable 1 m, 3 x 0.75 mm ²
	Torque (nominal torque)	Min. 5 Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95° ↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150 s
	Sound power level	Max. 35 dB (A)
	Position indication	Mechanical, pluggable
	Working conditions	Protection class
Degree of protection		IP54 in any mounting position
EMC		CE according to 89/336/EEC
Mode of operation		Type 1 (to EN 60730-1)
Ambient temperature range		-30 ... +50 °C
Non-operating temperature		-40 ... +80 °C
Ambient humidity range		95% RH, non condensing (EN 60730-1)
Dimensions / Weight	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 2
	Weight	Approx. 600 g

Dimensions [mm]



Damper spindle	Length	⊙ I ⊠
	min. 37	6 ... 20

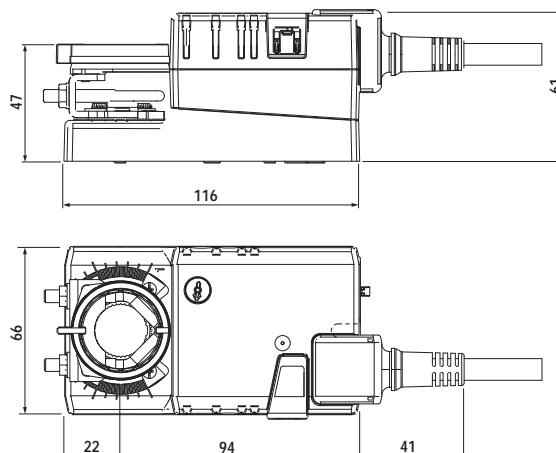


- For operation of air control dampers in HVAC systems.
- Torque 5 Nm
- Nominal voltage AC/DC 24 V
- Control signal: DC 2(0) ...10 V
- Position feedback: DC 2 ...10 V

Technical data

Electrical data	Nominal voltage	AC 24 V 50/60 Hz, DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	1 W @ running / 0.4 W @ holding
	Wire/transformer sizing	2 VA
	Max. peak current	1 A @ 5 ms
Functional data	Connection	Cable 1 m, 4 x 0.75 mm ²
	Torque	5 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. 35 dB (A)
Working conditions	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
Dimensions / weight	Humidity test	95% RH, non condensing (EN 60730-1)
	Maintenance	Maintenance free
	Dimensions (L x W x H)	157x 66 x 60 mm
	Shaft length	Min. 37 mm
	Shaft	⌀ 6 ... 20 mm
	Weight	500 g

Dimensions [mm]



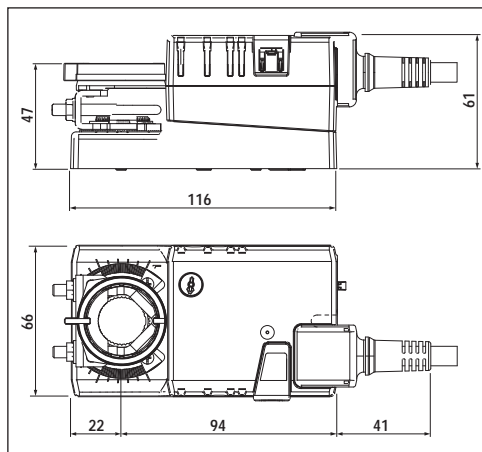
- For operation of air control dampers in HVAC systems.
- Torque 5 Nm
- Nominal voltage AC 100...240 V
- Control: Open/Close or 3-point


Technical data

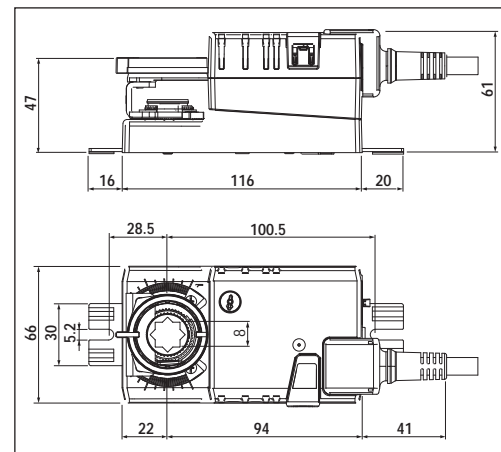
Electrical data	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	1.5 W @ running / 0.5 W @ holding
	Wire/transformer sizing	3.5 VA
	Max. peak current	3.5 A @ 230 VAC
Functional data	Auxiliary switch LMU230-S	1 SPDT, 1 mA ... 3 (0.5) A, AC 250 V, adjustable <input type="checkbox"/>
	Connection : Motor	Cable 1 m, 3 x 0.75 mm ²
	Auxiliary switch LMU230-S	Cable 1 m, 3 x 0.75 mm ²
	Torque	5 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. 35 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)
Shaft length		Min. 37 mm
Shaft : LMU230(-S)		⌀ 6 ... 20 mm
LMU230-F		8 x 8 mm
Weight		Approx. 550 g

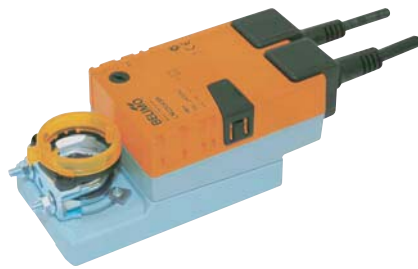
Dimensions [mm]

LMU230(-S)



LMU230-F



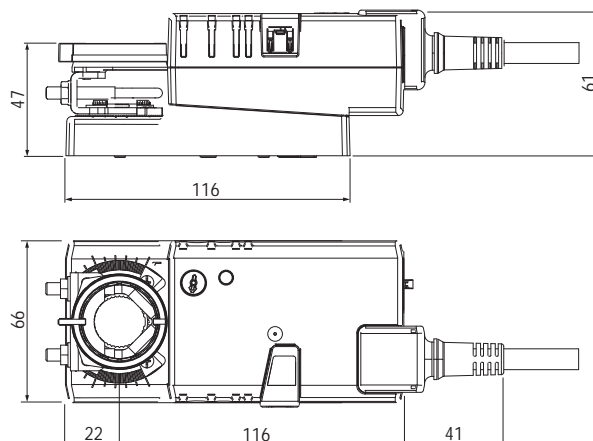


- For operation of air control dampers in HVAC systems.
- Torque 5 Nm
- Nominal voltage AC 100 ... 240 V
- Control signal: DC 2(0)...10 V
- Position feedback: DC 2 ...10 V

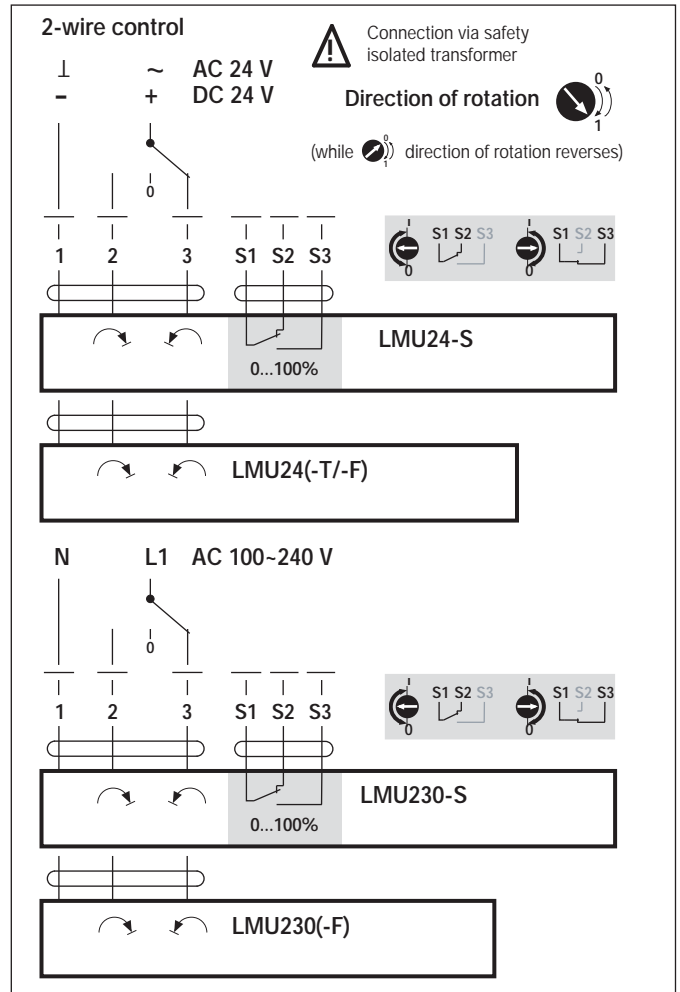
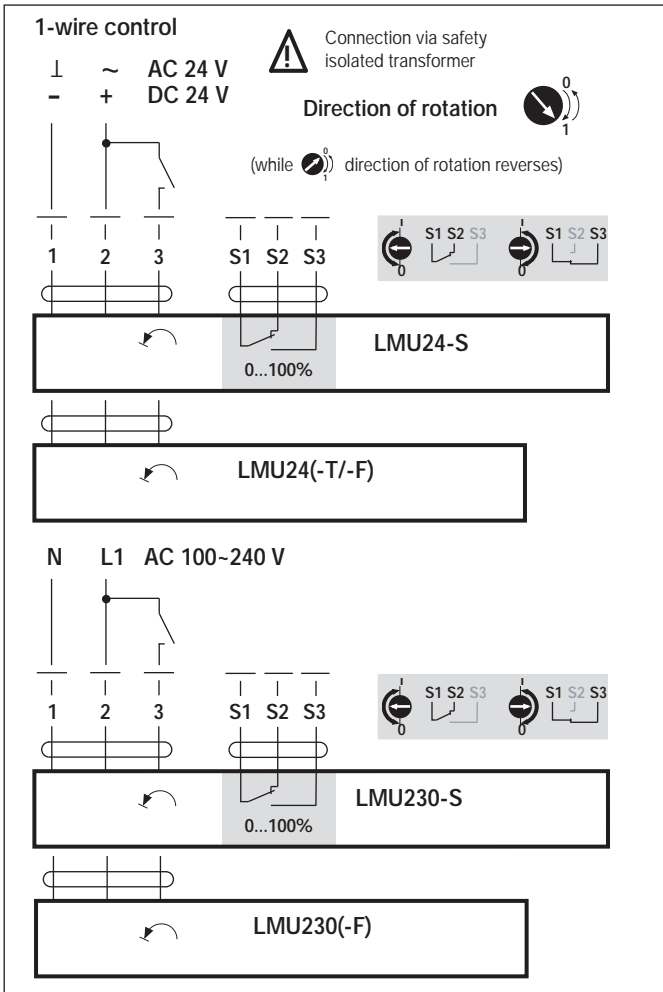
Technical data

Electrical data	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Nominal voltage range	AC 85 ... 265 V
	Power consumption	2 W @ running / 1 W @ holding
	Wire/transformer sizing	4 VA
	Max. peak current	3.5 A @ 230VAC
	Connection cable: Power supply	Cable 1 m, 2 x 0.75 mm ²
	Signals	Cable 1 m, 4 x 0.75 mm ²
Functional data	Torque	5 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. 35 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)	178x 66 x 60 mm
	Shaft length	Min. 37 mm
	Shaft	⌀ 6 ... 20 mm
	Weight	500 g

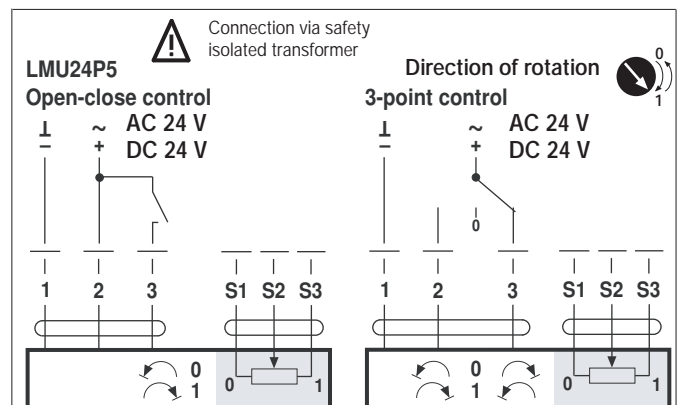
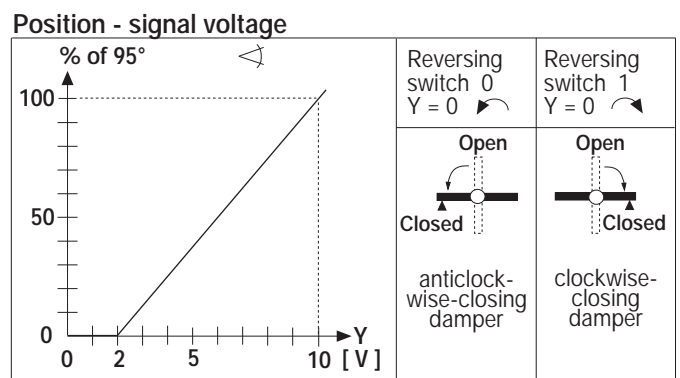
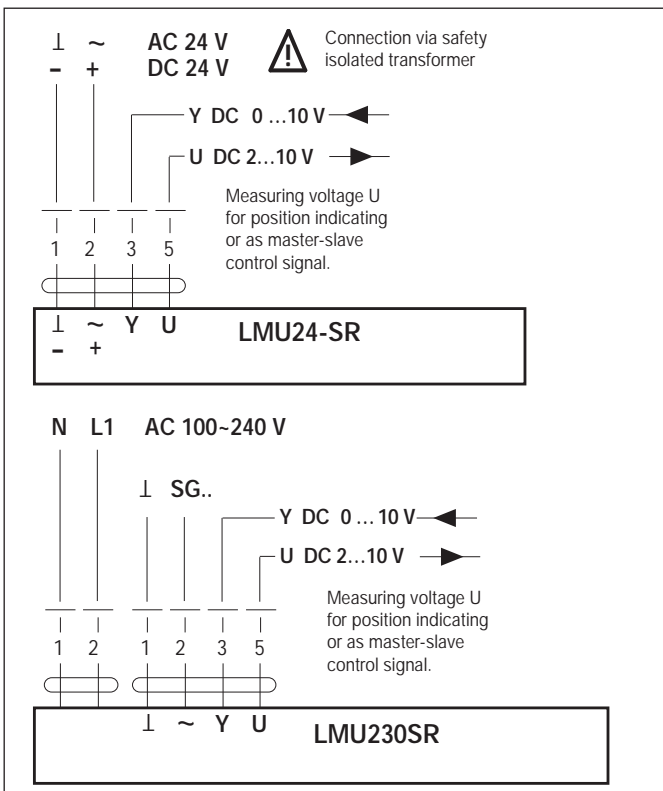
Dimensions [mm]



Wiring diagram: LMU..



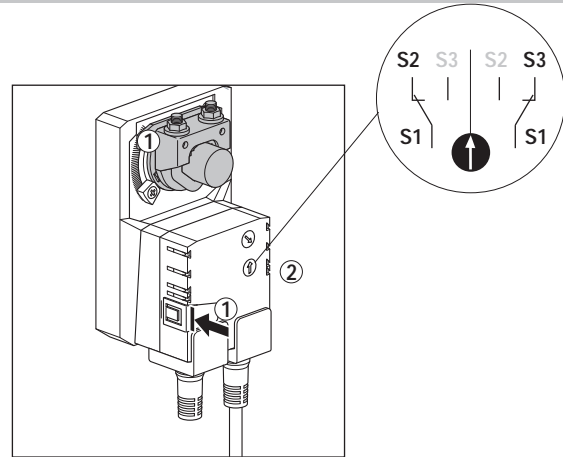
Wiring diagram: Modulating actuators. Parallel connection possible, please note the performance data



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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