AV24-3, AV230-3 linear actuators for globe valves

Linear actuators for 2-way and 3-way globe valves DN 65...150

3-point actuators

AV24-3 AC/DC 24 V
AV230-3 AC 230 V

Applications

Operation of globe valves.

Mode of operation

Control is effected by means of a 3-point signal.

Product features

Simple attachment to the neck of the valve by means of a clamping flange. Form-fit coupling of the valve stem to the actuator spindle. The actuator can be rotated through 360° on the neck of the valve.

Functional reliability

The actuator is short-circuit-proof and protected against polarity reversal.

Manual operation

Inserting a 5 mm hexagonal key and turning it clockwise causes the actuator spindle to extend from the actuator housing (pushing). Together with the action of the valve, this causes the flow of water to increase. The actuator spindle retains its position until the power supply is energized (the controller takes first priority).

Position indication

The stroke of the valve is indicated mechanically on the bracket; the indicator adjusts itself automatically.

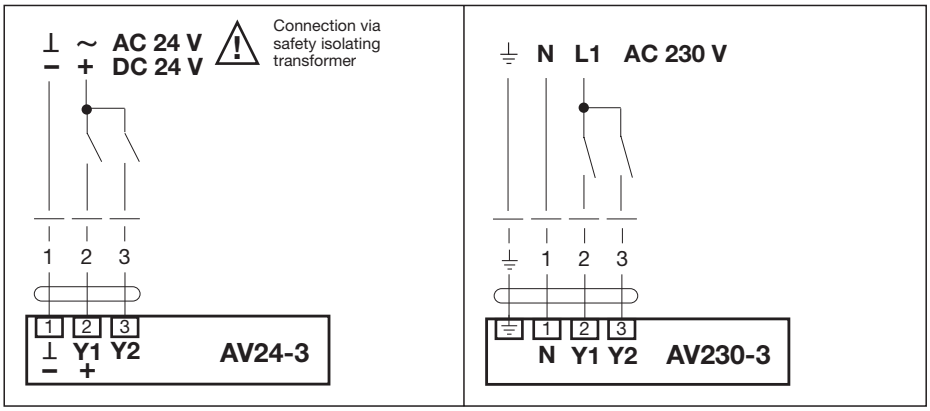
Safety note

The linear actuator contains no components which can be replaced or repaired by the user.

Note on delivery

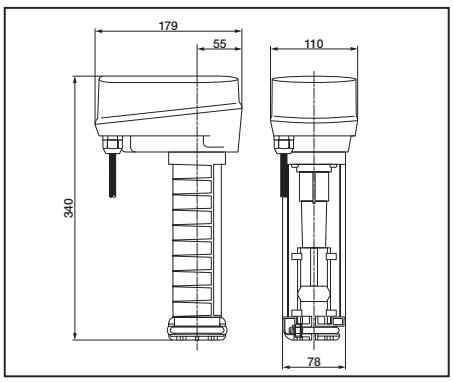
The bracket is part of the actuator.

Wiring diagram



Technical data	AV24-3	AV230-3
Nominal voltage	AC 24 V 50/60 Hz, DC 24 V	AC 230 V 50/60 Hz
Nominal voltage range	AC 19.2…28.8 V DC 21.6…28.8 V	AC 198…264 V
For wire sizing	5 VA	5.5 VA
Power consumption	4 W	4 W
Connecting cable	1 m, 3 x 0.75 mm²	1 m, 4 x 0.75 mm²
Nominal stroke	50 mm	
Actuating force	2000 N	
Manual operation	Hexagonal key, self-resetting	
Actuating time	7.5 s/mm, 3.75 s/mm selectable	
Sound power level	Max. 35 dB (A)	
Position indication	Mechanical 8…50 mm stroke	
Protection class	**III** (safety extra-low voltage)	I (with PE conductor)
Degree of protection	IP54	
Ambient temperature range	0°…+ 50° C	
Non-operating temperature	–40°…+ 80° C	
Humidity test	To EN 60730-1	
EMC	CE according to 89/336/EEC	
LV Directive	CE according to 73/23/EEC	
Mode of operation	Type 1 to EN 60730-1	
Maintenance	Maintenance-free	
Weight	2.9 kg (without globe valve)	

Dimensions



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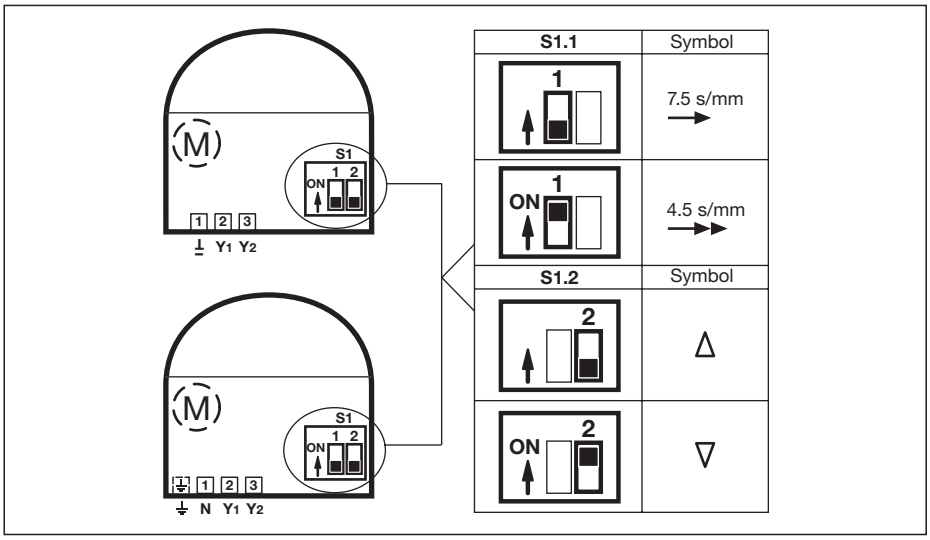
Arrangement of the operating controls, functional description

Arrangement of the operating controls on the NV..-3, AV..-3



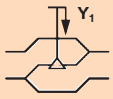
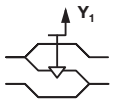
Under the cover of the actuator are the terminals for connecting the lead and the S1 control device.

The actuating time set in the factory is 7.5 s/mm. The actuating time can be approximately halved by adjusting the slide switch S1.1 to the "ON" position.

Slide switch S1.2 determines the valve closing point. In the factory setting, the closing point is up. When a Y1 signal is present, the actuator spindle extends and the valve opens (if the closing point is in the upper position).

The direction of the spindle travel can also be reversed by inverting the Y1 and Y2 wires.

Functional description

Function	Description	Switch	Symbol	Bold type in the table means standard factory setting.
Actuating time	The running time for full stroke varies as a function of the nominal stroke. (The running time for a 20 mm stroke and the standard actuating time is 150 s.)	S1.1		
Standard	**Actuating time 7.5 s/mm**	**OFF**	**7.5 s/mm**	
Fast	Actuating time 3.75 s/mm	ON	3.75 s/mm	
Valve closing point	Closing point with actuator spindle retracted or extended. The valve control path has zero flow (V = 0%).	S1.2	Symbol	Consequence
Up	**The actuator spindle is retracted into the actuator and the valve stem is extended from the fitting.**	**OFF**	Δ	
Down	The actuator spindle is extended from the actuator and the valve stem isretracted into the fitting.	ON	∇	

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Actuating/running times, wiring diagrams of NV..-3/AV..-3

Stroke-dependent actuating and running times

Valve types					DN			
H4..B H5..B					DN15-50	–	–	–
H6..N H7..N					DN15-50	DN65-80	DN65-100	DN125/150
H6..S					DN15-50	–	DN65-100	DN125/150

Actuator type		Control [1]	Emergency control function	Fast running	Running or actuating time preconfigured	Minimum adjustable running or actuating time [s] [1] 15 mm stroke	18 mm stroke	30 mm stroke	40 mm stroke
NV									
	**NV230-3**	3P			7.5 s/mm	3.75 s/mm	3.75 s/mm		
	NV24-3	3P			7.5 s/mm	3.75 s/mm	3.75 s/mm		
	NV24-MFT	0…10 V			150 s	60 s	70 s		
	NVG24-MFT	0…10 V			150 s	60 s	70 s		
	NVY24-MFT (Fast running function)	0…10 V		•	35 s	27 s	32 s		
	NVF24-MFT(-E)	0…10 V	•		150 s [2]	60 s [2]	70 s [2]		
AV									
	**AV230-3**	3P			7.5 s/mm			3.75 s/mm	3.75 s/mm
	AV24-3	3P			7.5 s/mm			3.75 s/mm	3.75 s/mm
	AV24-MFT	0…10 V			150 s			112 s	140 s
	AVY24-MFT (Fast running function)	0…10 V		•	60 s			45 s	60 s

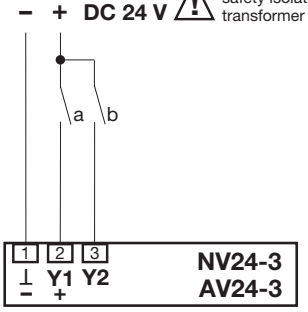
[1] MFT types: running time and other functions can be parameterized with PC-Tool or the MFT-H adjuster
[2] Emergency actuating time < 1.5 s/mm

Wiring diagrams NV..-3/AV..-3

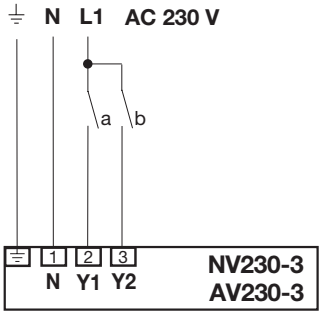
3-point

⊥ ~ **AC 24 V**
– + **DC 24 V**

Connection via safety isolating transformer



⏚ **N L1 AC 230 V**



Symbols: Actuating time	Valve closing point	"Standard" act. time	"Fast" act. time	Closing point "up"	Closing point "down"	Relay contact a (Y1)	Relay contact b (Y2)	Actuator spindle moves: ccw NV	Actuator spindle moves: cw NV
		S1.1		S1.2		0	0	stops	stops
7.5 s/mm →	Δ	OFF		OFF		1	0		EXTENDING
						0	1	RETRACTING	
	∇	OFF			ON	1	0	RETRACTING	
						0	1		EXTENDING
3.75 s/mm [1] →	Δ		ON	OFF		1	0	RETRACTING	
						0	1		EXTENDING
	∇		ON		ON	1	0		EXTENDING
						0	1	RETRACTING	

The actuating time of the classic 3-point actuator (NV..-3(-T) or AV..-3-R) can be reduced from 7.5 s/mm to 3.75 s/mm by adjusting slide switch 1.1 to the "ON" position. The closing point is down with fewer than 20% of the valves that are used and slide switch S1.2 can be set to the "ON" position.

[1] Only possible with NV actuators.

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