BELIMO

Technical data sheet NVD24-SR(-T)

Modulating linear actuator for 2-way and 3-way globe valves

- **Actuating force 500 N**
- **Nominal voltage AC/DC 24 V**
- **Modulating control DC 0 ... 10 V**
- **Position feedback DC 2 ... 10 V**
- **NVD24-SR with cable connection NVD24-SR-T with terminal connection**
- **Brackets and adapter sets for third-party valves as accessories (UNV-..)**

Technical data

Electrical data	Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range	AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
	Power consumption Operation	3 W @ nominal force
	For wire sizing	5 VA
	Connection NVD24-SR	Cable 1 m, 5 x 0.75 mm²
	NVD24-SR-T	Terminal connection
	Parallel operation	Yes (note performance data for supply!)
Functional data	Actuating force	500 N
	Control Control signal Y	DC 0 … 10 V, input impedance 100 kΩ
	Operating range	DC 2 … 10 V
	Position feedback (measuring voltage U)	DC 2 … 10 V, max. 0.5 mA
	Position accuracy	±5%
	Manual override	With hexagon socket screw key, temporary
	Nominal stroke	20 mm
	Running time	150 s
	Sound power level	≤35 dB (A)
	Position indication	mechanical 5 … 20 mm stroke
Safety	Protection class	**III** Safety extra-low voltage
	Degree of protection	IP54
	EMC	CE according to 2004/108/EC
	Software Class	A (EN 60730-1)
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	0.33 kV (EN 60730-1)
	Control pollution degree	3 (EN 60730-1)
	Ambient temperature	0 ... +50°C
	Non-operating temperature	–40 ... +80°C
	Ambient humidity	95% r.h., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
Dimensions / Weight	Dimensions	See «Dimensions» on page 4
	Weight	approx. 1.5 kg with bracket UNV-002 (without valve)

Safety notes

- **The actuator has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.**
- **It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.**
- **The device 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.**

Modulating linear actuator for globe valves, AC/DC 24 V, 500 N

Product features

Mode of operation
The actuator is activated with a standard modulating signal DC 0 ... 10 V.

Installation on Belimo valves
If a combination of actuator and BELIMO globe valve is ordered, then one **UNV-002** bracket is included in the scope of delivery.

If an actuator is ordered without Belimo globe valve, then the **UNV-002** bracket (see «Accessories») must also be ordered.

Installation on third-party valves
Prior to installation on a third-party valve, a suitable bracket **UNV-..** (see «Accessories») must first be screwed to the actuator. The adapter set integrated therein is comprised of a valve neck adapter and a valve stem adapter. The valve neck adapter, together with the clamping strap on the bracket, makes possible simple attachment on the neck of the valve. The valve stem adapter is mounted on the valve stem. The linear spindle can be coupled semi-automatically to the valve stem with the valve stem coupling.
The actuator can be rotated by 360° ◁ on the valve neck.

Manual override
The stroke can be adjusted in a voltage-free state by using a hexagon socket screw key (5 mm), which is plugged into the actuator at the top. If the hexagon socket screw key is turned in a clockwise direction, then the actuator spindle will extend from the actuator housing (pushing) and maintain the position until a nominal voltage is applied (the controller has first priority).

Functional reliability
The actuator is protected against short circuits, polarity reversal and overloading.

Position indication
The stroke is indicated mechanically on the bracket. The stroke range adjusts itself automatically.

Combination valve/actuator
Refer to the valve documentation for suitable valves, their permitted media temperatures and closing pressures.

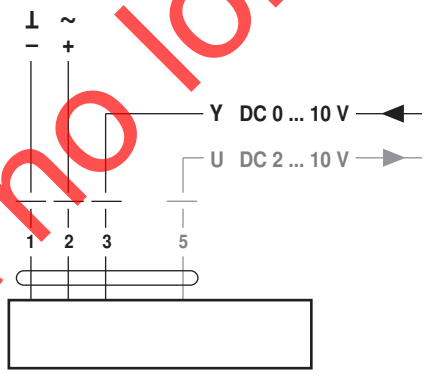
Accessories

	Description	
Mechanical accessories	Brackets and adapter sets UNV-..	see www.belimo.eu/retrofit

Electrical installation

Wiring diagram

Notes
- Connect via safety isolation transformer. ⚠
- Parallel connection of other actuators possible. Note performance data for supply.

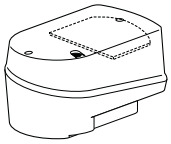


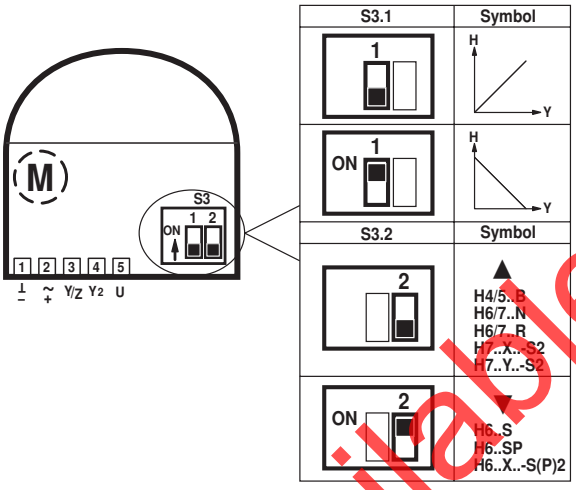
Cable colours:
1 = black
2 = red
3 = white
5 = white

Functions

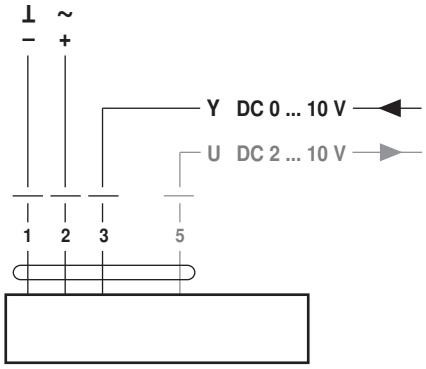
Alignment of the operating elements

The terminals for the cable connection and the operating element S3 are located under the cover of the actuator.
By setting slide switch S3, it is possible to configure the actuator very simply on site to suit actual requirements.
S3.1 Direction of stroke
S3.2 Valve closing point





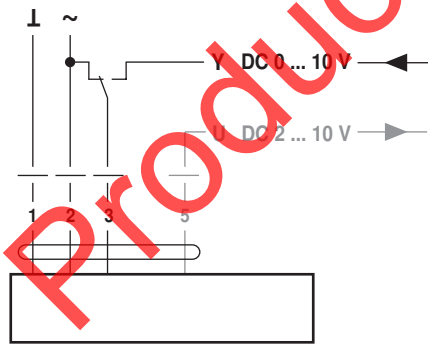
Modulating control



Symbols										Linear spindle moves	
Direction of stroke	Closing point Valve	Signal direct	Signal inverted	Closing point top	Closing point bottom	Control signal min. (e.g. Y = 2 V)	Control signal max. (e.g. Y = 10 V)	Measuring signal min. (e.g. U = 2 V)	Measuring signal max. (e.g. U = 10 V)	ccw	cw
		S3.1		S3.2							
H Y	▲	OFF		OFF		X		X		ON	
							X		X		OFF
	▼	OFF			ON	X		X			OFF
							X		X	ON	
H Y	▲		ON [1]	OFF		X			X		OFF
							X	X		ON	
	▼		ON [1]		ON	X			X	ON	
							X	X			OFF

[1] If the controller generates a negative signal (<0.15 V), the slide switch S3.1 must not be set to «ON», if the operating range of the actuator is set to 2 … 10 V (exception: start point in the parameterised operating range of 0.5 V).

Override control 100%

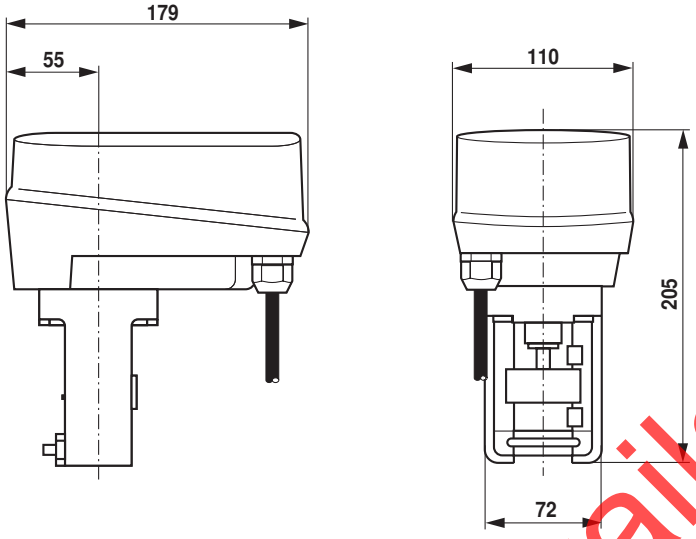


A typical use for 100% override control is in a frost protection circuit. Whether or not the frost thermostat has to interrupt the signal conductor to the controller «d» depends on the make of controller being used (not necessary, if the signal output at the controller is short circuit-proof and protected against polarity reversal).

Symbols										Linear spindle moves	
Direction of stroke	Closing point Valve	Signal direct	Signal inverted	Closing point top	Closing point bottom	Control signal min. (e.g. Y = 2 V)	Control signal max. (e.g. Y = 10 V)	Measuring signal min. (e.g. U = 2 V)	Measuring signal max. (e.g. U = 10 V)	ccw	cw
		S3.1		S3.2							
H Y	▲	OFF		OFF		1	0		X		OFF
			ON			1	0	X		ON	
	▼	OFF			ON	1	0		X	ON	
			ON			1	0	X			OFF

Dimensions [mm]

Dimensional drawings



Further documentation

- Overview of brackets and adapter sets on www.belimo.eu/retrofit
- Complete overview «The complete product range of water solutions»
- Data sheets for globe valves
- Installation instructions for actuators and/or globe valves, respectively
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance, etc.)
- Specification texts