Technical data sheet NKQ24A-VST

VAV-Universal, ready-to-connect rotary actuator fail-safe for VAV and CAV units in technical building installations

- Air damper size up to approx. 4 m²
- Torque motor 54 in-lb [6 Nm]
- Nominal voltage AC/DC 24 V
- Control Communicative PP
- Running Time (Motor) 4 s

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	11 W
	Power consumption in rest position	3 W
	Transformer sizing	22 VA
	Transformer sizing note	Imax 20 A @ 5 ms
	Connection supply / control	cable [0.5 m] with VST connector
	Parallel operation	No
Functional data	Torque motor	54 in-lb [6 Nm]
	Setting Fail-Safe Position	0...100%, adjustable in increments of 10% (POP rotary knob on 0 corresponds to left end stop)
	Bridging time (PF)	0 s
	Direction of motion variable	At VRU-..-BAC with Belimo Assistant App
	Direction of motion fail-safe	selectable with switch 0...100%
	Manual override	with push-button
	Running Time (Motor)	4 s / 90°
	Running time fail-safe	4 s / 90°
	Adaptation Setting Range Variable	Triggering at VRU-..-BAC, by pressing the Adaptation button or with Belimo Assistant App
	Noise level, motor	60 dB(A)
	Noise level, fail-safe	60 dB(A)
	Mechanical interface	Universal shaft clamp 8...26.7 mm
	Position indication	Mechanically, pluggable
Safety data	Protection class IEC/EN	III, Safety Extra-Low Voltage (SELV)
	Degree of protection IEC/EN	IP54
	EMC	CE according to 2014/30/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA
	Rated impulse voltage supply / control	0.8 kV
	Pollution degree	3
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	Max. 95% RH, non-condensing
	Servicing	maintenance-free
Weight	Weight	1.1 kg
Terms	Abbreviations	POP = Power off position / fail-safe position PF = Power fail delay time / bridging time

Safety notes

- The device must not be used outside the specified field of application, especially not in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea) water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- 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.
- Cables must not be removed from the device.
- Self adaptation is necessary when the system is commissioned and after each adjustment of the angle of rotation (press the adaptation push-button once).
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section, the design, the installation situation and the ventilation conditions must be observed.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Pre-charging time (start up)

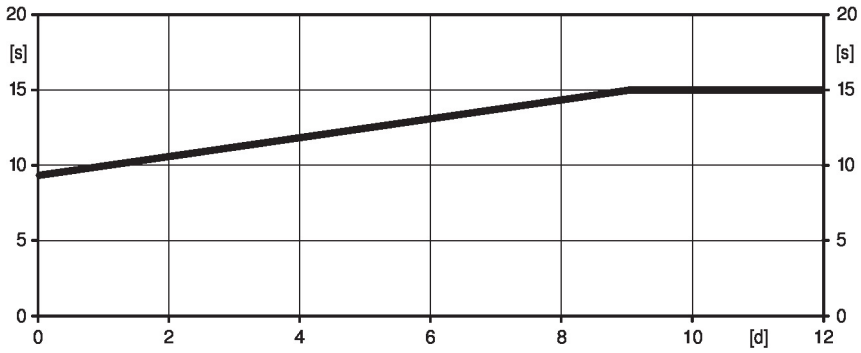
The capacitor actuators require a pre-charging time. This time is used for charging the capacitors up to a usable voltage level. This ensures that, in the event of a power failure, the actuator can move at any time from its current position into the preset fail-safe position.

The duration of the pre-charging time depends mainly on following factors:

– Duration of the power failure

– PF delay time (bridging time)

Typical pre-charging times



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

	[d]				
	0	1	2	7	≥10
[s]	9	10	11	13	15

Delivery condition (capacitors)

The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 15 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

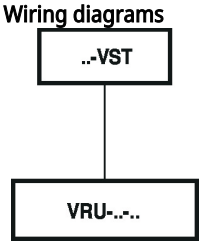
Accessories

Electrical accessories

Description	Type
VAV-Universal - Volumetric flow / branch pressure controller	VRU-D3-BAC
VAV-Universal - Volumetric flow / branch pressure controller	VRU-M1-BAC
VAV-Universal - room pressure controller	VRU-M1R-BAC

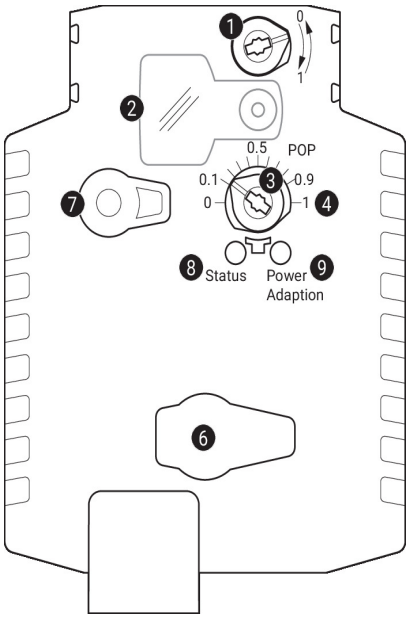
Electrical installation

Wiring diagrams



Plug-in connection with pre-assembled cable-plug unit

Operating controls and indicators



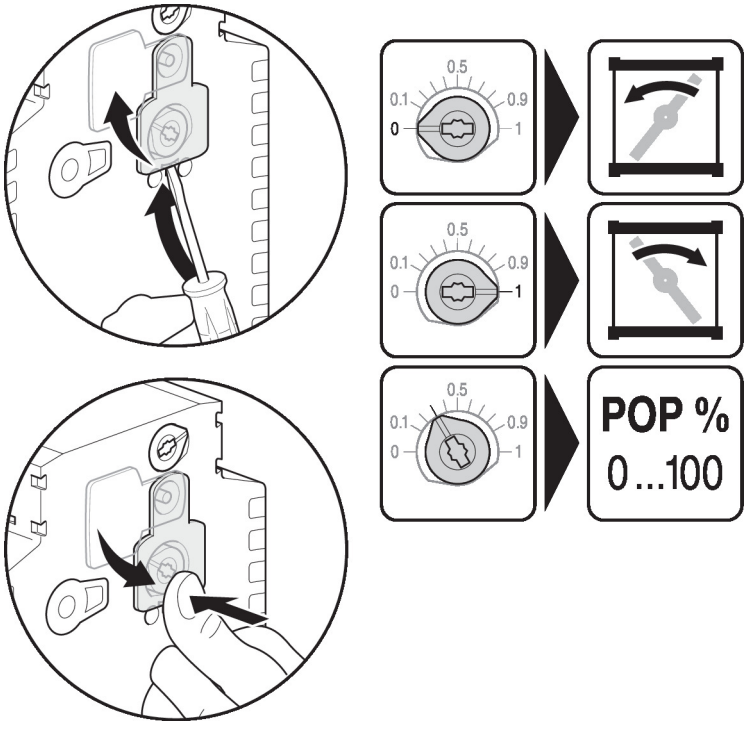
1. (no function)
2. **Cover, POP button**
3. **POP button**
4. **Scale for manual adjustment**
6. (no function, setting via VRU)
7. **Gear disengagement button**

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

LED displays

yellow 8	green 9	Meaning / function
Off	On	Operation OK
Off	Flashing	POP function active
On	Off	Fault
Off	Off	Not in operation
On	On	Adaptation process active

Setting emergency setting position (POP)

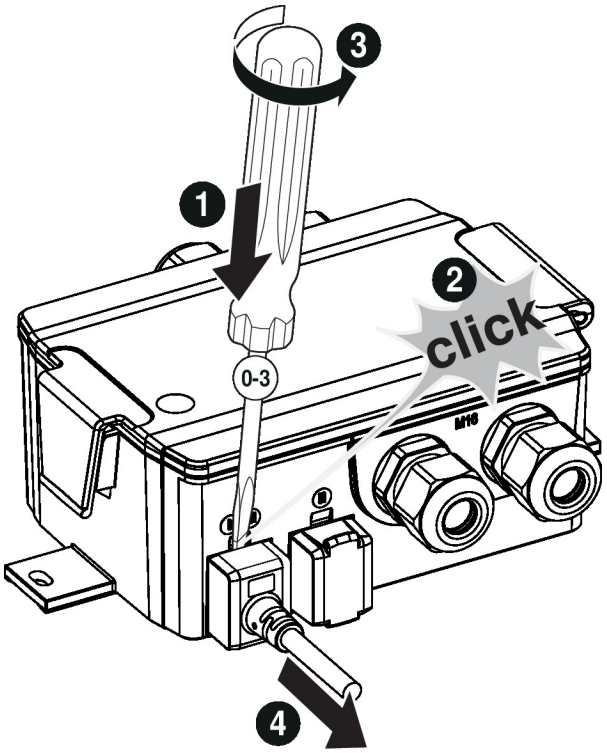


Installation notes

Installation situation

Remove actuator cable:

The connecting cable of the VST damper actuator can be removed from the VRU controller using a screwdriver (size 0...3) as shown in the illustration.



Dimensions

Clamping range

	8...26.7	≥8	≤26.7
*	8...20	≥8	≤20