

Technical data sheet

227VM-024-05

Rotary actuator for pressure and volumetric flow control

Description

Rotary actuator for adjusting air dampers for pressure and volumetric flow control in HVAC installations

- **Running time** 100 s / 90°
- **Torque** 5 Nm
- **Nominal voltage** 24 VAC/DC
- **Control** (0)2...10 VDC
- **Sensor** 250 Pa (dynamic)
- **Damper size** up to approx. 1 m²
- **Communication** PP-Bus
- **Shaft coupling** clamp
◇ 8-15 mm / Ø 8-20 mm


Technical data
Electrical data

Nominal voltage	24 VAC/DC, 50/60 Hz
Nominal voltage range	19...29 VAC/DC
Power consumption motor (motion)	2,5 W
Power consumption standby (end position)	1,0 W
Wire sizing	4,0 VA
Control	(0)2...10 VDC / Ri > (100 kΩ) 50 kΩ (0)4...20 mA / Rext. = 500 Ω
Feedback signal	(0)2...10 VDC, max. 0,5 mA
Priority control	closed / Vmin / Vbtw / Vmax / open
Connection motor	cable 1000 mm, 4 x 0,75 mm ² (halogen free)
Connection GUV	via diagnostic connector and feedback signal U
Communication	PP-Bus (1200 Bd, max. 15 VDC)

Sensor

Calibration	250 Pa, height adjustment necessary (300 Pa = 1,2 in H ₂ O), dynamic measurement principle
Measuring range	0...300 Pa
Burst pressure	1 bar
Nominal value	damper manufacturer specific value Vmin / Vbtw / Vmax based on Vnom
Media	air 0...70°C / 5...95% r.H., non condensing
Mounting position	independent of position
Connection	Ultem 2200 / tube clip Ø 4-6 mm

Functional data

Torque	> 5 Nm
--------	--------

Technical data

Functional data

Damper size	up to approx. 1 m ²
Synchronised speed	±5%
Direction of rotation	adjustable
Manual override	gearing latch disengaged with pushbutton, self-resetting
Angle of rotation	0°...max. 95° can be limited with adjustable mechanical end stops
Running time	< 100 s / 90° (adjustable 20...120 s / 90°)
Sound power level	< 35 dB(A)
Shaft coupling	clamp ♠ 8-15 mm / Ø 8-20 mm
Position indication	mechanical with pointer
Service life	> 100 000 cycles (0°...95°...0°) > 1 500 000 partial cycles (max. ±5°)

Safety

Protection class	III (safety extra-low voltage)
Degree of protection	IP 54 (cable downwards, tube clip plugged)
EMC	CE (2014/30/EU)
LVD	CE (2014/35/EU)
RoHS	CE (2011/65/EU - 2015/863/EU - 2017/2102/EU)
Mode of operation	Typ 1 (EN 60730-1)
Rated impulse voltage	0,5 kV (EN 60730-1)
Control pollution degree	3 (EN 60730-1)
Ambient temperature normal operation	0°C...+50°C
Storage temperature	-20°C...+80°C
Ambient humidity	5...95% r.H., non condensing (EN 60730-1)
Maintenance	maintenance free

Dimensions / Weight

Dimensions	117 x 67 x 66 mm
Weight	500 g

Operating mode / Properties

Operating mode

Connect power supply to wire 1+2 and a reference signal Y to wire 3 in range of (0)2...10 VDC, actuator regulates to its specified setpoint. The actual flow in % of Vnom is provided as a feedback signal U on wire 4 for other actuators and can be communicate via PP-Bus.

CAV modes / override controls:
-AC*/DC signal wire 3

The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Direct mounting

Simple direct mounting on the damper shaft with a clamp, protection against rotating with enclosed anti-rotation lock or rather at intended attachment points.

Manual override

Manual override with self-resetting pushbutton possible (the gear is disengaged as long as the button is pressed).

Edit

The selector allows the changing of values. The position of the arrow shows the value set. The changes are displayed as soon as the selector is moved $\pm 10^\circ$ from the position.

Flow / Unit

Setting the desired actual volume flow unit in m³/h and l/s.

Vmin

Adjust the desired flow Vmin (setpoint Y = 0 / 2 VDC).

Vmax

Adjust the desired flow Vmax (setpoint Y = 10 VDC).

Diag

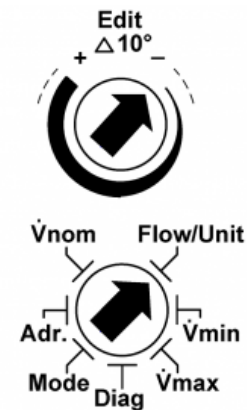
Diagnostic menu:
off - diagnostic mode is off
on - diagnostic mode is on, motor off
oP - open the damper
cL - close the damper
Lo - activate Vmin
Hi - activate Vmax
Adp - adaption drive (only 15 Nm version)
123 - software version

Mode

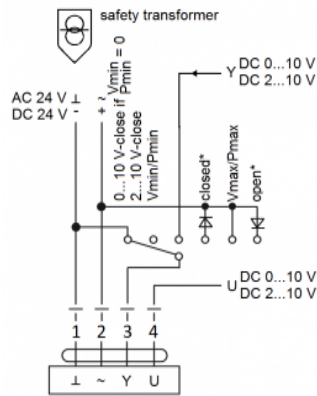
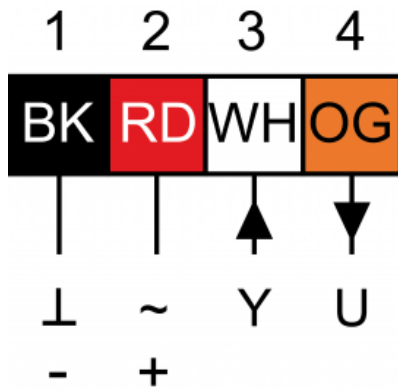
Setting the direction of rotation:
0-n...0-10 VDC normal
2-n...2-10 VDC normal
0-i ...0-10 VDC invers
2-i ...2-10 VDC invers

Vnom

Setting the nominal volumetric flow depending on the VAV-box.



Connection / Safety remarks



Safety remarks

- Connect via safety isolation transformer!
- The device is not allowed to be used outside the specified field of application, especially in airplanes.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- The device may only be opened at the manufacturer's site.
- The device is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- When calculating the required torque, the specifications supplied by the damper manufacturer's (cross-section, design, installation site), and the air flow conditions must be observed.

Technical drawing

