N0524/N1024, N05230-2POS/N10230-2POS

NON-SPRING RETURN DIRECT-COUPLED DAMPER ACTUATORS FOR FLOATING / 2-POSITION CONTROL

PRODUCT DATA



GENERAL

This non-spring return direct-coupled damper actuator provides floating and two-position control for:

- air dampers,
- VAV units,
- air handlers,
- ventilation flaps,
- louvers, and
- reliable control for air damper applications with up to 1 m^2 / (5 Nm) and 2 m^2 (10 Nm) (seal-less damper blades; air friction-dependent).

FEATURES

- **Declutch for manual adjustment**
- **Adjustable mechanical end limits**
- **Removable access cover for direct wiring**
- **Mountable in any orientation**
- **Rotation direction and service/OFF switch**

SPECIFICATIONS

Supply voltage	
N0524/N1024	24 Vac/dc -15%/+20%, 50/60 Hz
N05230-2POS/N10230-2POS	230 Vac -15%/+20%, 50/60 Hz
Nominal voltage	
N0524/N1024	24 Vac/dc, 50/60 Hz
N05230-2POS/N10230-2POS	230 Vac, 50/60 Hz

All values stated hereinafter apply to operation under nominal voltage conditions.

Power consumption	
N0524/N1024	5 VA / 2 W
N05230-2POS	22 VA / 2 W at 50 Hz 25 VA / 2 W at 60 Hz
N10230-2POS	22 VA / 2 W at 50 Hz 25 VA / 2 W at 60 Hz
Control signal	See section "Models" on pg. 2
Ambient limits	
Ambient operating limits	-20...+60 °C (-5...+140 °F)
Ambient storage limits	-30...+80 °C (-22...+176 °F)
Relative humidity	5...95%, non-condensing
Safety	
Protection standard	IP54
Protection class	II as per EN 60730-1
Overvoltage category	II
Lifetime	
Full strokes	60000
Repositions	1.5 million
Mounting	
Round damper shaft	8...16 mm
Square damper shaft	6...13 mm; 45° steps
Shaft length	min. 41 mm
End switches (when included)	
Rating	5 A (resistive), 3 A (inductive)
Triggering points	5° / 85°
Torque rating	5 Nm / 10 Nm
Runtime for 90°	
N0524 / N1024	90 sec (dc / 60 Hz ac)
N0524 / N1024	110 sec (50 Hz ac)
N05230-2POS	65...110 s (60/50 Hz)
N10230-2POS	65...140 s (60/50 Hz)
Rotation stroke	95° ± 3°
Dimensions	see "Dimensions" on page 5
Weight (without cables)	450 g
Noise rating	35 dB(A) max. at 1 m; 40 dB(A) for 230 Vac at 65 sec runtime

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PRODUCT IDENTIFICATION SYSTEM

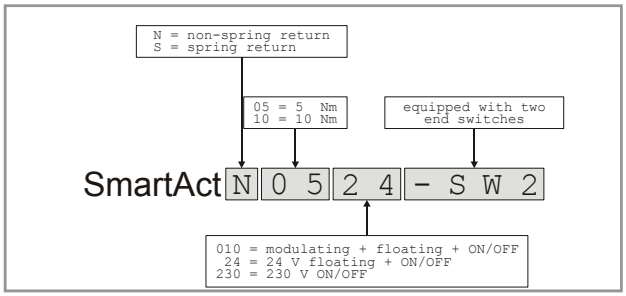


Fig. 1. Product Identification System

MODELS

order no.	supply voltage	end switches	torque	control signal
N0524	24 VAC/DC	--	5 Nm	Floating + 2-position
N0524-SW2		2		
N1024		--	10 Nm	
N1024-SW2		2		
N05230-2POS	230 VAC	--	5 Nm	2-position
N10230-2POS			10 Nm	

BASIC FEATURES

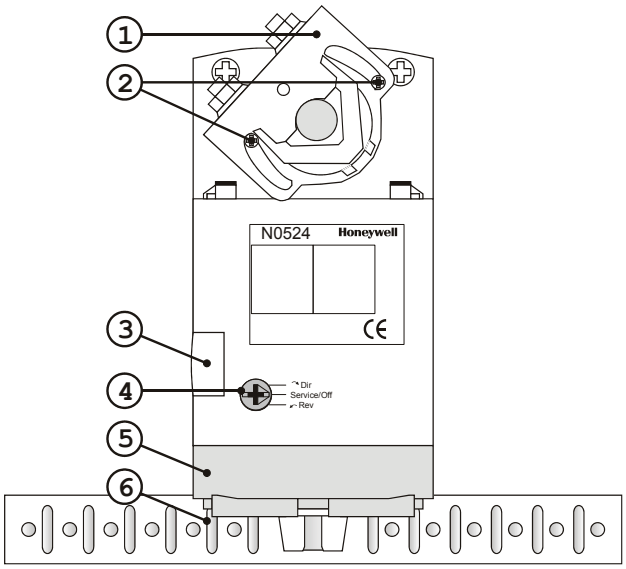


Fig. 2. Setting units and control elements

Legend for Fig. 2:
1) Universal shaft adapter
2) Mechanical end limits (manually adjustable)
3) Declutch button
4) Function selection switch
5) Removable access cover
6) Anti-rotation bracket

Contents of Package

The delivery package includes the actuator and parts 1 through 6 (see Fig. 2), plus two cable grommets and a spare cable grommet.

RUN MODES

The function selection switch (see Fig. 3) can be used to place the actuator into either of two different modes:

- Service/Off; or
- the floating/2-position run mode ("Dir" for CCW-closing dampers or "Rev" for CW-closing dampers).

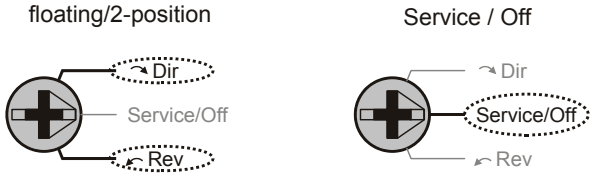


Fig. 3. Function selection switch

Power-Off Behavior

If power is removed, the shaft adapter remains in position.

Service/Off

If the function selection switch is set to the "Service/Off" position, then all rotary movement is cancelled, and all control signals are ignored, thus allowing the actuator to be manually operated safely.

Floating/2-Position Run Mode

To use the actuator in the floating or 2-position mode, the function selection switch must be set to either "Dir" or "Rev". As soon as operating power is then applied, the shaft adapter will then run according to the control signals applied.

MANUAL ADJUSTMENT

IMPORTANT

To prevent equipment damage, before manual adjustment, you must remove power or set the function selection switch to the "Service/Off" position.

After removing power or setting the function selection switch to the "Service/Off" position, the gear train can be disengaged using the declutch button, permitting the shaft adapter to be manually rotated to any position.

Limitation of Rotation Stroke

Two adjustable mechanical end limits are provided to limit the angle of rotation as desired (see Fig. 4). The mechanical end limits must be securely fastened in place.

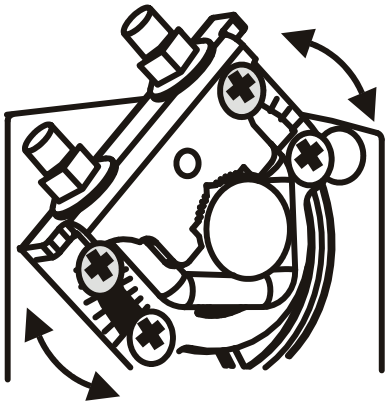


Fig. 4. Mechanical end limits

To ensure tight closing of the dampers, the shaft adapter has a total rotation stroke of 95°.

INTERNAL END SWITCHES

NOTE: Only those actuators for which "-SW2" has been specified when ordering (e.g.: "N0524-SW2") feature internal end switches.

The internal end switches "A" and "B" are changeover switches which are activated when the shaft adapter moves past a position of 5° and 85°, respectively (see also Table 1).

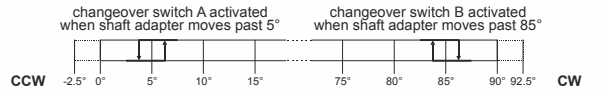


Fig. 5. Internal end switch triggering points

INSTALLATION

⚠ CAUTION

To avoid personal injury (electrical shock) and to prevent equipment damage, before installation, you must remove power.

These actuators are designed for single-point mounting.

Mounting Instructions

All information and steps are included in the Installation Instructions (Product Literature No.: MU1B-0276GE51) supplied with each actuator.

Mounting Position

The actuators can be mounted in any position (IP54 is dependent upon orientation; see Fig. 6). Choose a mounting position permitting easy access to cables and controls.

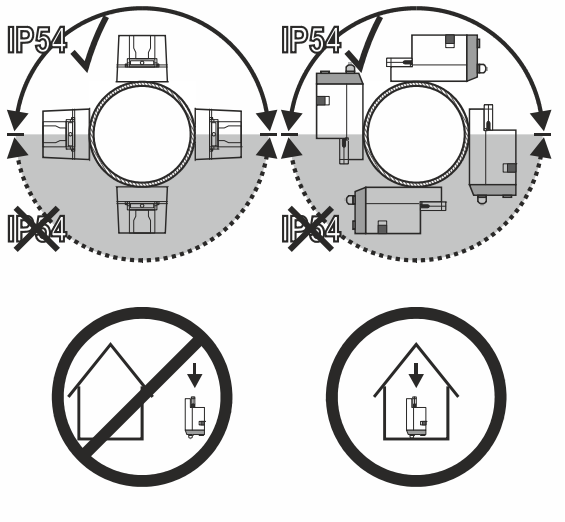


Fig. 6. Mounting for IP54

Anti-Rotation Bracket and Screws

If the actuator is to be mounted directly on a damper shaft, use the anti-rotation bracket and screws included in the delivery package. The min. distance between the center of the damper shaft and the middle of the anti-rotation bracket is 85 mm; a max. of 108 mm is allowed (see also Fig. 12).

Depending upon your mounting site, the actuator may shift in position slightly while tightening the screws at the top of the shaft adapter. The anti-rotation bracket features a T-piece with a 5-mm-long shank to accommodate for this movement. It is important to ensure that this play is not impeded.

Universal Shaft Adapter

The shaft adapter can be used for shafts of various diameters and shapes (round: 8...16 mm and square: 6...13 mm).

WIRING

Connecting to the Power Supply

In order to comply with protection class II, the power source of 24 V actuators must be reliably separated from the network power supply circuits as per DIN VDE 0106, part 101.

Access Cover

The access cover can be unscrewed and removed in order to gain access to the terminal block(s) and perform wiring.

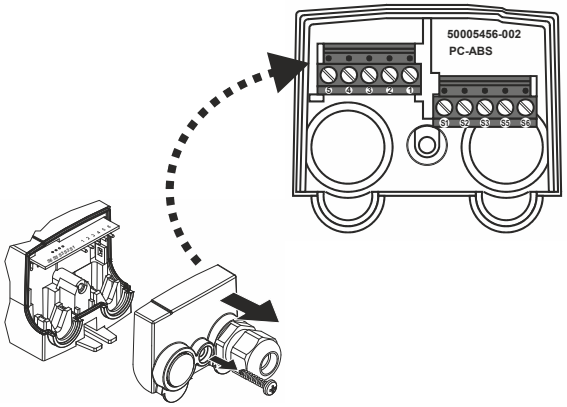


Fig. 7. Access cover

Wiring Diagrams

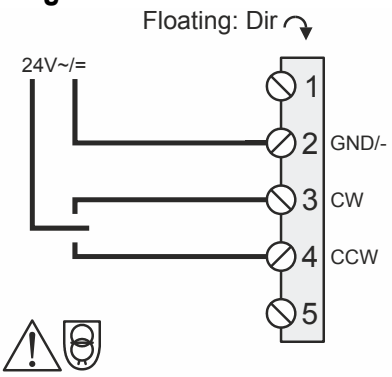


Fig. 8. N0524/N1024 (floating mode)

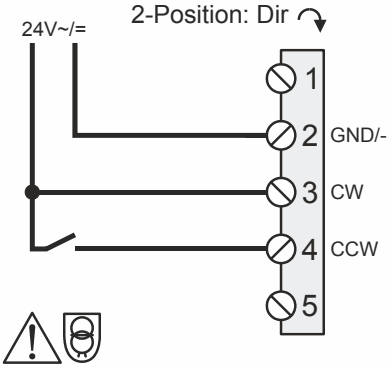


Fig. 9. N0524/N1024 (2-position mode)

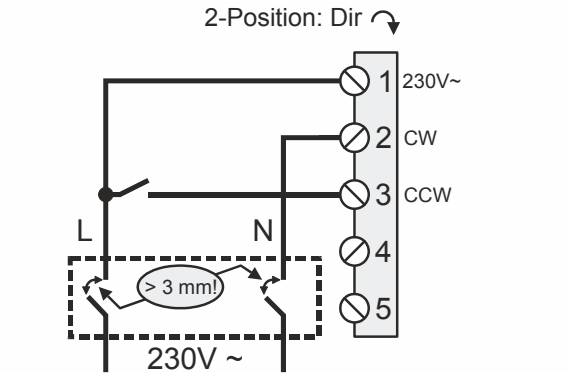


Fig. 10. N05230-2POS/N10230-2POS (2-position mode)

NOTE: In the case of 230 V (see Fig. 10), a circuit breaker with contacts having a gap of minimum 3 mm must be available in order to guarantee safe installation.

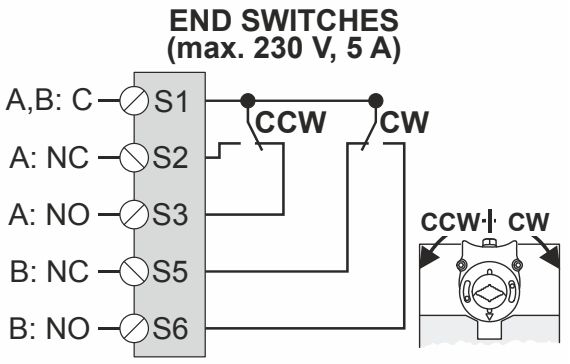


Fig. 11. End switches (Nxx-SW2)

NOTE: Both internal end switches must be connected to the same power source.

Table 1 summarizes the information presented in the preceding wiring diagrams.

Table 1. Internal end switches (Nxx-SW2)

terminal	type of switch
S1	common lead for switches A and B
S2 / S3	change-over switch A (S1/S2 opens and S1/S3 closes when shaft adapter moves CW past 5°; reverts to original state when shaft adapter moves CCW past 5°).
S5 / S6	change-over switch B (S1/S5 opens and S1/S6 closes when shaft adapter moves CW past 85°; reverts to original state when shaft adapter moves CCW past 85°).

DIMENSIONS

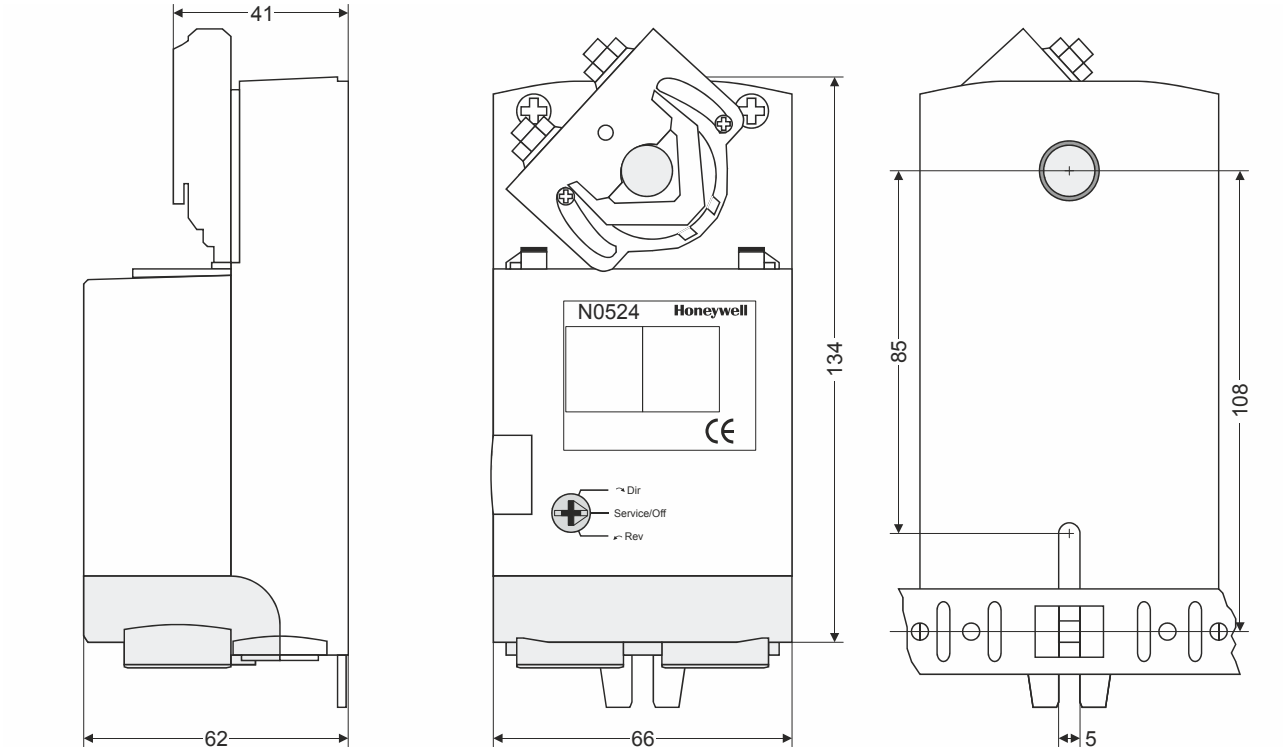


Fig. 12. Dimensions (in mm)