Honeywell

N20, N34 SERIES

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

PRODUCT DATA

GENERAL

These direct-coupled damper actuators provide two-position and floating control for:

- air dampers,
- VAV units,
- air handlers,
- ventilation flaps,
- louvers, and
- reliable control for air damper applications with up to 4.6 m^2 / 50 sq.ft. (20 Nm / 177 lb-in) or 7.8 m^2 / 85 sq. ft. (34 Nm / 300 lb-in) (seal-less dampers; air friction-dependent).

FEATURES

- **Self-centering shaft adapter**
- **Access cover to facilitate connectivity**
- **Service/off for safe & easy servicing**
- **Rotation direction selectable by switch**
- **Declutch for manual adjustment**
- **Mechanical end limits**
- **Field-installable auxiliary switches**
- **Mountable in any orientation (no IP54 if upside down)**
- **Mechanical position indicator**
- **CE and UL certified (230V models with CE only)**

SPECIFICATIONS

Supply voltage	
CN6120/CN6134	24 Vac/dc ±15%, 50/60 Hz
CN4620/CN4634	230 Vac ±15%, 50/60 Hz
Nominal voltage	
CN6120/CN6134	24 Vac/dc, 50/60 Hz
CN4620/CN4634	230 Vac, 50/60 Hz
All values stated hereinafter apply to operation under nominal voltage conditions.	
Power consumption	
CN6120	6 VA / 3 W
CN4620	8 VA / 3 W
CN6134	6 VA / 3 W
CN4634	10 VA / 4 W
Ambient limits	
Ambient operating limits	-20...+60 °C (-5...+140 °F)
Ambient storage limits	-40...+80 °C (-40...+175 °F)
Relative humidity	5...95%, non-condensing
Safety	
Protection standard	IP54 as per EN 60529
Protection class	II as per EN 60730-1
Overvoltage category	III
Lifetime	
Full strokes	60000
Repositions	1.5 million
Mounting	
Round damper shaft	10...27 mm (3/8...1-1/16")
Square damper shaft	10...18 mm (3/8...11/16"); 45° steps
Shaft length	min. 22 mm (7/8")
End switches (when included)	
Rating	5 A (resistive) / 3 A (inductive)
Triggering points	5° / 85°
Torque rating	
CN6120 / CN4620	20 Nm (177 lb-in)
CN6134 / CN4634	34 Nm (300 lb-in)
Runtime	95 sec (60 Hz) / 110 sec (50 Hz or DC supply)
Rotation stroke	95° ± 3°
Dimensions	see "Dimensions" on page 6
Weight (without cables)	1.35 kg (3 lbs.)
Noise rating	40 dBA max. at 1 m
Certification	CE CN6120 / CN6134 CN4620 / CN4634 UL CN6120 / CN6134

® U.S. Registered Trademark
Copyright © 2008 Honeywell Inc. • All rights reserved

EN0B-0320CH33 R0803A

MODELS

Model #	Description
CN6120A1002	20Nm,24Vac/Vdc, Floating/2-position control, Non-Spring Return, No feedback and without aux. Switch
CN4620A1001	20Nm,230V,Floating/2-position control, Non-Spring Return, No feedback and without aux. Switch
CN6134A1003	34Nm,24Vac/Vdc, Floating/2-position control, Non-Spring Return, No feedback and without aux. Switch
CN4634A1001	34Nm,230Vac, Floating control/2-position, Non-Spring Return, No feedback and without aux. Switch

Product Identification System

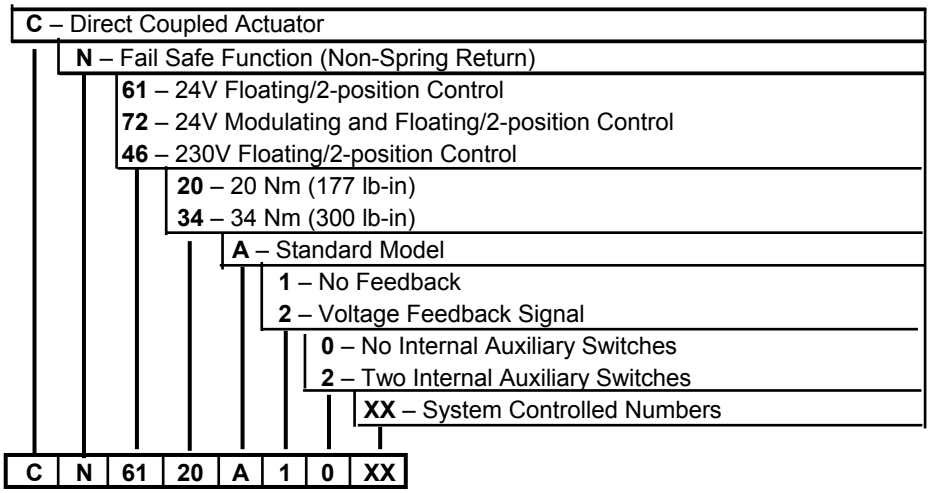


Fig. 1. Product Identification System

OPERATION / FUNCTIONS

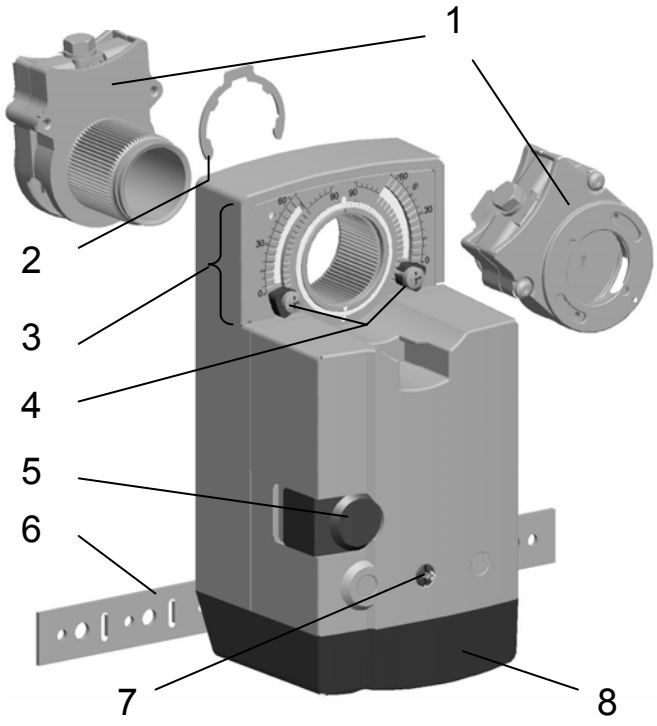


Fig. 2. Setting units and control elements

Legend for Fig. 2:
1 Self-centering shaft adapter
2 Retainer clip
3 Rotational angle scales (0...90° / 90...0°)
4 Mechanical end limits
5 Declutch button
6 Anti-rotation bracket
7 Function selection switch
8 Access cover

Contents of Package

The delivery package includes the actuator itself, parts 1 through 8 (see Fig.2), the anti-rotation bracket screws, and installation instruction.

RUN MODES

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

- Dir, floating/2-position control, cw run.
- Service/Off, actuator stop running.
- Rev, floating/2-position control, ccw run.

Fig. 3. Function selection switch

Power-Off Behavior

If power is removed, the actuator retains its position.

Service/Off

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

Floating/2-Position Run Mode

If the function selection switch has been set to one of the two floating/2-position control settings (Dir or Rev) and the actuator is wired correspondingly (see A1 and A2) as soon as the operating power is applied, the actuator will run according to the power applied

Table 1 describes the behavior (stops, rotates CCW, or rotates CW) of the CN6120/CN6134 in relation to the control signals (switch "open" or "24Vac/dc") applied to terminals 3 and 4, the function selection switch setting, and the manner in which the actuator is wired (either for floating mode: see A1, or for 2-position mode: see A2).

Table 1. Behavior of CN6120/CN6134

Wiring	Control signal at		Function selection switch		
	term. 3	term. 4	Dir	Service/Off	Rev
Float.	open	open	stops	stops	stops
	open	24Vac/dc	CCW	stops	CW
	24Vac/dc	open	CW	stops	CCW
2-pos.	24Vac/dc	open	CW	stops	CCW
	24Vac/dc	24Vac/dc	CCW	stops	CW

Table 2 shows the same actuator behavior as Table 1, but for CN4620/CN4634 (230Vac models).

Table 2. Behavior of CN4620/CN4634

Wiring	Control signal at		Function selection switch		
	term. 3	term. 4	Dir	Service/Off	Rev
Float.	open	open	stops	stops	stops
	open	230Vac	CCW	stops	CW
	230Vac	open	CW	stops	CCW
2-pos.	230Vac	open	CW	stops	CCW
	230Vac	230Vac	CCW	stops	CW

Sleep Mode

When actuator reaches end stop or any obstacles blocking its running, it will fall into sleep mode automatically. Actuator will periodically start up and try to resume running, which will save energy significantly through whole service life.

Position Indication

The hub adapter indicates the rotation angle position by means of the rotational angle scales (0...90° / 90...0°) provided in the actuator plate (see Fig. 4).

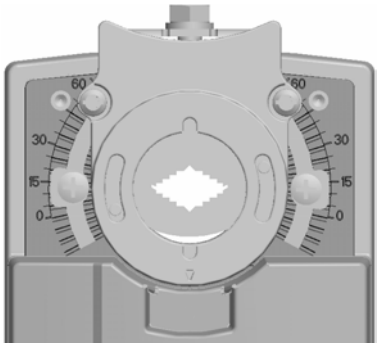


Fig. 4. Position indication

Manual Adjustment

⚠IMPORTANT

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

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

Limitation of Rotation Stroke

Two adjustable mechanical end limits (adjustable in 5° increments) are provided to limit the angle of rotation as desired (see Fig. 5).

Fig. 5. Mechanical end limits

The mechanical end limits must be securely fastened in place. It is important that they properly mesh with the rotational angle scales when the screws are tightened.

Internal End Switches

NOTE: Applicable to models with internal switches only.

http://www.honeywell-bj.cn 010-59799400

The internal end switches are set to switch from "common" to "normally open" at angles of 5° and 85°, respectively, from the totally counterclockwise position.

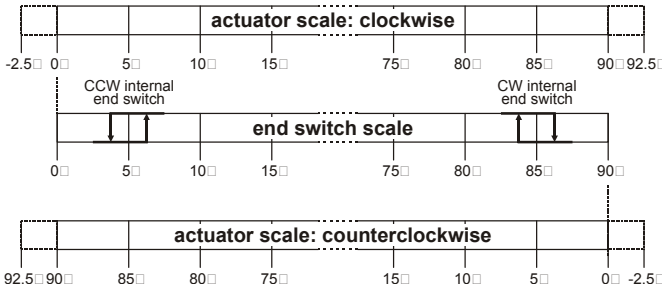


Fig. 6. Internal end switch triggering points

INSTALLATION

These actuators are designed for single-point mounting.

⚠IMPORTANT

In order to prevent equipment damage, you must remove power or set the rotation direction switch to the "Service/Off" position before manual operation.

Mounting Instructions

All information and steps are included in the installation instructions supplied with the actuator.

Mounting Position

The actuators can be mounted in any position (no IP54 if mounted upside down; see Fig. 7). Choose a mounting position permitting easy access to the actuator's cables and controls.

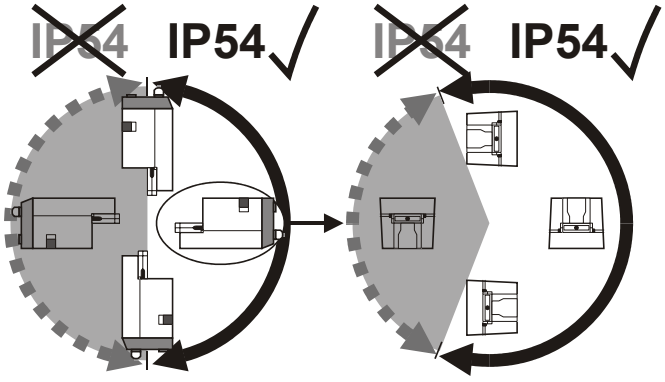


Fig. 7. Mounting for IP54

Mounting Bracket and Screws

If the actuator is to be mounted directly on a damper shaft, use the mounting bracket and screws included in the delivery package.

Self-Centering Shaft Adapter

The self-centering shaft adapter can be used for shafts having various diameters (10...27 mm [3/8...1-1/16"]) and shapes (square or round).

In the case of short shafts, the shaft adapter may be reversed and mounted on the duct side.

Stroke Limitation with Mechanical End Limits

The mechanical end limits enable the stroke to be limited from 0...90° in increments of 5°.

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

To facilitate wiring the actuator to the controller, the access cover can be detached from the actuator.

⚠IMPORTANT

Remove power before detaching the access cover. Once the access cover has been removed, please take care to avoid damaging any of the parts now accessible.

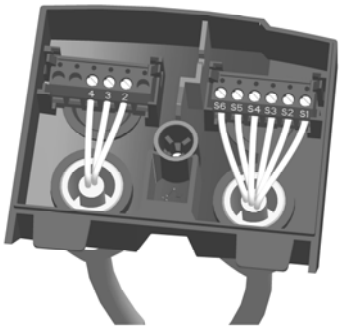


Fig. 8. Access cover (models with internal switches)

Depending upon the model, the access cover may have one or two terminal strips, including a layout with a description for each of the terminals.

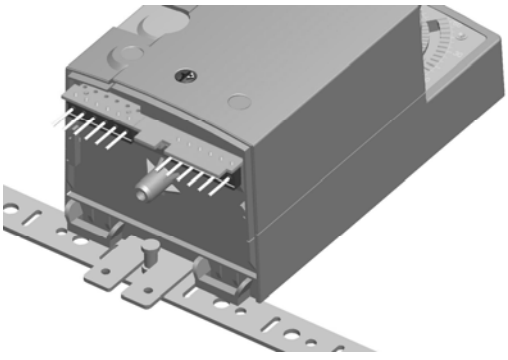
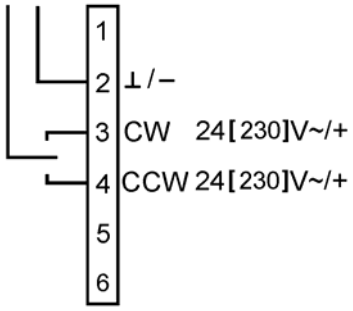
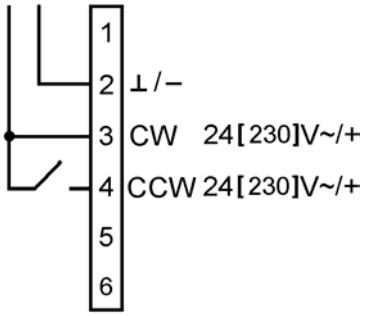
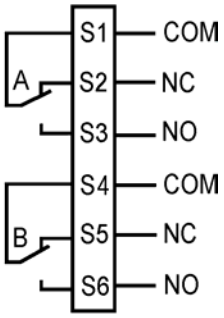


Fig. 9. Actuator with access cover removed (models with internal switches)

http://www.honeywell-bj.cn 010-59799400

Wiring diagrams

A1 CN6120,CN4620 CN6134,CN4634 FLOATING	**A2** CN6120,CN4620 CN6134,CN4634 2-POS	**A3** END SWITCHS (models with switch only)
		

NOTE: Internal end switches S1 and S4 must be connected to the same power source.
Below 2 tables summarize the information presented in the preceding wiring diagrams.

Models	Terminal	Wiring	
		Floating	2-position
CN6120,CN6134 supply and signal lines (must be equipped with spark suppressors)	2	common ⊥/–	common ⊥/–
	3	24V ~/+ (clockwise)	24V ~/+
	4	24V ~/+ (counterclockwise)	24V ~/+ control signal
CN4620,CN4634 supply and signal lines (must be equipped with spark suppressors)	2	common ⊥/–	common ⊥/–
	3	230Vac (clockwise)	230Vac
	4	230Vac (counterclockwise)	230Vac control signal

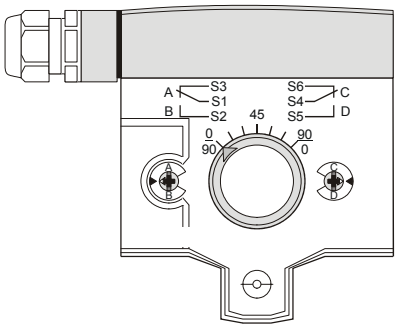
Connecting cable		Terminal	Description
end switches (models with internal switches only)	CCW (left) 5°	S1	common
		S2	normally closed
		S3	normally open
	CW (right) 85°	S4	common
		S5	normally closed
		S6	normally open

OPTIONAL ACCESSORIES

The following optional accessories can be ordered separately.

Auxiliary Switch Kit

Order no.: SW2



The auxiliary switches are field-installable parts providing two SPDT freely-adjustable switches.

SPARE PARTS

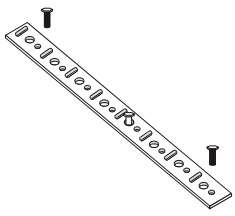
Spare Parts Kit

Order no.: A7209.2071
The spare parts kit contains the following items:

- Anti-rotation bracket and screws
- Access cover screw
- Plastic protective cap for protection standard IP54
- Mechanical end limit screw and retainer

Anti-Rotation Bracket Kit

Order no.: A7209.2073
The anti-rotation bracket kit can be ordered separately.

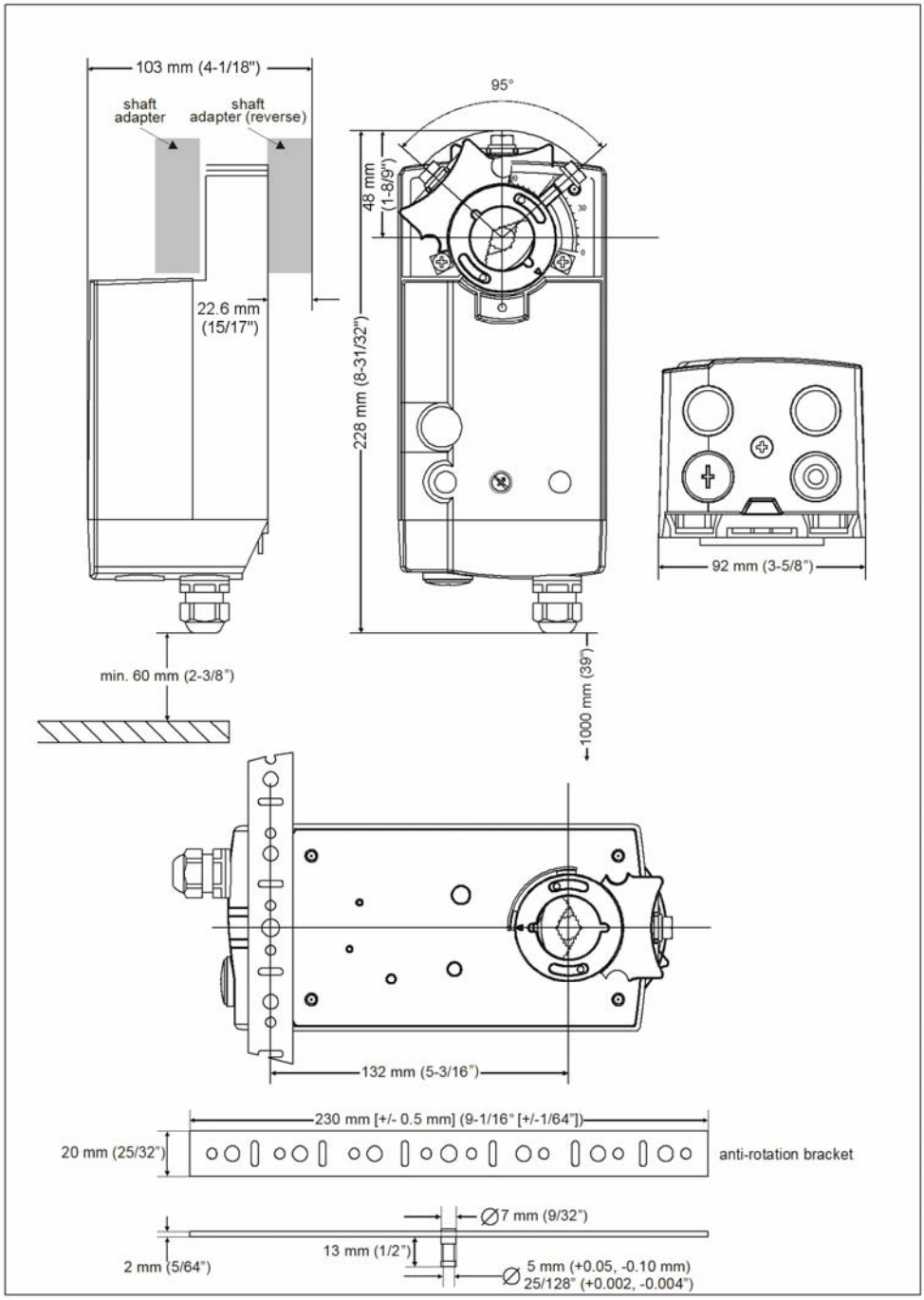


Contains:

- 10 anti-rotation brackets
- 20 screws

http://www.honeywell-bj.cn 010-59799400

DIMENSIONS


103 mm (4-1/18")
shaft adapter
shaft adapter (reverse)
22.6 mm (15/17")
95°
48 mm (1-8/9")
228 mm (8-31/32")
92 mm (3-5/8")
min. 60 mm (2-3/8")
1000 mm (39")
132 mm (5-3/16")
230 mm [+/- 0.5 mm] (9-1/16" [+/-1/64"])
20 mm (25/32")
anti-rotation bracket
7 mm (9/32")
13 mm (1/2")
2 mm (5/64")
5 mm (+0.05, -0.10 mm)
25/128" (+0.002, -0.004")