N20, N34 Series MN6120, MN6134
DAMPER ACTUATORS 20/34 Nm (175/300 lb-in)
FOR FLOATING/2-POSITION CONTROL

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

- rotary valves,
- air handlers,
- ventilation flaps,
- louvers, and
- reliable control for air damper applications with up to 50 sq.ft. (20 Nm / 175 lb-in) or 85 sq. ft. (34 Nm / 300 lb-in) (seal-less damper blades; air friction-dependent).

FEATURES
- New self-centering shaft adapter
- Access cover to facilitate connectivity
- Declutch for manual adjustment
- Mechanical end limits (MN6120 only)
- Field-installable auxiliary switches
- Rotation direction selectable by switch
- Mountable in any orientation (no IP54 if upside down)
- Mechanical position indicator

SPECIFICATIONS

Supply voltage
MN6120 / MN6134 24 Vac ±15%, 50/60 Hz

Nominal voltage
MN6120 / MN6134 24 Vac, 50/60 Hz

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

Power consumption
MN6120 6 VA / 6 W
MN6134 9 VA / 9 W

Ambient limits
Ambient operating limits -5...+140 °F (-20...+60 °C)
Ambient storage limits -40...+175 °F (-40...+80 °C)
Relative humidity 5...95%, non-condensing

Safety
Protection standard IP54
NEMA2
Protection class II as per EN 60730-1

Lifetime
Full strokes 60000
Repositions 1.5 million

Mounting
Round damper shaft 3/8...1-1/16" (10...27 mm)
Square damper shaft 3/8...11/16" (10...18 mm);
45° steps
Shaft length min. 7/8" (22 mm)

Auxiliary switch (when included)
Rating 5 A (resistive) / 3 A (inductive)
Triggering points 5° / 85°

Torque rating
MN6120 175 lb-in (20 Nm)
MN6134 300 lb-in (34 Nm)

Runtime
95 sec (60 Hz) / 110 sec (50 Hz)
Rotation stroke 95° ± 3°

Dimensions see Dimensions on page 8
Weight 1.45 kg (3 lbs. 3 oz.)
Noise rating 40 dB(A) max. at 1 m
PRODUCT IDENTIFICATION SYSTEM

<table>
<thead>
<tr>
<th>M</th>
<th>N</th>
<th>61</th>
<th>72</th>
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<th>A</th>
<th>2</th>
<th>0</th>
<th>XX</th>
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<td>N</td>
<td>20</td>
<td>24</td>
<td>34</td>
<td>A</td>
<td></td>
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</table>

**Legend for Fig. 2. Setting units and control elements:**
1. Self-centering shaft adapter
2. Retainer clip
3. Rotational angle scales (0...90° / 90...0°)
4. Mechanical end limits (20 Nm [175 lb-in] models, only)
5. Declutch button
6. Anti-rotation bracket
7. Rotation direction switch
8. Access cover
9. Internal auxiliary switch wire
10. Power and control switch wire

**Contents of Package**
The delivery package includes the actuator itself, parts 1 through 10 (see Fig. 2; in the case of U.S. models – e.g. MN6120 – parts 1 through 8), the anti-rotation bracket screws, and the SM mounting plate and screws.

**Rotary Movement**
The rotation direction (clockwise or counterclockwise) can be selected using the rotation direction switch (see part 7 in Fig. 2), thus eliminating the need to re-wire. To ensure tight closing of the dampers, the actuator has a total rotation stroke of 95°.

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:
1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care
   1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386
In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.
As soon as operating power is applied, the actuator may start to run. When power is removed, the actuator remains in position. For actuator-controller wiring instructions, see section “Wiring” on page 4.

**Rotation Direction Switch**

- **Dir (”)**: is the default shipping position. When the rotation direction switch is set to this position, the actuator internally switches the rotation direction control signals as stated in section “Wiring Diagrams” on page 5.
- **“Service/Off”**: When the rotation direction switch is set to this position, all actuator rotary movement is cancelled and all control signals are ignored, thus enabling the actuator to be manually operated (see section “Manual Adjustment”). The user can then perform maintenance/commissioning without having to remove power from the actuator. To return to the control mode, simply move the rotation direction switch to its former setting.
- **Rev (”)**: When the rotation direction switch is set to this position, the actuator follows signals as stated in section “Wiring Diagrams” on page 5.

**Two-Position or Floating Control**
The actuator is capable of being operated by either a two-position (open/close) or a floating (three-wire) controller. Refer to wiring diagrams for correct connection.

**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).

**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. The feedback signal will then follow the new position.

**Limitation of Rotation Stroke**
Two adjustable mechanical end limits (20 Nm [175 lb-in] models, only) are provided to limit the angle of rotation as desired (see Fig.5).

**Internal Auxiliary Switches**
The internal auxiliary switches are set to switch from “common” to “normally open” at angles of 5° and 85°, respectively, from the totally counterclockwise position.
Fig. 7. Internal auxiliary 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 or NEMA2 if mounted upside down; see Fig. 8). Choose a mounting position permitting easy access to the actuator’s cables and controls.

**Self-Centering Shaft Adapter**

The self-centering shaft adapter can be used for shafts having various diameters (3/8...1-1/16” [10...27 mm]) 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 (20 Nm [175 lb-in] models, only) enable the stroke to be limited from 0...90° in increments of 3°.

**Wiring**

**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.*

**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.

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**Fig. 8. Mounting for IP54/NEMA2**

**Fig. 9. Access cover**

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. 10. Actuator with access cover removed**
Wiring Diagrams

MN6120/MN6134

NOTE: Internal auxiliary switches S1 and S4 must be connected to the same power source.

<table>
<thead>
<tr>
<th>connecting cable</th>
<th>terminal</th>
<th>name</th>
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<td>supply and signal lines (must be equipped with spark suppressors)</td>
<td>2</td>
<td>24 Vac ⊥</td>
<td>24 Vac ⊥</td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>24 Vac (clockwise)</td>
<td>24 Vac ~</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>24 Vac (counterclockwise)</td>
<td>24 Vac control signal</td>
<td></td>
</tr>
<tr>
<td>auxiliary switches (when included)</td>
<td>S1</td>
<td>common</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>S2</td>
<td>normally closed</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>S3</td>
<td>normally open</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CCW (left) 5°</td>
<td>S4</td>
<td>common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CW (right) 85°</td>
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<tr>
<td></td>
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<td>S6</td>
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<tr>
<td>feedback potentiometer</td>
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<tr>
<td></td>
<td>P2</td>
<td>signal</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>P3</td>
<td>full counterclockwise</td>
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</tbody>
</table>
N20, N34 SERIES MN6120, MN6134
DIMENSIONS

223 mm (8-25/32")

92 mm (3-5/8")

100 mm (3-15/16")

90°

20.6 mm (1-3/16")

100 mm (3-15/16")

39" min. 60 mm (2-3/8")

100 mm (3-15/16")

2 mm (5/64")

13 mm (1/2")

5 mm (+0.05, -0.10 mm)

25/128" (+0.002, -0.004")

7 mm (9/32")

132 mm (5-3/16")

20 mm (25/32")

-230 mm +/- 0.5 mm (9-1/16" +/-1/64")

anti-rotation bracket

shaft adapter

shaft adapter (reverse)

30

60

20

2

13

2

5

25/128" (0.002 - 0.004")

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