OpenAir™

Air damper actuators GMA..1

Rotary version with spring return, AC 24 V / DC 24...48 V / AC 230 V

Electronic motor driven actuators for two-position, three-position, and modulating control, nominal torque 7 Nm, with spring return, self-centering shaft adapter, mechanically adjustable span between 0...90°, prewired with 0.9 m long connection cables.

Type-specific variations with adjustable offset and span for the positioning signal, position indicator, feedback potentiometer and adjustable auxiliary switches for supplementary functions.

Remarks

This data sheet provides a brief overview of these actuators. Please refer to the technical basics in CM2Z4614en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

Use

- For damper areas up to 1.5 m², friction-dependent.
- In ventilation sections where the actuator must move to the zero position (emergency position) during power failure.
- For dampers having two actuators on the same damper shaft (tandem-mounted actuators or Powerpack).
### Type summary

<table>
<thead>
<tr>
<th>GMA...</th>
<th>121.1E</th>
<th>126.1E</th>
<th>321.1E</th>
<th>326.1E</th>
<th>131.1E</th>
<th>132.1E</th>
<th>136.1E</th>
<th>161.1E</th>
<th>163.1E</th>
<th>164.1E</th>
<th>166.1E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control type</td>
<td>Two-position control</td>
<td>Three-position control</td>
<td>Modulating control</td>
<td></td>
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<tr>
<td>Operating voltage AC 24 V</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>DC 24...48 V</td>
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<tr>
<td>Operating voltage AC 230 V</td>
<td>X</td>
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<tr>
<td>Positioning signal Y DC 0...10 V</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>DC 0...35 V with characteristic function Uo, ∆U</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Position indicator U = DC 0...10 V</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Feedback potentiometer 1kΩ</td>
<td></td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Auxiliary switches (two)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Powerpack (2 actuators)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>

### Functions

<table>
<thead>
<tr>
<th>Type</th>
<th>GMA12..1 / GMA32..1</th>
<th>GMA13..1</th>
<th>GMA16..1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control type</td>
<td>Two-position control</td>
<td>Three-position control</td>
<td>Modulating control</td>
</tr>
<tr>
<td>Positioning signal with adjustable characteristic function</td>
<td>DC 0...35 V at Offset. Uo = 0...5 V</td>
<td>Span ∆U = 2...30 V</td>
<td></td>
</tr>
<tr>
<td>Rotary direction</td>
<td>Clockwise or counter-clockwise movement depends on the mounting position of the damper shaft... and on the type of control.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring return</td>
<td>On power failure or when the operating voltage is switched off, the spring return moves the actuator to its mechanical zero position.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position indication: Mechanical</td>
<td>Rotary angle position indication by using a position indicator.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position indication: Electrical</td>
<td>The feedback potentiometer can be connected to external voltage to indicate the position.</td>
<td>Output voltage U = DC 0...10 V is generated proportional to the rotary angle.</td>
<td></td>
</tr>
<tr>
<td>Auxiliary switch</td>
<td>The switching points for auxiliary switches A and B can be set independent of each other in increments of 5° within 5° to 90°.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powerpack (two actuators, tandem-mounted)</td>
<td>Mounting two of the same actuator types on the same damper shaft may result in a double torque.</td>
<td>Is not permitted</td>
<td></td>
</tr>
<tr>
<td>Rotary angle limitation</td>
<td>The rotational angle of the shaft adapter can be limited mechanically at increments of 5°.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Ordering

**Note**
The potentiometer **cannot be added in the field**. For this reason, order the type that includes this option.

**Delivery**
Individual parts such as position indicator and other mounting materials for the actuator are **not mounted** on delivery.

**Accessories, spare parts**
Accessories to functionally extend the actuators are available, e.g., external auxiliary switch, linear/rotary sets and weather protection cover; see data sheet N4697.

### Disposal

The document on technical basics and the environmental declaration provide information on environmental compatibility and disposal of this device.
### Technical data

<table>
<thead>
<tr>
<th>AC 24 V DC 24...48 V supply</th>
<th>Operating voltage AC / Frequency</th>
<th>AC 24 V ± 20% / 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating voltage (DC)</td>
<td>DC 24...48 V ±20%</td>
</tr>
<tr>
<td></td>
<td>Power consumption</td>
<td></td>
</tr>
<tr>
<td>GMA1..1:</td>
<td>Running</td>
<td>AC: 5 VA / 3.5 W</td>
</tr>
<tr>
<td>GMA12..1, 13..1:</td>
<td>Holding</td>
<td>DC: 3.5 W</td>
</tr>
<tr>
<td>GMA16..1:</td>
<td>Holding</td>
<td>DC: 2.5 W</td>
</tr>
<tr>
<td>AC 230 V supply</td>
<td>Operating voltage / Frequency</td>
<td>AC 230 V ± 10% / 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>Power consumption</td>
<td>GMA32..1: Running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 VA / 4.5 W</td>
</tr>
<tr>
<td></td>
<td>Holding</td>
<td>3.5 W</td>
</tr>
</tbody>
</table>

### Function data

- **Nominal torque**: 7 Nm
- **Maximum torque (blocked)**: 21 Nm
- **Nominal rotary angle / Max. rotary angle**: 90° / 95° ± 2°
- **Runtime for rotary angle 90° (motor operation)**: 90 s
- **Closing time with return spring (on power failure)**: 15 s

### Positioning signal for GMA13..1

- **Switching current (at AC 24 V / DC 24...48 V)**: normally 8 mA

### Positioning signal for GMA16..1, 166..1

- **Input voltage Y (wires 8-2)**: DC 0...10 V / DC 2...10 V
  - Max. permissible input voltage: DC 35 V
- **Characteristic functions**
  - **Input voltage Y (wires 8-2)**: DC 0...35 V
  - **Non-adjustable characteristic function**
    - **Offset U0**: DC 0...5 V
    - **Span ΔU**: DC 2...30 V
- **Position indicator**
  - **Output voltage U (cores 9-2)**: DC 0...10 V
  - **Max. output current**: DC ± 1 mA
- **Feedback potentiometer for GMA132.1**
  - **Change of resistance (wires P1-P2)**: 0...1000 Ω
  - **Load**: < 1 W

### Auxiliary switch for GMA..6.1, 164..1

- **AC power supply**
  - **Switching voltage**: AC 24...230 V
  - **Nominal current res./ind.**: 6 A / 2 A
- **DC power supply**
  - **Switching voltage**: DC 12...30 V
  - **Nominal current**: DC 2 A
  - **Switching range for auxiliary switches / Setting increments**: 5°...90° / 5°

### Connection cables

- **Cross-section**: 0.75 mm²
- **Standard length**: 0.9 m

### Degree of protection of housing

- **Protection class**: Degree of protection as per EN 60 529 (note mounting instructions) IP 54

### Environmental conditions

- **Operation / Transport**
  - **Temperature**: IEC 721-3-3 / IEC 721-3-2
  - **Humidity (non-condensing)**: < 95% r. h. / < 95% r. h.

### Standards and directives

- **Product safety**: Automatic electrical controls for household and similar use (Type 1)
- **Electromagnetic compatibility (EMC)**:
  - **Immunity for all models, except GMA132.1x**
    - EN 61 000-6-2
  - **Immunity for GMA132.1x**
    - EN 61 000-6-1
  - **Emissions for all models**
    - EN 61 000-6-3
- **Conformity**: Electromagnetic compatibility 89/336/EEC
- **Conformity**: Low voltage directive 73/23/EEC
- **Australian EMC Framework**: Radio Communication Act 1992
- **Radio Interference Emission Standard**: AS/NZS 3548

### Dimensions

- **Actuator W x H x D (see "Dimensions")**: 81 x 192 x 83 mm
- **Damper shaft**: Round / square 6.4...20.5 / 6.4...13 mm
- **Min. shaft length**: 20 mm

### Weight

- **Without packaging**: GMA1..1 / GMA32..1 1.2 kg / 1.3 kg
Internal diagrams

<table>
<thead>
<tr>
<th>GMA12..1 / GMA32..1</th>
<th>GMA13..1</th>
<th>GMA16..1</th>
</tr>
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<tbody>
<tr>
<td>Two-position control</td>
<td>Three-position control</td>
<td>Modulating control DC 0...10 V / 0...35 V</td>
</tr>
</tbody>
</table>

- **Pin**
  - **Code No.**
  - **Color**
  - **Abbreviation**
  - **Meaning**

  **Actuators**
  - AC 24 V
  - DC 24...48 V
  - G 1 red RD System potential AC 24 V/DC 24...48 V
  - G0 2 black BK System neutral
  - Y1 6 purple VT Pos. signal AC 0 V/AC 24 V/DC 24...48 V, "open"
  - Y2 7 orange OG Pos. signal AC 0 V/AC 24 V/DC 24...48 V, "close"
  - Y 8 grey GY Pos. signal AC 0...10 V, 0...35 V
  - U 9 pink PK Position indication DC 0...10 V

  **Actuators**
  - AC 230 V
  - L 3 brown BN Phase AC 230 V
  - N 4 blue BU Neutral conductor

  **Auxiliary switch**
  - Q11 S1 grey/red GY RD Switch A input
  - Q12 S2 grey/blue GY BU Switch A normally-closed contact
  - Q14 S3 grey/pink GY PK Switch A normally-open contact
  - Q21 S4 black/red BK RD Switch B input
  - Q22 S5 black/blue BK BU Switch B normally-closed contact
  - Q24 S6 black/pink BK PK Switch B normally-open contact

  **Feedback potentiometer**
  - a P1 white/red WH RD Potentiometer 0...100 % (P1-P2)
  - b P2 white/blue WH BU Potentiometer pick-off
  - c P3 white/pink WH PK Potentiometer 100...0 % (P3-P2)

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| **Cable**
| **Code**
| **Pin No.**
| **Color**
| **Abbreviation**
| **Meaning**

**Dimensions**

```
Dimensions in mm
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Building Technologies
Air damper actuators GMA...1, rotary version with spring return

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