



OpenAir™

Air damper actuators

Rotary version, AC 24 V / AC 230 V

GBB...1**GIB...1**

Electronic motor driven actuators for three-position and modulating control, nominal torque 20 Nm (GBB) or 35 Nm (GIB), self-centering shaft adapter, mechanically adjustable span between 0...90°, pre-wired 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 document Z4626E for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

Use

- For damper areas up to 4 m² (GBB) or 6 m² (GIB), friction-dependent
- Suitable for modulating controllers (DC 0...10 V) or three-position controllers (e.g. for outside air dampers).
- For dampers having two actuators on the same damper shaft (tandem-mounted actuators or powerpack).

Type summary

| GBB.../GIB... | 131.1E | 135.1E | 136.1E | 331.1E | 335.1E | 336.1E | 161.1E | 163.1E | 164.1E | 166.1E |
|---|------------------------|--------|--------|--------|--------|--------|--------------------|--------|--------|--------|
| Control type | Three-position control | | | | | | Modulating control | | | |
| Operating voltage AC 24 V | X | X | X | | | | X | X | X | X |
| Operating voltage AC 230 V | | | | X | X | X | | | | |
| Positioning signal Y DC 0...10 V | | | | | | | X | | | X |
| DC 0...35 V with characteristic function $U_o, \Delta U$ | | | | | | | | X | X | |
| Position indicator $U = DC 0...10 V$ | | | | | | | X | X | X | X |
| Feedback potentiometer 1 k Ω | | X | | | X | | | | | |
| Auxiliary switches (two) | | X | X | | X | X | | | X | X |
| Rotary direction switch | | | | | | | X | X | X | X |
| Powerpack (two actuators, tandem-mounted) | X | X | X | X | X | X | | | | |






Functions

| Type | GBB.3..1 / GIB.3..1 | GBB/GIB16..1 |
|---|---|---|
| Control type | Three-position control | Modulating control |
| Positioning signal with adjustable characteristic function | | DC 0...35 V at Offset $U_o = 0...5 V$ and Span $\Delta U = 2...30 V$ |
| Rotary direction | Clockwise or counter-clockwise direction depends... ... the type of control. With no power applied, the actuator remains in the respective posi- tion. | |
| Position indication: Mechanical | Rotary angle position indication by using a position indicator. | |
| Position indication: Electrical | The feedback potentiometer can be connected to external voltage to indicate the position. | Position indicator: Output voltage $U = DC 0...10 V$ is generated propor- tional to the rotary angle. U depends on the rotary direction of the switch setting. |
| Auxiliary switch | The switching points for auxiliary switches A and B can be set independent of each other in increments of 5° within 0° to 90°. | |
| Powerpack | Mounting two of the same actuator types on the same damper shaft results in a double torque. | Not permitted. |
| Rotary angle limitation | The rotary angle of the shaft adapter can be limited mechanically at increments of 5°. | |

Ordering

| | |
|-----------------------------|---|
| Note | Potentiometer and auxiliary switches cannot be added in the field . For this reason, order the type that includes the required options. |
| 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., rotary/linear sets and weather protection cover; see data sheet N4699 . |

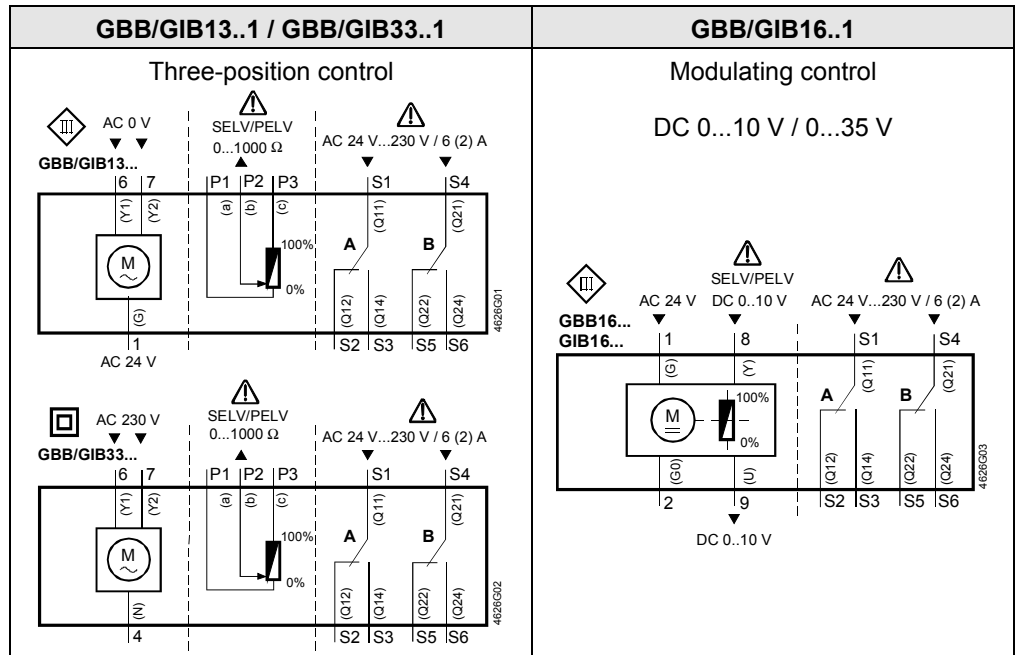
Technical data

| | | | | |
|---|---|--|------------------------------------|---------------------------|
|  AC 24 V supply (SELV/PELV) | Operating voltage / Frequency | | AC 24 V ± 20 % / 50/60 Hz | |
| | Power consumption | GBB/GIB13..1 | Running 5 VA, 5 W / 10 VA, 10 W | |
| | | GBB/GIB16..1 | Running 4 VA, 2 W / 6 VA, 4 W | |
| | | GBB/GIB16..1 | Holding 1 W / 2 W | |
|  AC 230 V supply | Operating voltage / Frequency | | AC 230 V ± 10 % / 50/60 Hz | |
| | Power consumption | GBB/GIB33..1 | 8 VA, 5 W / 13 VA, 10 W | |
| Function data | Nominal torque | | 20 Nm GBB 35 Nm GIB | |
| | Maximum torque (blocked) | | 40 Nm GBB 75 Nm GIB | |
| | | | | |
| | Nominal rotary angle / Max. rotary angle | | 90° / max. 95° ± 2° | |
| | Runtime for 90° rotary angle | | 150 s (50 Hz) / 125 s (60 Hz) | |
| | Positioning signal for GBB/GIB16..1 | Input voltage Y (wires 8-2) | | DC 0...10 V |
| | | Max. permissible input voltage | | DC 35 V |
| | Characteristic functions for GBB/GIB161.1, 166.1 for GBB/GIB163.1, 164.1 | Input voltage Y (wires 8-2) | | DC 0...35 V |
| | | Non-adjustable characteristic function | | DC 0...10 V |
| | | Adjustable characteristic function | Offset U ₀ Span ΔU | DC 0...5 V DC 2...30 V |
| Position indicator for GBB/GIB16...1 | Output voltage U (wires 9-2) | | DC 0...10 V | |
| | Max. output current | | DC ± 1 mA | |
| Feedback potentiometer for GBB/GIB135.1, 335.1 | Change of resistance (wires P1-P2) | | 0...1000 Ω | |
| | Load | | < 1 W | |
|  Auxiliary switches for GBB/GIB..4.1/..5.1/..6.1 | Contact rating | | 6 A resistive, 2 A inductive | |
| | Voltage (no mixed operation AC 24 V / AC 230 V) | | AC 24...230 V | |
| | Switching range for auxiliary switches | | 5°...90° | |
| | Setting increments | | 5° | |
| Connection cables | Cross-section | | 0.75 mm ² | |
| | Standard length | | 0.9 m | |
| Degree of protection of housing | Degree of protection as per EN 60 529 (note mounting instructions) IP 54 | | | |
| Protection class | Insulation class | | EN 60 730 | |
| | AC 24 V, feedback potentiometer | | III | |
| | AC 230 V, auxiliary switch | | II | |
| Environmental conditions | Operation / Transport | | IEC 721-3-3 / IEC 721-3-2 | |
| | Temperature | | -32...+55 °C / -32...+70 °C | |
| | Humidity (non-condensing) | | < 95% r. F. / < 95% r. F. | |
| Standards and directives | Product safety: Automatic electrical controls for household and similar use | | EN 60 730-2-14 (Type 1) | |
| | Electromagnetic compatibility (EMC): | | | |
| | Immunity for all models, except GBB/GIB.35.1x | | IEC/EN 61 000-6-2 | |
| | Immunity for GBB/GIB.35.1x | | IEC/EN 61 000-6-1 | |
| | Emission for all models | | IEC/EN 61 000-6-3 | |
| |  Conformity: | | | |
| | Electromagnetic compatibility | | 89/336/EWG | |
| | Low voltage directive | | 73/23/EWG | |
| |  Conformity: | | | |
| | Australian EMC Framework | | Radio Communication Act 1992 | |
| Radio Interference Emission Standard | | AS/NZS 3548 | | |
| Dimensions | Actuator W x H x D (see "Dimensions") | | 100 x 300 x 67.5 mm | |
| | Damper shaft: | round | 8...25.6 mm | |
| | | Square | 6...18 mm | |
| | | Min. shaft length | 20 mm | |
| Weight | Without packaging | | 2 kg | |

Disposal

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

Internal diagrams



Cable labeling

| Pin | Cable | | | | Meaning |
|---------------------------|-------|-----|-------------|--------------|--|
| | Code | No. | Color | Abbreviation | |
| Actuators AC 24 V | G | 1 | red | RD | System potential AC 24 V |
| | G0 | 2 | black | BK | System neutral |
| | Y1 | 6 | purple | VT | Position signal AC 0 V, clockwise |
| | Y2 | 7 | orange | OG | Position signal AC 0 V, counter-clockwise |
| | Y | 8 | grey | GY | Position signal DC 0...10 V, 0...35 V |
| | U | 9 | pink | PK | Position indication DC 0...10 V |
| Actuators AC 230V | N | 4 | blue | BU | Neutral conductor |
| | Y1 | 6 | black | BK | Control signal AC 230 V, clockwise |
| | Y2 | 7 | white | WH | Control signal AC 230 V, counter-clockwise |
| 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) |

Dimensions

