



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 25 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 Z4626en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

### Use

- For damper areas up to 4 m<sup>2</sup> (GBB) or 6 m<sup>2</sup> (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<br>AC 24 V                                   | X                      | X      | X      |        |        |        | X                  | X      | X      | X      |
| Operating voltage<br>AC 230 V                                  |                        |        |        | X      | X      | X      |                    |        |        |        |
| Positioning signal Y<br>DC 0...10 V                            |                        |        |        |        |        |        | X                  |        |        | X      |
| DC 0...35 V with characteristic<br>function $U_0$ , $\Delta U$ |                        |        |        |        |        |        |                    | X      | X      |        |
| Position indicator<br>$U = DC\ 0...10\ V$                      |                        |        |        |        |        |        | X                  | X      | X      | X      |
| Feedback potentiometer 1 k $\Omega$                            |                        | X      |        |        | X      |        |                    |        |        |        |
| Auxiliary switches (two)                                       |                        | X      | X      |        | X      | X      |                    |        | X      | X      |
| Rotary direction switch                                        |                        |        |        |        |        |        | X                  | X      | X      | X      |
| Powerpack (two actuators,<br>tandem-mounted)                   | X                      | X      | X      | X      | 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<br>characteristic function |                                                                                                                                                                | DC 0...35 V at<br>Offset $U_0 = 0...5\ V$ and<br>Span $\Delta U = 2...30\ V$                                                                                                |
| Rotary direction                                              | Clockwise or counter-clockwise direction depends...<br>...the type of control. With no power applied,<br>the actuator remains in the respective posi-<br>tion. |                                                                                                                                                                             |
| Position indication: Mechanical                               | Rotary angle position indication by using a position indicator.                                                                                                |                                                                                                                                                                             |
| Position indication: Electrical                               | The feedback potentiometer can be connected<br>to external voltage to indicate the position.                                                                   | Position indicator:<br>Output voltage $U = DC\ 0...10\ V$ is generated propor-<br>tional to the rotary angle. $U$ depends on the rotary<br>direction of the switch setting. |
| Auxiliary switch                                              | The switching points for auxiliary switches A and B can be set independent of each<br>other in increments of 5° within 0° to 90°.                              |                                                                                                                                                                             |
| Powerpack                                                     | Mounting two of the same actuator types on<br>the same damper shaft results in a double<br>torque (with accessories ASK73.1).                                  | Mounting two of the same actuator types on the same<br>damper shaft results in a double torque (with accesso-<br>ries ASK73.2).                                             |
| Rotary angle limitation                                       | The rotary angle of the shaft adapter can be limited mechanically at increments of 5°.                                                                         |                                                                                                                                                                             |

## Ordering

### Note

Potentiometer **cannot be added in the field**. For this reason, order the type that in-  
cludes 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, auxiliary switches (1 or 2 switches) and weather protection cover; see data sheet **N4699**.

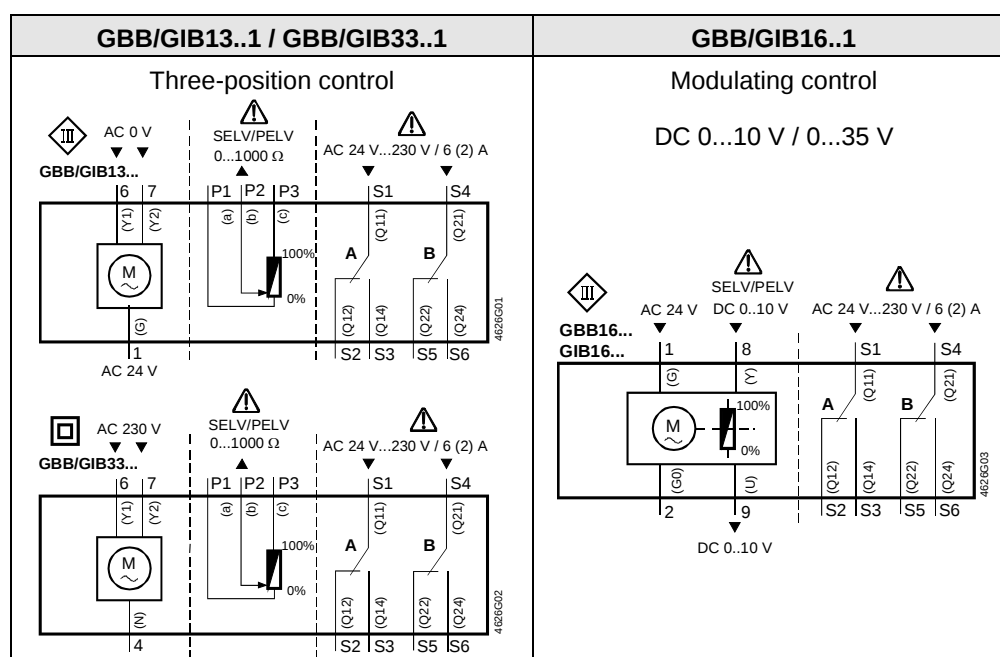
## Technical data

|                                                                                                                                    |                                                                                                 |                       |                               |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------|-------------------------------|
|  AC 24 V supply (SELV/PELV)                       | Operating voltage / Frequency                                                                   |                       | AC 24 V ± 20 % / 50/60 Hz     |
|                                                                                                                                    | Power consumption                                                                               | GBB/GIB13..1 Running  | 7 VA, 7 W                     |
|                                                                                                                                    |                                                                                                 | GBB/GIB16..1 Running  | 8 VA, 8 W                     |
|  AC 230 V supply                                  | Operating voltage / Frequency                                                                   |                       | AC 230 V ± 10 % / 50/60 Hz    |
|                                                                                                                                    | Power consumption                                                                               | GBB/GIB33..1          | 5 VA, 5 W                     |
|                                                                                                                                    |                                                                                                 | GBB/GIB16..1 Holding  | 1.1 W                         |
| Function data                                                                                                                      | Nominal torque                                                                                  |                       | 25 Nm GBB<br>35 Nm GIB        |
|                                                                                                                                    | Maximum torque (blocked)                                                                        |                       | 50 Nm GBB<br>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) |
|                                                                                                                                    | Input voltage Y (wires 8-2)                                                                     |                       | DC 0...10 V                   |
|                                                                                                                                    | Max. permissible input voltage                                                                  |                       | DC 35 V                       |
|                                                                                                                                    | Input voltage Y (wires 8-2)                                                                     |                       | DC 0...35 V                   |
|                                                                                                                                    | Non-adjustable characteristic function                                                          |                       | DC 0...10 V                   |
|                                                                                                                                    | Adjustable characteristic function                                                              | Offset U <sub>0</sub> | DC 0...5 V                    |
|                                                                                                                                    |                                                                                                 | Span ΔU               | DC 2...30 V                   |
| Positioning signal for GBB/GIB16..1                                                                                                | Output voltage U (wires 9-2)                                                                    |                       | DC 0...10 V                   |
|                                                                                                                                    | Max. output current                                                                             |                       | DC ± 1 mA                     |
| Characteristic functions for GBB/GIB161.1, 166.1 for GBB/GIB163.1, 164.1                                                           | Change of resistance (wires P1-P2)                                                              |                       | 0...1000 Ω                    |
|                                                                                                                                    | Load                                                                                            |                       | < 1 W                         |
| Position indicator for GBB/GIB16...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°                            |
| Feedback potentiometer for GBB/GIB135.1, 335.1                                                                                     | Cross-section                                                                                   |                       | 0.75 mm <sup>2</sup>          |
|                                                                                                                                    | Standard length                                                                                 |                       | 0.9 m                         |
|  Auxiliary switches for GBB/GIB..4.1/..5.1/..6.1 | Degree of protection as per EN 60 529 (note mounting instructions)                              |                       | IP 54                         |
|                                                                                                                                    | Insulation class                                                                                |                       | EN 60 730                     |
| Connection cables                                                                                                                  | AC 24 V, feedback potentiometer                                                                 |                       | III                           |
|                                                                                                                                    | AC 230 V, auxiliary switch                                                                      |                       | II                            |
| Degree of protection of housing                                                                                                    | 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.     |
| Protection class                                                                                                                   | 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/EEC                    |
|                                                                                                                                    | Low voltage directive                                                                           |                       | 73/23/EEC                     |
|                                                                                                                                    |  Conformity: |                       |                               |
|                                                                                                                                    | Australian EMC Framework                                                                        |                       | Radio Communication Act 1992  |
| Environmental conditions                                                                                                           | Radio Interference Emission Standard                                                            |                       | AS/NZS 3548                   |
|                                                                                                                                    | 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                     |
| Standards and directives                                                                                                           | Min. shaft length                                                                               |                       | 20 mm                         |
|                                                                                                                                    | Without packaging                                                                               |                       | 2 kg                          |

## Disposal

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

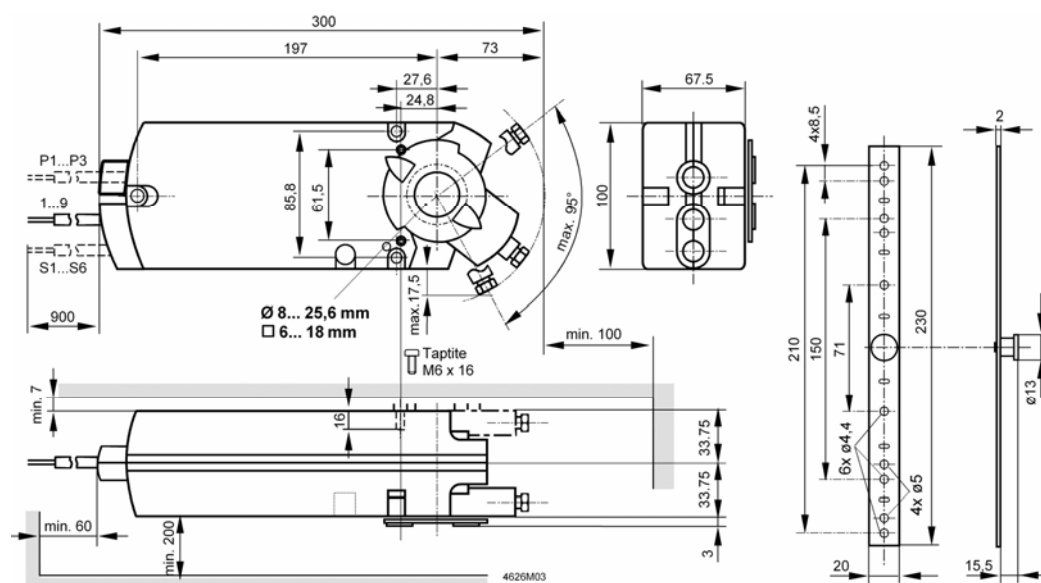
## Internal diagrams



## Cable labeling

| Pin                       | Cable |     |             |              | Meaning                                    |
|---------------------------|-------|-----|-------------|--------------|--------------------------------------------|
|                           | Code  | No. | Color       | Abbreviation |                                            |
| Actuators<br>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<br>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<br>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



Dimensions in mm