



OpenAir™

Air damper actuators

GDB...1
GLB...1

Rotary version, AC 24 V / AC 230 V

- **Electronic motor driven actuators for three-position and modulating control**
- **Nominal torque 5 Nm (GDB), 10 Nm (GLB)**
- **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**
- **Self-adaption of rotational angle range 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 Z4634en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

Use

- For damper areas up to 0.8 m² (GDB) / 1.5 m² (GLB), friction-dependent.
- Suitable for use with modulating controllers (DC 0...10 V) or three-position controllers for air dampers or air throttles.

Type summary

| GDB.../GLB... | 131.1E | 132.1E | 136.1E | 331.1E | 332.1E | 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 $U_0, \Delta U$ | | | | | | | | X | X | |
| Position indicator $U = DC 0...10 V$ | | | | | | | X | X | X | X |
| Feedback potentiometer 1 k Ω | | X | | | X | | | | | |
| Self-adaption of rotational angle range | | | | | | | X | X | X | X |
| Auxiliary switches (two) | | | X | | | X | | | X | X |
| Rotary direction switch | | | | | | | X | X | X | X |

Functions






| Type | GDB.3..1 / GLB.3..1 | GDB16..1 / GLB16..1 |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control type | Three-position control | Modulating control |
| Positioning signal with adjustable characteristic function | | Y = DC 0...35 V at Offset $U_0 = 0...5 V$ Span $\Delta U = 2...30 V$ |
| Rotary direction | Clockwise or counter-clockwise direction depends... | |
| | ...on the type of control. With no power applied, the actuator remains in the respective position. | ...on the setting of the rotary direction DIL switch clockwise / counter-clockwise |
| 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 DIL 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°. | |
| Self-adaptation of linear span | | When self-adaptation is active, the actuator auto- matically determines the mechanical end positions of the linear span and maps the characteristic function ($U_0, \Delta U$) to the calculated linear span. |
| Manual adjustment | The actuator can be manually adjusted by pressing the gear train disengagement button | |
| Rotary angle limitation | The rotary angle of the shaft adapter can be limited mechanically with a socket head cap screw. | |

Ordering

Note Potentiometer and auxiliary switches **cannot be added in the field**. For this reason, order the type that includes the required options.

Accessories, spare parts Accessories to functionally extend the actuators are available, e.g., rotary/linear sets, see data sheet **N4698**.

Technical data

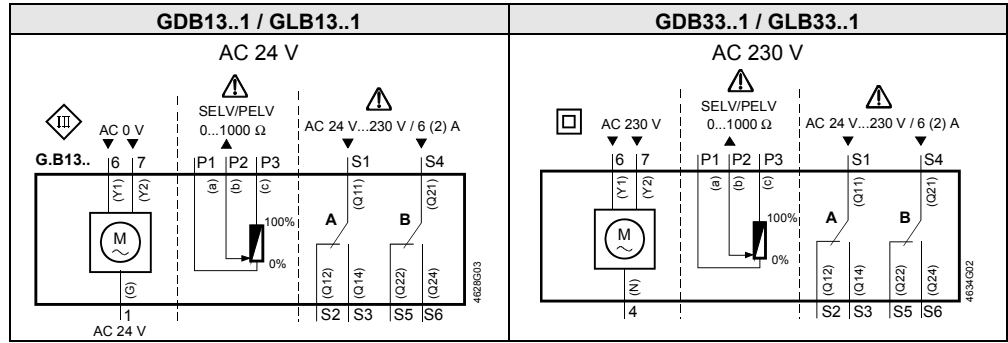
| | | |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
|  AC 24 V supply (SELV/PELV) | Operating voltage / Frequency | AC 24 V ± 20 % / 50/60 Hz |
| | Power consumption | GDB13..1/GLB13..1 Running 2 VA / 1 W GDB16..1/GLB16..1 Running 3 VA / 2 W Holding 1 W |
|  AC 230 V supply | Operating voltage / Frequency | AC 230 V ± 10 % / 50/60 Hz |
| | Power consumption | GDB33..1/GLB33..1 Running 2 VA / 1 W |
| Function data | Nominal torque | 5 Nm (GDB) / 10 Nm (GLB) |
| | Maximum torque (blocked) | 7 Nm (GDB) / 19 Nm (GLB) |
| | Nominal rotary angle / Max. rotary angle | 90° / 95° ± 2° |
| | Runtime for 90° rotary angle (GDB/GLB) | 150 s (50 Hz) / 125 s (60 Hz) |
| Positioning signal for GDB16..1/GLB16..1 | Input voltage Y (wires 8-2) | DC 0...10 V |
| | Max. permissible input voltage | DC 35 V, internally limited to DC 10 V |
| Characteristic functions for GDB/GLB GDB/GLB166.1 GDB/GLB163.1, GDB/GLB164.1 | Input voltage Y (wires 8-2) | DC 0...35 V |
| | Non-adjustable characteristic function | DC 0...10 V |
| | Adjustable characteristic function | Offset U _o DC 0...5 V Span ΔU DC 2...30 V |
| Position indicator for GDB/GLB | Output voltage U (wires 9-2) | DC 0...10 V |
| | Max. output current | DC ± 1 mA |
| Feedback potentiometer for GDB/GLB132.1, GDB/GLB332.1 | Change of resistance (wires P1-P2) | 0...1000 Ω |
| | Load | < 1 W |
|  Auxiliary switches for GDB../GLB..6.1, GDB/GLB164.1 | 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 60730 |
| | AC 24 V, feedback potentiometer | III |
| | AC 230 V, auxiliary switch | II |
| Environmental conditions | Operation / Transport | IEC 60721-3-3 / IEC 60721-3-2 |
| | 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 60730-2-14 (Type 1) |
| | Electromagnetic compatibility (EMC): | |
| | Immunity for all models, except GDB/GLB.32.1x | IEC/EN 61000-6-2 |
| | Immunity for GDB/GLB.32.1x | IEC/EN 61000-6-1 |
| | Emission for all types | IEC/EN 61000-6-3 |
| |  Conformity to: | |
| | EMV directive | 2004/108/EEC |
| | Low voltage directive | 2006/95/EEC |
| |  C-Tick conformity to: | |
| | Radio Interference Emission Standard | AS/NZS 61000-6-3 |
| Dimensions | Actuator W x H x D (see "Dimensions") | 70,7 x 137 x 60,6 mm |
| | Damper shaft: round | 8...16 mm |
| | | round with centering element |
| | 4-kant | 6...12.8 mm |
| | Min. shaft length | 30 mm |
| | Shaft hardness | < 300 AV |
| Weight | Without packaging: 0.48 kg | |

Disposal

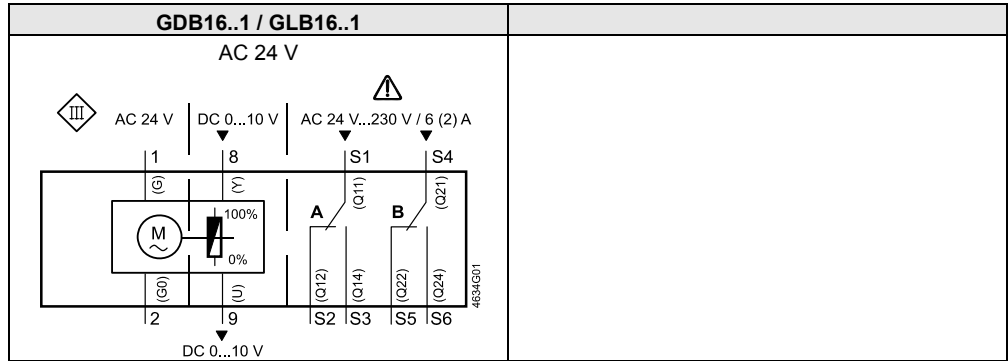
The document on technical basics and the environmental declaration provide information on environmental compatibility and disposal of this device.

Internal diagrams

Three-position control



Modulating control



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 230 V | 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

