



GDB/GLB1..1J

GDB/GLB1..1L

OpenAir™

## Air Damper Actuators

rotary versions, AC 24 V

**GDB1..1J**  
**GLB1..1J**  
**GDB1..1L**  
**GLB1..1L**

Electromotoric rotary actuators for 3-position or modulating control, nominal torque 5 Nm (GDB) or 10 Nm (GLB), mechanically adjustable span from 0...90°. Cable connections via terminals (type J) or connectors (type L). Specific versions with adjustable starting point and span for the positioning signal, with position indicator and self-adaptation of the rotational angle range.

### Notes

The present Data Sheet provides a brief overview of these types of damper actuators. For a detailed description with information about safety, engineering notes, mounting and commissioning notes, please refer to the document "Technical basics" (Z4634en).

### Use

- For damper areas up to about 0.8 m<sup>2</sup> (GDB) and 1.5 m<sup>2</sup> (GLB)
- Suitable for use with modulating controllers (DC 0...10 V) or 3-position controllers for the control of air dampers or air throttles

## Type summary

| GDB... / GLB...   | 131.1J     | 131.1L | 161.1J     | 161.1L | 163.1J | 163.1L |
|---|------------|--------|------------|--------|--------|--------|
| Type of control   | 3-position |        | Modulating |        |        |        |
| Operating voltage AC 24 V                                 | X          | X      | X          | X      | X      | X      |
| Positioning signal Y DC 0...10 V                          |            |        | X          | X      |        |        |
| DC 0...35 V with characteristics function $U_o, \Delta U$ |            |        |            |        | X      | X      |
| Position indicator U = DC 0...10 V                        |            |        |            | X      |        | X      |
| Self-adaptation of angular rotation                       |            |        | X          | X      | X      | X      |
| Rotary direction switch                                   |            |        | X          | X      | X      | X      |

## Functions

| Type  | GDB/GLB131.1J / GDB/GLB 131.1L   | GDB/GLB16..1J / GDB/GLB16..1L  |
|---|--|--|
| Type of control   | 3-position control   | Modulating control   |
| Positioning signal with adjustable characteristics function |  | Y = DC 0...35 V at<br>Offset $U_o = 0...5$ V<br>Span $\Delta U = 2...30$ V   |
| Rotary direction  | Clockwise or counter-clockwise rotation depends...   |  |
|   | ...on the type of control. With no power applied, the actuator remains in the respective position. | ...on the position of the rotary direction DIL switch clockwise / counter-clockwise  |
| Position indication: Mechanical                             | Rotational angle position indicated by position indicator  |  |
| Position indication: Electrical                             |  | Position indicator:<br>Output voltage U = DC 0...10 V is generated proportional to the rotational angle. U depends on the DIL switch position.<br>Does not apply to GDB16...1J and GLB16...1J.                                       |
| Self-adaptation of rotational angle range                   |  | When self-adaptation is active, the actuator automatically determines the mechanical end positions of the rotational angle range and maps the characteristics function ( $U_o, \Delta U$ ) to the calculated rotational angle range. |
| Manual adjustment   | The actuator can be manually adjusted by pressing the gear train disengagement button.             |  |
| Rotational angle limitation                                 | The rotational angle can be mechanically limited between 0° and 90°.                               |  |




## Ordering

When ordering, please give name and type reference, e.g. air damper actuator GDB131.1J.

Accessories,  
spare parts

Accessories are available to extend the scope of functions of the actuators, e.g. rotary / linear sets (refer to Data Sheet N4698).

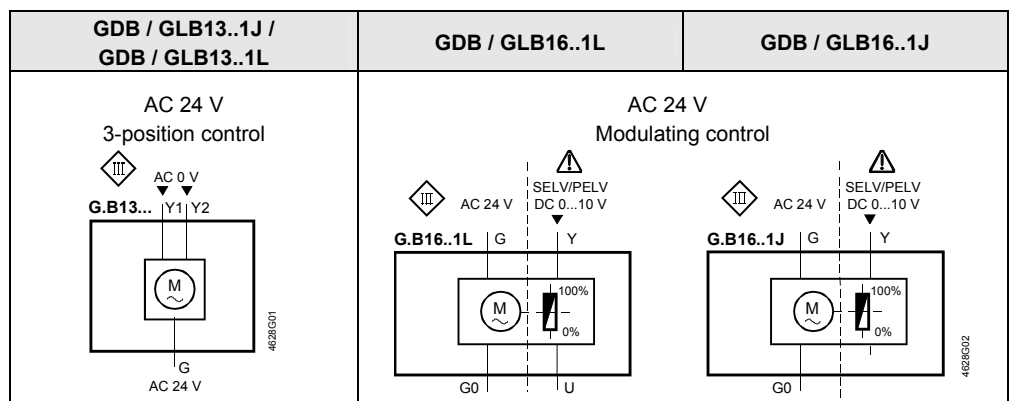
## Technical data

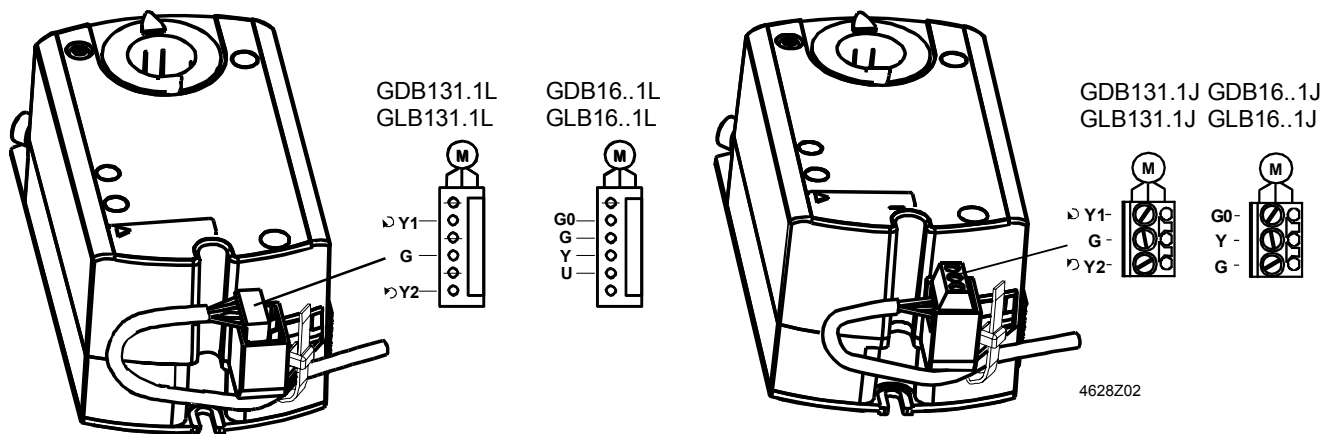
|  |  |   |                                      |
|--|--|---|--------------------------------------|
|  AC 24 V supply (SELV / PELV) | Operating voltage / frequency  | AC 24 V $\pm$ 20 % / 50/60 Hz   |                                      |
|  | Power consumption  | GDB13..1 / GLB13..1 running<br>GDB16..1 / GLB16..1 running<br>holding | 2 VA / 1 W<br>3 VA / 2 W<br>1 W      |
| Functional data  | Nominal torque   | 5 Nm (GDB) 10 Nm (GLB)  |                                      |
|  | Maximum torque (when blocked)  | 7 Nm (GDB) 19 Nm (GLB)  |                                      |
|  | Nominal rotational angle / max. rotational angle   | 90° / 95° $\pm$ 2°  |                                      |
|  | Running time for 90° rotational angle (GDB/GLB)  | 150 s (50 Hz) / 125 s (60 Hz)   |                                      |
| Positioning signal for GDB16..1 / GLB16..1   | Input voltage Y  | DC 0...10 V,  |                                      |
|  | Max. permissible input voltage   | DC 35 V, internally limited to DC 10 V                                |                                      |
| Characteristics functions for GDB/GLB161.1J+L<br>GDB/GLB163.1J+L   | Input voltage Y  | DC 0...35 V   |                                      |
|  | Nonadjustable characteristics function   | DC 0...10 V   |                                      |
|  | Adjustable characteristics function offset $U_0$<br>span $\Delta U$  | DC 0...5 V<br>DC 2...30 V   |                                      |
| Position indicator for GDB/GLB16..1L   | Output voltage U   | DC 0...10 V   |                                      |
|  | Max. output current  | DC $\pm$ 1 mA   |                                      |
| Protection   | Degree of protection of housing as per EN 60 529   | IP 20   |                                      |
|  | Insulation class as per EN 60 730  | III   |                                      |
| Environmental conditions   | Operation / transport  | IEC 721-3-3 / IEC 721-3-2   |                                      |
|  | Temperature<br>Humidity (noncondensing)  | -32...+55 °C / -32...+70 °C<br>< 95% r. h. / < 95% r. h.              |                                      |
| Standards and directives   | Product safety: Automatic electrical controls for household and similar use  | EN 60 730-2-14 (type 1)   |                                      |
|  | Electromagnetic compatibility (EMC):   |   |                                      |
|  | Immunity   | IEC/EN 61 000-6-2   |                                      |
|  | Emissions  | IEC/EN 61 000-6-3   |                                      |
|  |  Conformity: Electromagnetic compatibility<br>Low-voltage directive             | 89/336/EEC<br>73/23/EEC   |                                      |
|  |  Conformity: Australian EMC Framework<br>Radio Interference Emission Standard | Radio Communication Act 1992<br>AS/NZS 3548                           |                                      |
| Dimensions   | Actuator W x H x D (refer to "Dimensions")   | 70.7 x 156.2 x 60.6 mm  |                                      |
|  | Damper shaft:  | Round GDB   | 8...16 mm                            |
|  |  | Round GLB   | 8...10 mm with centering element     |
|  |  | Round GLB   | 10...16 mm without centering element |
|  |  | Square  | 6...12.8 mm                          |
|  |  | Min. shaft length   | 30 mm                                |
| Shaft hardness   | < 300 AV   |   |                                      |
| Connectors type L<br>type J  | Post header  | AMP MTA 100/640456-6  |                                      |
|  | Terminal strip   | Lumberg KRES03, max. 3 x 2.5 mm <sup>2</sup>                          |                                      |
| Weight   | Without packaging  | 0.48 kg   |                                      |

## Disposal notes

The document "Technical basics" and the Environmental Product Declaration provide information about environmental compatibility and disposal of the actuator.

## Internal diagrams

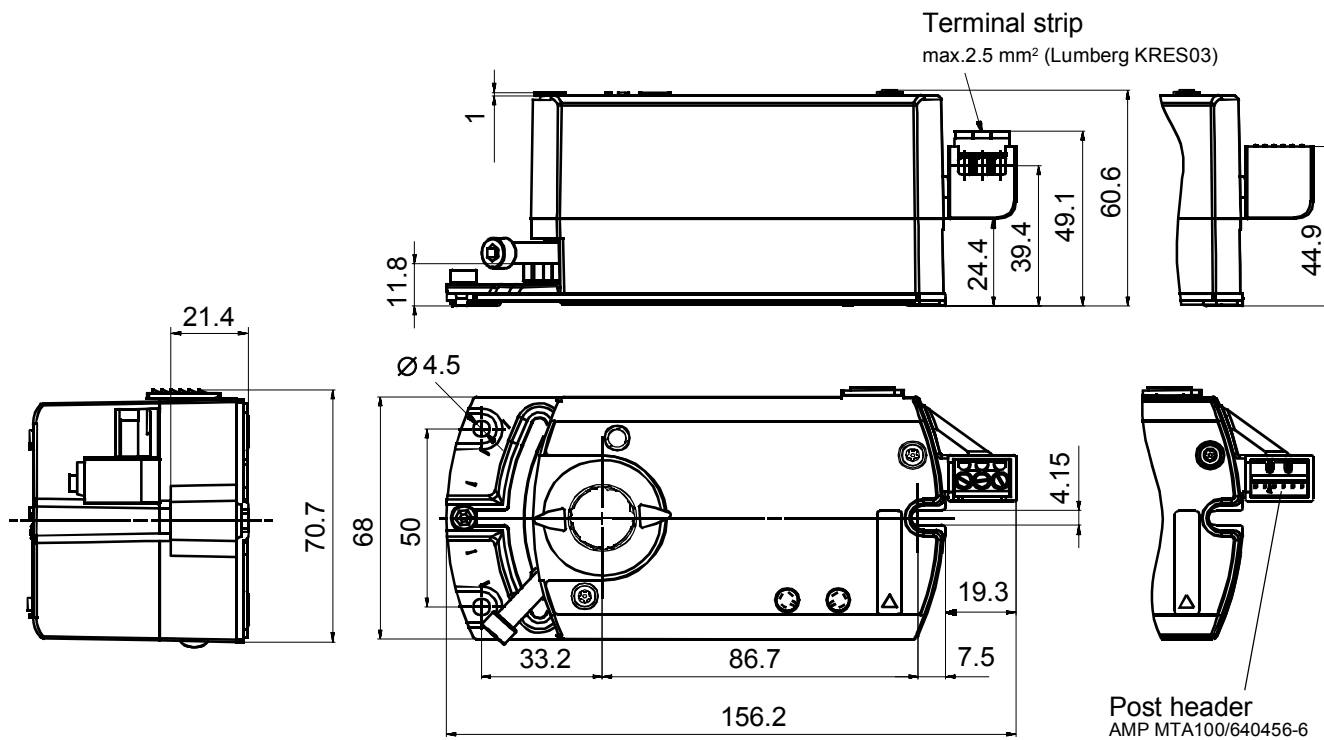




**Connector type L  
Terminals type J**

| Connections                           | Terminals / connector | Meaning               |
|---------------------------------------|-----------------------|-----------------------|
|                                       | Code                  |                       |
| System potential                      | G                     | AC 24 V               |
| System neutral                        | G0                    | AC 0 V                |
| Positioning signal, clockwise         | Y1                    | AC 0 V                |
| Positioning signal, counter-clockwise | Y2                    | AC 0 V                |
| Positioning signal                    | Y                     | DC 0...10 V, 0...35 V |
| Position indication                   | U                     | DC 0...10 V           |

**Dimensions**



Dimensions in mm