



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 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 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 $\Omega$		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 <b>cannot be added in the field</b> . 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 <b>not mounted</b> 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 <b>N4699</b> .

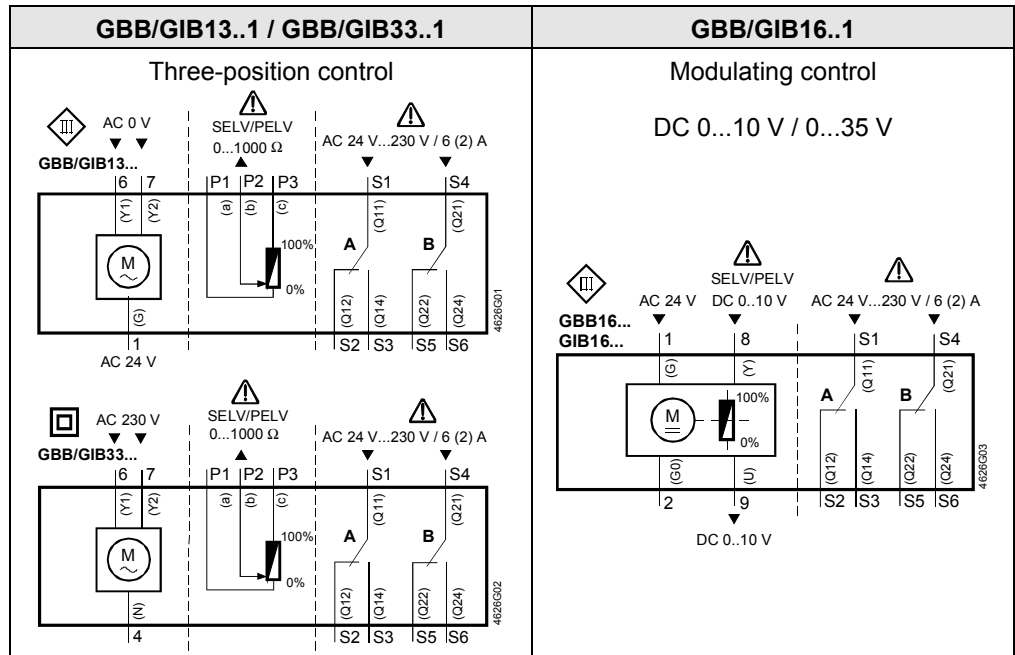
## Technical data

 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 <sub>0</sub> 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 <sup>2</sup>	
	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

