



OpenAir™

## Air damper actuators

## GEB...1

Rotary version, AC 24 V / AC 230 V

**Electronic motor driven actuators for three-position and modulating control, nominal torque 15 Nm, self-centering shaft adapter, mechanically adjustable span between 0...90°, prewired with 0.9 m long connection cables. Type-specific variations with adjustable offset and span for the positioning signal, position indicator, feedback potentiometer, self-adaptation of the rotary 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 Z4621en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

### Use

- For damper areas up to 3 m<sup>2</sup>, 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

GEB....	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	X	X
DC 2...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 1k $\Omega$		X			X					
Self-adaptation of rotary angle range							X	X	X	X
Auxiliary switches (two)			X			X			X	X
Rotary direction switch							X	X	X	X
Powerpack (two actuators, tandem-mounted)	X	X	X	X	X	X				

## Functions

Type	GEB13..1 / GEB33...1	GEB16..1
Control type	Three-position control	Modulating control
Positioning signal with adjustable characteristic function		DC 0...35 V with 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 position.	...the DIL switch setting 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 proportional to the rotary angle. $U$ depends on the rotary direction of the DIL switch.
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 rotary angle range		When self-adaptation is active, the actuator automatically determines the mechanical end positions of the rotary angle range and maps the characteristic function ( $U_o, \Delta U$ ) to the calculated rotary angle range.
Powerpack	Mounting two of the same actuator types on the same damper shaft may result 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 **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

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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 **N4697**.

## Technical data

 AC 24 V supply (SELV/PELV)	Operating voltage / Frequency	AC 24 V $\pm$ 20 % / 50/60 Hz
	Power consumption GEB13..1: Running	4 VA / 3.5 W
	GEB16..1: Running Holding	6 VA / 5.5 W 1.5 W
 AC 230 V supply	Operating voltage / Frequency	AC 230 V $\pm$ 10 % / 50/60 Hz
	Power consumption GEB33..1	3 VA / 3 W
Function data	Nominal torque	15 Nm
	Maximum torque (blocked)	30 Nm
	Nominal rotary angle / Max. rotary angle	90° / max. 95° $\pm$ 2°
	Runtime for 90° rotary angle	150 s (50 Hz) / 125 s (60 Hz)
Positioning signal for GEB16..1	Input voltage Y (wires 8-2)	DC 0...10 V / DC 2...10 V
	Max. permissible input voltage	DC 35 V
Characteristic functions for GEB161.1, GEB166.1 for GEB163.1, GEB164.1	Input voltage Y (wires 8-2)	DC 0...35 V
	Non-adjustable characteristic function	DC 0...10 V / DC 2...10 V
	Adjustable characteristic function Offset U <sub>o</sub>	DC 0...5 V
	Span $\Delta$ U	DC 2...30 V
Position indicator for GEB16...1	Output voltage U (cores 9-2)	DC 0...10 V
	Max. output current	DC $\pm$ 1 mA
Feedback potentiometer for GEB132.1 / GEB332.1	Change of resistance (wires P1-P2)	0...1000 $\Omega$
	Load	< 1 W
 Auxiliary switches for GEB..6.1 / GEB164.1	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 AC 230 V, auxiliary switch	III 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. 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 for all models, except GEB132.1x; GEB332.1x	IEC/EN 61 000-6-2
	Immunity for GEB132.1x; GEB332.1x	IEC/EN 61 000-6-1
	Emissions 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 Interference Emission Standard	Radio Communication Act 1992 AS/NZS 3548
Dimensions	Actuator W x H x D (see "Dimensions")	81 x 192 x 63 mm
	Damper shaft: Round	6.4...20.5 mm
	Square	6.4...13 mm
	Min. shaft length	20 mm
Weight	Without packaging: GEB1...1	1 kg
	GEB33..1	1.1 kg

## Disposal

The document on technical basics and the environmental declaration provide

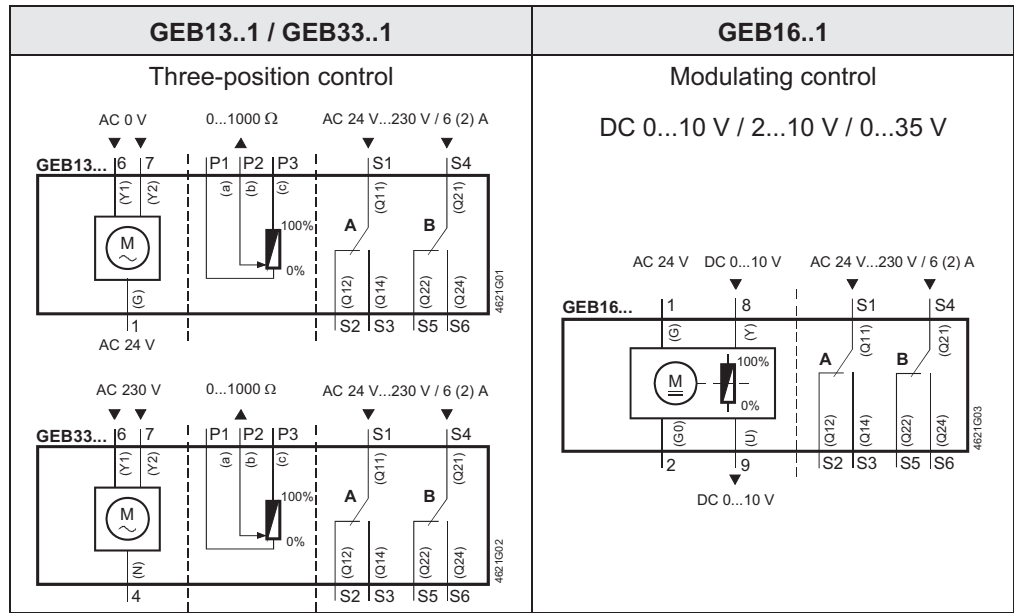
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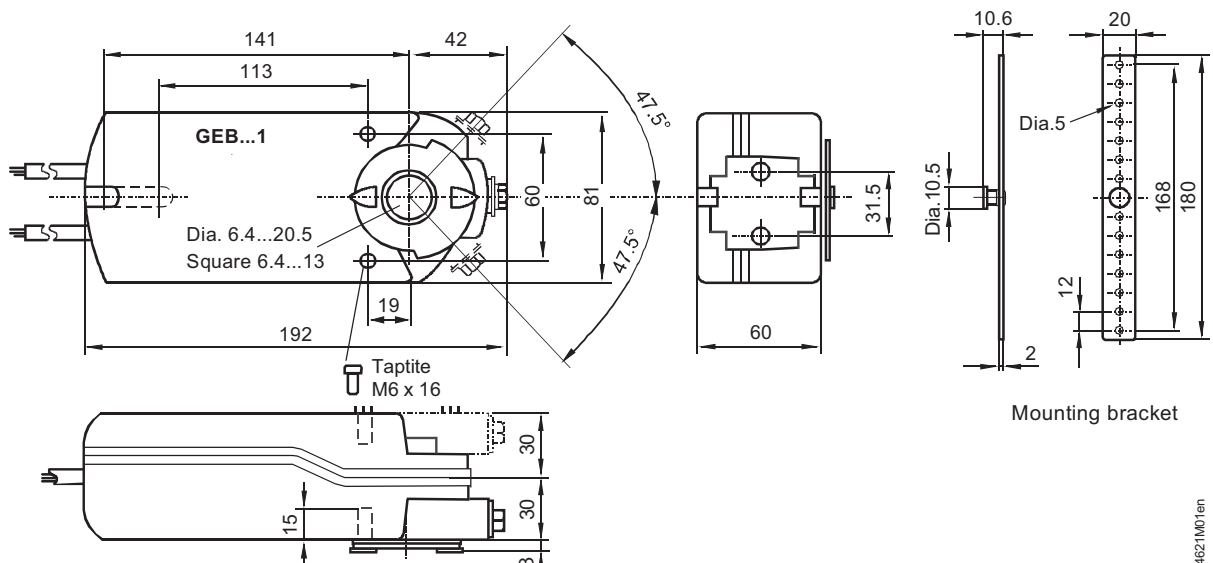
Internal diagrams



Cable labeling

Pin	Cable		Color Abbreviation	Meaning	
	Code	No.			
Actuators AC 24V	G	1	red	RD	System potential AC 24 V
	G0	2	black	BK	System neutral
	Y1	6	purple	VT	Control signal AC 0 V, clockwise
	Y2	7	orange	OG	Control signal AC 0 V, counter-clockwise
	Y	8	gray	GY	Pos. signal DC 0...10 V, 2...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	gray/red	GY RD	Switch A Input
	Q12	S2	gray/blue	GY BU	Switch A Normally closed contact
	Q14	S3	gray/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
Positioner	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



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