SIEMENS

4634

OpenAir™

Air damper actuators

GDB...1
GLB...1
GSF...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) or 2 Nm (GSF), 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 m^2 (GDB) / 1.5 m^2 (GLB), friction-dependent for GSF…1 up to 0.3 m^2
- Suitable for use with modulating controllers (DC 0...10 V) or three-position controllers for air dampers or air throttles.

Type summery

GDB…/GLB…	131.1E	132.1E	136.1E	331.1E	332.1E	336.1E	161.1E	163.1E	164.1E	166.1E
GSF…							**161.1E**			
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 Uo, ΔU								X	X	
Position indicator U = DC 0...10 V							X	X	X	X
Feedback potentiometer 1 kΩ		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 / GSF16..1
Control type	Three-position control	Modulating control
Positioning signal with adjustable characteristic function		Y = DC 0...35 V at Offset Uo = 0...5 V Span ΔU = 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 proportional 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 automatically determines the mechanical end positions of the linear span and maps the characteristic function (Uo, ΔU) 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

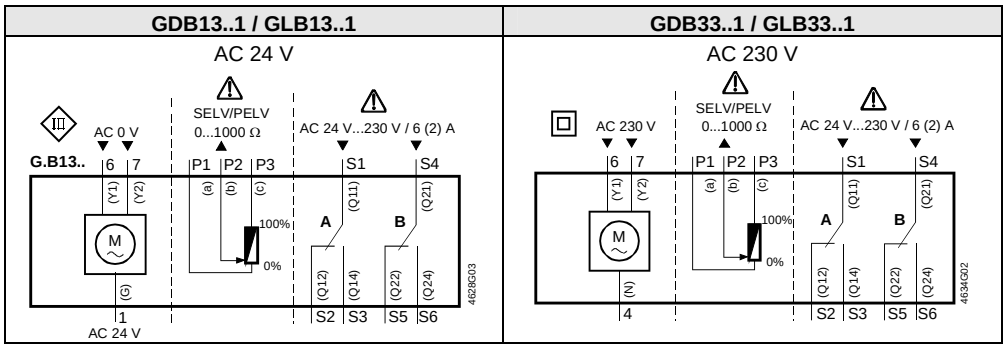
⚠ AC 24 V supply (SELV/PELV)	Operating voltage / Frequency			AC 24 V ± 20 % / 50/60 Hz
	Power consumption	GDB13..1/GLB13..1	Running	2 VA / 1 W
		GDB16..1/GLB16..1	Running	3 VA / 2 W
			Holding	1 W
	Power consumption	GSF16..1	Running	4 VA / 3.7 W
			Holding	2 W
⚠ AC 230 V supply	Operating voltage / Frequency			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)/ 2 Nm (GSF)
	Maximum torque (blocked)			7 Nm (GDB)/ 19 Nm (GLB)/ 3.5 Nm (GSF)
	Nominal rotary angle / Max. rotary angle			90° / 95° ± 2°
	Runtime for 90° rotary angle	(GDB/GLB)		150 s (50 Hz) / 125 s (60 Hz)
		(GSF)		20 s (50 Hz) / 17 s (60 Hz)
Positioning signal for GDB16..1/GLB16..1/GSF16..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/GSF161.1/ 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 Uo	DC 0...5 V
			Span ΔU	DC 2...30 V
Position indicator for GDB/GLB/GSF16...1	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 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		EN 60 730-2-14
		and similar use		(Type 1)
	Electromagnetic compatibility (EMC):			
	Immunity for all models, except GDB/GLB.32.1x			IEC/EN 61 000-6-2
	Immunity for GDB/GLB.32.1x			IEC/EN 61 000-6-1
	Emission for all types			IEC/EN 61 000-6-3
	CE 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")			68 x 137 x 59.5 mm
	Damper shaft:	round		8...16 mm
		round with centering element		8...10 mm
		4-kant		6...12.8 mm
		Min. shaft length		30 mm
		Shaft hardness		< 300 AV
Weight	Without packaging:			0.48 kg

Disposal

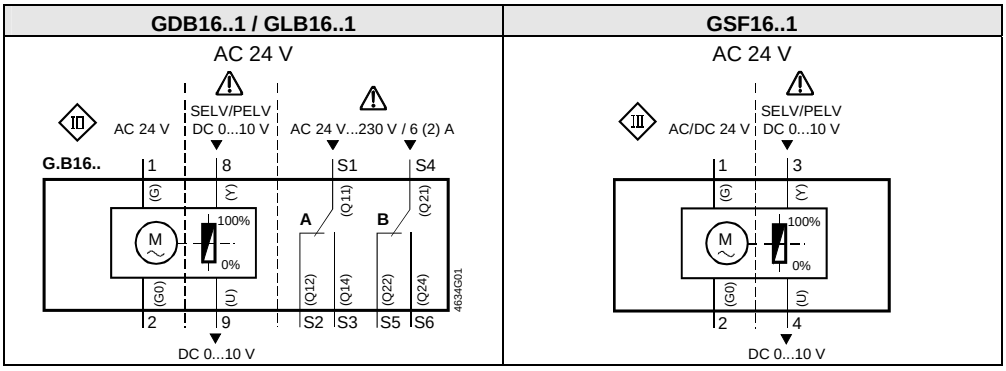
The document on technical basics and the environmental declaration provide information on environmental compatibility and disposal of this device.

Internal diagrams

Three-position control



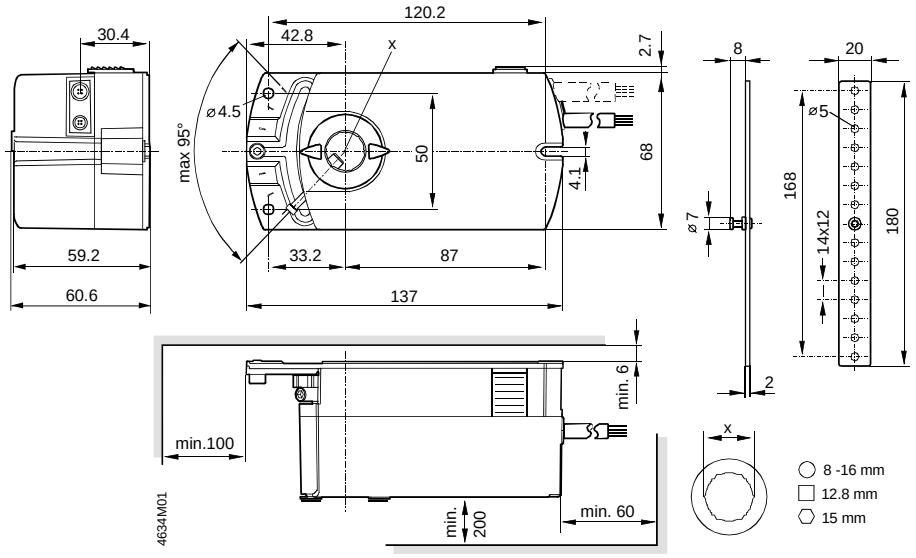
Modulating control



Cable labeling

Pin	Cable				Meaning
	Code	No.	Color	Abbreviation	
Actuators	G	1	red	RD	System potential AC 24 V
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	N	4	blue	BU	Neutral conductor
AC 230V	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	a	P1	white /red	WH RD	Potentiometer 0...100 % (P1-P2)
potentiometer	b	P2	white /blue	WH BU	Potentiometer pick-off
	c	P3	white /pink	WH PK	Potentiometer 100...0 % (P3-P2)

Dimensions



Dimensions in mm

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