



OpenAir™

Air damper actuators

GCA...1

Rotary version with spring return,
AC 24 V / AC 230 V

Electronic motor driven actuators for two-position, three-position, and modulating control, nominal torque 16 Nm, with spring return, 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 Z4613E for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

Use

- For damper areas up to 3 m², friction-dependent.
- In ventilation sections where the actuator must move to the zero position (emergency position) during power failure.
- For dampers having two actuators on the same damper shaft (tandem-mounted actuators or Powerpack).

Type summary

GCA...	121.1E	126.1E	321.1E	326.1E	131.1E	135.1E	161.1E	163.1E	164.1E	166.1E
Control type	Two-position control				Three-position control		Modulating control			
Operating voltage AC 24 V	X	X			X	X	X	X	X	X
Operating voltage AC 230 V			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 Ω						X				
Auxiliary switches (two)		X		X					X	X
Powerpack (2 actuators)	X	X	X	X	X	X				






Functions

Type	GCA12..1 / GCA32..1	GCA13..1	GCA16..1
Control type	Two-position control	Three-position control	Modulating control
Positioning signal with adjustable characteristic function			DC 0...35 V at Offset $U_o = 0...5 V$ Span $\Delta U = 2...30 V$
Rotary direction	Clockwise or counter-clockwise movement depends on the mounting position of the damper shaft... ...and on the type of control		
Spring return function	On power failure or when the operating voltage is switched off, the spring return moves the actuator to its mechanical zero position.		
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.	Output voltage $U = DC 0...10 V$ is generated proportional to the rotary angle.
Auxiliary switch	The switching points for auxiliary switches A and B can be set independent of each other in increments of 5° within 5° to 90°.		
Powerpack (two actuators, tandem-mounted)	Mounting two of the same actuator types on the same damper shaft may result in a double torque.		
Rotary angle limitation	The rotational angle of the shaft adapter can be limited mechanically at increments of 5°.		

Ordering

Note	Potentiometer and auxiliary switches 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 are not mounted on delivery.
Accessories, spare parts	Accessories to functionally extend the actuators are available, e.g., linear/rotary sets and weather protection cover; see data sheet N4699 .

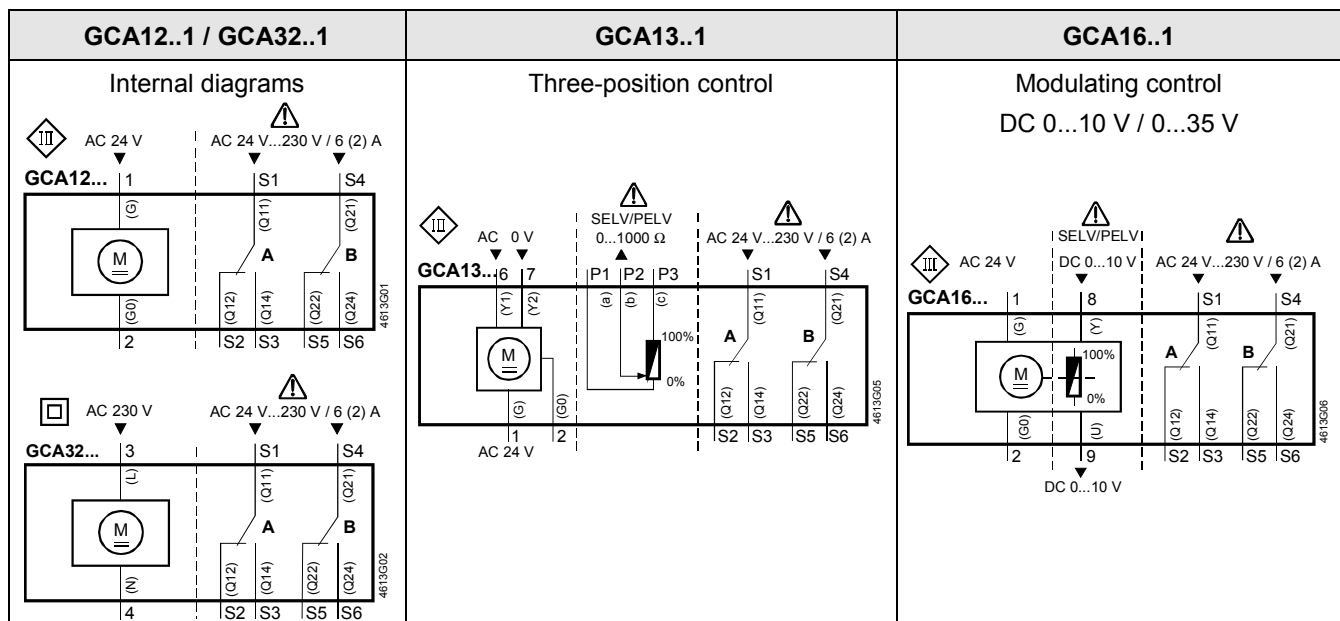
Technical data

 AC 24 V supply (SELV/PELV)	Operating voltage AC / Frequency		AC 24 V ± 20 % / 50/60 Hz
	Power consumption	GCA1...1 Running	9 VA / 6 W
		GCA12..1, 13..1 Holding	1.5 W
 AC 230 V supply		GCA16..1 Holding	2.2 W
	Operating voltage / Frequency		AC 230 V ± 10 % / 50/60 Hz
	Power consumption	GCA32..1 Running	9 VA / 6 W
Function data		Holding	9 VA / 2.3 W
	Nominal torque		16 Nm
	Maximum torque (blocked)		50 Nm
	Nominal rotary angle / Max. rotary angle		90° / 95° ± 2°
	Runtime for rotary angle 90° (motor operation)		90 s
Positioning signal for GCA13..1	Closing time with return spring (on power failure)		15 s
	Switching current (at AC 24 V) for "Open"/"Close" (wires 6, 7)		typical 8 mA
Positioning signal for GCA16..1,	Input voltage Y (wires 8-2)		DC 0...10 V
	Max. permissible input voltage		DC 35 V
Characteristic functions for GCA161.1, 166.1 for GCA163.1, 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 ₀	DC 0...5 V
		Span ΔU	DC 2...30 V
Position indicator for GCA16..1	Output voltage U (wires 9-2)		DC 0...10 V
	Max. output current		DC ± 1 mA
Feedback potentiometer for GCA132.1	Change of resistance (wires P1-P2)		0...1000 Ω
	Load		< 1 W
 Auxiliary switch for GCA..6.1, 164.1	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 / Setting increments		5°...90° / 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 and similar use		EN 60 730-2-14 (Type 1)
	Electromagnetic compatibility (EMC):		
	Immunity for all models, except GCA135.1x		IEC/EN 61 000-6-2
	Immunity for GCA135.1x		IEC/EN 61 000-6-1
	Emissions 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 B x H x T (see "Dimensions")	
Damper shaft:		Round / square	8...25.6 / 6...18 mm
Min. shaft length		20 mm	
Weight	Without packaging: GCA1..1 / GCA32..1		2 kg / 2.1 kg

Disposal

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

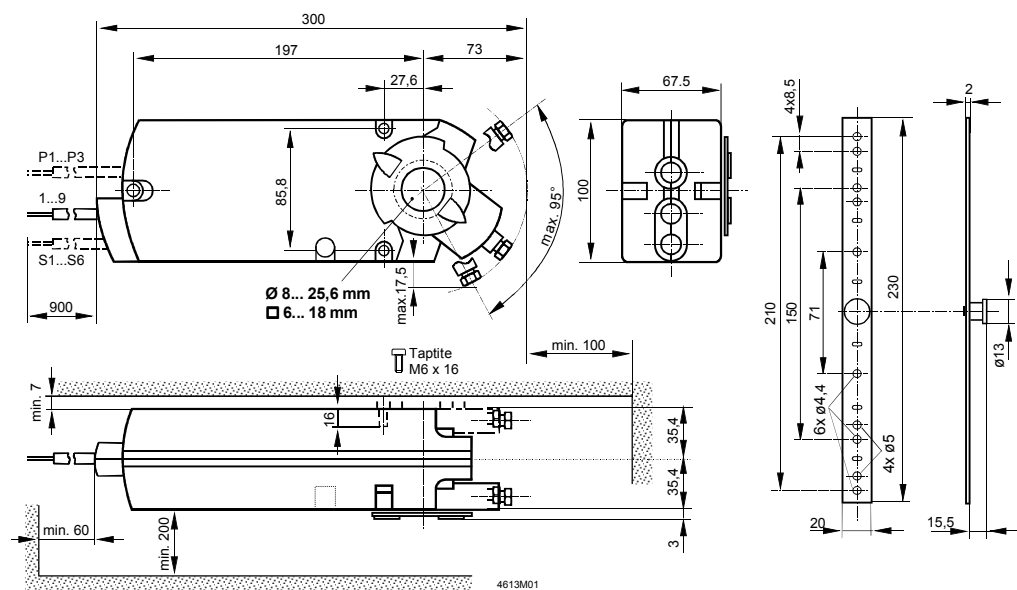
Internal diagrams



Cable labeling

Pin	Cable				Meaning
	Code	No.	Color	Abbreviation	
Actuators AC 24 V	G	1	red	RD	System potential AC/DC 24 V
	G0	2	black	BK	System neutral
	Y1	6	purple	VT	Pos. signal AC 0 V / AC 24 V, "open"
	Y2	7	orange	OG	Pos. signal AC 0 V / AC 24 V, "close"
	Y	8	grey	GY	Pos. signal DC 0...10 V, 0...35 V
	U	9	pink	PK	Output DC 0...10 V
Actuators AC 230 V	L	3	brown	BR	Phase AC 230 V
	N	4	blue	BU	Neutral conductor
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



Dimensions in mm