OpenAir™

Air damper actuators GCA...1

Rotary version with spring return,
AC 24 V / DC 24…48 V / AC 230 V

Electronic motor driven actuators for two-position, three-position, and modulating control, nominal torque 18 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 Z4613en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

Use

- For damper areas up to 3 m^2, 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 / DC 24…48 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 Uo, ΔU								X	X	
Position indicator U = DC 0...10 V							X	X	X	X
Feedback potentiometer 1 kΩ						X				
Auxiliary switches (two)		X		X		X			X	X
Powerpack (2 actuators)	X	X	X	X	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 Uo = 0...5 V Span ΔU = 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 results in a double torque (with accessories ASK73.1).		Mounting two of the same actuator types on the same damper shaft results in a double torque (with accessories ASK73.2).
Rotary angle limitation	The rotational angle of the shaft adapter can be limited mechanically at increments of 5°.		

Ordering

Note

Potentiometer **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, auxiliary switches (1 or 2 switches) and weather protection cover; see data sheet **N4699**.

Technical data

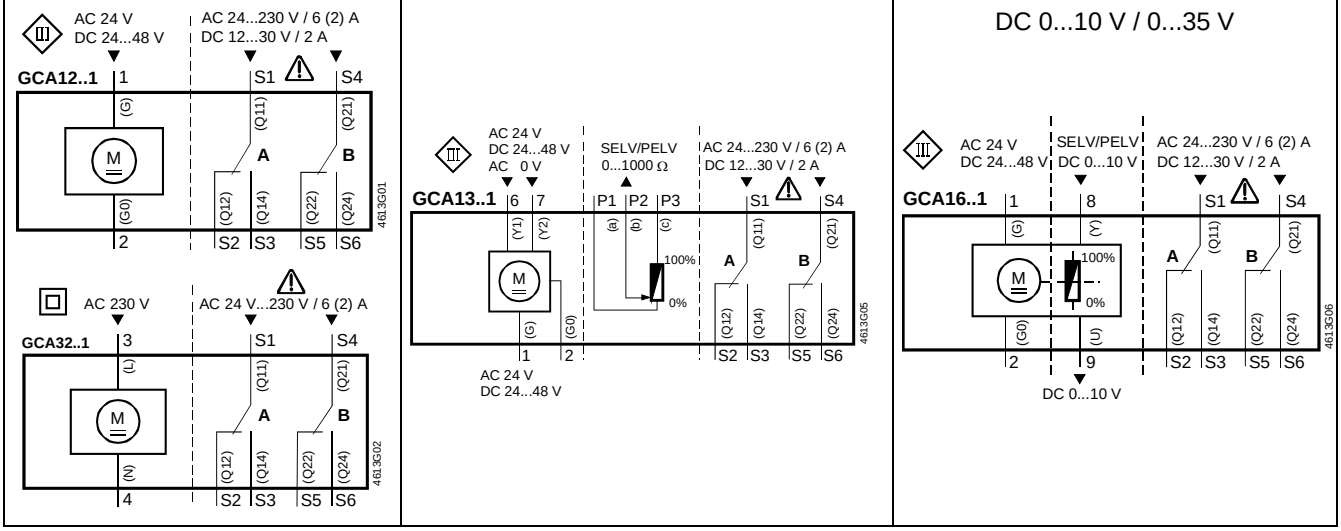
⚠ AC 24 V / DC 24…48 V supply (SELV/PELV)	Operating voltage AC / Frequency		AC 24 V ± 20 % / 50/60 Hz
	Operating voltage DC		DC 24…48 V ± 20 %
	Power consumption	Running	AC: 7 VA / 5 W
		Running	DC: 4 W
		Holding	AC: 5 VA / 3 W
		Holding	DC: 3 W
⚠ AC 230 V supply	Operating voltage / Frequency		AC 230 V ± 10 % / 50/60 Hz
	Power consumption	Running	8 VA / 6 W
		Holding	6 VA / 4 W
Function data	Nominal torque		18 Nm
	Maximum torque (blocked)		50 Nm
	Nominal rotary angle / Max. rotary angle		90° / 95° ± 2°
	Runtime for rotary angle 90° (motor operation)		90 s
	Closing time with return spring (on power failure)		15 s
Positioning signal for GCA13..1	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	Input voltage Y (wires 8-2)		DC 0...35 V
for GCA161.1, 166.1	Non-adjustable characteristic function		DC 0...10 V
for GCA163.1, 164.1	Adjustable characteristic function	Offset Uo	DC 0...5 V
		Span ΔU	DC 2...30 V
Position indicator	Output voltage U (wires 9-2)		DC 0...10 V
for GCA16..1	Max. output current		DC ± 1 mA
Feedback potentiometer	Change of resistance (wires P1-P2)		0...1000 Ω
for GCA132.1	Load		< 1 W
⚠ Auxiliary switch for GCA..6.1, 164.1	AC power supply		
	Switching voltage		AC 24...230 V
	Nominal current res./ind.		AC 6 A / 2 A
	DC power supply		
	Switching voltage		DC 12…30 V
	Nominal current		DC 2 A
	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
	CE Conformity:	Electromagnetic compatibility	89/336/ECC
		Low voltage directive	73/23/ECC
	✓ Conformity:	Australian EMC Framework	Radio Communication Act 1992
		Radio Interference Emission Standard	AS/NZS 3548
Dimensions	Actuator B x H x T (see "Dimensions")		100 x 300 x 67.5 mm
	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.

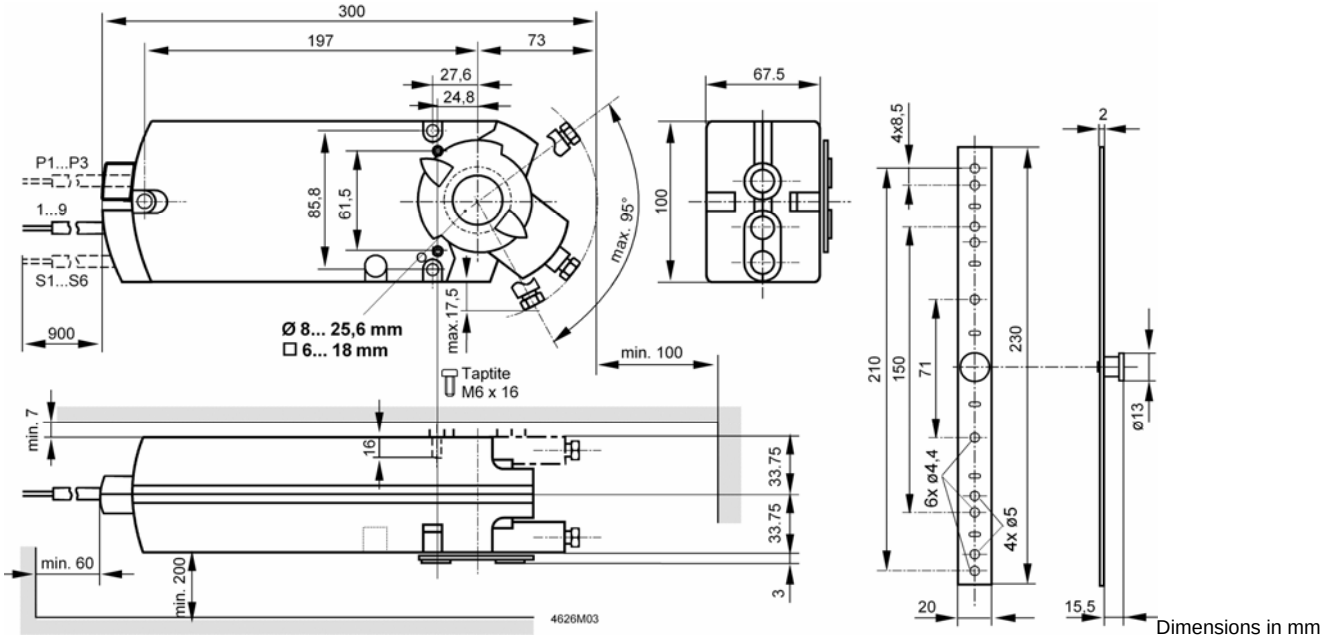
Internal diagrams

GCA12..1 / GCA32..1	GCA13..1	GCA16..1
Internal diagrams	Three-position control	Modulating control DC 0...10 V / 0...35 V



Pin	Cable labeling				Meaning
	Code	No.	Color	Abbreviation	
Actuators	G	1	red	RD	System potential AC 24 V / DC 24…48 V
AC 24 V	G0	2	black	BK	System neutral
DC 24…48 V	Y1	6	purple	VT	Pos. signal AC 0 V / AC 24 V / DC 24…48 V, "open"
	Y2	7	orange	OG	Pos. signal AC 0 V / AC 24 V / DC 24…48 V, "close"
	Y	8	grey	GY	Pos. signal DC 0...10 V, 0...35 V
	U	9	pink	PK	Position indication DC 0...10 V
Actuators	L	3	brown	BN	Phase AC 230 V
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	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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