SIEMENS

OpenAir™

Air damper actuators, running time 90 s

GDA..1E, GLA..1E

Electronic motor driven actuators for open-close, 3-position and modulating control

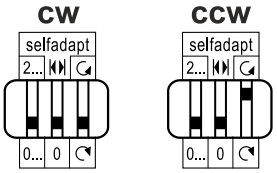
- Nominal torque: 5 Nm / 10 Nm
- Operating voltage: AC 24 V ~ / DC 24…48 V ⎓
- Running time for 90° rotary angle: 90 s
- Mechanically adjustable span: 0…90°
- Position indication: mechanical and electrical
- Pre-wired with 0.9 m long connection cables
- Self-adaption of rotational angle range and adjustable auxiliary switches for supplementary functions

Use

The rotary actuators are used in ventilation and air conditioning plants to regulate and shut off air dampers:

- GDA..1E for damper areas up to 0.8 m^2
  GLA..1E for damper areas up to 1.5 m^2
  (These are guidelines; always observe damper manufacturer's data.)
- Suitable for use with modulating controllers (DC 0/2...10 V), open-close or 3-position controllers for air dampers or air throttles.
- We recommend a minimum pulse length of 500 ms on rotary actuators operated with 3-position control to ensure continuous and accurate operation.

Functions

GDA.., GLA..		**141.1E 146.1E**	**161.1E**
Power supply		AC 24 V ~ / DC 24...48 ⎓	
Control type		Open-close 3-position	Modulating control (0/2...10 V)
Rotary direction		Clockwise or counter-clockwise direction depending…	
		• …on the type of control; • …on the setting of the rotary direction switch. 	• …on the position signal; • …on the setting of the rotary direction DIL switch. 
		With no power applied, the actuator remains in the respective position.	The actuator remains in the achieved position… • …if the control signal is maintained at a constant value; • …in the event of a loss of operating voltage.
Position indication:	Mechanical	Rotary angle position indication by using a position indicator.	
	Electrical	-	Output voltage U = DC 0/2...10 V is generated proportionally 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 independently of each other in increments of 5° within 0...90°.	
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 set screw.	

Technical design

Housing

The housing consists essentially of flame retardant, non-brominated, non-chlorinated glass fiber reinforced plastic.

Actuator motor / Gears

- Brushless, robust DC motors ensure reliable operation regardless of load. The damper actuators do not require an end position switch, are overload proof, and remain in place upon reaching the end stop.
- The gears are maintenance-free and low noise.

Type summary

Type	Stock no.	Nom. torque	Control	Operating voltage	Positioning signal Y	Position indicator U = DC 0...10 V	Self-adaption of rot. angle range	Aux. switch	Rotary direct. switch
GDA141.1E	S55499-D688	5 Nm	Open-close or 3-position	AC 24 V ~ / DC 24...48 V ⎓	-	-	-	-	yes
GDA146.1E	S55499-D689							2	
GDA161.1E	S55499-D690		Modulating		DC 0/2...10 V ⎓	yes	yes	-	yes
GLA141.1E	S55499-D691	10 Nm	Open-close or 3-position	AC 24 V ~ / DC 24...48 V ⎓	-	-	-	-	yes
GLA146.1E	S55499-D692							2	
GLA161.1E	S55499-D693		Modulating		DC 0/2...10 V ⎓	yes	yes	-	yes

Accessories

See data sheet N4698.

Product documentation

Topic	Title	Document ID:
Mounting instructions	Fast running air damper actuators GDx..1E, GLx..1E	A6V11684392
Data sheet	Accessories and spare parts for air damper actuators ASK..	CM2N4698

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Notes

Security

⚠ CAUTION	
	**National safety regulations** Failure to comply with national safety regulations may result in personal injury and property damage. ● Observe national provisions and comply with the appropriate safety regulations. ● Only qualified personnel may mount, commission, and service the device.

Engineering

Potentiometer and auxiliary

Potentiometer and auxiliary switches cannot be added in the field.

Installation

⚠ WARNING	
	**No internal line protection for supply lines to external consumers** Risk of fire and injury due to short-circuits ● Adapt the line diameters as per local regulations to the rated value of the installed fuse.

Maintenance

The actuators G..A..1E are maintenance-free.

Disposal

The device is considered an electronic device for disposal in accordance with European Directive and may not be disposed of as domestic waste.

- Use only designated channels for disposing the devices.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power supply			**GDA..1E**	**GLA..1E**
Operating voltage			AC 24 V ~ ± 20 % (19.2...28.2 V ~) DC 24...48 V ⎓ ± 20 % (19.2...57.6 V ⎓) (SELV / PELV)	
Frequency			50/60 Hz	
Power consumption	Running	G..A14..1E	0.7 W / 1.1 VA	1.0 W / 1.5 VA
		G..A16..1E	0.9 W / 1.3 VA	1.2 W / 1.7 VA
	Holding	G..A14..1E	0.4 W / 0.7 VA	0.4 W / 0.7 VA
		G..A16..1E	0.6 W / 1.0 VA	0.6 W / 0.9 VA

Function data		GDA..1E	GLA..1E
Nominal torque		5 Nm	10 Nm
	Maximum torque (blocked)	10 Nm	16 Nm
	Minimum holding torque	5 Nm	10 Nm
Nominal rotary angle (with position indication)		90°	
	Maximum rotary angle (mechanic limitation)	95° ± 2°	
Runtime for 90° rotary angle		90 s	
Actuator sound power level		30 dB (A)	

Inputs			
Positioning signal for G..A14..1E			
	Operating voltage	(wires 1-6 / G-Y1)	Clockwise
	AC 24 V ~ / DC 24...48 V ⎓	(wires 1-7 / G-Y2)	Counter-clockwise
Positioning signal for G..A16..1E			
	Input voltage	(wires 8-2 / Y-G0)	DC 0/2...10 V ⎓
	Current consumption		0.1 mA
	Input resistance		>100 kΩ
Max. permissible input voltage			DC 35 V ⎓ limited to DC 10 V ⎓
	Protected against faulty wiring		Max. AC 24 V ~ / DC 24...48 V ⎓
Hysteresis for non-adjustable characteristic function			60 mV

Outputs			
Position indicator			
Output signal (G..A16..1E)		(wires 9-2 / U-G0)	
	Output voltage U		DC 0...10 V ⎓
	Max. output current		DC ± 1 mA
	Protected against faulty wiring		Max. AC 24 V ~ / DC 24...48 ⎓

GLA..1E

Mechanical life	
Full cycles	60'000
Partial cycles	5'000'000

GDA..1E

Mechanical life	
Full cycles	100'000
Partial cycles	5'000'000

Auxiliary switches (G..A146.1E)		
Switching voltage		AC 24...250 V ~ / DC 12...30 ⎓
Contact rating		6 A resistive, 2 A inductive, min. 10 mA at AC 4 A resistive, 2 A inductive, min. 10 mA at DC 30 V ⎓ 0.8 A resistive, 0.5 A inductive, min. 10 mA at DC 60 V ⎓
Electric strength auxiliary switch against housing		AC 4 kV
Switching range for auxiliary switches / setting increments		5...90° / 5°
Factory setting	Switch A	5°
	Switch B	85°

Connection cables	
Cable length	0.9 m
Cross section of prewired connection cables	0.75 mm^2
Permissible length for signal lines	300 m

Degree of protection		
Insulation class		As per EN 60730
	AC 24 V ~ / DC 24...48 ⎓	III
	Auxiliary switches	II
Housing protection		IP 54 as per EN 60529

Environmental conditions			
Operation			IEC 60721-3-3
	Climatic conditions		Class 3K5
		Mounting location	Interior, weather-protected
		Temperature extended	-32...55 ℃
		Humidity (non-condensing)	<95 % r.h.
Transport			IEC 60721-3-2
	Climatic conditions		Class 2K3
		Temperature extended	-32...70 ℃
		Humidity (non-condensing)	<95 % r.h.

Environmental conditions			
Storage			IEC 60721-3-1
	Climatic conditions		Class 1K3
		Temperature extended	-32...50 °C
		Humidity (non-condensing)	<95 % r.h.
Mechanical conditions			Class 2M2

Standards, directives and approvals		
Product standard		EN 60730 / Part 2-14 / Particular requirements for electric actuators
Electromagnetic compatibility (Applications)		For use in residential, commercial, light-industrial and industrial environments
EU Conformity (CE)		
	GDA..1E	A5W00026943 [1)]
	GLA..1E	A5W00026945 [1)]
UK Conformity (UKCA)		
	GDA..1E	A5W00244318A [1)]
	GLA..1E	A5W00221282A [1)]
RCM		
	GDA..1E	A5W00026947 [1)]
	GLA..1E	A5W00026949 [1)]
EAC		Eurasian conformity

Environmental compatibility
The product environmental declaration A5W00026066 [1)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

Dimensions		
Actuator W x H x D		See Dimensions [▶ 9]
Damper shaft		
	Round	8...16 mm
		8...10 mm (with centering element)
	Square	6...12.8 mm
	Min. shaft length	20 mm
	Shaft hardness	<300 HV

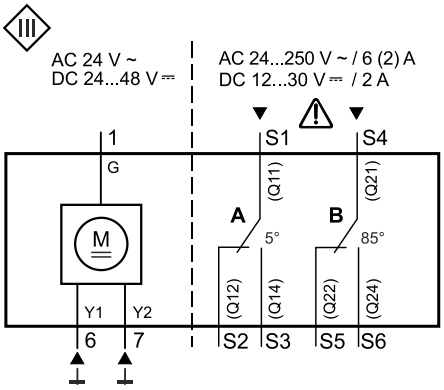
Weight		
Without packaging	Without switches	Max. 0.49 kg
	With switches	Max. 0.63 kg

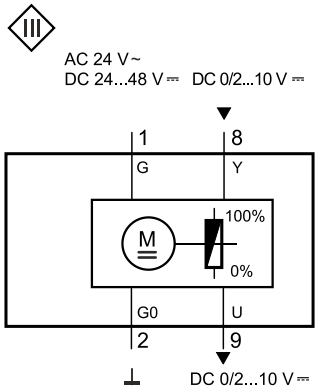
[1] The documents can be downloaded from http://siemens.com/bt/download.

Diagrams

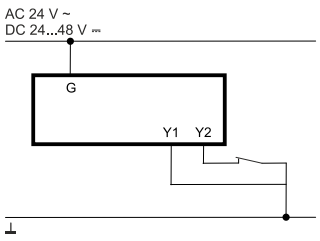
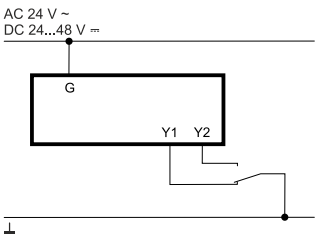
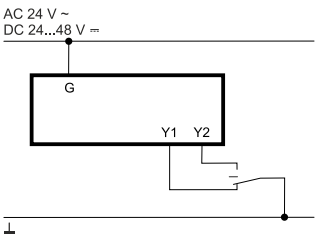
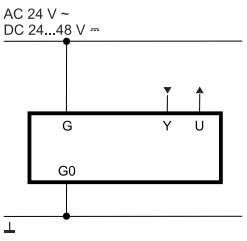
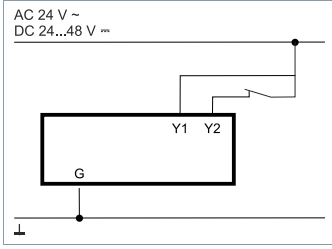
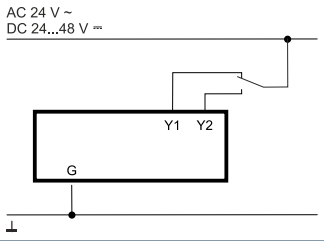
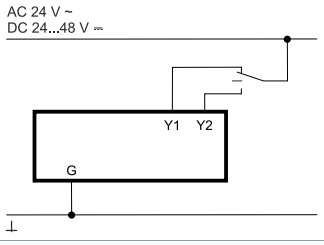
Internal Diagrams

G..A14..1E (open-close, 3-position)	G..A16..1E (modulating, Y = DC 0/2...10 V –)
AC 24 V ~ / DC 24...48 V –	





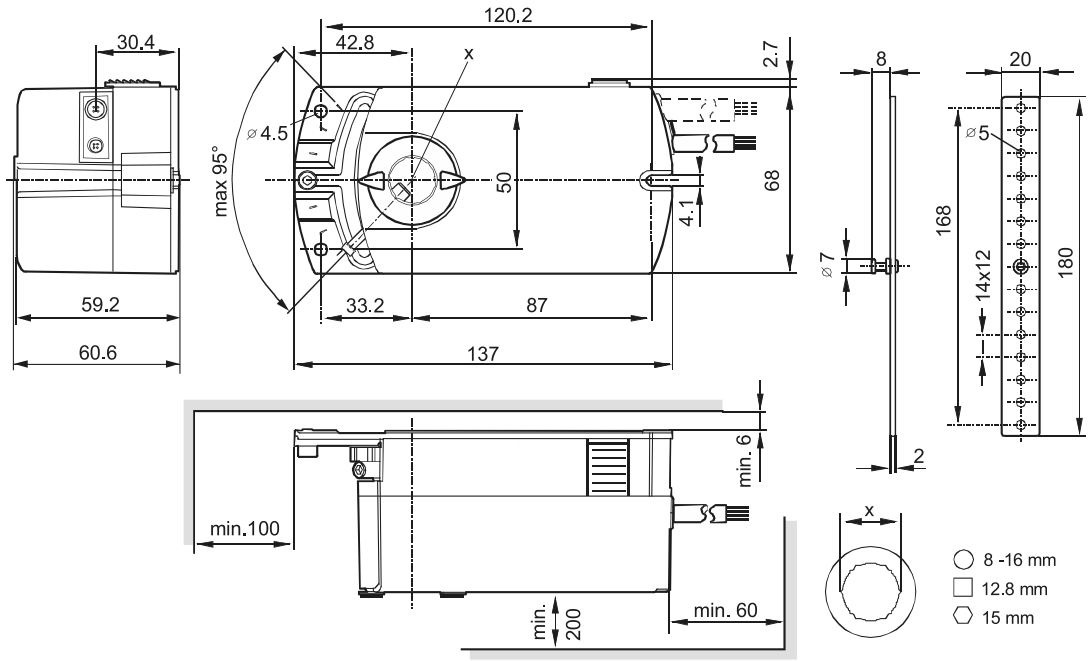
Connection diagrams

AC 24 V ~ / DC 24...48 V –			
Open-close, single wire control ***Single Pole Single Throw (SPST)***	**Open-close, two wire control** ***Single Pole Double Throw (SPDT)***	**3-position control**	**Modulating control**
			
			

Cable labeling

Connection	Code	No.	Color	Abbreviation	Meaning
Actuators AC 24 V ~ DC 24...48 V ⎓	G	1	red	RD	System potential AC 24 V ~ / DC 24...48 V ⎓
	G0	2	black	BK	System neutral
	Y1	6	purple	VT	Positioning signal AC/DC 0 V, “clockwise” (G..A14..1E)
	Y2	7	orange	OG	Positioning signal AC/DC 0 V, “counter-clockwise” (G..A14..1E)
	Y	8	grey	GY	Signal in (G..A16..1E)
	U	9	pink	PK	Signal out (G..A16..1E)
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 RD	Switch B normally closed contact
	Q24	S6	black/pink	BK PK	Switch B normally open contact

Dimensions



Dimensions in mm

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