SIEMENS

ACVATIX™

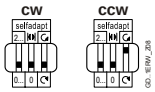
Rotary actuators for ball valves

GLD161.9E

Electromotoric rotary actuators for modulating control.
Used in heating, ventilation and air conditioning plants.

- For 2-port and 3-port control ball valves, internally threaded connections (VAI61.. and VBI61..) or externally threaded connections (VAG61.. and VBG61..), DN15 to DN50
- Nominal torque 8 Nm
- Operating voltage AC 24 V ~ / DC 24…48 V ⎓
- Pre-wired with 0.9 m long connection cables

- Brushless, robust DC motors ensure reliable operation regardless of load.
- The rotary 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.
- Suitable for use with modulating controllers (DC 0/2...10 V).

Function	Description
Control type	Modulating control (0/2…10 V)
Rotary direction	Clockwise or counter-clockwise direction depends …
	… on the setting of the rotary direction DIL switch
	
	… on the positioning signal. The actuator remains in the achieved position: … if the control signal is maintained at a constant value … for loss of operating voltage.
	NC (normally closed) ball valve
	DIL 3 set to “counter-clockwise” (ccw) Flow = 0% at Y = 0 V Flow = 100% at Y = 10 V
	NO (normally open) ball valve
	DIL 3 set to “clockwise” (cw) Flow = 100% at Y = 0 V Flow = 0% at Y = 10 V
Position indication: Mechanical	Rotary angle position indication by a position indicator/hand lever.
Position indication: Electrical	Output voltage U = DC 0/2...10 V is generated proportional to the rotary angle. U depends on the rotary direction of the DIL switch setting.
Self-adaptation of linear span	When self-adaptation is active, the actuator automatically determines the mechanical end positions of the linear span.
Manual adjustment	The rotary 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.

Housing

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

Type	Stock no.	Control	Operating voltage	Positioning signal Y	Position indicator U = DC 0…10 V ⎓	Self-adaption of rotational angle range	Aux. switches	Rotary direction switch
GLD161.9E	S55499-D278	Modulating	AC 24 V ~ / DC 24…48 V ⎓	DC 0/2...10 V ⎓	yes	yes	–	yes

Accessories / Spare parts

Individual spare parts are not available. Components of the accessory kit ASK77.3 [1], available as an accessory, can however be used for spare parts.

Description	Components
ASK77.3 Accessory Kit BV for GLBxx1.9E	Mounting bracket (base plate) Axle with sleeve and spring Manual lever with locking clip

[1] Can also be used as rotary actuator for ball valves together with the actuator for air dampers G..B.1E.

Equipment combinations

GLD161.9E and VA..61.. 2-port control ball valves

Control ball valves with:				k_{vs} [m^3/h]	DN	GLD161.9E	
internal threads [1]	Rp	external threads [2]	G..B			Δp_{max}	Δp_s
–	–	VAG61.15..	G 1 B	1…6.3	15	350	1400
VAI61.15..	Rp ½“	–	–	1…10	15		
VAI61.20..	Rp ¾”	VAG61.20..	G 1 ¼ B	4…10	20		
VAI61.25..	Rp 1”	VAG61.25..	G 1 ½ B	6.3…16	25		
VAI61.32..	Rp 1¼”	VAG61.32..	G 2 B	10…25	32		1000
VAI61.40..	Rp 1½”	VAG61.40..	G 2 ¼ B	16…40	40		800
VAI61.50..	Rp 2”	VAG61.50..	G 2 ¾ B	25…63	50		600

GLD161.9E and VB..61.. 3-port control ball valves

Control ball valves with:				k_{vs} [m^3/h]	DN	GLD161.9E	
internal threads [1]	Rp	external threads [2]	G..B			Δp_{max}	Δp_s
VBI61.15..	Rp ½“	VBG61.15..	G 1 B	1.6…6.3	15	350	–
VBI61.20..	Rp ¾”	VBG61.20..	G 1 ¼ B	4…6.3	20		
VBI61.25-10	Rp 1”	VBG61.25-10	G 1 ½ B	10	25		
VBI61.32-16	Rp 1¼”	VBG61.32-16	G 2 B	16	32		
VBI61.40-25	Rp 1½”	VBG61.40-25	G 2 ¼ B	25	40		
–	–	VBG61.50-40	G 2 ¾ B	40	50		
VBI61.50..	Rp 2”	–	–	40…63	50		

[1] Data sheet N4211
[2] Data sheet N4212

Topic	Title	Document ID
Data sheet	Rotary actuators for ball valves	A6V11171770_en--
Mounting instructions	GLD..9E	A6V11171776_----
Mounting instructions	VAI61.. / VBI61..	M4211
Mounting instructions	VAG61.. / VBG61..	M4212

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:
http://siemens.com/bt/download

Safety

Caution

National safety regulations

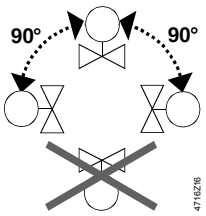
Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.
- Use only properly trained technicians for mounting, commissioning, and servicing.

Mounting

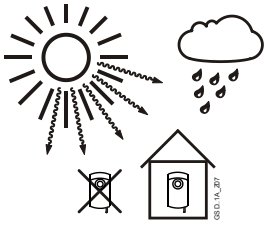
Both ball valve and rotary actuator can easily be assembled at the mounting location. Neither special tools nor adjustments are required.

Orientation

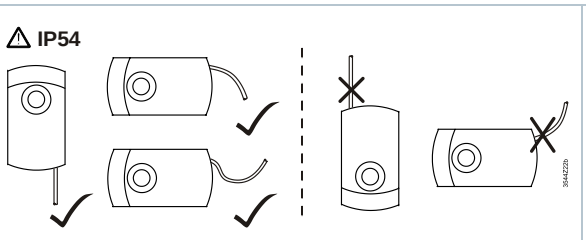


Cables must be easily accessible

Protection against weather, humidity and dirt



Protection against direct sunlight and rain



Correct mounting position and cable connection

Protection only with closed cover!

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.

Commissioning

When commissioning the system, check wiring and the functions of the rotary actuator.

Manual adjustment

The rotary actuator can be manually adjusted into any position between 0° and 90° by pushing the gear train disengagement slider.

If a control signal from the controller is present, this will take priority in determining the position after the slider is released.

For manual adjustment: Power off!

Maintenance

The actuators GLD161.9E are maintenance-free.

Disposal

The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Power supply		
Operating voltage (SELV/PELV) / Frequency		AC 24 V ~ ±20 % (19,2…28,8 V ~) / 50/60 Hz DC 24…48 V ⎓ ±20 % (19,2…57,6 V ⎓) [1)]
Power consumption	running	4.9 VA / 1.8 W
	holding	0.5 W

Function data	
Nominal torque Maximum torque (blocked)	8 Nm 16 Nm
Nominal rotary angle (with position indication) Maximum rotary angle (mechanic limitation)	90° 95° ± 2°
Runtime for 90° rotary angle	30 s
Actuator sound power level	32 dB(A)

Inputs		
Positioning signal		
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 ~
Hysteresis		60 mV

Outputs		
Position indicator		
Output signal	(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 V ⎓

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	III as per EN 60730
Housing protection	IP54 as per EN 60529

Environmental conditions	
Operation	IEC 60721-3-3
Climatic conditions	Class 3K5
Mounting location	interior, weather-protected
Temperature extended	-32…+55 °C
Humidity (non-condensing)	<95 % r.F.
Transport	IEC 60721-3-2
Climatic conditions	Class 3K5 / Class 2K3
Temperature extended	-32…+70 °C
Humidity (non-condensing)	<95 % r.F.
Storage	IEC 60721-3-1
Climatic conditions	Class 1K3
Temperature extended	-32…+50 °C
Humidity (non-condensing)	<95 % r.F.
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)	A5W00026944 [2)]
RCM Conformity	A5W00026948 [2)]
EAC Conformity	Eurasian conformity
UL	UL as per UL 60730 http://ul.com/database cUL [1)] as per CSA-C22.2 No. 24-93

Environmental compatibility
The product environmental declaration A5W00026068 [2] 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“, p. 8

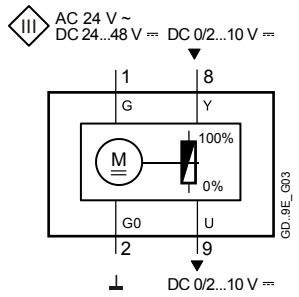
Weight	
Without packaging	0.69 kg

[1] Permitted only to DC 30 V ⎓

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

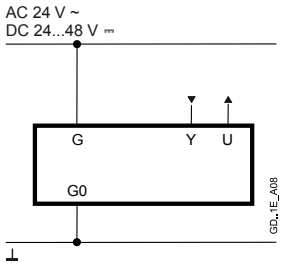
Internal Diagram

GLD161.9E



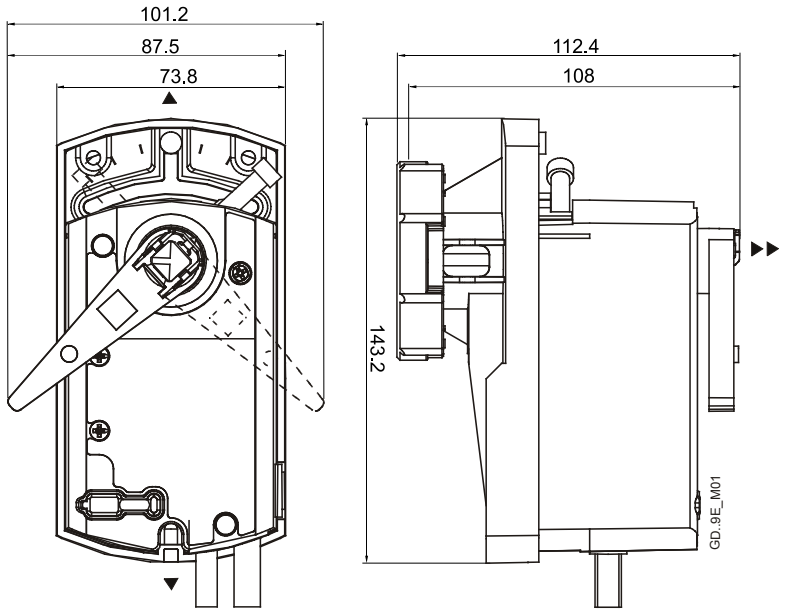
Connection diagram

GLD161.9E



Cable labeling

Pin	Code	No	Color	Abbreviation	Meaning
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 ⎓	Y	8	grey	GY	Signal-in
	U	9	pink	PK	Signal-out



Dimensions in mm

▶ = >100 mm
▶▶ = >200 mm

Minimum clearance from ceiling or wall for mounting, connection, operation, maintenance etc.

Issued by
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www.siemens.com/buildingtechnologies

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Document ID A6V11171770_en--_a
Issue 2018-01-11