



## Rotary actuators for ball valves

## GMA..9E

for ball valves VA..61.. / VB..61.. and VA..60.. / VB..60..

AC 24 V / DC 24...48 V / AC 230 V

- Electromotive rotary actuators with spring return for emergency position
- For 2-position, 3-position, and modulating control
- Pre-wired with 0.9 m long connection cables

### Remarks

This data sheet provides a brief overview of these rotary actuators. Please refer to the Technical Basics in document Z4614en for a detailed description as well as information on safety, engineering notes, mounting and commissioning.

### Use

- 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
- For open/close ball valves 2-port and changeover ball valves 3-port, internally threaded connections (VAI60.. and VBI60..) or externally threaded connections (VAG60.. and VBG60..), DN15 to DN50
- Suitable for use with modulating controllers (DC 0...10 V), 3-position controllers or 2-position controllers
- In plants where the rotary actuator must move to the zero position (emergency position) during power failure

## Type summary

	GMA121.9E	GMA321.9E	GMA131.9E	GMA161.9E
Operating voltage AC 24 V / DC 24...48 V	X		X	X
Operating voltage AC 230 V		X		
Control type 2-position	X	X		
Control type 3-position			X	
Positioning signal Y = DC 0...10 V				X
Position indicator U = DC 0...10 V				X

## Functions

Type <sup>1)</sup>	GMA..21.9E	GMA131.9E	GMA161.9E
Control type	2-position control	3-position control	Modulating control
Rotary direction for mounting on ball valve (NC/NO)	NC (normally closed) ball valve	NC (normally closed) ball valve	NC (normally closed) ball valve
	Switch on operating voltage: Actuator opens (counter-clockwise) Switch off operating voltage: Actuator closes with spring (clockwise)	Signal on Y1 – rotation counter-clockwise – ball valve opens Signal on Y2 – rotation clockwise – ball valve closes	0...10 V “counter-clockwise” Flow = 0% at Y = 0 V Flow = 100% at Y = 10 V
	See the mounting instructions M4658 for other switchings.		
Emergency position (Spring return)	On power failure or when the operating voltage is switched off, the spring moves the ball valve to its mechanical zero position.		
Position indication: Mechanical	Rotary angle position indication with manual lever as position indicator.		
Position indication: Electrical			Output voltage U = DC 0...10 V is generated proportional to the rotary angle.
Manual adjustment	– Without voltage supplied, the rotary actuator can be rotated and fixed in any position using the supplied Allen key. – The rotary actuator returns to the zero position (actuator closed) if mechanically unlocked via Allen key or via short-term voltage supply.		

<sup>1)</sup> When combining GMA..1E and ASK77.2: You must consult the mounting instructions M4696 (74 319 0648 0)!

## Equipment combinations

The rotary actuators are suitable for operation of the following Siemens ball valves:

VA..61.. 2-port control ball valves

Control ball valves with:						GMA..9E	
internal threads <sup>1)</sup>	Rp	external threads <sup>2)</sup>	G..B	k <sub>vs</sub> [m <sup>3</sup> /h]	DN	Δp <sub>max</sub>	Δp <sub>s</sub>
–	–	<b>VAG61.15..</b>	G 1 B	1...6.3	15	350	1400
<b>VAI61.15..</b>	Rp ½"	–	–	1...10	15		
<b>VAI61.20..</b>	Rp ¾"	<b>VAG61.20..</b>	G 1 ¼ B	4...10	20		
<b>VAI61.25..</b>	Rp 1"	<b>VAG61.25..</b>	G 1 ½ B	6.3...16	25		
<b>VAI61.32..</b>	Rp 1¼"	<b>VAG61.32..</b>	G 2 B	10...25	32		
<b>VAI61.40..</b>	Rp 1½"	<b>VAG61.40..</b>	G 2 ¼ B	16...40	40		
<b>VAI61.50..</b>	Rp 2"	<b>VAG61.50..</b>	G 2 ½ B	25...63	50		
						1000	800
						600	

VB..61.. 3-port  
control ball valves

Control ball valves with:						GMA..9E	
internal threads <sup>1)</sup>	Rp	external threads <sup>2)</sup>	G..B	k <sub>vs</sub> [m <sup>3</sup> /h]	DN	Δp <sub>max</sub>	Δp <sub>s</sub>
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		

<sup>1)</sup> Data sheet N4211

<sup>2)</sup> Data sheet N4212

VA..60.. / VB..60..  
open/close 2-port  
and  
changeover ball valves  
3-port

Ball valves with:						GMA..9E	
internal threads <sup>3)</sup>	Rp	external threads <sup>4)</sup>	G..B	k <sub>vs</sub> [m <sup>3</sup> /h]	DN	Δp <sub>max</sub>	Δp <sub>s</sub>
–	–	VAG60.15-9	G 1 B	9	15	350	1400
VAI60.15-15	Rp ½"	–	–	15	15		
–	–	VAG60.20-17	G 1 ¼ B	17	20		
VAI60.20-22	Rp 1"	–	–	22	20		
VAI60.25-22	Rp 1"	VAG60.25-22	G 1 ½ B	22	25		
VAI60.32-35	Rp 1¼"	VAG60.32-35	G 2 B	35	32		
VAI60.40-68	Rp 1½"	VAG60.40-68	G 2 ¼ B	68	40		
VAI60.50-96	Rp 2"	VAG60.50-96	G 2 ¾ B	96	50	1000	
						800	
						600	
VBI60.15-5L	Rp ½"	–	–	5	15	350	
VBI60.20-9L	Rp 1"	–	–	9	20		
VBI60.25-9L	Rp 1"	–	–	9	25		
VBI60.32-13L	Rp 1¼"	–	–	13	32		
VBI60.40-25L	Rp 1½"	–	–	25	40		
VBI60.50-37L	Rp 2"	–	–	37	50		
–	–	VBG60.15-8T	G 1 B	8	15	350	
VBI60.15-12T	Rp ½"	–	–	12	15		
–	–	VBG60.20-13T	G 1 ¼ B	13	20		
VBI60.20-16T	Rp 1"	–	–	16	20		
–	–	VBG60.25-13T	G 1 ½ B	13	25		
VBI60.25-16T	Rp 1"	–	–	16	25		
VBI60.32-25T	Rp 1¼"	VBG60.32-25T	G 2 B	25	32		
VBI60.40-49T	Rp 1½"	VBG60.40-49T	G 2 ¼ B	49	40		
VBI60.50-73T	Rp 2"	VBG60.50-73T	G 2 ¾ B	73	50		

<sup>3)</sup> Data sheet N4213

<sup>4)</sup> Data sheet N4214

## Notes

For more details about these rotary actuators see document Z4614.

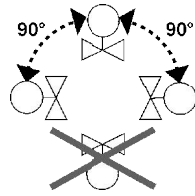
## Mounting

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

The rotary actuator is supplied with Mounting Instructions:

Type	Document	Stock no.
GMA..9E	M4658	74 319 0653 0
VAI61 / VBI61..	M4211	74 319 0647 0
VAG61 / VBG61..	M4212	74 319 0922 0
VAI60.. / VBI60..	M4213	74 319 0883 0
VAG60.. / VBG60..	M4214	74 319 0923 0

Orientation



Commissioning

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



Technical data GMA..9E

<b>!</b> Supply voltage AC 24 V DC 24...48 V (SELV / PELV)	Operating voltage AC / Frequency	AC 24 V ± 20 % / 50/60 Hz	
	Operating voltage (DC)	DC 24...48 V ±20 %	
	Power consumption GMA1.1.9E: Running	AC: 5 VA / 3.5 W // DC: 3.5 W	
	GMA121.9E/GMA131.9E: Holding	AC/DC: 2 W	
	GMA161.9E: Holding	AC/DC: 2.5 W	
<b>!</b> Supply voltage AC 230 V	Operating voltage AC / Frequency	AC 230 V ± 10 % / 50/60 Hz	
	Power consumption GMA321.9E Running	7 VA / 4.5 W	
	Holding	3.5 W	
Function data	Nominal torque	7 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 GMA131.9E	Switching current (at AC 24 V / DC 24...48 V) for "Open"/"Close"	> AC/DC 8 mA	
Positioning signal for GMA161.9E	Input voltage Y (wires 8-2)	DC 0...10 V	
	Max. permissible input voltage	DC 35 V	
Position indicator for GMA161.9E	Output voltage U (wires 9-2)	DC 0...10 V	
	Max. output current	DC ± 1 mA	
Connection cables	Cross-section of the prewired connection cables	0.75 mm <sup>2</sup>	
	Standard length	0.9 m	
Degree of protection of housing	Degree of protection as per EN 60 529 (note mounting instructions)	IP54	
Protection class	Insulation class	EN 60730	
	AC 24 V / DC 24...48 V	III	
	AC 230 V	II	
Environmental conditions	Operation / Transport	IEC 60721-3-3 / IEC 60721-3-2	
	Climatic Conditions	Class 3K5 / Class 2K3	
	Temperature	-32...+55 °C / -32...+70 °C	
	Humidity (non-condensing)	< 95% r. h. / < 95% r. h.	
Standards and directives	Product standards	EN 60730-2-14	
	Automatic electrical controls for household and similar use	(Mode of operation, Type 1)	
	Electromagnetic compatibility (Application)	For residential, commercial and industrial environments	
	EU Conformity (CE)	8000081792 <sup>1)</sup>	
	RCM Conformity	8000081793 <sup>1)</sup>	
	Product environmental declaration <sup>2)</sup>	CE1E4614en <sup>1)</sup>	
	Weight	Without packaging: GMA1..9E	1.2 kg
		GMA3..9E	1.3 kg

<sup>1)</sup> The documents can be downloaded from <http://siemens.com/bt/download>

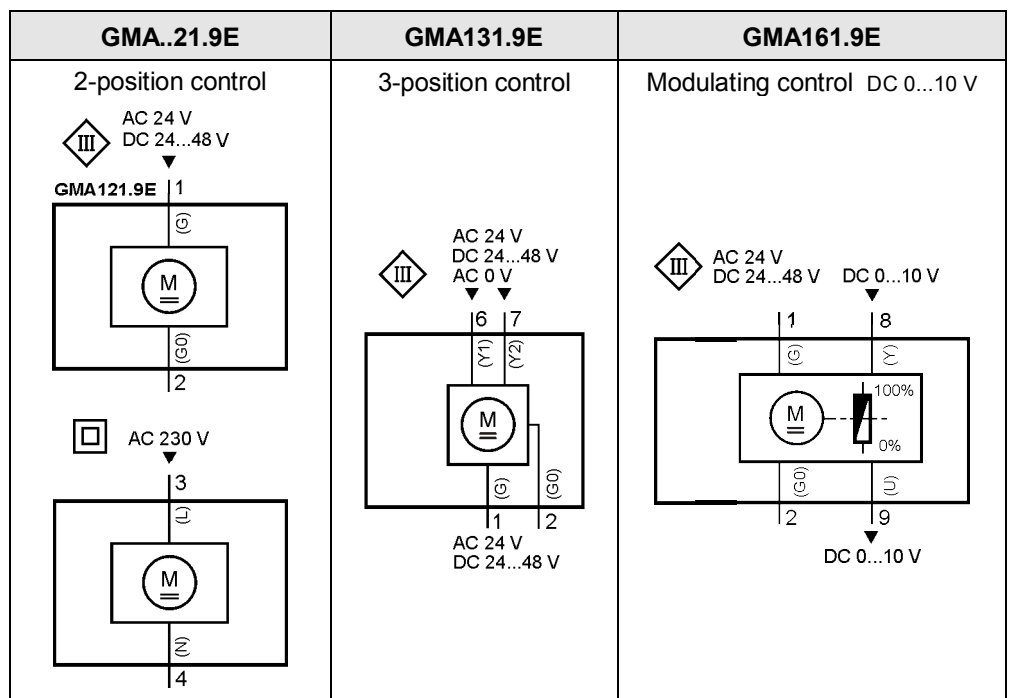
<sup>2)</sup> The product environmental declaration contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

## Disposal

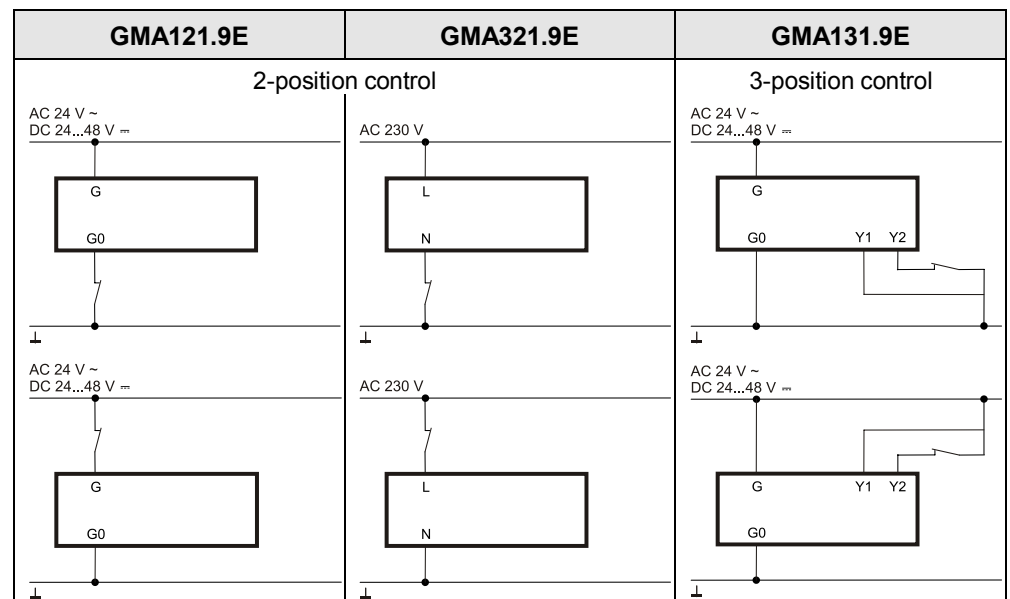
	<p><b>⚠ WARNING</b></p> <p><b>Tensioned return spring</b> Opening the actuator housing can release the tensioned return spring resulting in flying parts that may cause injury.</p> <ul style="list-style-type: none"> <li>Do not open the actuator body.</li> </ul>
	<p>The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.</p> <ul style="list-style-type: none"> <li>Dispose of the device through channels provided for this purpose.</li> <li>Comply with all local and currently applicable laws and regulations.</li> </ul>

## Connection diagrams

### Internal diagrams



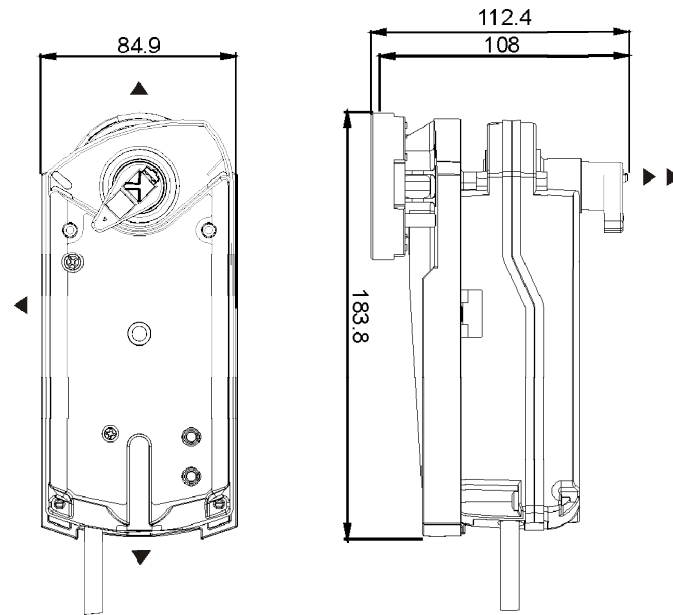
### Connection diagrams Single pole single throw (SPST)



Cable labeling

Connection	Cable				Meaning
	Code	No.	Color	Abbreviation	
Rotary 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	Positioning signal AC 0 V, AC 24 V / DC 24...48 V "counter-clockwise" N.C.
	Y2	7	orange	OG	Positioning signal AC 0 V, AC 24 V / DC 24...48 V "clockwise" N.C.
	Y	8	grey	GY	Positioning signal DC 0...10 V
	U	9	pink	PK	Position indication DC 0...10 V
Rotary actuators	L	3	brown	BN	Line AC 230 V
AC 230 V	N	4	blue	BU	Neutral

Dimensions



Dimensions in mm

- ▶ = > 100 mm
- ▶▶ = > 200 mm

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

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