



Rotary actuators for ball valves

GMA..9E

for ball valves VAI61.. / VBI61.. and VAI60.. / VBI60..

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

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- 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 threaded control ball valves from DN15 to DN50
- For open/close ball valves 2-port and changeover ball valves 3-port, internally threaded connections 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 ¹⁾	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.		

¹⁾ 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:

VAI61.. 2-port control ball valves

Type	k _{vs} [m ³ /h]	Rp	DN	PN	GMA..9E		Data sheet
					Δp _{max}	Δp _s	
VAI61.15..	1...10	Rp ½"	15	PN40	350	1400	N4211
VAI61.20..	4...10	Rp ¾"	20				
VAI61.25..	6.3...16	Rp 1"	25				
VAI61.32..	10...25	Rp 1¼"	32		350*/240**	1000	
VAI61.40..	16...40	Rp 1½"	40			800	
VAI61.50..	25...63	Rp 2"	50			600	

VBI61.. 3-port
control ball valves

Type	k _{vs} [m ³ /h]	Rp	DN	PN	GMA..9E		Data sheet
					Δp _{max}	Δp _s	
VBI61.15..	1.6...6.3	Rp 1/2"	15	PN40	350	1400	N4211
VBI61.20..	4...6.3	Rp 3/4"	20				
VBI61.25..	6.3...10	Rp 1"	25				
VBI61.32..	10...16	Rp 1 1/4"	32		350*/240**	1000	
VBI61.40..	25	Rp 1 1/2"	40			800	
VBI61.50..	40	Rp 2"	50			600	

* VAI61.32-10/16, VAI61.40-16, VAI61.50-25

**VAI61.32-25, VAI61.40-25/40, VAI61.50-40/63

* VBI61.15...VBI61.40-16

**VBI61.40-25, VBI61.50-40

VAI60.. / VBI60..
open/close 2-port
and
changeover ball valves
3-port

Type	k _{vs} [m ³ /h]	Rp	DN	PN	GMA..9E		Data sheet
					Δp _{max}	Δp _s	
VAI60.15-15	15	Rp 1/2"	15	PN40	350	1400	N4213
VAI60.20-22	22	Rp 1"	20				
VAI60.25-22	22	Rp 1"	25				
VAI60.32-35	35	Rp 1 1/4"	32				
VAI60.40-68	68	Rp 1 1/2"	40				
VAI60.50-96	96	Rp 2"	50				
VBI60.15-5L	5	Rp 1/2"	15	PN40	350		N4213
VBI60.20-9L	9	Rp 1"	20				
VBI60.25-9L	9	Rp 1"	25				
VBI60.32-13L	13	Rp 1 1/4"	32				
VBI60.40-25L	25	Rp 1 1/2"	40				
VBI60.50-37L	37	Rp 2"	50				
VBI60.15-12T	12	Rp 1/2"	15	PN40	350		N4213
VBI60.20-16T	16	Rp 1"	20				
VBI60.25-16T	16	Rp 1"	25				
VBI60.32-25T	25	Rp 1 1/4"	32				
VBI60.40-49T	49	Rp 1 1/2"	40				
VBI60.50-73T	73	Rp 2"	50				

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 M4658 (74 319 0653 0)

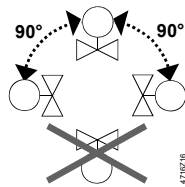
The ball valve:

– VAI61.. / VBI61.. is supplied with Mounting Instructions M4211 (74 319 0647 0),

the ball valve:

– VAI60.. / VBI60.. is supplied with Mounting Instructions M4213 (74 319 0883 0).



Orientation



Commissioning

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

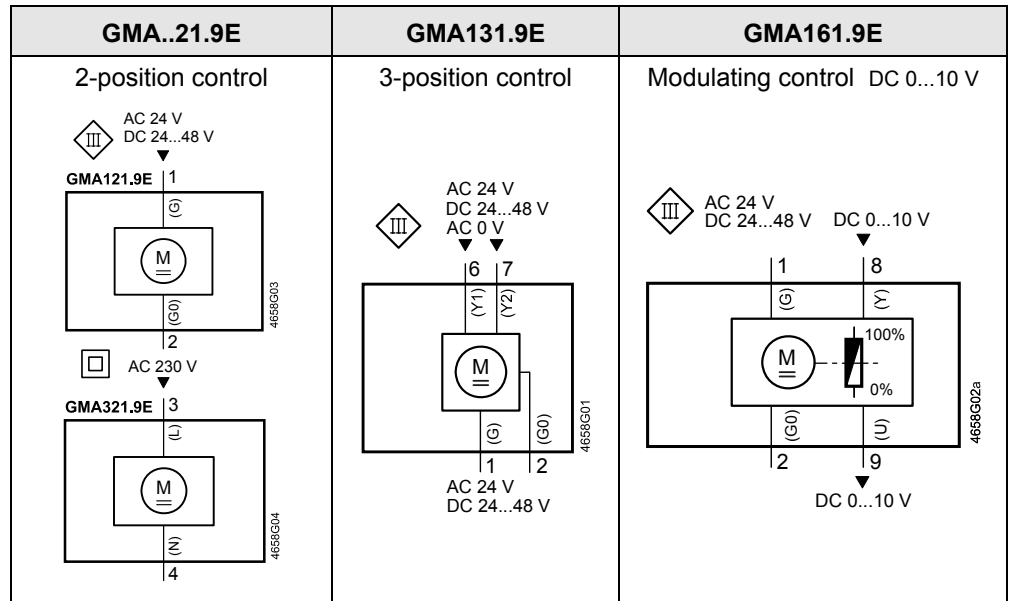
Technical data GMA..9E

 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
 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) Max. permissible input voltage	DC 0...10 V DC 35 V
Position indicator for GMA161.9E	Output voltage U (wires 9-2) Max. output current	DC 0...10 V DC ± 1 mA
Connection cables	Cross-section of the prewired connection cables Standard length	0.75 mm ² 0.9 m
Degree of protection of housing	Degree of protection as per EN 60 529 (note mounting instructions)	IP54
Protection class	Insulation class AC 24 V / DC 24...48 V AC 230 V	EN 60730 III II
Environmental conditions	Operation / Transport Temperature Humidity (non-condensing)	IEC 60721-3-3 / IEC 60721-3-2 -32...+55 °C / -32...+70 °C < 95% r. h. / < 95% r. h.
Standards and directives	Product standards Automatic electrical controls for household and similar use Electromagnetic compatibility (EMC) Immunity Emission CE conformity EMC directive Low voltage directive C-Tick conformity Emissions	EN 60730-2-14 (Mode of operation, Type 1) IEC 61000-6-2 IEC 61000-6-3 2004/108/EC 2006/95/EC AS/NZS 61000-6-3
Weight	Without packaging: GMA1..9E GMA3..9E	1.2 kg 1.3 kg

Disposal

The document on technical basics Z4614en and the environmental declaration provide information on environmental compatibility and disposal of this device.

Internal diagrams



Cable labeling

Connection	Cable				Meaning
	Code	No.	Color	Abbreviation	
Rotary actuators AC 24 V	G	1	red	RD	System potential AC 24 V / DC 24...48 V
DC 24...48 V	G0	2	black	BK	System neutral
	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 AC 230 V	L	3	brown	BN	Line AC 230 V
	N	4	blue	BU	Neutral

Dimensions

