



Rotary actuators for ball valves

GMA..9E

for ball valves VAI61.. and VBI61..

AC 24 V / DC 24...48 V

Electromotoric rotary actuators for 3-position and modulating control, with spring return, 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 ball valves from DN15 to DN50
- Suitable for use with modulating controllers (DC 0...10 V) or 3-position controllers
- In plants where the rotary actuator must move to the zero position (emergency position) during power failure

Type summary

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

Functions

Type	GMA131.9E	GMA161.9E
Control type	3-position control	Modulating control
Rotary direction	NC (normally closed) ball valve	NC (normally closed) ball valve
	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
	NO (normally open) ball valve	NO (normally open) ball valve
	Signal on Y1 – rotation clockwise – ball valve closes Signal on Y2 – rotation counter-clockwise – ball valve opens	0...10 V "clockwise" Flow = 100% at Y = 0 V Flow = 0% at Y = 10 V
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 by a position indicator.	
Position indication: Electrical		Output voltage U = DC 0...10 V is generated proportional to the rotary angle.
Manual adjustment	<ul style="list-style-type: none"> – When no voltage is applied, you can turn the rotary actuator to any rotary angle position (using a hex wrench) and lock by using a screwdriver, or the adjustment tool. – The rotary actuator returns to the zero position on mechanical unlocking by means of a hex wrench (turn in "90° – open" direction) or by shortly supplying operating voltage. 	

Equipment combinations

The rotary actuators are suitable for operation of the following Siemens 2-and 3-port ball valves:

VAI61..		VBI61..		Rp	DN	PN class	GMA..9E		Data sheet
Type	k_{vs} [m ³ /h]	Type	k_{vs} [m ³ /h]				Δp_{max}	Δp_s	
VAI61.15..	1...10	VBI61.15..	1.6...6.3	Rp ½"	15	PN40	350	1400	N4211
VAI61.20..	4...10	VBI61.20..	4...6.3	Rp ¾"	20				
VAI61.25..	6.3...16	VBI61.25..	6.3...10	Rp 1"	25		350*/240**	1000	
VAI61.32..	10...25	VBI61.32..	10...16	Rp 1 ¼"	32		350*/240**	800	
VAI61.40..	16...40	VBI61.40..	25	Rp 1 ½"	40		350*/240**	600	
VAI61.50..	25...63	VBI61.50..	40	Rp 2"	50				

* 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

Notes

For more details about these rotary actuators see document Z4614.

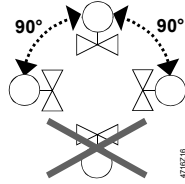
Mounting

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 74 319 0653 0

The ball valve is supplied with Mounting Instructions 74 319 0647 0

Orientation



Commissioning

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

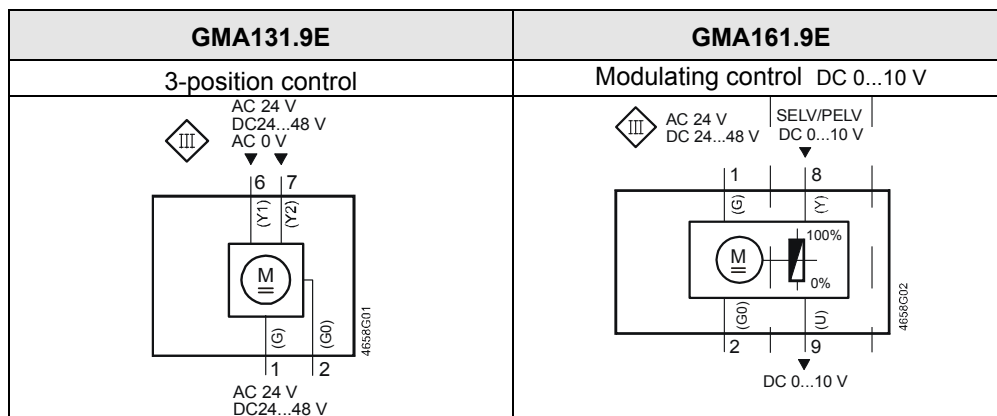
Technical data GMA..9E

! AC 24 V DC 24...48 V supply (SELV/PELV)	Operating voltage AC / Frequency	AC 24 V \pm 20 % / 50/60 Hz
	Operating voltage (DC)	DC 24...48 V \pm 20 %
	Power consumption	GMA131/161.9E Running AC: 5 VA / 3.5 W // DC: 3.5 W GMA131.9E: Holding AC/DC: 2 W GMA161.9E: Holding AC/DC: 2.5 W
Function data	Nominal torque	7 Nm
	Nominal rotary angle / Max. rotary angle	90° / 95° \pm 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 \pm 1 mA
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)	IP54
Protection class	Insulation class	EN 60730
	AC 24 V / DC 24...48 V	III
Environmental conditions	Operation / Transport	EN 60721-3-3 / EN 60721-3-2
	Temperature	-32...+55 °C / -32...+70 °C
	Humidity (non-condensing)	< 95% r. h. / < 95% r. h.
Standards and directives	Product safety: Automatic electrical controls for household and similar use	EN 60730-2-14 (Type 1)
	Electromagnetic compatibility (EMC):	
	Immunity	IEC/EN 61000-6-2
	Emission	IEC/EN 61000-6-3
	CE Conformity: Electromagnetic compatibility	2004/108/EC
	Low voltage directive	2006/95/EC
	C Conformity: Australian EMC Framework	Radio Communication Act 1992
Radio Interference Emission Standard	AS/NZS 3548	
Weight	Without packaging:	1.2 kg

Disposal

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

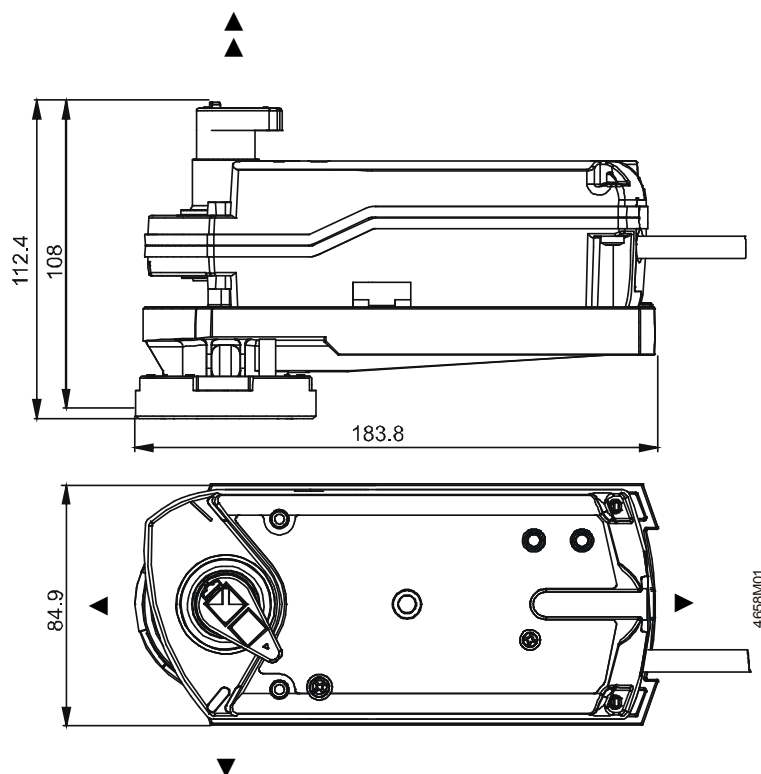
Internal diagrams



Cable labeling

Connection	Cable				Meaning
	Code	No.	Color	Abbreviation	
Rotary actuators	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

Dimensions



Dimensions in mm

▶ = > 100 mm

▶▶ = > 200 mm

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