



Rotary actuators for ball valves

GDB..9E
GLB..9E

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

AC 24 V / AC 230 V

- Electromotoric rotary actuators without spring return
- For 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 Z4634en 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 (VAI61.. and VBI61..)
- For open/close ball valves 2-port and changeover ball valves 3-port, internally threaded connections DN15 to DN50 (VAI60.. and VBI60..)
- Suitable for use with modulating controllers (DC 0...10 V) or 3-position controllers

Type summary

	GDB/GLB131.9E	GDB/GLB331.9E	GDB/GLB161.9E
Operating voltage AC 24 V	X		X
Operating voltage AC 230 V		X	
Control type 3-position	X	X	
Positioning signal Y = DC 0...10 V			X
Position indicator U = DC 0...10 V			X
Self-adaption of rotational angle range			X
Rotary direction switch			X

Functions

Type	GDB/GLB131.9E / GDB/GLB331.9E	GDB/GLB161.9E
Control type	3-position control	Modulating control
Rotary direction	Clockwise or counter-clockwise direction depends.. ..on the type of control. With no power applied, the rotary actuator remains in the respective position. NC (normally closed) ball valve Signal on Y1 – rotation counter-clockwise – ball valve opens Signal on Y2 – rotation clockwise – ball valve closes NO (normally open) ball valve Signal on Y2 – rotation clockwise – ball valve closes Signal on Y1 – rotation counter-clockwise – ball valve opens	
Position indication: Mechanical	Rotary angle position indication by a position indicator/hand lever.	
Position indication: Electrical	Output voltage U = DC 0...10 V is generated proportional to the rotary angle. U depends on the rotary direction of the DIL switch setting.	
Manual adjustment	The rotary actuator can be manually adjusted by pressing the gear train disengagement button.	

Equipment combinations

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

VAI61.. 2-port control ball valves

Type	k_{vs} [m³/h]	Rp	DN	PN	GDB..9E		GLB..9E		Data sheet
					Δp_{max}	Δp_s	Δp_{max}	Δp_s	
VAI61.15..	1...10	Rp ½"	15	PN40	350	1400	350	1400	N4211
VAI61.20..	4...10	Rp ¾"	20						
VAI61.25..	6.3...16	Rp 1"	25				350*/240**	1000	
VAI61.32..	10...25	Rp 1¼"	32					800	
VAI61.40..	16...40	Rp 1½"	40					600	
VAI61.50..	25...63	Rp 2"	50						

VBI61.. 3-port
control ball valves

Type	k _{vs} [m³/h]	Rp	DN	PN	GDB..9E		GLB..9E		Data sheet
					Δp _{max}	Δp _s	Δp _{max}	Δp _s	
VBI61.15..	1.6...6.3	Rp ½"	15	PN40	350	1400	350	1400	N4211
VBI61.20..	4...6.3	Rp ¾"	20						
VBI61.25..	6.3...10	Rp 1"	25						
VBI61.32..	10...16	Rp 1¼"	32				350*/240**	1000	
VBI61.40..	25	Rp 1½"	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	GLB..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	1400	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	1400	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 Z4634.

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 M4657 (74 319 0646 0)

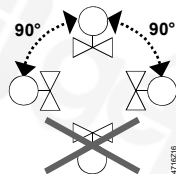
The ball valve:

– 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 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!

Actuator behavior at end position for open/close control:

In the end position, the motor in the magnetic coupling continues to run.

Runtime-limited control (actuator=de-energized following a preset time), allows for significantly reducing both energy consumption and actuator wear and tear.

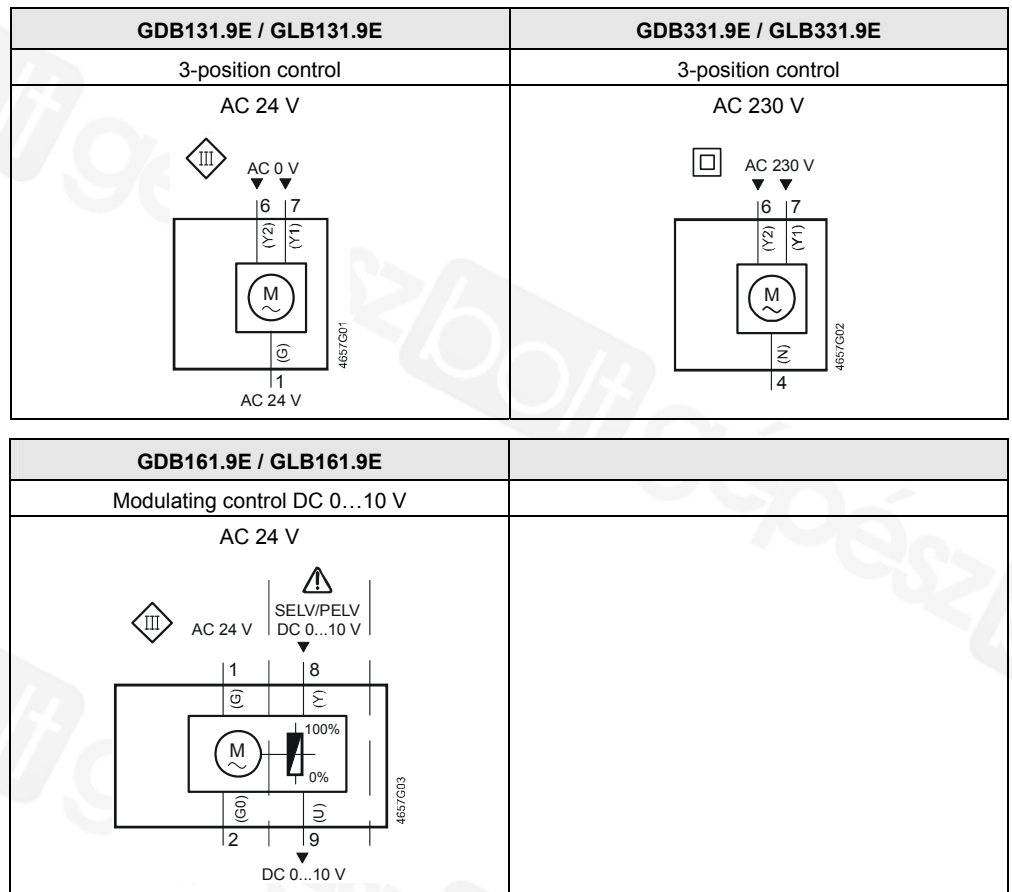
Technical data GDB..9E / GLB..9E

! Supply voltage AC 24 V (SELV/PELV)	Operating voltage / Frequency		AC 24 V $\pm$ 20 % / 50/60 Hz
	Power consumption	GDB131.9E/GLB131.9E	Running
		GDB161.9E/GLB161.9E	Running
! Supply voltage AC 230 V supply			Holding
	Operating voltage / Frequency		AC 230 V $\pm$ 10 % / 50/60 Hz
	Power consumption	GDB331.9E/GLB331.9E	Running
Function data	Nominal torque		5 Nm (GDB) / 10 Nm (GLB)
	Nominal rotary angle / Max. rotary angle		90° / 95° $\pm$ 2°
	Runtime for 90° rotary angle (GDB/GLB)		150 s (50 Hz) / 125 s (60 Hz)
	Input voltage Y (wires 8-2)		DC 0...10 V
Positioning signal for GDB161.9E/GLB161.9E	Max. permissible input voltage		DC 35 V, internally limited to DC 10 V
Position indicator for GDB/GLB161.9E	Output voltage U (wires 9-2)		DC 0...10 V
Connection cable	Max. output current		DC $\pm$ 1 mA
Degree of protection of housing	Cross-section		0.75 mm ²
	Standard length		0.9 m
Protection class	Degree of protection as per EN 60 529 (note mount. instructions)		IP54
Environmental conditions	Insulation class		EN 60730
	AC 24 V		III
	AC 230 V		II
Standards and directives	Operation / Transport		IEC 60721-3-3 / IEC 60721-3-2
	Temperature		-32...+55 °C / -32...+70 °C
	Humidity (non-condensing)		< 95% r. h. / < 95% r. h.
Weight	Product standards		
	Automatic electrical controls for household and similar use		EN 60730-2-14 (Mode of operation, Type 1)
	Electromagnetic compatibility (EMC)		
	Immunity		IEC 61000-6-2
	Emission		IEC 61000-6-3
	CE conformity		
	EMC directive		2004/108/EC
	Low voltage directive		2006/95/EC
	C-Tick conformity		
	Emissions		AS/NZS 61000-6-3
	Without packaging:		0.75 kg

Disposal

The document on technical basics Z3634en and the environmental declaration provide information on environmental compatibility and disposal of this device.

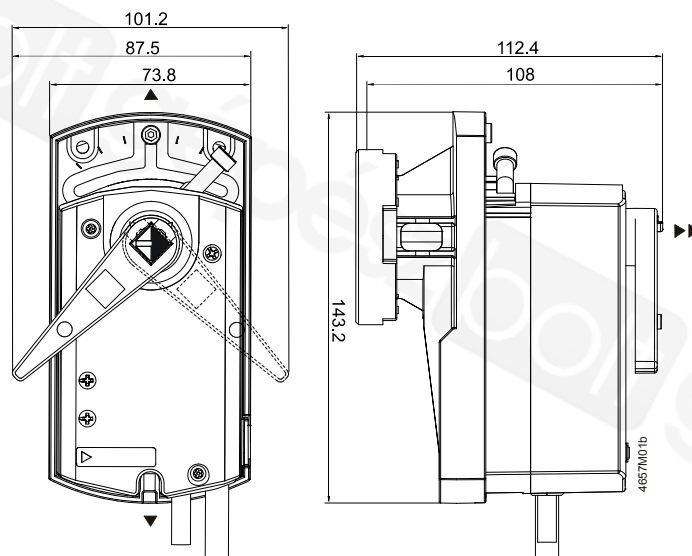
Internal diagrams



Cable labeling

Connection	Cable		Color	Abbreviation	Meaning
	Code	No.			
Rotary actuator AC 24 V	G	1	red	RD	System potential AC 24 V
	G0	2	black	BK	System neutral
	Y1	7	orange	OG	Positioning signal AC 0 V, counter-clockwise
	Y2	6	purple	VT	Positioning signal AC 0 V, clockwise
	Y	8	grey	GY	Positioning signal DC 0...10 V
	U	9	pink	PK	Position indication DC 0...10 V
Rotary actuator AC 230 V	N	4	blue	BU	Neutral conductor
	Y1	7	white	WH	Control signal AC 230 V, counter-clockwise
	Y2	6	black	BK	Control signal AC 230 V, clockwise

Dimensions



Dimensions in mm

▶ = > 100 mm

▶▶ = > 200 mm

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