



Rotary actuators for ball valves

GDB..9E
GLB..9E

for ball valves VA..61.. / VB..61.. and VA..60.. / VB..60.. / VWG41..

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 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
- For 6-port control ball valve, externally threaded connections (VWG41..), DN 20
- Suitable for use with modulating controllers (DC 0...10 V) or 3-position controllers

Type summary

	GDB/GLB131.9E ¹⁾	GDB/GLB331.9E ¹⁾	GDB/GLB161.9E ¹⁾
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

¹⁾ While stocks last

Functions

Type	GDB/GLB131.9E / GDB/GLB331.9E	GDB/GLB161.9E
Control type	3-position control	Modulating control
Rotary direction	<p>Clockwise or counter-clockwise direction depends..</p> <p>..on the type of control. With no power applied, the rotary actuator remains in the respective position.</p> <p>..on the setting of the rotary direction DIL switch clockwise / counter-clockwise</p>	
	NC (normally closed) ball valve	NC (normally closed) ball valve
	<p>Signal on Y1</p> <p>– rotation counter-clockwise</p> <p>– ball valve opens</p> <p>Signal on Y2</p> <p>– rotation clockwise</p> <p>– ball valve closes</p>	<p>DIL 2 set to “counter-clockwise”</p> <p>Flow = 0% at Y = 0 V</p> <p>Flow = 100% at Y = 10 V</p>
	NO (normally open) ball valve	NO (normally open) ball valve
	<p>Signal on Y2</p> <p>– rotation clockwise</p> <p>– ball valve closes</p> <p>Signal on Y1</p> <p>– rotation counter-clockwise</p> <p>– ball valve opens</p>	<p>DIL 2 set to “clockwise”</p> <p>Flow = 100% at Y = 0 V</p> <p>Flow = 0% at Y = 10 V</p>
Position indication: Mechanical	Rotary angle position indication by a position indicator/hand lever.	
Position indication: Electrical		<p>Output voltage U = DC 0...10 V is generated proportional to the rotary angle.</p> <p>U depends on the rotary direction of the DIL switch setting.</p>
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:

VA..61.. 2-port and
VB..61.. 3-port
control ball valves

Control ball valves with:				k _{vs} [m ³ /h]	DN	GDB..9E		GLB..9E	
internal threads ¹⁾	Rp	external threads ²⁾	G..B			Δp _{max}	Δp _s	Δp _{max}	Δp _s
–	–	VAG61.15..	G 1 B	1...6.3	15	350	1400	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				
VAI61.40..	Rp 1½"	VAG61.40..	G 2 ¼ B	16...40	40				1000
									800

VAI61.50..	Rp 2"	VAG61.50..	G 2 ¾ B	25...63	50				600
Control ball valves with:						GDB..9E		GLB..9E	
internal threads¹⁾	Rp	external threads²⁾	G..B	k_{vs} [m³/h]	DN	Δp_{max}	Δp_s	Δp_{max}	Δp_s
VBI61.15..	Rp ½"	VBG61.15..	G 1 B	1.6...6.3	15	350		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

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

Ball valves with:						GLB..9E	
internal threads³⁾	Rp	external threads⁴⁾	G..B	k_{vs} [m³/h]	DN	Δp_{max}	Δp_s
-	-	VAI60.15-9	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		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		

³⁾ Data sheet N4213

⁴⁾ Data sheet N4214

VWG41..
6- port control ball valve

Ball valves with:						GDB161.9E	
internal threads	Rp	external threads⁵⁾	G..B	k_{vs} [m³/h]	DN	Δp_{max}	Δp_s
-	-	VWG41.20..	G1B	0.25 – 4.25	20	200	

⁵⁾ Data sheet A6V10564480

Notes

For more details about these rotary actuators see document Z4634.

Mounting

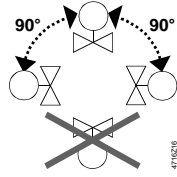
Both ball valve and rotary actuator can easily be assembled at the mounting location. Neither special tools nor adjustments are required.

The rotary actuator is supplied with Mounting Instructions:

Type	Document	Stock no.
GDB..9E / GLB..9E	M4657	74 319 0646 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
VWG41..	A6V10564501	-

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.

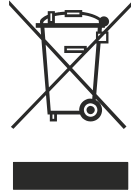
Technical data GDB..9E / GLB..9E

 Supply voltage AC 24 V (SELV/PELV)	Operating voltage / Frequency	AC 24 V ± 20 % / 50/60 Hz		
	Power consumption	GDB131.9E/GLB131.9E	Running	2 VA / 1 W
		GDB161.9E/GLB161.9E	Running	3 VA / 2 W
		Holding	1 W	
 Supply voltage AC 230 V supply	Operating voltage / Frequency	AC 230 V ± 10 % / 50/60 Hz		
	Power consumption	GDB331.9E/GLB331.9E	Running	2 VA / 1 W
	Function data	Nominal torque	5 Nm (GDB) / 10 Nm (GLB)	
	Nominal rotary angle / Max. rotary angle	90° / 95° ± 2°		
	Runtime for 90° rotary angle (GDB/GLB)	150 s (50 Hz) / 125 s (60 Hz)		
Positioning signal for GDB161.9E/GLB161.9E	Input voltage Y (wires 8-2)	DC 0...10 V		
	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		
	Max. output current	DC ± 1 mA		
Connection cable	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 mount. instructions)	IP54		
Protection class	Insulation class	EN 60730		
	AC 24 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.		
Norms and directives	Product standards	EN 60730-2-14 (Mode of operation, Type 1)		
	Automatic electrical controls for household and similar use			
	Electromagnetic compatibility (Application)	For residential, commercial and industrial environments		
	EU Conformity (CE)	GDB..9E	GLB..9E	
		A5W00003842 ¹⁾	A5W00000176 ¹⁾	
RCM Conformity	GDB..9E	GLB..9E		
	A5W00003843 ¹⁾	A5W00000177 ¹⁾		
Product environmental declaration ²⁾	CM2E4634E ¹⁾			
Weight	Without packaging:	0.75 kg		

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

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

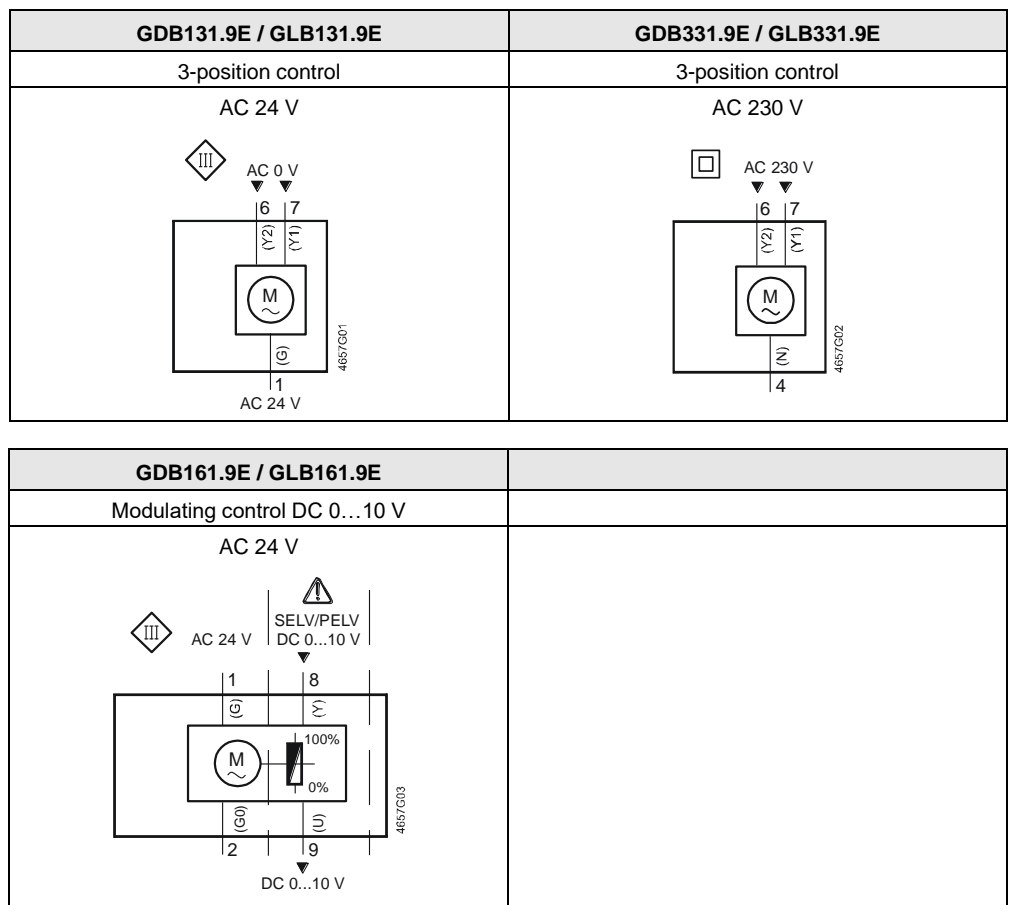
Disposal



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.

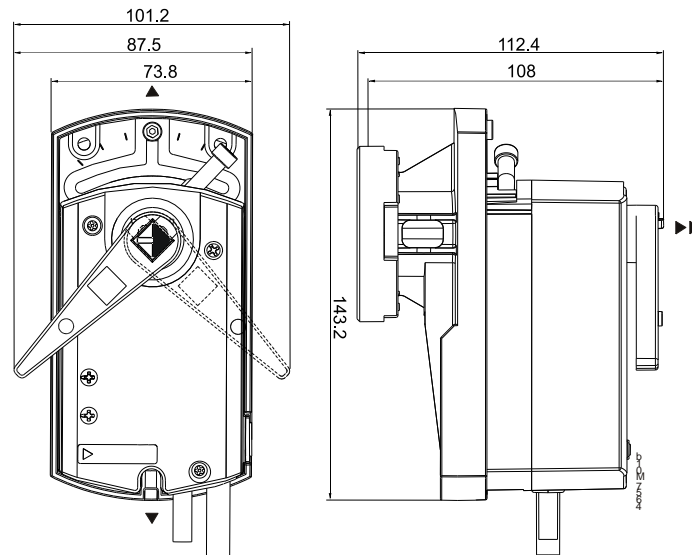
Internal diagrams



Cable labeling

Connection			Cable		Meaning
	Code	No.	Color	Abbreviation	
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.

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