



SSB... without auxiliary switch



SSB...1 with auxiliary switch



Electrical Actuators

for small valves types VVP45..., VXP45..., VMP45...
(max. DN25, $k_{VS} = 6.3 \text{ m}^3/\text{h}$)

SSB31...

SSB81...

SSB61...

- **SSB31...** operating voltage AC 230 V 3-position control signal
- **SSB81...** operating voltage AC 24 V 3-position control signal
- **SSB61...** operating voltage AC/DC 24 V DC 0...10 V control signal
- **Nominal force 200 N**
- **Automatic identification of valve stroke**
- **Direct mounting with coupling nut, no tools required**
- **Basic types complete with plug-in connecting cable, length 1.5 m**
- **Extra types for special cable lengths**
- **Manual override and position indication**
- **Parallel connection of multiple actuators possible**
- **Auxiliary switch AC 250 V / 1(0.5) A, integrated in SSB31.1 and SSB81.1 actuators**

Use

For operation of Siemens valves V...P45... for water-side control of hot water and cooling water in heating, ventilation and air conditioning systems.

Type summary

Standard versions

Type reference	Rated voltage	Run time at 50 Hz	Control signal	Connecting cable	Auxiliary switch
SSB31 ¹⁾	AC 230 V	150 s	3-position	1.5 m	No
SSB31/00 ²⁾				no cable	No
SSB31.1 ¹⁾				1.5 m	Yes
SSB81 ¹⁾	AC 24 V			1.5 m	No
SSB81/00 ³⁾				no cable	No
SSB81.1 ¹⁾				1.5 m	Yes
SSB61 ¹⁾	AC/DC 24 V	75 s	DC 0 ... 10 V	1.5 m	No
SSB61/00 ³⁾				no cable	No

¹⁾ Basic types complete with cable. Alternatively, actuators can also be ordered **without** cable (types SSB.../00), refer to ²⁾, ³⁾ and «Accessories».

²⁾ Extra type for other cable lengths (refer to «Accessories») and as a replacement

³⁾ Extra types for other cable lengths or terminal block connectors (refer to «Accessories») and as a replacement

Accessories

Type reference	Description	Rated voltage	Control signal
ASY3L15	Connecting cable 1.5 m	AC 230 V	3-position
ASY3L25	Connecting cable 2.5 m		
ASY3L45	Connecting cable 4.5 m		
ASY8L15	Connecting cable 1.5 m	AC 24 V	
ASY8L25	Connecting cable 2.5 m		
ASY8L45	Connecting cable 4.5 m		
ASY6L15	Connecting cable 1.5 m	AC/DC 24 V	DC 0 ... 10 V
ASY6L25	Connecting cable 2.5 m		
ASY6L45	Connecting cable 4.5 m		
ASY98	Retaining screw for terminal block connectors		
ASY99	Terminal block connector for 3-position actuators SSB81...		
ASY100	Terminal block connector for DC 0...10 V modulating actuators SSB61...		

Ordering

When ordering, please give quantity, product name and type reference.

Example: 2 actuators SSB81/00 without cable and
2 terminal block connectors ASY99

Delivery

Actuators, valves and accessories are packed separately. Items are supplied individually packed.

Equipment combinations

Type reference	Valve type	k_{vs} [m ³ /h]	PN class	Data sheet
VVP45...	2-port valves	0.25 ... 6.3	PN16	4847
VXP45...	3-port valves			
VMP45...	3-port valves with T-bypass	0.25 ... 4.0		

k_{vs} = nominal flow rate of cold water (5...30 °C) through the fully open valve (H_{100}) at a differential pressure of 100 kPa (1 bar)

Function / mechanical design

When the actuator is driven by DC 0...10 V control voltage or by a 3-position signal, it produces a stroke which is transmitted to the valve stem.
The description of operation in this document applies to the valve versions which are fully closed when deenergized (NC).

3-position control signal SSB31.../SSB81...

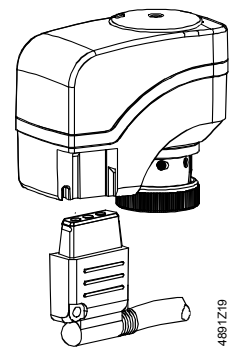
- Voltage at Y1: Stem extends Valve opens
- Voltage at Y2: Stem retracts Valve closes
- No voltage at Y1 and Y2: Actuator maintains its current position

DC 0...10 V control signal SSB61...

- The valve opens / closes in proportion to the control signal at Y.
- At DC 0 V, the valve is fully closed (A → AB).
- When power supply is removed, the actuator maintains its current position.

Features and benefits

- Plastic housing
- Locking-proof, maintenance-free gear train
- Manual override with hexagonal socket wrench 3 mm
- Reduced power consumption in the holding positions
- Load-dependent switch-off in the event of overload and in stroke limit positions
- Parallel operation of 6 SSB31..., 24 SSB81... and 10 SSB61... possible, provided the controllers' output is sufficient
- Terminal block connectors for special cable lengths available (only for use with AC 24 V and AC / DC 24 V actuators)
- Connecting cables with AC 24 V and AC 230 V connectors cannot be mixed up

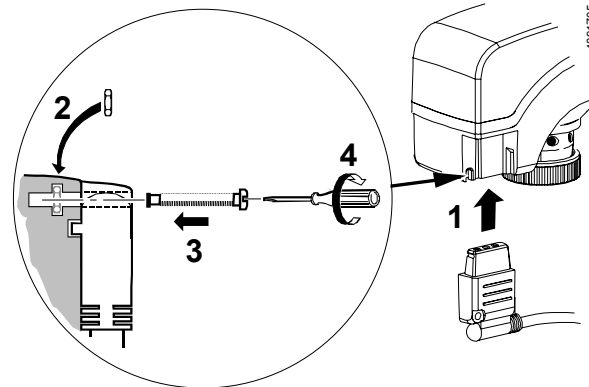


Accessories

Retaining screw ASY98

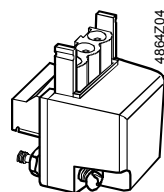


Type ASY98 to secure the cable connector



The cable connector snaps into position, but can be additionally secured with the retaining screw.

Terminal block connectors ASY99 ASY100



For special cable lengths of the AC/DC 24 V actuators.

- Typ ASY99 for 3-position actuators SSB81.../00
- Typ ASY100 for DC 0...10 V modulating actuators SSB61/00

The terminal block connectors are supplied complete with Mounting Instructions (74 319 0385 0).

Engineering

The actuators must be electrically connected in accordance with local regulations (refer to «Connection diagrams»).

⚠ Caution

Regulations and requirements to ensure the safety of people and property must be observed at all times!

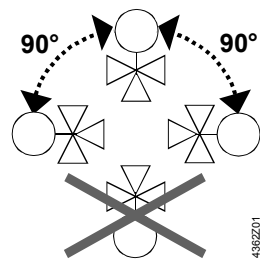
The permissible temperatures (refer to «Technical data») must be observed. The connecting cable of the actuator may come into contact with the hot valve body, provided the temperature of the valve body does not exceed 80 °C.
SSB 31.1... and SSB81.1... actuators have an auxiliary switch ready integrated. Subsequent fitting to other types of actuators is not possible.

Mounting

The Mounting Instructions 4 319 0445 0 are enclosed in the product packaging. Assembly is made with the coupling nut; no tools or adjustments are required. The actuator must be fitted in position 0 (also refer to «Manual override»).

In the case of actuators without connecting cable (SSB.../00), the separately ordered terminal block connector and connecting cable must be fitted.

Orientation



Commissioning

When commissioning, check wiring and the functioning of the actuator and auxiliary switch, if fitted.

- Actuator stem extends (from position 0 to 1): Valve opens
- Actuator stem retracts (from position 1 to 0): Valve closes

Self-calibration

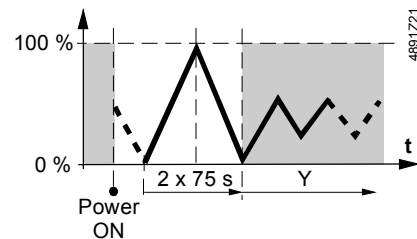
⚠ Caution

During commissioning and every time power is applied to the SSB61..., the actuator carries out a self-calibration (valve stroke 0 → valve stroke max. → valve stroke 0). No manual interventions are permitted during calibration.

Correct functioning may be impaired if the SSB... is operated without a valve.

After three calibration attempts, the valve stem remains extended. Before fitting the actuator to the valve, power supply must be turned off and the valve stem brought to position 0 via manual control. After the actuator is fitted and power supply switched on again, self-calibration will be repeated.

To ensure calibration can be performed, the valve used must have a minimum stroke of 1.5 mm. If the valve's stroke is < 1,5 mm, the actuator/valve combination remains blocked after three calibration attempts (valve stem extended).

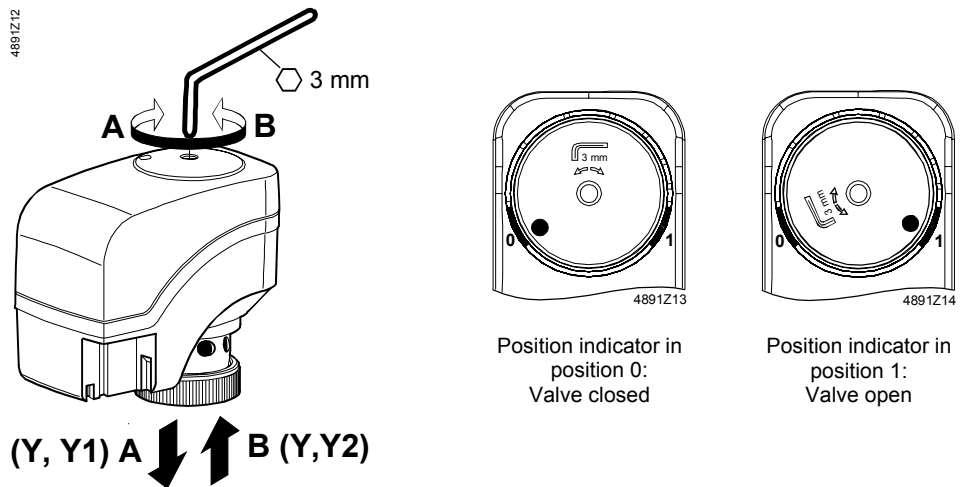


Operation

A 3 mm hexagonal socket wrench can be used to move the actuator to any position between 0 and 1. If a control signal from the controller is present, then this takes priority in determining the position.

Note To retain the manually set position, unplug the connecting cable or switch off power and the control signal.

Manual override



Maintenance

The actuators are maintenance-free.

When carrying out service work on the plant, following must be noted:



- Turn power off (e.g. remove the plug)
- If necessary, disconnect electrical connections from the terminals
- The actuator must be commissioned only with a correctly mounted valve in place!

Repair

SSB... actuators cannot be repaired; the complete unit must be replaced.

Disposal



The device must not be disposed of together with domestic waste. This applies in particular to the PCB.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

Warranty

The technical data given for these applications is valid only when the actuators are used with the Siemens valves listed under «Equipment combinations».

The use of the SSB... actuators in conjunction with third-party valves invalidates any warranty offered by Siemens Building Technologies / HVAC Products.

Technical data

		SSB31	SSB81	SSB61
Power supply	Rated voltage	AC 230 V	AC 24 V	AC 24 V oder DC 24 V
	Voltage tolerance	± 15 %	± 20 %	± 20 % ± 25 %
	Rated frequency	50 / 60 Hz		
	Max. power consumption	6 VA	0.8 VA	2 VA
	⚠ Fuse for incoming cable (fast)	2 A		
Control	Control signal	3-position		DC 0...10 V
	Input impedance for DC 0...10 V	—		> 100 kOhm
	Positioning accuracy for DC 0...10 V	—		< 2 % of nominal stroke
	Parallel operation (number of actuators) ¹⁾	max. 6	max. 24	max. 10
Functional data	Run time for 5.5 mm stroke at 50 Hz	150 s		75 s
	Nominal stroke	5.5 mm		
	Nominal force	200 N		
	Perm. temperature of medium in the connected valve	1...110°C		
Electrical connections	Connecting cable of basic types	1.5 m 3-core to EN 60320 / IEC 60227		
Industry standards	Meets the requirements for CE marking: EMC directive	89/336/EEC	Emissions	EN 50081-1
			Immunity	EN 61000-6-2
	Low-voltage directive	73/23/EEC		EN 60730-1
	Protection class to EN 60730	II	III	
	Housing protection standard	IP40 to EN 60529		
Dimensions / weight	Dimensions	refer to «Dimensions»		
	Coupling thread to valve	coupling nut G ³ / ₄ inch		
	Weight with / without auxiliary switch	0.4 kg / 0.3 kg		
Housing colors	Base and cover	RAL 7035 light gray		
Auxiliary switch	Mounted in SSB31.1 and SSB81.1	1 change-over switch		—
	Switching point adjustable	0...100%		
	Factory setting 50 %			
	Switching capacity	max. AC 250 V, 1 A (0.5 A)		

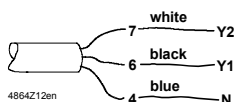
¹⁾ Provided the controllers' output is sufficient

General ambient conditions

	Operation IEC 721-3-3	Transport IEC 721-3-2	Storage IEC 721-3-1
Environmental conditions	Class 3K3	Class 2K3	Class 1K3
Temperature	+1...+50 °C	-25...+70 °C	-5...+50 °C
Humidity	5...85 % r.h.	< 95 % r.h.	5...95 % r.h.

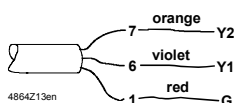
Connecting cable

SSB31...



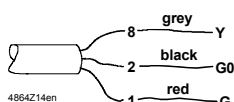
Control signal CLOSE (AC 230 V)
Control signal OPEN (AC 230 V)
Neutral

SSB81...



Control signal CLOSE (AC 24 V)
Control signal OPEN (AC 24 V)
System potential AC 24 V

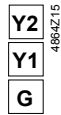
SSB61...



Control signal DC 0 ... 10 V
System neutral (- at DC 24 V)
System potential AC 24 V (+ at DC 24 V)

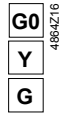
Connection terminals

ASY99
for SSB81...



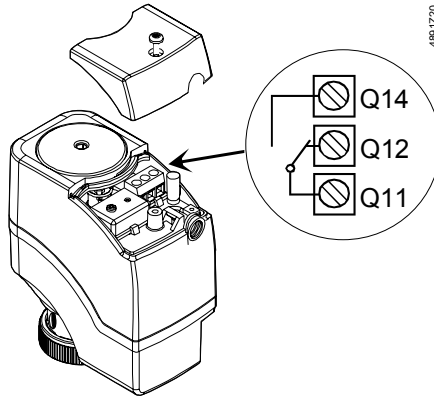
Control signal CLOSE
Control signal OPEN
System potential AC 24 V

ASY100
for SSB61



System neutral
Control signal DC 0 ... 10 V
System potential AC/DC 24 V

Terminals for auxiliary switches
SSB31.1, SSB81.1



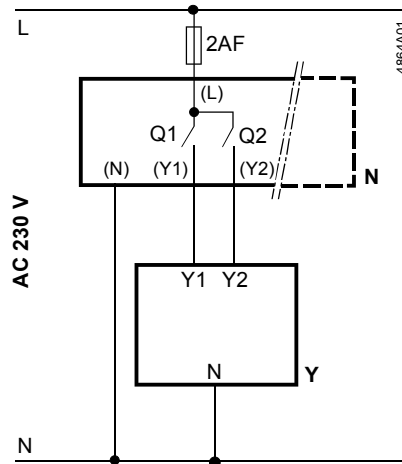
Factory setting:

0 ... 50 % Q11 → Q12
50% ... 1 Q11 → Q14

The switching point can be adjusted by turning the switching cam with a screwdriver (see Mounting Instructions).

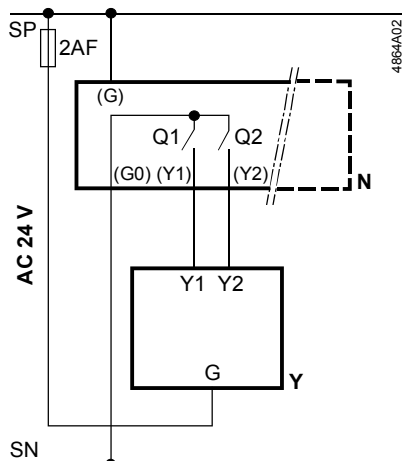
Connection diagrams

SSB31...



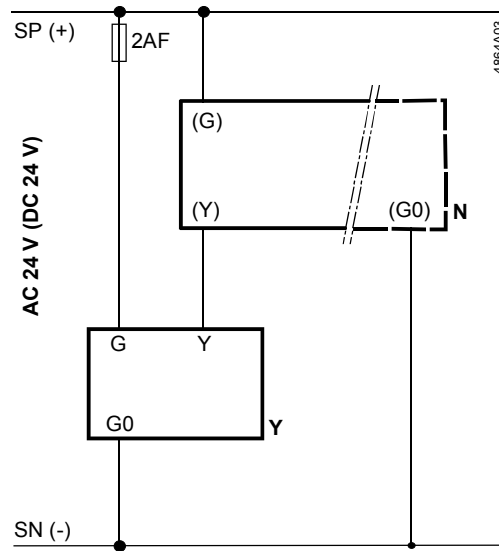
N Controller
Y Actuator
L System potential AC 230 V
N System neutral
Q1, Q2 Controller contacts

SSB81...



N Controller
Y Actuator
SP System potential AC 24 V
SN System neutral
Q1, Q2 Controller contacts

SSB61...

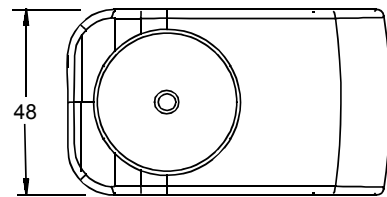
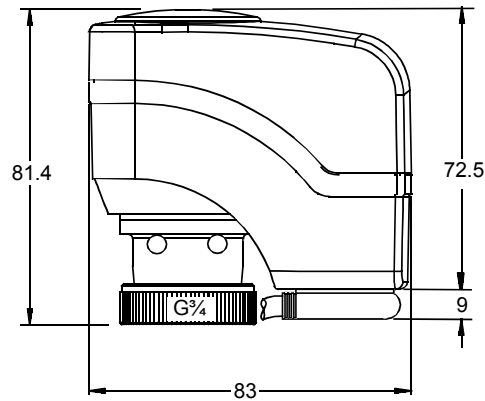


N Controller
 Y Actuator
 SP System potential AC 24 V
 SN System neutral

Dimensions

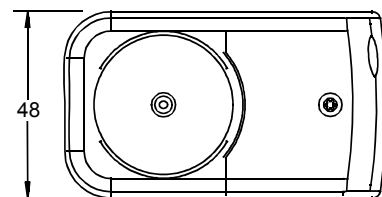
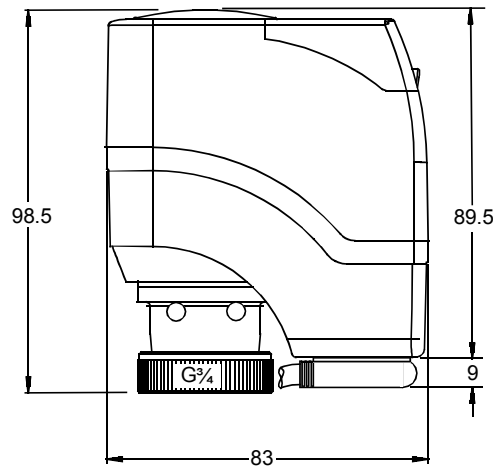
All dimensions in mm

**Actuator without
 auxiliary switch**
 SSB31...
 SSB81...
 SSB61...



4891M01

**Actuator with
 auxiliary switch**
 SSB31.1...
 SSB81.1...



4891M02