



Electrical Actuators

for small valves VVP47..., VXP47..., VMP47...

SSP31...
SSP81...
SSP61...

- **SSP31...** operating voltage AC 230 V 3-position control signal
- **SSP81...** operating voltage AC 24 V 3-position control signal
- **SSP61...** operating voltage AC / DC 24 V DC 0...10 V control signal
- **Nominal force 100 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**

Use

For operation of Siemens valves of the V...P47... series for water-side control of hot water and cooling water in heating, ventilation and air conditioning systems. In conjunction with the AL100 adapter, the actuators are also suitable for use with the 2W..., 3W... and 4W... valves in place of the AM1S... magnetic valves.

Type summary

Type reference	Rated voltage	Run time at 50 Hz	Control signal	Connecting cable
SSP31 ¹⁾	AC 230 V	150 s	3-position	1.5 m
SSP31/00 ²⁾				no cable
SSP81 ¹⁾	AC 24 V	43 s	3-position	1.5 m
SSP81/00 ³⁾				no cable
SSP81.04 ¹⁾				1.5 m
SSP81.04/00 ³⁾				no cable
SSP61 ¹⁾	AC/DC 24 V	34 s	DC 0...10 V	1.5 m
SSP61/00 ³⁾				no cable
SSP61P ¹⁾				

¹⁾ Basic types complete with cable. Alternatively, actuators can also be ordered **without** cable (types SSP.../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

⁴⁾ Active stroke range DC 5...7.5 V (0...100 % stroke)

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	3-position
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	Protective cover for terminal block connectors		
ASY99	Terminal block connector for 3-position actuators SSP81...		
ASY100	Terminal block connector for DC 0...10 V modulating actuators SSP61/00		
AL100	Adapter for retrofitting the actuators to 2W..., 3W... and 4W... valves		

Ordering

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

Example: 2 actuators without cable, SSP81/00 and
2 terminal block connectors, ASY99

Delivery

The valves, actuators and accessories are packed separately.

Equipment combinations

Direct mounting

Type reference	Valve type	k_{vs} [m ³ /h]	PN class	Data sheet
VVP47...	2-port valves	0.25...4.0	PN16	4847
VXP47...	3-port valves			
VMP47...	3-port valves with T-bypass	0.25...2.5		
2W...K...	2-port valves	0.6...2.5	PN16	4846
3W...	3-port valves	0.6...4.0		
4W...	3-port valves with T-bypass	0.6...2.5		

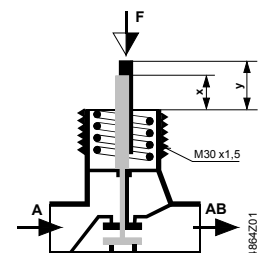
With AL100 adapter for retrofitting

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)

Valves from other manufacturers

To ensure trouble-free operation of third-party valves with the SSP... actuator, the valves must satisfy the following requirements:

- Threaded connections with coupling nut M30 x1.5
- Nominal force 100 N
- Dimension x (with valve fully open) $x > 9.0$ mm
- Dimension y (with valve fully closed) $y \leq 14.5$ mm



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

SSP31... / SSP81...

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

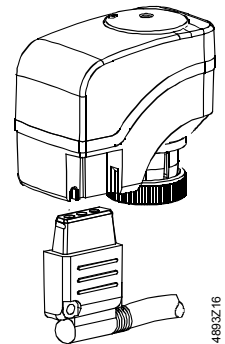
DC 0...10 V control signal

SSP61...

- 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 SSP31..., 24 SSP81... and 10 SSP61... 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



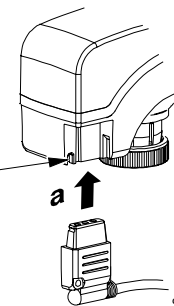
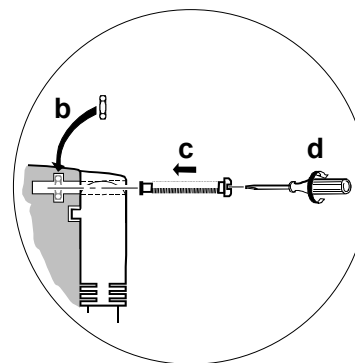
Accessories

Retaining screw

ASY98



Type ASY98 to secure the cable connector.



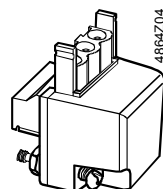
The cable connector snaps into position, but can be additionally secured with the retaining screw.

4864Z03

Terminal block connectors

ASY99

ASY100



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

- ASY99 for 3-position actuators SSP81/00 and SSP81.04/00
- ASY100 for DC 0...10 V modulating actuators SSP61/00

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

Adapter

AL100



AL100 for retrofitting SSP61... actuators to the 2W..., 3W... and 4W... valves in place of the AM1S... magnetic actuators.

The adapter is supplied complete with Mounting Instructions (74 319 0302 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.

Mounting

Valves V..P47...

The Mounting Instructions 74 319 0447 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»):

- Position the actuator and tighten the coupling nut manually
- Do not use any tools such as wrenches
- Avoid lateral pressure or (cable) tension on the mounted actuator!

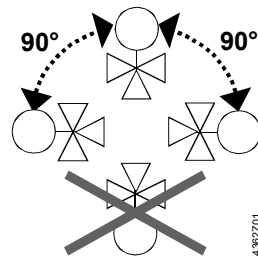
In the case of actuators without connecting cable (SSP.../00), the separately ordered terminal block connector and connecting cable must be fitted.

Valves

2W... / 3W... / 4W...

- The SSP61P actuator requires the AL100 mounting adapter in place of the AM1S/E magnetic actuator.
- The SSP61P actuator requires the AL100 mounting adapter plus an additional electrical line in place of the AM1S magnetic actuator. The existing PRU/A controller must be retrofitted with the PKOAE card.

Orientation



Commissioning

When commissioning the system, check wiring and the functions of the actuator.

- 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 SSP61..., 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 SSP... 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.

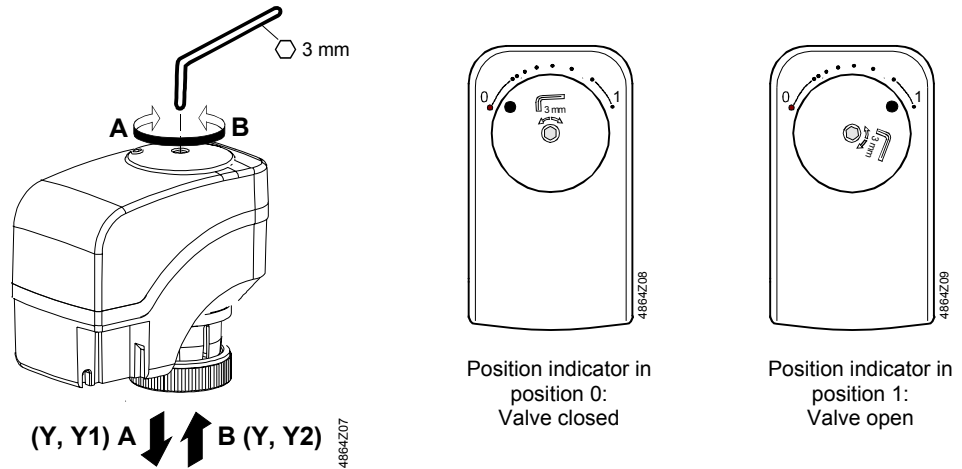
To ensure calibration can be performed, the valve used must have a minimum stroke of 1.5 mm. If the valve's stroke is < 1,5 mm, the actuator/valve combination remains blocked after three calibration attempts (valve stem extended).

Operation

A 3 mm hexagonal socket wrench can be used to move the actuator to any position between 0 and 1. However, 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 the rated voltage 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!

Repairs

SSP... 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».

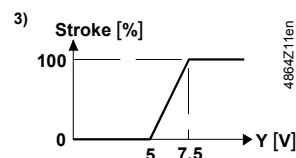
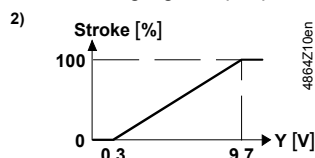
If the SSP... actuators are used with other valves, then the user is responsible for ensuring correct functioning.

Technical data

		SSP31...	SSP81...	SSP61...
Power supply	Rated voltage	AC 230 V	AC 24 V	AC 24 V or 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 ¹⁾
	Active stroke range for DC 0...10 V	—		SSP61: DC 0.3...9.7 V ²⁾ SSP61P: DC 5...7.5 V ³⁾
	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) ⁴⁾	max. 6	max. 24	max. 10

	SSP31...	SSP81...	SSP61...
Functional data	Run time for 2.5 mm stroke at 50 Hz	150 s SSP81.04: 43 s	34 s
	Nominal stroke	2.5 mm (max. 5.5 mm)	
	Nominal force	100 N	
	Permissible temperature of medium in the connected valve:	1 ... 110°C	
Electrical connections Industry standards	Connecting cable of basic types	1.5 m 3-core to EN 60320 / IEC 60227	
	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
Dimensions / weight	Housing protection standard	IP40 to EN 60529	
	Dimensions	refer to «Dimensions»	
	Coupling thread to valve	coupling nut M30 x 1.5 mm	
	Weight	0.3 kg	
Housing colors	Base	RAL 7035 light gray	
	Cover	RAL 9003 signal white	

1) Positioning signal input protected against wrong connection of AC/DC 24 V



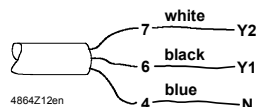
4) Provided the controllers' output is sufficient

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.

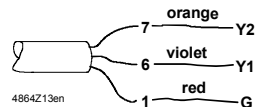
Connecting cable

SSP31...



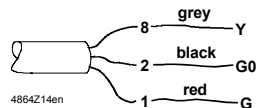
Control signal CLOSE (AC 230 V)
Control signal OPEN (AC 230 V)
Neutral

SSP81...



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

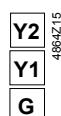
SSP61...



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

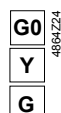
Connection terminals

ASY99
for SSP81...



Control signal CLOSE
Control signal OPEN
System potential AC 24 V

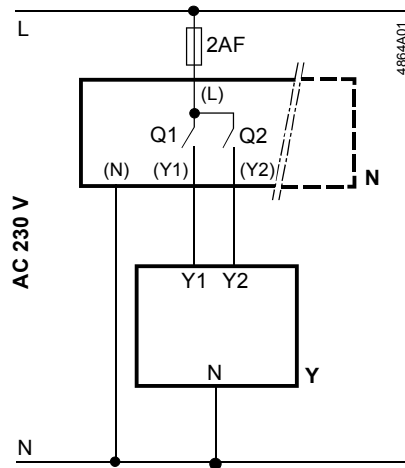
ASY100
for SSP61



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

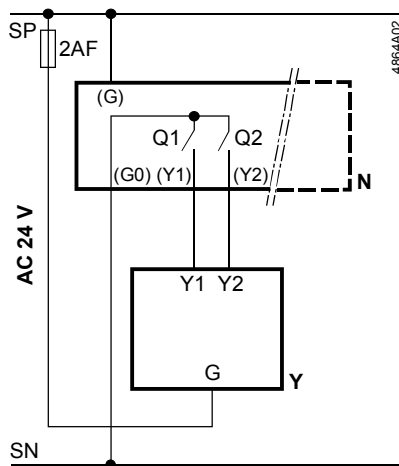
Connection diagrams

SSP31...



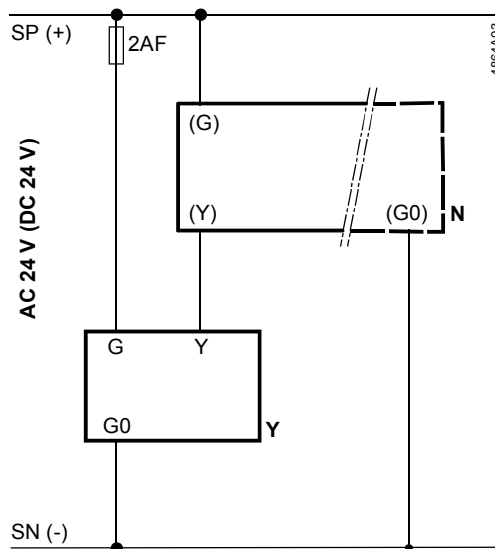
N Controller
 Y Actuator
 L System potential AC 230 V
 N System neutral
 Q1, Q2 Controller contacts

SSP81...



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

SSP61...



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

Dimensions

All dimensions in mm

