SIEMENS

4864

ACVATIX™

Electromotoric 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 160 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**
- **Optional cable types**
  - **Cable length 1.5 m, 2.5 m and 4.5 m**
  - **Halogen-free cables**
- **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 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

Type summary

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

[1] Available cable lengths or terminal block connectors (refer to «Accessories», page 3)

SSP81.., SSP61.. are UL and cUL approved.

Accessories

Type reference	Description	Operating 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		
ASY8L45HF	Connecting cable 4.5 m, halogen-free, VDE 0207-24		
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		
ASY6L45HF	Connecting cable 4.5 m, halogen-free, VDE 0207-24		
ASY98	Retaining screw for terminal block connector. Included in ASY99 and ASY100.		
ASY99	Terminal block connector for 3-position actuators SSP81.. /00		
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

Example:

Type	*Stock no.*	*Description*	*Quantity*
SSP81/00	SSP81/00	Electromotoric actuator	2
ASY99	ASY99	Terminal block	2

Delivery: The valves, actuators and accessories are packed and supplied individually.

Rev.-No.: Overview tables, see page 9.

Equipment combinations

Type reference	Valve type	k_{VS} [m^3/h]	PN class	Data sheet
VVP47..	2-port valves	0.25...4.0	PN16	N4847
VXP47..	3-port valves			
VMP47..	3-port valves with T-bypass	0.25...2.5		
2W..K..	2-port valves	0.6...2.5		N4846
3W..	3-port valves	0.6...4.0		
4W..	3-port valves with T-bypass	0.6...2.5		

Direct mounting

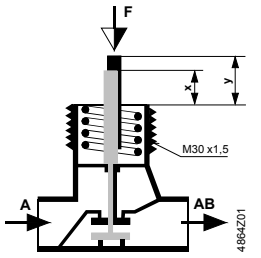
With AL100 adapter for retrofitting

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 x 1.5
- Nominal force F ≤ 160 N
- Dimension x (with valve fully open) x > 9.0 mm
- Dimension y (with valve fully closed) y ≤ 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..

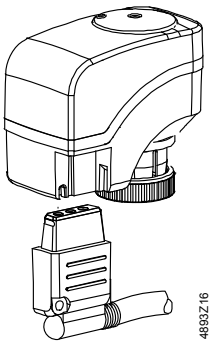
- Voltage at Y1: Stem extends: Valve opens
- Voltage at Y2: Stem retracts: Valve closes
- No voltage at Y1 or Y2: Actuator maintains its current position

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 V..P47.. is fully closed (A → AB).
- When power supply is removed, the actuator maintains its current position.

Features and benefits

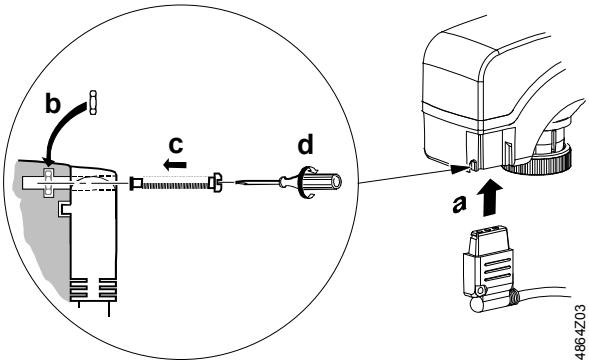
- Position indication
- Locking-proof, maintenance-free gear train
- Manual override with hexagonal socket wrench 3 mm
- Reduced power consumption in the holding positions
- Load-dependent switch-off in the event of overload and in stroke end positions
- Parallel operation of 6 SSP31.., 24 SSP81.. and 10 SSP61.. possible, provided the controllers' output is sufficient
- Terminal block connectors for customer made cables 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
- Halogen-free cable available



Accessories

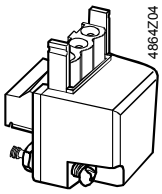
Retaining screw
ASY98

Type ASY98 to secure the cable connector. Included in ASY99 and ASY100.



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.

- 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.

The adapter is supplied complete with Mounting Instructions (74 319 0302 0).

Notes

Engineering

The actuators must be electrically connected in accordance with local regulations (refer to «Connection diagrams»), page 7.

⚠ **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», page 6) 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

The Mounting Instructions 74 319 0497 0 are enclosed in the product packaging.

Valves V..P47..

Assembly is made with the coupling nut; no tools or adjustments are required.
The actuator without operating voltage must be fitted in position 0 (also refer to «Manual override», page 5):

- Position the actuator and tighten the coupling nut manually

⚠ **Caution**

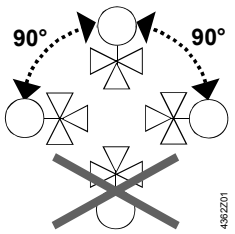
- Do not use any tools such as wrenches
- Avoid lateral pressure or (cable) tension on the mounted actuator!

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

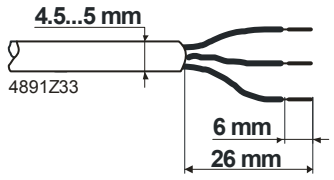
Valves
2W.. / 3W.. / 4W..

Mounting adapter AL100 is required

Orientation



Installation
Commissioning



Crimp ferrule on stripped wire of connecting cable.

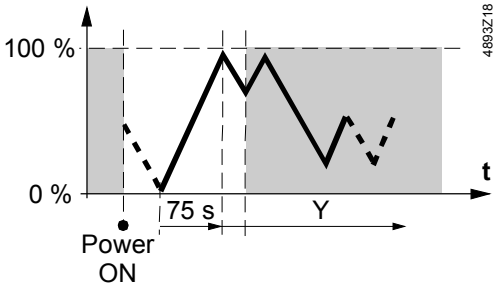
When commissioning the system, check wiring and the functions of the actuator.

- 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 whenever the operating voltage is switched on, the SSP61.. runs a self-calibration routine. (Valve stroke 0 → Max. stroke → Setpoint).
Never intervene manually in this process.



Note: Correct calibration is only possible with valve.

The second or third attempt at calibration occurs automatically after an 8-minute delay.
After three failed calibration attempts the actuator stem remains in the extended position and the V..P47.. valves are opened.

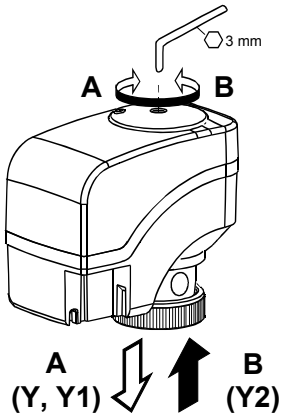
Operation

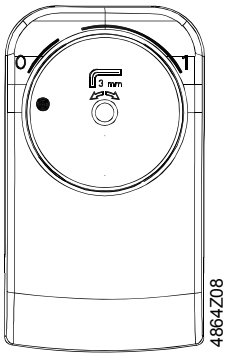
A 3 mm hexagonal socket wrench can be used to move the actuator to any position between 0 and 1. However, if a control signal from the controller is present, then this takes priority in determining the position.

Note

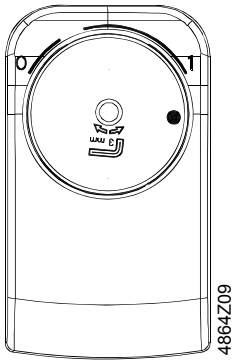
To retain the manually set position, unplug the connecting cable or switch off the operating voltage and the control signal.

Manual override





Position indicator in position 0: Valve closed



Position indicator in position 1: Valve open

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», page 2.

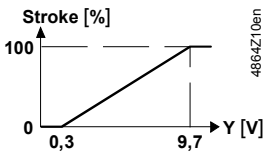
The use of the SSP.. actuators in conjunction with third-party valves invalidates any warranty offered by Siemens Switzerland Ltd / HVAC Products.

Technical data

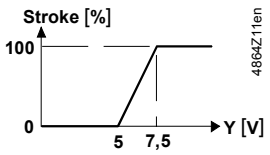
		SSP31..	SSP81..	SSP61..
Power supply	Operating voltage	AC 230 V	AC 24 V	AC 24 V or DC 24 V
	Voltage tolerance	± 15 %	± 20 %	± 20 % ± 25 %
	Rated frequency	50 / 60 Hz		
	Max. power consumption	6 VA	0.8 VA	2.5 VA
⚠	Fuse for incoming cable (fast)	2 A, quickblow		
Control	Control signal	3-position		DC 0...10 V [1]
	Active stroke range for DC 0...10 V			DC 0.3...9.7 V [2]
	Input impedance for DC 0...10 V			> 100 kOhm
	Parallel operation (number of actuators) [4]	max. 6	max. 24	max. 10
Functional data	Run time for 2.5 mm stroke at 50 Hz	150 s		34 s
	SSP81.04		43 s	
	Positioning speed	60 s/mm		13.6 s/mm
	SSP81.04		17.2 s/mm	
	Nominal stroke	2.5 mm (max. 5.5 mm)		
	Nominal force	160 N		
	Permissible 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		
	ASY 99, ASY100 cable diameter		< 5 mm	
	wire cross section		0.5…0.75 mm^2	
	ASY3L.. wire cross section	0,75 mm^2		
	ASY6L.., ASY8L.. wire cross section		0,5 mm^2	
Standards	Meets requirements for CE marking: EMC directive	2004/108/EC		
	Immunity	EN 61000-6-2	Industrial [5]	
	Emission	EN 61000-6-3	Residential	
	Low voltage directive	2006/95/EC		
	Electrical safety	EN 60730-1		
	Protection class to EN 60730	II	III	
	Contamination level	EN 60730, Class 2		
	Housing protection Upright to horizontal	IP40 to EN 60529		
	UL approbation		UL 873	
	cUL approbation		C22.2 No. 24	
	Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)		
Dimensions / weight	Dimensions	refer to «Dimensions», page 9		
	Coupling thread to valve	coupling nut M30 x 1.5 mm		
	Weight	0.35 kg		
Housing colors	Base	RAL 7035 light gray		
	Cover	RAL 9003 signal white		

[1] Control signal input protected against wrong connection of AC / DC 24 V

[2]



[3]



[4] Provided the controllers' output is sufficient

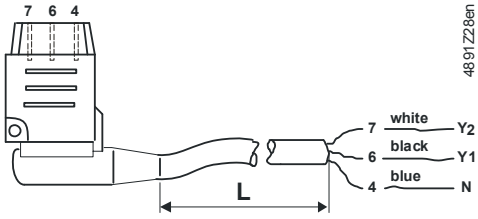
[5] Transformer 160 VA (e.g. Siemens 4AM3842-4TN00-0EA0) for AC 24 V actuators

General ambient conditions

	Operation EN 60721-3-3	Transport EN 60721-3-2	Storage EN 60721-3-1
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

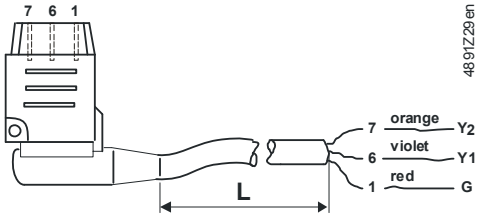
ASY3L.. with SSP31..



7	White	Y2	Control signal CLOSE (AC 230 V)
6	Black	Y1	Control signal OPEN (AC 230 V)
4	Blue	N	Neutral

L = 1,5 m, 2,5 m, or 4,5 m

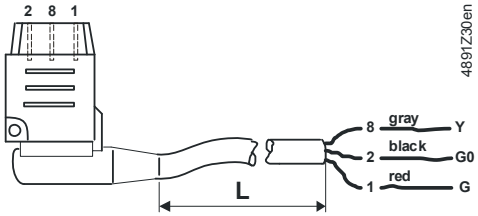
ASY8L.. with SSP81..



7	Orange	Y2	Control signal CLOSE (AC 240 V)
6	Violet	Y1	Control signal OPEN (AC 240 V)
1	Red	N	System potential AC 24 V

L = 1,5 m, 2,5 m, or 4,5 m

ASY6L.. with SSP61..

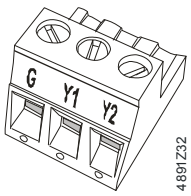


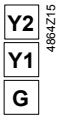
8	Grey	Y	Control signal DC 0...10 V
2	Black	G0	System neutral (- DC 24 V)
1	Red	G	System potential AC 24 V (+ DC 24 V)

L = 1,5 m, 2,5 m, or 4,5 m

Connection terminals

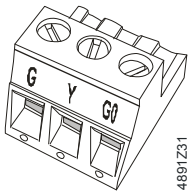
ASY99
for SSP81..

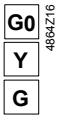




Control signal CLOSE
Control signal OPEN
System potential AC 24 V

ASY100
for SSP61..

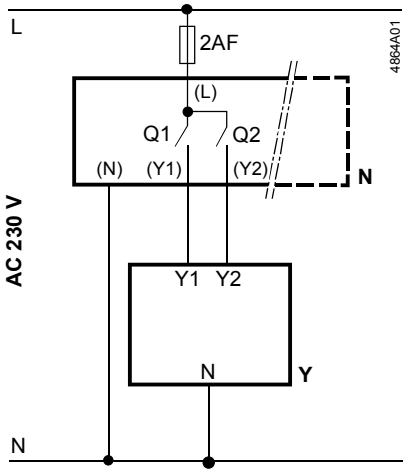




System neutral
Control signal DC 0...10 V
System potential AC/DC 24 V

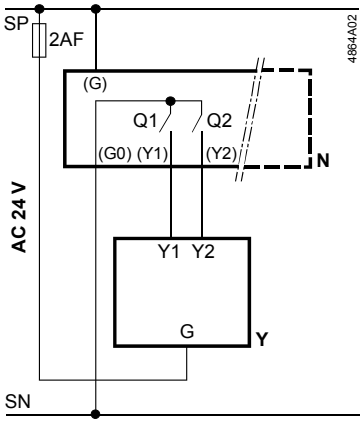
Connection diagrams

SSP31..



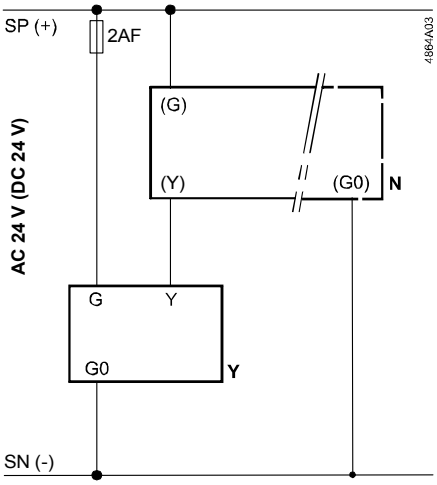
N	Controller
Y	Actuator
L	System potential AC 230 V
N	System neutral
Y1, Y2	Control signal OPEN, CLOSE
Q1, Q2	Controller contacts

SSP81..



N	Controller
Y	Actuator
SP, G	System potential AC 24 V
SN, G0	System neutral
Y1, Y2	Control signal OPEN, CLOSE
Q1, Q2	Controller contacts

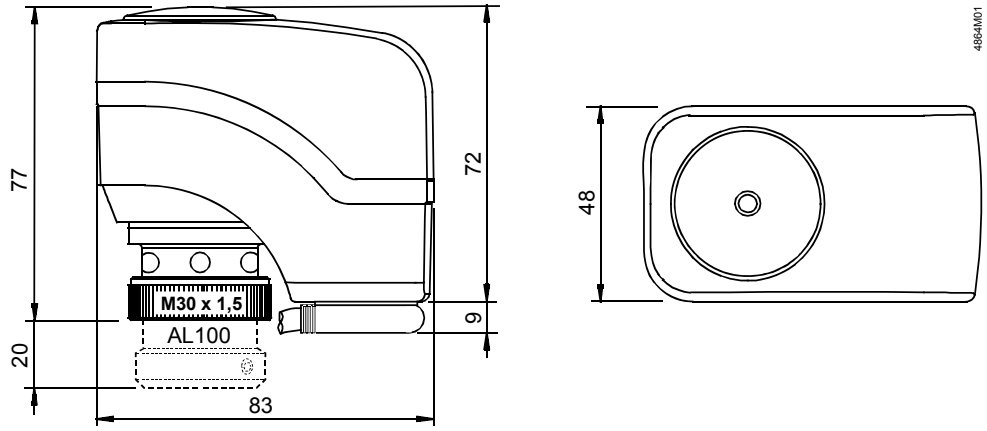
SSP61..



N	Controller
Y	Actuator
SP, G	System potential AC / DC 24 V
SN, G0	System neutral
Y	Control signal

Dimensions

All dimensions in mm



Revision numbers

Type reference	Valid from Rev.-No.	Type reference	Valid from Rev.-No.
SSP31	J	SSP61	J
SSP31/00	J	SSP61/00	J
SSP81	J		
SSP81/00	J		
SSP81.04	J		
SSP81.04/00	J		