



ACVATIX™

Electromotoric actuators for valves

SAV..

with a 20/40 mm stroke

-
- SAV31.. Operating voltage AC 230 V, 3-position control signal
 - SAV61.. Operating voltage AC/DC 24 V, control signal DC 0...10 V, 4...20 mA
 - SAV81.. Operating voltage AC/DC 24 V, 3-position control signal
 - SAV61.. Position feedback, override control, choice of flow characteristic
 - For direct mounting on valves; no adjustments required
 - Manual adjuster, position indicator and status indication per LED
 - Optional functions with auxiliary switches, potentiometer, function module, stem heating element

Use

For the operation of Siemens 2-port and 3-port valves, types V..F22.., V..F32.., V..F42.., V..F43.. and V..F53.. with 20/40 mm stroke as control and safety shut-off valves in heating, ventilation and air conditioning systems.

Type summary

Product no.	Stock no.	Stroke	Pos. force	Operating voltage	Positioning signal	Spr. ret. time	Pos. time	LED	Manual adjuster	Extra functions
SAV31.00	S55150-A112	40 mm	1600 N	AC 230 V	3-position	-	120 s	-	Press and fix	-
SAV61.00 SAV61.00U	S55150-A110 S55150-A110-A100			AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ω			✓		Position feedback, forced control, change of characteristic
SAV81.00 SAV81.00U	S55150-A111 S55150-A111-A100			3-position	-			-		

Electrical accessories

Product no.	Auxiliary switch ASC10.51	Potentiometer ASZ7.5	Function module AZX61.1	Stem heating element ASZ6.6
Stock no.	S55845-Z103	S55845-Z106	S55845-Z107	S55845-Z108
	Max. 2			Max. 1
SAV31..	Max. 2	Max. 1	-	Max. 1
SAV61..	Max. 2	-	Max. 1 AZX61.1	
SAV81..		Max. 1	-	

Note: ASZ7.5

For the combination SIMATIC S5/S7 and position feedback message, we recommend actuators with DC 0...9.8 V feedback signals.

The signal peaks that occur in the potentiometer ASZ7.5 may result in error messages on Siemens SIMATIC.

This is not the case when combined with Siemens HVAC controllers.

The reason is that SIMATIC has a higher resolution and faster response time.

Mechanical Accessory

Weather shield ASK39.1

Ordering

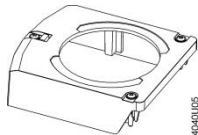

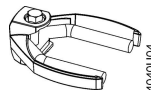
Example

Product no.	Stock no.	Description	Quantity
SAV81.00	S55150-A111	Actuator	1
ASZ7.5	S55845-Z106	Potentiometer	1

Delivery

Actuators, valves and accessories are supplied in individual packs.

Spare parts

Product number / Stock number	Housing cover	Screw (valve stem coupling)
8000060843		
		U-bracket 

Product documentation

Detailed Informations about the New Generation actuators can be found in the Basic documentation "Electromotoric actuators SAV.." (CE1P4040en_AP).

Combinations

Type reference		DN	PN class	k_{vs} [m ³ /h]	Data sheet
2-port valves VV.. (control or safety shutoff valves)					
VVF22..	flange	40...100	6	16...160	N4401
VVF32..	flange	40...150	10	16...400	N4402
VVF42..	flange	40...150	16	16...400	N4403
VVF42..K	flange	100...150		160...360	
VVF43..	flange	65...150	16	50...400	N4404
VVF43..K	flange	-		-	invalid
VVF53..	flange	40...150	25	16...400	N4405
VVF53..K	flange	-	-	-	invalid
3-port valves VX.. (control valves for "mixing" and "diverting" functions)					
VXF22..	flange	40...100	6	16...160	N4401
VXF32..	flange	40...150	10	16...400	N4402
VXF42..	flange	40...150	16	16...400	N4403
VXF43..	flange	65...150		63...400	N4404
VXF53..	flange	40...150	25	16...400	N4405

Notes

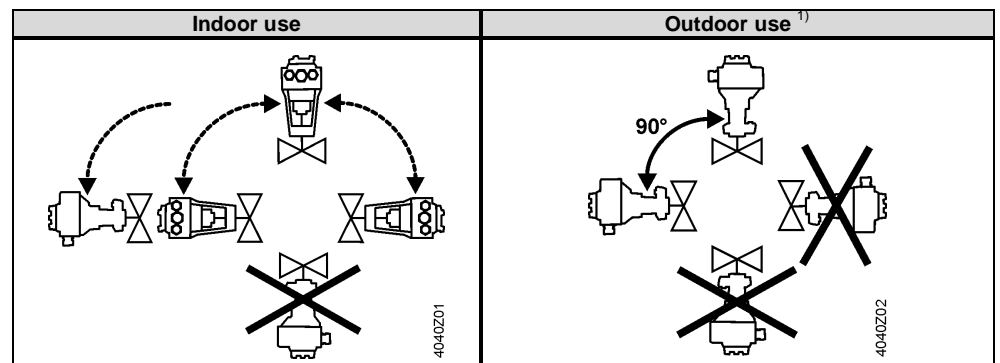
Engineering
SAV31.. and SAV81..

3-position actuators must have their own specific controller, refer to "Connection Diagrams" (page 8).

SAV61..

Up to 10 actuators can drive in parallel on a controller output with a rating of 1 mA. Modulating actuators have an input impedance of 100 kΩ.

Mounting



¹⁾ Only in connection with weather shield ASK39.1



During operation in heating installations the actuator consol, which is in contact with the hot valve, gets hot as well and can reach temperatures up to 100 °C.

When servicing actuators:

- Deactivate the pump and turn off the power supply
- Close the shutoff valves
- Allow pipes to completely cool down

Maintenance

The actuators are maintenance-free.

Warranty

The engineering data specified in chapter "Combinations" (page 3) are only guaranteed in connection with the Siemens valves listed.

Note

When using the actuators in connection with valves of other manufacture, correct functioning must be ensured by the user, and Siemens will assume no responsibility.

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.

Technical Data

		SAV..
Power supply	Operating voltage SAV31.. SAV61.. SAV81..	AC 230 V ±15 % AC 24 V ± 20 % / DC 24 V + 20 % / -15 % (SELV) AC 24 V ±20 % / DC 24 V + 20 % / -15 % (SELV)
	Frequency	45...65 Hz
	External supply line protection (EU)	<ul style="list-style-type: none"> • Fuse slow 6...10 A • Circuit breaker max. 13 A, Characteristic B, C, D according to EN 60898 • Power source with current limitation of max. 10 A
	Power consumption at 50 Hz SAV31.00 Stem retracts / extends SAV61.00.. Stem retracts / extends SAV81.00.. Stem retracts / extends	6.5 VA / 4 W 9.5 VA / 4.5 W 7 VA / 4.5 W
Function data	Positioning times (with the specified nominal stroke) The positioning time can vary, depending on the type of valve -> refer chapter "Type summary" (page 2) SAV31.00, SAV61.00, SAV81.00 Positioning force Nominal stroke Working stroke area the actuator is able to calibrate Permissible medium temperature (valve fitted)	120 s 1600 N 40 mm 12...43 mm -25...130 °C Up to 150 °C with horizontal mounting position
Signal inputs	Positioning signal "Y" SAV31.., SAV81.. SAV31.. Voltage SAV81.. Voltage SAV61.. (DC 0...10 V) Current draw Input impedance SAV61.. (DC 4...20 mA) Current draw Input impedance	3-position AC 230 V ±15 % AC 24 V ± 20 % / DC 24 V + 20 % / -15 % ≤ 0.1 mA ≥ 100 kΩ DC 4...20 mA ± 1 % ≤500 Ω
Parallel operation	SAV61..	≤ 10 (depending on controller output)
Forced control	Positioning signal "Z" SAV61.. R = 0...1000 Ω Z connected to G Z connected to G0 Voltage Current draw	R = 0...1000 Ω, G, G0 Stroke proportional to R Max. stroke 100 % ¹⁾ Min. stroke 0 % ¹⁾ Max. AC 24 V ± 20 % Max. DC 24 V + 20 % / -15 % ≤ 0.1 mA
Position feedback	Position feedback U SAV61.. Load impedance Load	DC 0...10 V >10 kΩ res. Max. 1 mA
Connecting cable	Wire cross-sectional areas	0.13...1.5 mm ² , AWG 24...16 ²⁾
	Cable entries SAV.. SAV..U	EU: 2 entries Ø 20.5 mm (for M20) 1 entry Ø 25.5 mm (for M25) US: 3 entries Ø 21.5 mm for ½" tube connection
Degree of protection	Protection degree of housing from vertical to horizontal	IP54 as per EN 60529 ³⁾
	Protection class Actuators SAV31.. AC 230 V Actuators SAV61.. AC / DC 24 V Actuators SAV81.. AC / DC 24 V	According to EN 60730-1 II III III

¹⁾ Observe acting direction of DIL switches

²⁾ AWG = American wire gauge

³⁾ Also with weather shield ASK39.1

Environmental conditions	Operation Climatic conditions Mounting location Temperature General Humidity (noncondensing)	IEC 60721-3-3 Class 3K5 Indoors (weather-protected) -5...<55 °C 5...95 % r.h.
	Transport Climatic conditions Temperature Humidity	IEC 60721-3-2 Class 2K3 -25...70 °C <95 % r.h.
	Storage Climatic conditions Temperature Humidity	IEC 60721-3-1 Class 1K3 -15...55 °C 5...95 % r.h.
	Max. media temperature when mounted on valve	130 °C Up to 150 °C with horizontal mounting position
Directives and Standards	Product standard Electromagnetic compatibility (Application)	EN 60730-x For residential, commercial and industrial environments
	EU Conformity (CE) RCM Conformity EAC Conformity	CE1T4503xx ¹⁾ CE1T4503_C1 ¹⁾ Eurasia Conformity for all SAV..
	UL, cUL AC 230 V AC / DC 24 V	- UL 873 http://ul.com/database
Environmental compatibility		The product environmental declaration 71 7331 0522 A ¹⁾ contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).
Dimensions		See "Dimensions" (page 9)
Accessories ²⁾	Potentiometer ASZ7.5 Voltage Current rating	0...1000 Ω ± 5 % DC 10 V <4 mA
	Auxiliary switch ASC10.51 External supply line protection US Installation, UL & cUL	Switching capacity AC 24...230 V, 6 (2) A, floating See section power supply AC 24 V class 2, 5 A general purpose
	Stem heating element ASZ6.6 Power supply Power consumption Inrush current (cold)	AC/DC 24 V, ± 20% 40 VA / 30 W Max. 8,5 A (max. temperature 85 °C / 185 F)

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

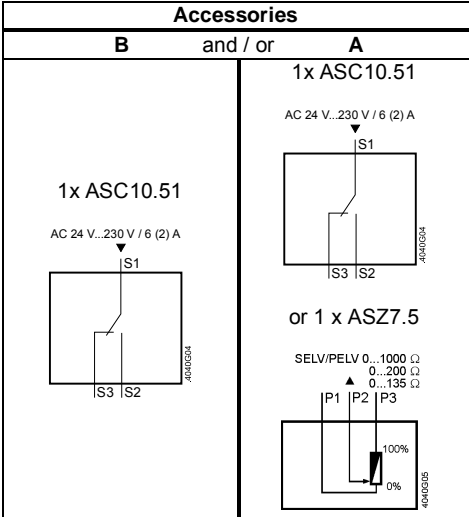
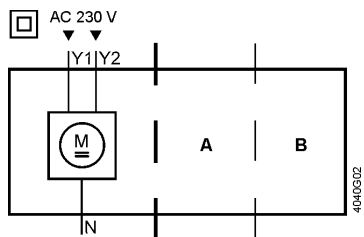
²⁾ UL recognized component



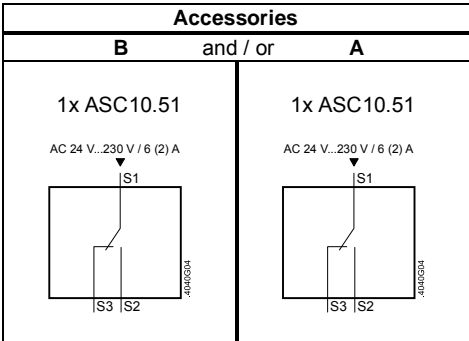
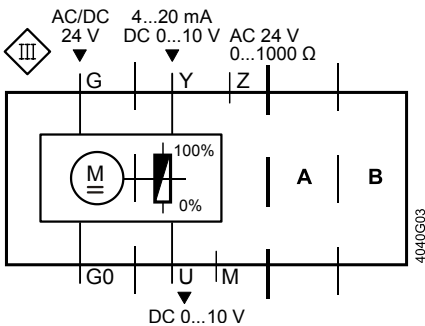
Connection Diagrams

Internal Diagrams

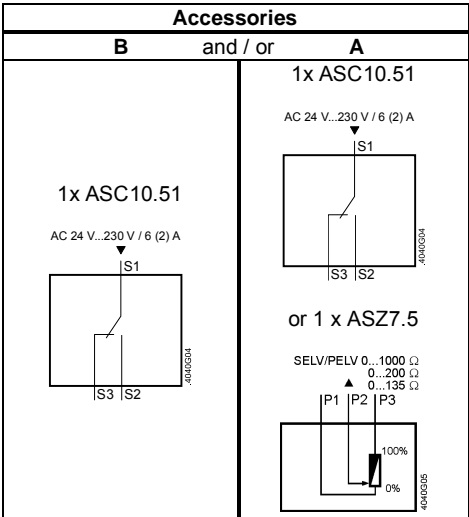
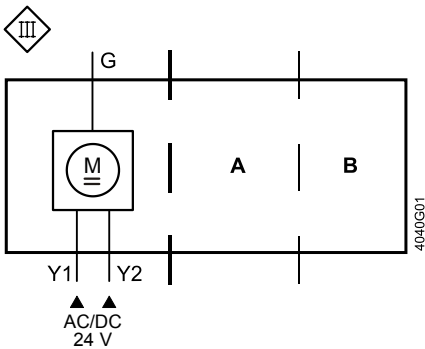
SAV31..



SAV61..



SAV81..



Connection terminals

SAV31..

AC 230 V, 3-position

- N** - System neutral (SN)
- Y1** - Positioning signal (actuator's stem extends)
- Y2** - Positioning signal (actuator's stem retracts)

SAV61..

AC/DC 24 V, DC 0...10 V / 4...20 mA / 0...1000 Ω

- G0** - System neutral (SN)
- G** - System potential (SP)
- Y** - Positioning signal for DC 0...10 V / 4...20 mA
- M** - Measuring neutral
- U** - Position feedback DC 0...10 V - (reference potential is M measuring neutral)
- Z** - Positioning signal forced control

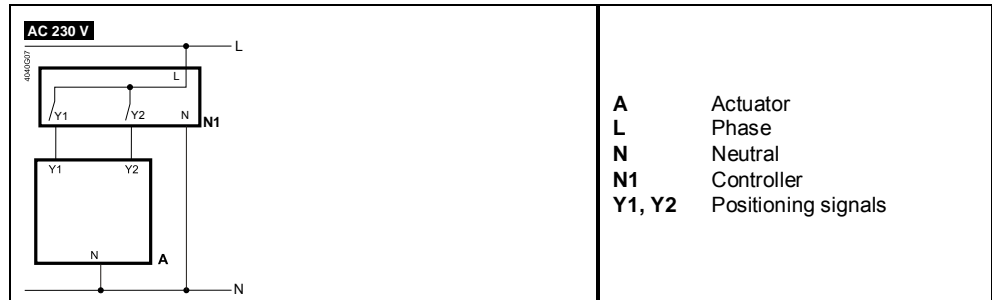
SAV81..

AC/DC 24 V, 3-position

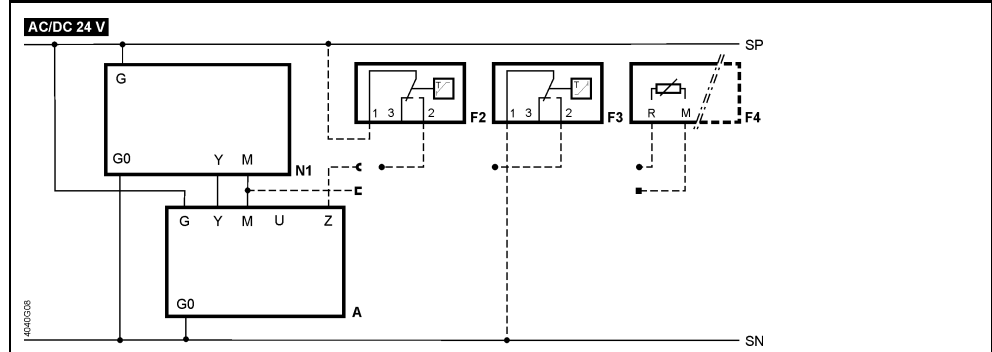
- G** - System potential (SP)
- Y1** - Positioning signal (actuator's stem extends)
- Y2** - Positioning signal (actuator's stem retracts)

Connection Diagrams

SAV31..

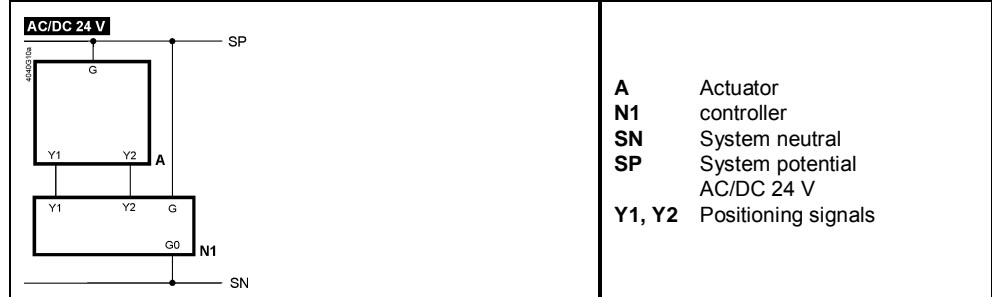


SAV61..

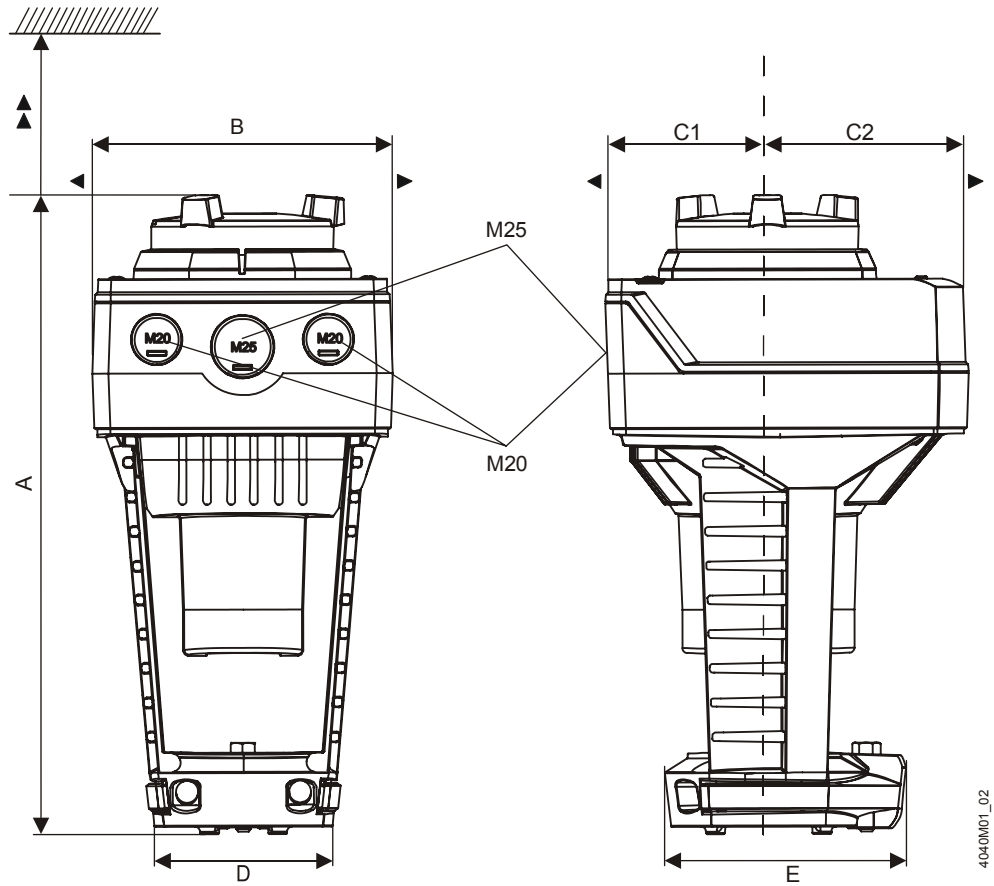


- A** Actuator
- F2** Frost protection thermostat; terminals:
 1 - 2 frost hazard / sensor is interrupted (thermostat closes with frost)
 1 - 3 normal operation
- F3** Temperature detector
- F4** Frost protection monitor with 0...1000 Ω signal output, does NOT support QAF21.. or QAF61..
- M** Measuring neutral
- N1** Controller
- SN** System neutral
- SP** System potential AC/DC 24 V
- U** Position feedback - (reference potential is M measuring neutral)
- Y** Position signal
- Z** Positioning signal forced control

SAV81..



Dimensions



4040M01_02

Product no.	A	B	C	C1	C2	D	E	▶	▶▶	kg
SAV..(U ¹⁾)	265	124	150	68	82	80	100	100	200	1.920
With ASK39.1	+25	154	300	200	100	-	-	-	-	2.150

Dimensions in mm

¹⁾ SAV..U: For 1/2" tube connections (21.5 mm dia.)

Revision numbers

Product no.	Valid from rev. no.
SAV31.00	..B
SAV61.00	..B
SAV61.00U	..B
SAV81.00	..B
SAV81.00U	..B

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