



ACVATIX™

Electromotoric actuators for **SAX..P..** valves

with a 20 mm stroke

-
- **SAX31P03** Operating voltage AC 230 V, 3-position control signal
 - **SAX61P03** Operating voltage AC/DC 24 V, control signal DC 0...10 V, 4...20 mA
 - **SAX81P03** Operating voltage AC/DC 24 V, 3-position control signal
 - **SAX61P03** 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

Electromotoric actuators for the operation of Siemens combi valves of types VPF43.. and VPF53.. with 20 mm stroke as control and safety shut-off valves in ventilation, air conditioning, district heating and refrigerating systems.

Type summary

Product no.	Stock no.	Stroke	Pos. force	Operating voltage	Positioning signal	Spr. ret. time	Pos. time	LED	Manual adjuster	Extra functions
SAX31P03	S55150-A118	20 mm	500 N	AC 230 V	3-position	-	30 s	-	Push and fix	1)
SAX61P03	S55150-A114			AC/DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ω			✓		2), 3)
SAX81P03	S55150-A116			3-position	-			1)		

1) Optional accessories: auxiliary switch, potentiometer

2) Position feedback, forced control, change of characteristic

3) Optional accessories: auxiliary switch, sequence control, selection of acting direction

Electrical accessories

Product no.	Auxiliary switch ASC10.51	Potentiometer ASZ7.5	Function module AZX61.1
Stock no.	S55845-Z103	S55845-Z106	S55845-Z107
	Max. 2		
SAX31P..	Max. 2	Max. 1	
SAX61P..	Max. 2	-	Max. 1 AZX61.1
SAX81P..		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

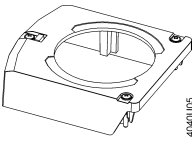

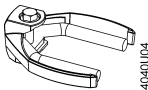
Example

Product no.	Stock no.	Description	Quantity
SAX81P03	S55150-A116	Actuator	1
ASZ7.5	S55845-Z106	Potentiometer	1

Delivery

Actuators, valves and accessories are supplied in individual packs.

Spare parts

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

Combinations

VPF43..	Type	Stock no.	DN	H ₁₀₀ [mm]	\dot{V}_{min} [m ³ /h]	\dot{V}_{100} [m ³ /h]	Δp_{min} [kPa]	Data sheet
Standard flow	VPF43.50F16	S55266-V100	50	20	2.3	15	35	N4315
	VPF43.65F24	S55266-V102	65		4.4	25		
	VPF43.80F35	S55266-V104	80		5.3	34		
High flow	VPF43.50F25	S55266-V101	50	20	4.3	25	70	
	VPF43.65F35	S55266-V103	65		6	35		
	VPF43.80F45	S55266-V105	80		7	43		

VPF53..	Type	Stock no.	DN	H ₁₀₀ [mm]	\dot{V}_{min} [m ³ /h]	\dot{V}_{100} [m ³ /h]	Δp_{min} [kPa]	Data sheet
Standard flow	VPF53.50F16	S55266-V112	50	20	2.3	15	35	N4316
	VPF53.65F24	S55266-V114	65		4.4	25		
	VPF53.80F35	S55266-V116	80		5.3	34		
High flow	VPF53.50F25	S55266-V113	50	20	4.3	25	70	
	VPF53.65F35	S55266-V115	65		6	35		
	VPF53.80F45	S55266-V117	80		7	43		

Product documentation

Detailed Informations about the New Generation actuators can be found in the Basic documentation for actuators (P4040).

Notes

Engineering

SAX31P03 and
SAX81P03

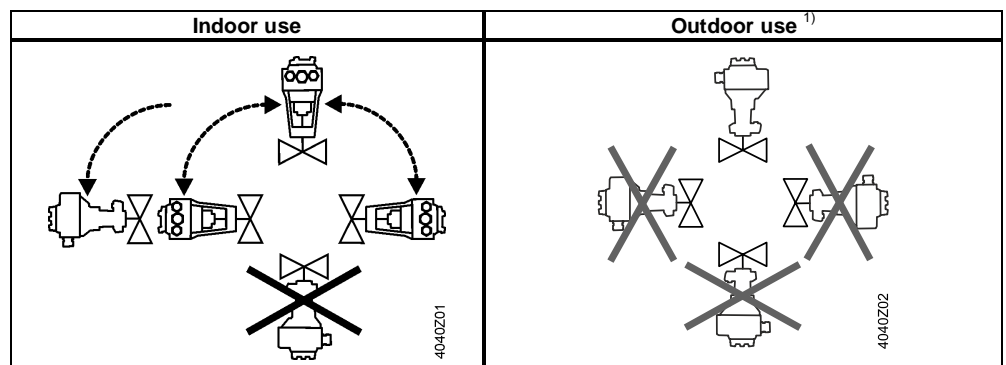
3-position actuators must have their own specific controller, refer to "Connection Diagrams" (page 9).

SAX61P03

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 k Ω .

Mounting

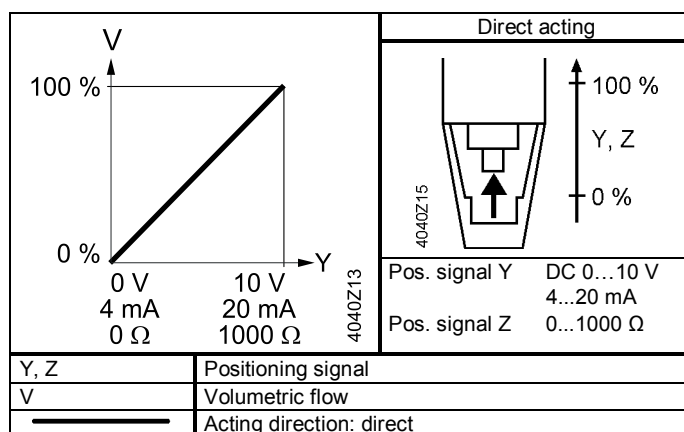
Mounting positions



¹⁾ Only in connection with weather shield ASK39.1

Acting direction

With valves whose stem is retracted in the fully closed position, "direct acting" means that the valve is fully closed (100 %) when positioning signal $Y = 0\text{ V}$ and $Z = 0\ \Omega$ respectively.



Maintenance

The actuators are maintenance-free.

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.

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.

Technical Data

		SAX..P
Power supply	Operating voltage SAX31.. SAX61.. SAX81..	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...65Hz
	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 SAX31P03 Stem retracts / extends SAX61P03 Stem retracts / extends SAX81P03 Stem retracts / extends	6 VA / 3.5 W 8 VA / 3.75 W 5 VA / 3.75 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) SAX31P03, SAX61P03, SAX81P03 Positioning force Nominal stroke Permissible medium temperature (valve fitted)	30 s 500 N 20 mm 1...130 °C
Signal inputs	Positioning signal "Y" SAX31P03, SAX81P03 SAX31P.. Voltage SAX81P.. Voltage SAX61P03 (DC 0...10 V) Current draw Input impedance SAX61P03 (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	SAX61P03	≤ 10 (depending on controller output)
Forced control	Positioning signal "Z" SAX61P03 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 SAX61P03 Load impedance Load	DC 0...10 V > 10 kΩ res. Max. 1 mA
Connecting cable	Wire cross-sectional areas	0.75...1.5 mm ² , AWG 20...16 ²⁾
	Cable entries SAX..P..	EU: 2 entries Ø 20.5 mm (for M20) 1 entry Ø 25.5 mm (for M25)
Degree of protection	Housing from vertical to horizontal	IP54 as per EN 60529 ³⁾
	Insulation class Actuators SAX31P03Y AC 230 V Actuators SAX61P03Y AC / DC 24 V Actuators SAX81P03Y AC / DC 24 V	As per EN 60730 II III III
	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 -5...55 °C 5...95% r.h.
	Max. media temperatur when mounted on valve	130 °C

¹⁾ Observe acting direction of DIL switches

²⁾ AWG = American wire gauge

³⁾ Also with weather shield ASK39.1

		SAX..P
Norms and Directives	Product standard	EN 60730-x
	Electromagnetic compatibility (Application)	For residential, commercial and industrial environments
	EU Conformity (CE)	CE1T4501X1 ¹⁾
	RCM Conformity	CE1T4515X4 ¹⁾

	EAC Conformity UL, cUL	AC 230 V AC/DC 24 V	Eurasia Conformity for all SAX..P.. - UL 873 http://ul.com/database
Environmental compatibility			The product environmental declaration 7173310559Ben ¹⁾ contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).
Dimensions			See "Dimensions" (page 10)
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 AC24 V class 2, 5 A general purpose

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

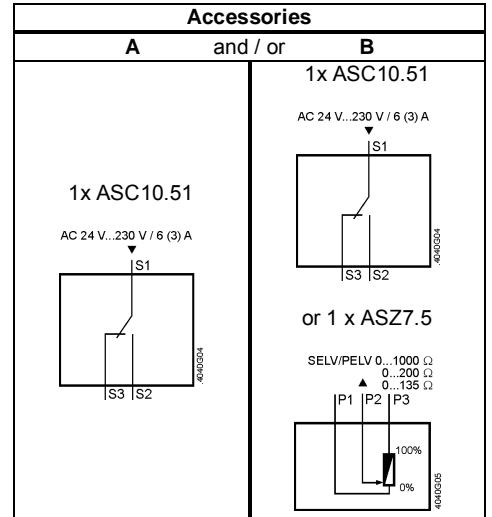
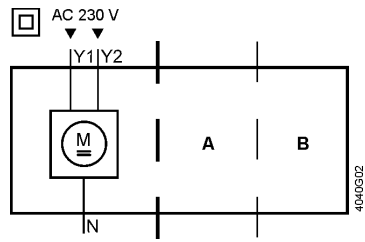
²⁾ UL recognized component



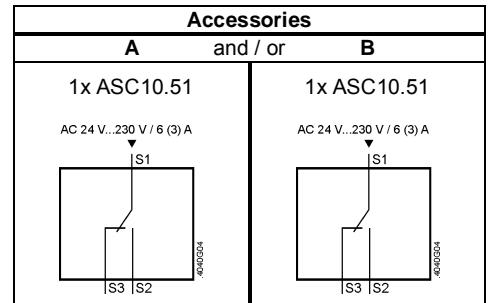
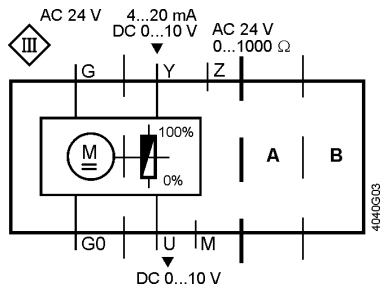
Connection Diagrams

Internal Diagrams

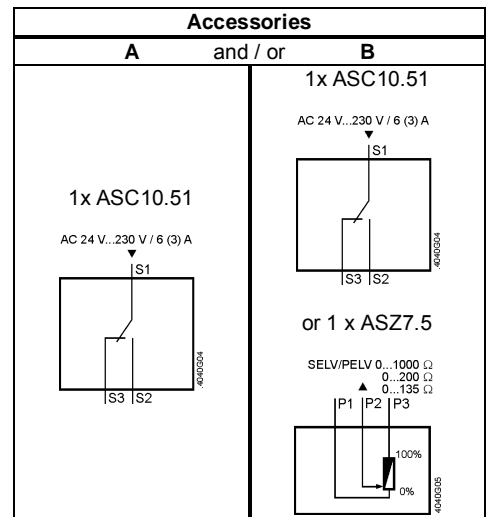
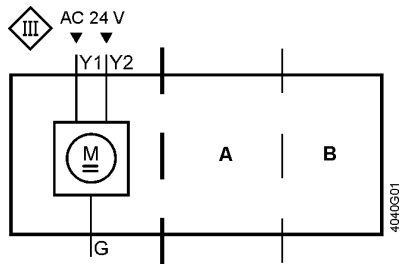
SAX31P03



SAX61P03



SAX81P03



Connection terminals

SAX31P03

AC 230 V, 3-position

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

SAX61P03

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

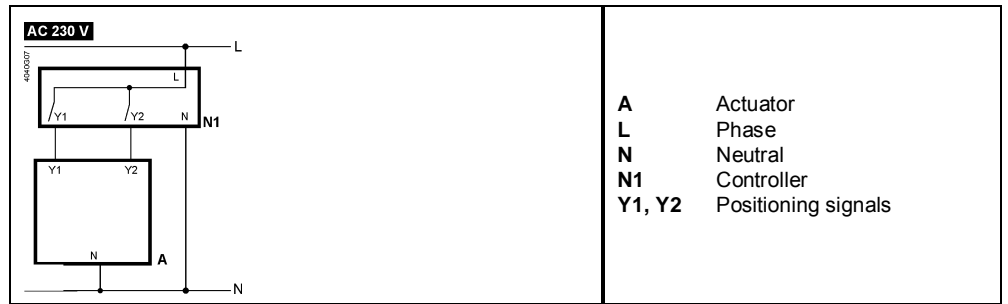
G0	—	System neutral (SN)
G	—	System potential (SP)
Y	—	Positioning signal for DC 0...10 V / 4...20 mA
M	—	Measuring neutral
U	—	Position feedback DC 0...10 V
Z	—	Positioning signal forced control

SAX81P03

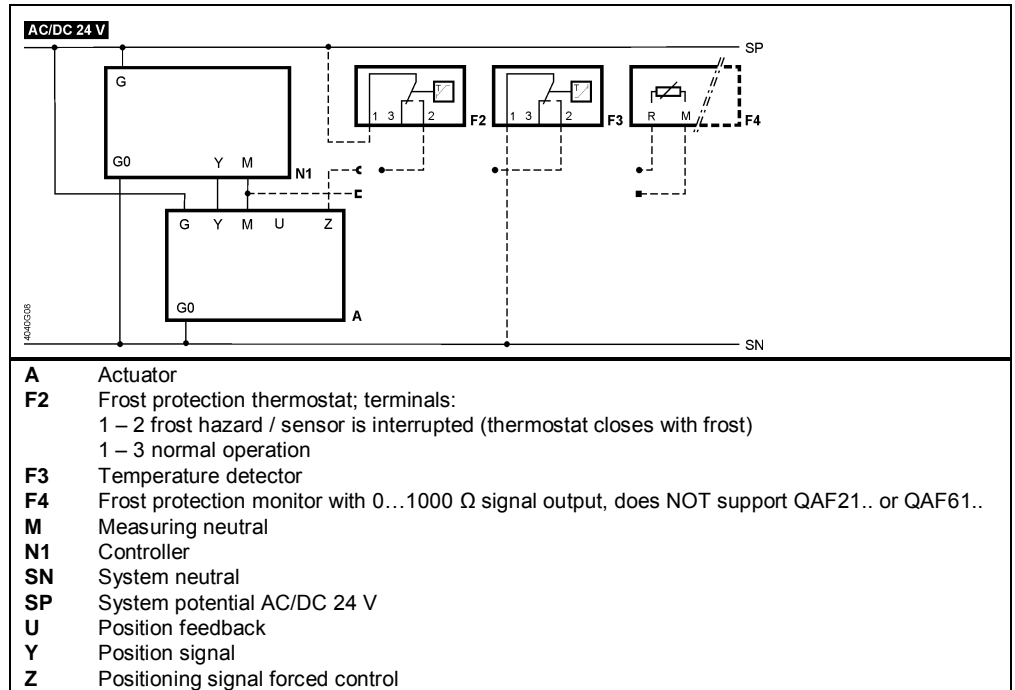
AC/DC 24 V, 3-position

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

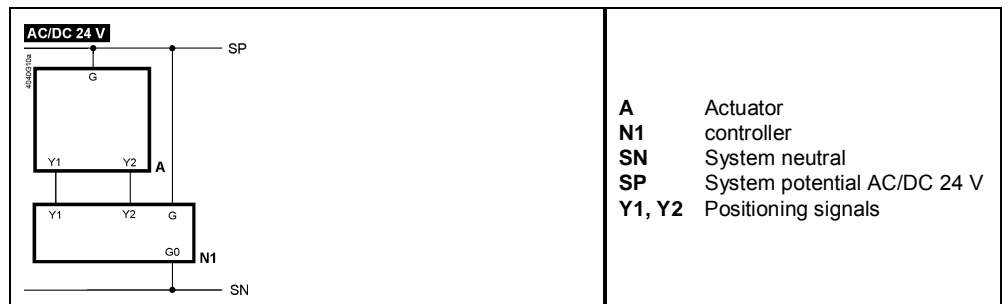
Connection Diagrams
SAX31P03



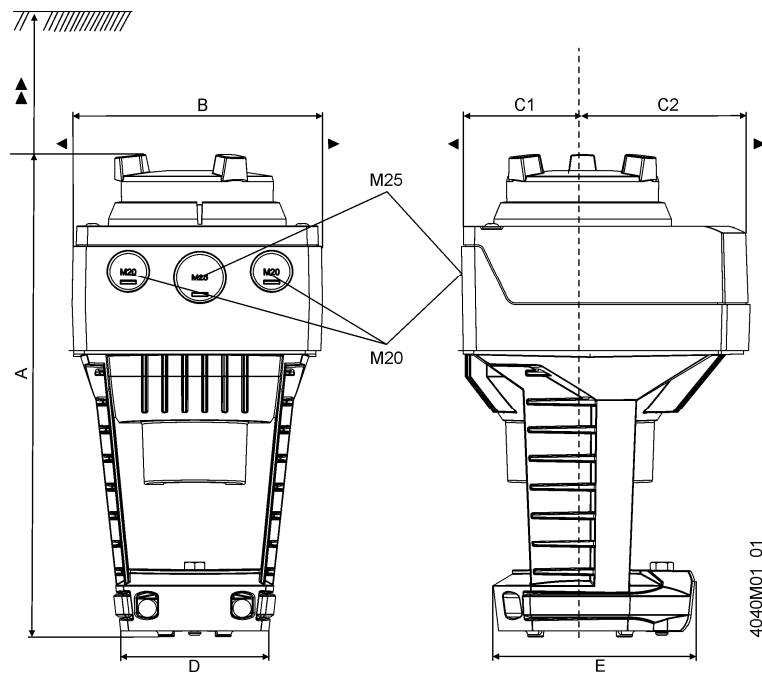
SAX61P03



SAX81P03



Dimensions



Type	A	B	C	C1	C2	D	E	▶	▶▶	kg
SAX..P..	242	124	150	68	82	80	100	100	200	1.780
With ASK39.1	+25	154	300	200	100	-	-	-	-	2.010

Dimensions in mm

Revision numbers

Product no.	Valid from rev. no.
SAX31P03	..H
SAX61P03	..H
SAX81P03	..H

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