



ACVATIX™

## Electromotoric rotary actuators for butterfly or slipper valves

**SAL..**

with 90° rotary angle

- 
- SAL31.. Operating voltage AC 230 V, 3-position control signal
  - SAL61.. Operating voltage AC/DC 24 V, control signal 0...10 V, 4...20 mA, 0...1000 Ω
  - SAL81.. Operating voltage AC/DC 24 V, 3-position control signal
  - SAL61.. Position feedback, override control
  - For direct mounting on butterfly or slipper valves; no adjustments required
  - Manual adjuster, position indicator and status indication per LED
  - Optional functions with auxiliary switches, potentiometer

### Use

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For the operation of Siemens butterfly and slipper valves, types VKF41.. and VBF21.. as control or shutoff valves in heating, ventilation and air conditioning systems.

## Type summary

Product no.	Stock no.	Angular rotation	Torque	Operating voltage	Positioning signal	Positioning time	LED	Manual adjuster	Extra functions
<b>SAL31.00T10</b>	S55162-A108	90°	10 Nm	AC 230 V	3-position	120 s	-	Push and fix	-
<b>SAL31.03T10</b>	S55162-A109					30 s			
<b>SAL61.00T10</b>	S55162-A100			AC/DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ω	120 s	✓		
<b>SAL61.03T10</b>	S55162-A101					30 s			
<b>SAL81.00T10</b>	S55162-A104			3-position		120 s	-		
<b>SAL81.03T10</b>	S55162-A105					30 s			

## Electrical accessories

Product no.	Auxiliary switch ASC10.51	Potentiometer ASZ7.5/.. <sup>1)</sup>
Stock no.	S55845-Z103	S55845-Z104 (ASZ7.5/135) S55845-Z105 (ASZ7.5/200) S55845-Z106 (ASZ7.5/1000)
Max. 2 in total		
<b>SAL31..</b>	Max. 2	Max. 1
<b>SAL61..</b>	Max. 2	-
<b>SAL81..</b>		Max. 1

<sup>1)</sup> Available with 135 Ω, 200 Ω or 1000 Ω

## Mechanical accessories

Product no.	Weather shield ASK39.1	Mounting set	
		ASK31N for VBF21..	ASK33N for VKF41..
Stock no.	S55845-Z109	S55845-Z100	S55845-Z101
<b>SAL..T10</b>	Max. 1	✓	✓

## Ordering


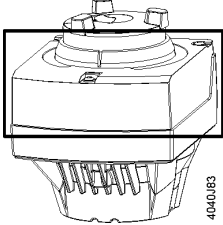


### Example

Product no.	Stock no.	Description	Quantity
SAL31.00T10	S55162-A108	Rotary actuator	1
ASZ7.5/1000	S55845-Z106	Potentiometer	1

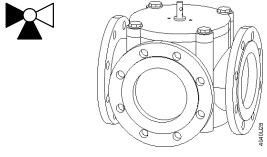
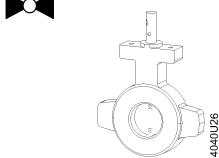
### Delivery

Actuators, valves and accessories are supplied in individual packs.

### Spare parts

Stock number 8000060844	Housing cover 	
	2 adapters  1 pc. 14 mm 1 pc. 11 mm	
	4 screws  2 pcs. M5 x 20 mm 2 pcs. M6 x 20 mm	

## Combinations

SAL..T10		Angular rotation Torque			90 ° 10 Nm	
Slipper valves	Data Sheet	Valve type <sup>1)</sup>	DN	k <sub>vs</sub> [m <sup>3</sup> / h]	Mounting set	Δp <sub>max</sub> [kPa]
<b>PN6</b>  1...120 °C	N4241	<b>VBF21.40</b>	40	25	-	-
		<b>VBF21.50</b>	50	40	-	-
		<b>VBF21.65</b>	65	63	ASK31N	30
		<b>VBF21.80</b>	80	100	ASK31N	
		<b>VBF21.100</b>	100	160	ASK31N	
		<b>VBF21.125</b>	125	550	ASK31N	
		<b>VBF21.150</b>	150	820	ASK31N	
<b>Butterfly valves</b>						Δp <sub>s</sub> [kPa]
<b>PN16</b>  -10...120 °C	N4131	<b>VKF41.40</b>	40	50	ASK33N	500
		<b>VKF41.50</b>	50	80	ASK33N	
		<b>VKF41.65</b>	65	200	ASK33N	
		<b>VKF41.80</b>	80	400	ASK33N	
		<b>VKF41.100</b>	100	760	ASK33N	
		<b>VKF41.125</b>	125	1000	ASK33N	300
		<b>VKF41.150</b>	150	2100	ASK33N	250
		<b>VKF41.200</b>	200	4000	ASK33N	125

<sup>1)</sup> SAL..T10 rotary actuators only fit on VBF21..., DN65...150. For VBF21..., DN40/50 use SQK34..., SQK84.. (data sheet N4508) or SQK33.00 (data sheet N4506) rotary actuators.

## Product documentation

Detailed information about the New Generation actuators can be found in the basic documentation "Electromotoric actuators SAX., SAL.." (CE1P4040en).

## Notes

### Engineering

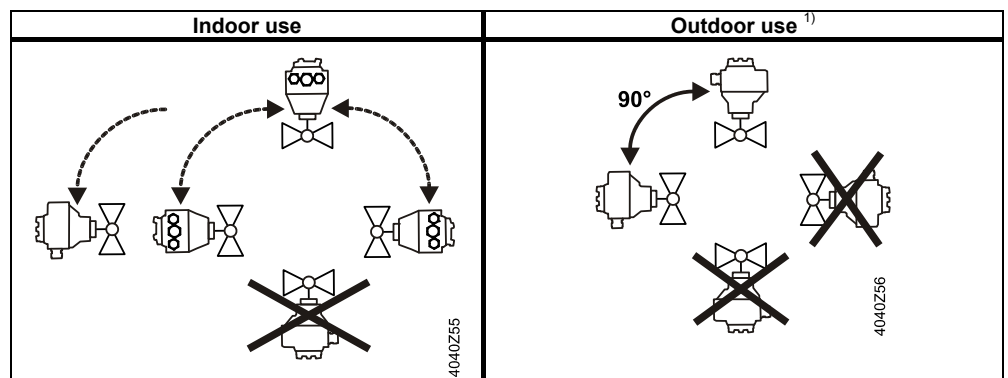
SAL 31.. / SAL81..

3-position actuators must have their own specific controller, refer to "Connection Diagrams" (page 7).

SAL61..

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



<sup>1)</sup> Only in connection with weather shield ASK39.1

### Maintenance

The rotary 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 slipper valves of other manufacture, correct functioning must be ensured by the user, and Siemens will assume no responsibility. The use of the rotary actuators SAL..T10 with butterfly valves is only permitted for the Siemens Series VKF41..**

## Technical Data

		SAL..
<b>Power supply</b>	Operating voltage SA..31.. SA..61.. SA..81..	AC 230 V ±15% AC 24 V ± 20% / DC 24 V + 20% / -15% AC 24 V ±20% / DC 24 V + 20 % / -15%
	Frequency	45...65Hz
	Fusing of supply lines	Max. 10 A slow
	Power consumption at 50 Hz	
	SAL31.00T10 Rotary actuator turns SAL31.03T10 Rotary actuator turns SAL61.00T10 Rotary actuator turns SAL61.03T10 Rotary actuator turns SAL81.00T10 Rotary actuator turns SAL81.03T10 Rotary actuator turns	3,5 VA / 2 W 6,5 VA / 2,75 W 4 VA / 2 W 8,5 VA / 3,5 W 4 VA / 2 W 4 VA / 3 W
<b>Function data</b>	Positioning times (with spec. nominal angular rotation) SAL31..00, SAL81..00 SAL31..03, SAL..03 SAL..T10	120 s 30 s 10 Nm
	Torque	10 Nm
	Rotary angle	90°
	Permissible medium temperature (valve fitted)	-10... 120 °C
<b>Signal inputs</b>	Positioning signal "Y" SAL31.., SAL81..	3-position AC 230 V ±15%
	SAL3.. Voltage	AC 24 V ± 20 % / DC 24 V + 20 % / -15%
	SAL8.. Voltage	AC 24 V ± 20 % / DC 24 V + 20 % / -15%
	SAL61.. (DC 0...10 V) Current draw	≤ 0.1 mA
	SAL61.. (DC 4...20 mA) Current draw	DC 4...20 mA ± 1%
	Input impedance	≥100 kΩ
	Input impedance	≤500 Ω
<b>Parallel operation</b>	SAL61..	≤ 10 (depending on controller output)
<b>Forced control</b>	Positioning signal "Z" SAL61..	R = 0...1000 Ω, G, G0
	R = 0...1000 Ω	Stroke / rotation proportional to R
	Z connected to G	90° <sup>1)</sup>
	Z connected to G0	0° <sup>1)</sup>
	Voltage	Max. AC 24 V ± 20% Max. DC 24 V + 20% / -15%
	Current draw	≤ 0.1 mA
<b>Position feedback</b>	Position feedback U SAL61..	DC 0...10 V ± 1%
	Load impedance	>10 kΩ res.
	Load	Max. 1 mA
<b>Connecting cable</b>	Wire cross-sectional areas	0.13...1.5 mm <sup>2</sup> , AWG 24...16 <sup>2)</sup>
Connecting cable	Cable entries	2 entries Ø 20.5 mm (for M20) 1 entry Ø 25.5 mm (for M25)
<b>Degree of protection</b>	Housing from vertical to horizontal	IP54 as per EN 60529 <sup>3)</sup>
	Insulation class	As per EN 60730
	SAL31.. AC 230 V	II
	SAL61.. AC / DC 24 V	III
SAL81.. AC / DC 24 V	III	
<b>Environmental conditions</b>	Operation	IEC 60721-3-3 Class 3K5
	Climatic conditions	Indoors (weather-protected)
	Mounting location	-15...55 °C
	Temperature	5...95 % r.h.
	Humidity (noncondensing)	
	Transport	IEC 60721-3-2 Class 2K3
	Climatic conditions	-25...70 °C
Temperature	<95 % r.h.	
Humidity		
Storage	IEC 60721-3-1 -15...55 °C	
Temperature	5...95 % r.h.	
Humidity		
Max. media temperature when mounted on valve		120 °C

		SAL..
<b>Standards</b>	CE conformity As per EMC directive Immunity Emissions	2004/108/EC EN 61000-6-2:[2005] Industrial <sup>4)</sup> EN 61000-6-3:[2007] Residential
	Electrical safety	EN 60730-1
	Low-voltage directive	AC 230 V C-tick 2006/95/EC N 474
	UL conformity	AC 230 V AC/DC 24 V - UL 873
	<b>Environmental compatibility</b>	-
<b>Dimensions</b>	-	See " Dimensions" (page 8)
<b>Weight</b>	Excl. packaging	See " Dimensions" (page 8)
<b>Accessories</b>	Potentiometer ASZ7.5/135	0...135 Ω ± 5% Voltage DC 10 V Current rating <4 mA
	Potentiometer ASZ7.5/200	0...200 Ω ± 5% Voltage DC 10 V Current rating <4 mA
	Potentiometer ASZ7.5/1000	0...1000 Ω ± 5% Voltage DC 10 V Current rating <4 mA
	Auxiliary switch ASC10.51	Switching capacity AC 24...230 V, 6 A res., 3 A ind.

<sup>1)</sup> Observe acting direction of DIL switches

<sup>2)</sup> AWG = American wire gauge

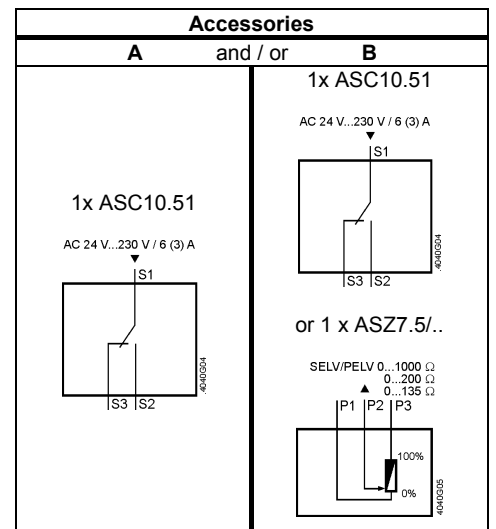
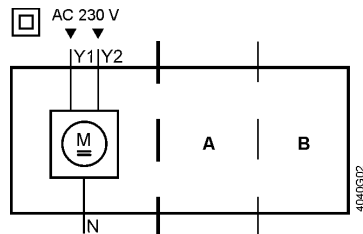
<sup>3)</sup> Also with weather shield ASK39.1

<sup>4)</sup> Transformer 160 VA (e.g. Siemens 4AM 3842-4TN00-0EA0) for actuators operating on AC 24 V

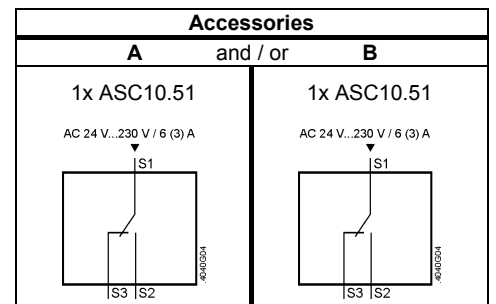
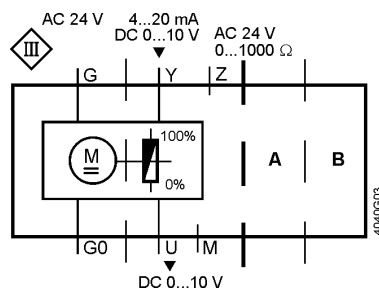
## Connection Diagrams

### Internal Diagrams

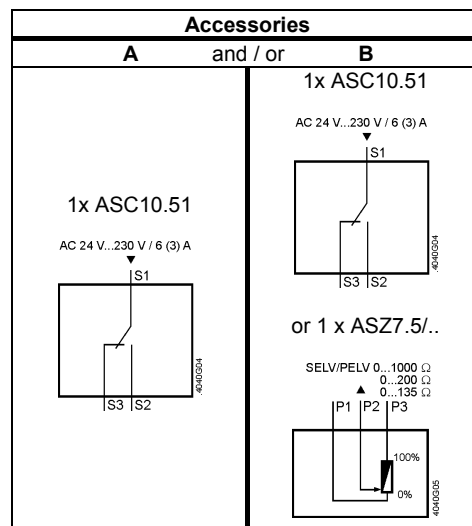
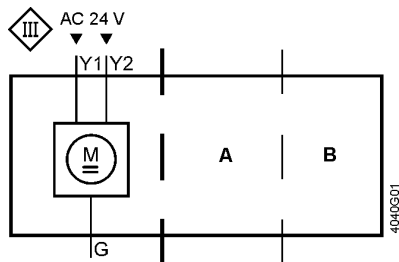
SAL31..



SAL61..



SAL81..



**Connection terminals**

SAL31..

AC 230 V, 3-position

- N** — Sytem neutral (SN)
- Y1** — Positioning signal (actuator's spindle turns clockwise)
- Y2** — Positioning signal (actuator's spindle turns counter-clockwise)

SAL61..

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

- G0** — Sytem neutral (SN)
- G** — Sytem 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 AC/DC ≤ 24 V, 0...1000 Ω

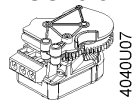
SAL81..

AC/DC 24 V, 3-position

- G** — Sytem potential (SP)
- Y1** — Positioning signal (actuator's spindle turns clockwise)
- Y2** — Positioning signal (actuator's spindle turns counter-clockwise)

**Connection terminals accessories**

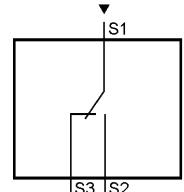
Auxiliary switch  
ASC10.51



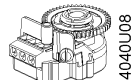
Adjustable switching points, AC 24...230 V

- 1** — System potential (SP)
- 2** — Closing (actuator's spindle turns clockwise)
- 3** — Opening (actuator's spindle turns clockwise)

AC 24 V...230 V / 6 (3) A



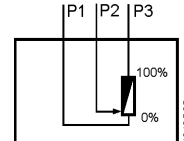
Potentiometer  
ASZ7.5/..



Adjustment of zero point, DC 10 V

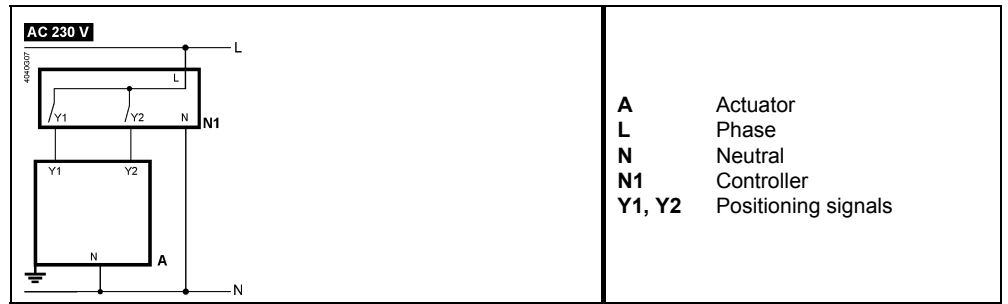
- 1** — Measuring neutral
  - 2** — 0...x Ω
  - 3** — x...0 Ω
- x = 135 Ω, 200 Ω;1000 Ω

SELV/PELV 0...1000 Ω  
0...200 Ω  
0...135 Ω

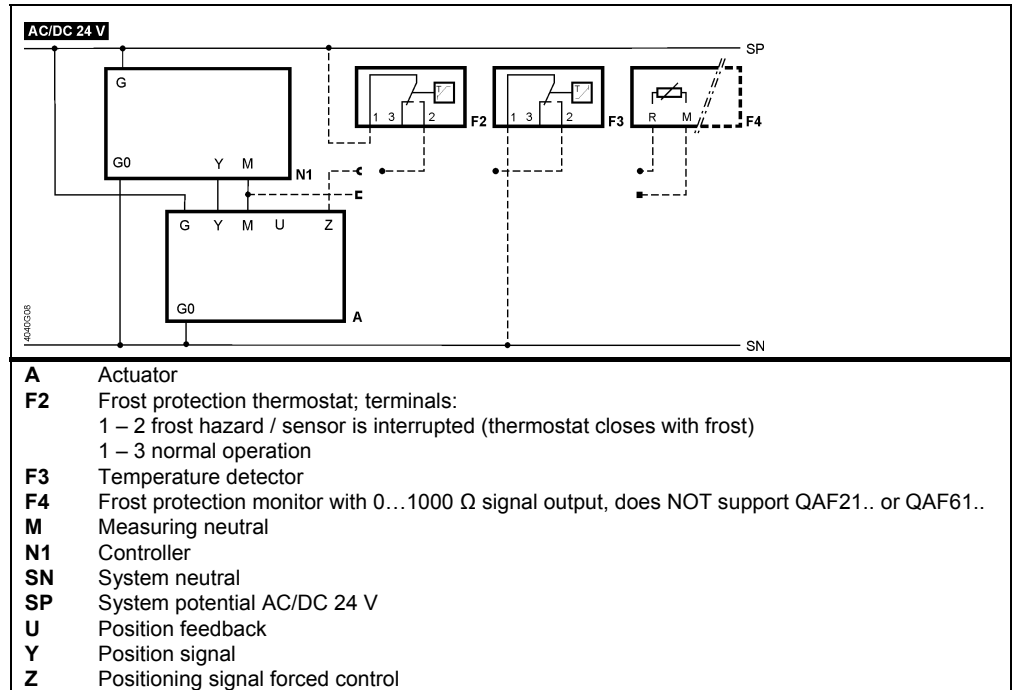


## Connection Diagrams

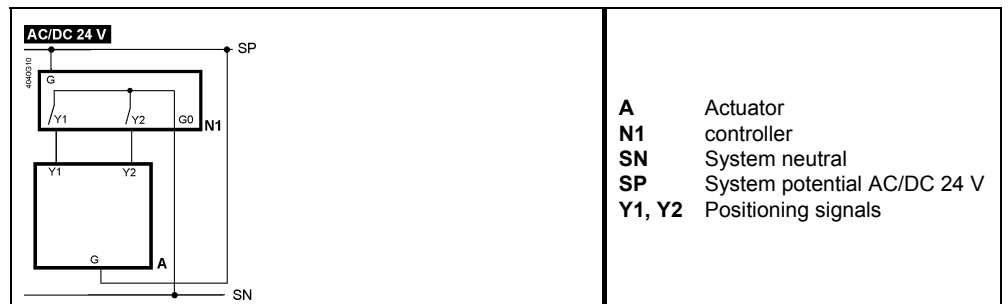
SAL31..



SAL61..

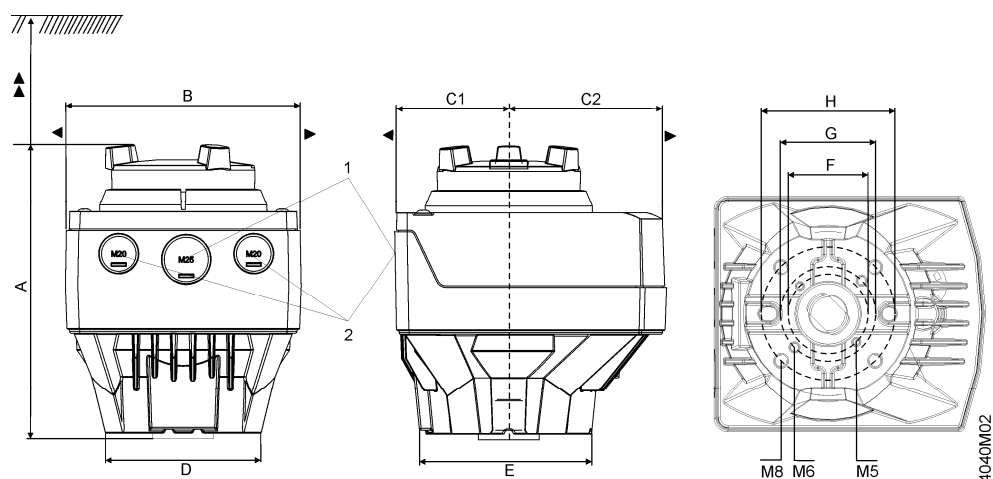


SAL81..



## Dimensions

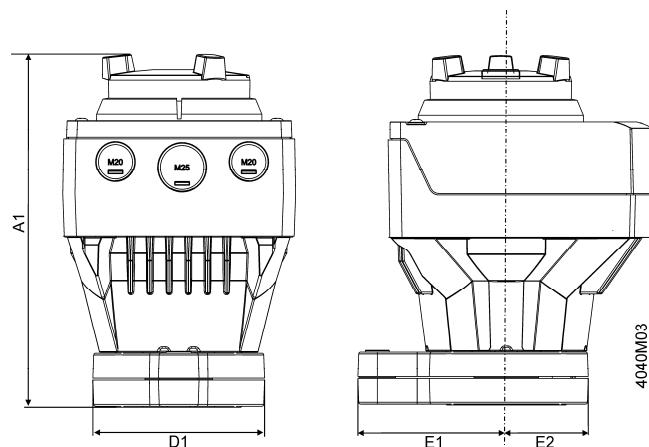
Dimensions in mm



- 1 SAL...: M25
- 2 SAL...: M20

Type	A	B	C	C1	C2	D	E	F	G	H	▶	▶▶
SAL..	160	124	150	68	82	82	88	42	50	70	100	200
With ASK39.1	+25	154	300	200	100	-	-	-	-	-	-	-

### With mounting set ASK3..N



Type	A1	D1	E1	E2
SAL.. with ASK3..N	188	88	80	44
With ASK39.1	+25	-	-	-

### Revision numbers

Product no.	Valid from rev. no.
SAL31.00T10	..A
SAL31.03T10	..A
SAL61.00T10	..A
SAL61.03T10	..A
SAL81.00T10	..A
SAL81.03T10	..A