

## 5 Technical data

		SAX..	SAL..
Power supply	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 ac. DIN 57100 part 430 (supply lines)	Max. 10 A slow	Max. 10 A slow
	Power consumption at 50 Hz		
	SAX31.00 Stem retracts / extends	3.5 VA / 2 W	-
	SAX31.03 Stem retracts / extends	6 VA / 3.5 W	-
	SAX61.03.. Stem retracts / extends	8 VA / 3.75 W	-
	Holding state	3.5 VA / 1.5 W	-
	SAX81.00.. Stem retracts / extends	3.5 VA / 2.25 W	-
	SAX81.03.. Stem retracts / extends	5 VA / 3.75 W	-
	SAL31.00T10 Rotary actuator turns	-	3.5 VA / 2 W
	SAL31.00T20 Rotary actuator turns	-	4.5 VA / 2.75 W
	SAL31.00T40 Rotary actuator turns	-	7 VA / 4 W
	SAL31.03T10 Rotary actuator turns	-	5.5 VA / 3.25 W
Function data	SAL61.00T10 Rotary actuator turns	-	5 VA / 2.5 W
	Holding state	-	3.5 VA / 1.5 W
	SAL61.00T20 Rotary actuator turns	-	6 VA / 2.75 W
	Holding state	-	3.5 VA / 1.5 W
	SAL61.00T40 Rotary actuator turns	-	9 VA / 4 W
	Holding state	-	3.5 VA / 1.5 W
	SAL61.03T10 Rotary actuator turns	-	7.5 VA / 3.5 W
	Holding state	-	3.5 VA / 1.5 W
	SAL81.00T10 Rotary actuator turns	-	3 VA / 2 W
	SAL81.00T20 Rotary actuator turns	-	4 VA / 2.75 W
	SAL81.00T40 Rotary actuator turns	-	6 VA / 3.75 W
	SAL81.03T10 Rotary actuator turns	-	5 VA / 3.5 W
	Positioning times with specified nominal stroke / nominal angular rotation SAX..00, SAL..00 SAX..03, SAL..03	120 s 30 s	-
	Positioning force Torque SAL..T10 SAL..T20 <sup>5)</sup> SAL..T40 <sup>5)</sup>	800 N - - -	- 10 Nm running 20 Nm running 40 Nm running
	Nominal stroke Angular rotation	20 mm -	- 90°
Signal inputs	Positioning signal "Y" SA..31.., SA..81.. SA..31.. SA..81.. SA..61.. (DC 0...10 V) SA..61.. (DC 4...20 mA)	Voltage Voltage Current draw Input impedance 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	SA..61..	≤ 10 (depending on controller output)
	Forced control	Positioning signal "Z" SA..61.. R = 0...1000 Ω Z connected to G Z connected to G0 Voltage Current draw	R= 0...1000 Ω, G, G0 Stroke / rotation proportional to R Max. stroke 100% <sup>1)</sup>   90° <sup>1)</sup> Min. stroke 0% <sup>1)</sup>   0° <sup>1)</sup> Max. AC 24 V ± 20 % Max. DC 24 V + 20 % / -15% ≤ 0,1 mA
	Position feedback	Position feedback U SA..61.. Load impedance Load	DC 0...10 V ± 1 % >10 kΩ res. Max. 1 mA
Connecting cable	Wire cross-sectional areas	0.13...1.5 mm <sup>2</sup> , AWG 24...16 <sup>2)</sup>	
	Cable entries SA.. SA..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	Housing from vertical to horizontal	IP54 as per EN 60529 <sup>3)</sup>	
	Insulation class Actuators SA..31.. Actuators SA..61.. Actuators SA..81..	AC 230 V AC / DC 24 V AC / DC 24 V	II III III

<b>Environmental conditions</b>	Operation Climatic conditions Mounting location Temperature General - Humidity (noncondensing)	IEC 60721-3-3 Class 3K5 Indoors (weather-protected) -5...55 °C   -15...55 °C -   not applicable 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 Klasse 1K3 -15...55 °C 5...95 % r.h.
	Max. media temperatur when mounted on valve	130 °C   120 °C
<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	2006/95/EC
	C-tick	N 474
	UL conformity AC 230 V ( SA..3..) -	-
	AC/DC 24 V ( SA..6.. ; SA..8..) -	UL 873
<b>Environmental compatibility</b>		ISO 14001 (environment) ISO 9001 (quality) SN 36350 (environment-compatible products) RL 2002/95/EG (RoHS)
<b>Dimensions</b>		See "Dimensions" (page 60)
<b>Weight</b>	Excl. packaging	See "Dimensions" (page 60)
<b>Accessories</b>	Potentiometer ASZ7.5/135 Voltage Current rating	0...135 Ω ± 5% DC 10 V < 4 mA
	Potentiometer ASZ7.5/200 Voltage Current rating	0...200 Ω ± 5% DC 10 V < 4 mA
	Potentiometer ASZ7.5/1000 Voltage Current rating	0...1000 Ω ± 5% DC 10 V < 4 mA
	Auxiliary switch ASC10.51 Switching capacity	AC 24...230 V, 6 A res., 3 A ind.
	Stem heating element ASZ6.6 power supply	AC / DC 24 V
	Power consumption at 50 Hz Inrush current (cold)	40 VA / 30 W Max. 13 A

<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

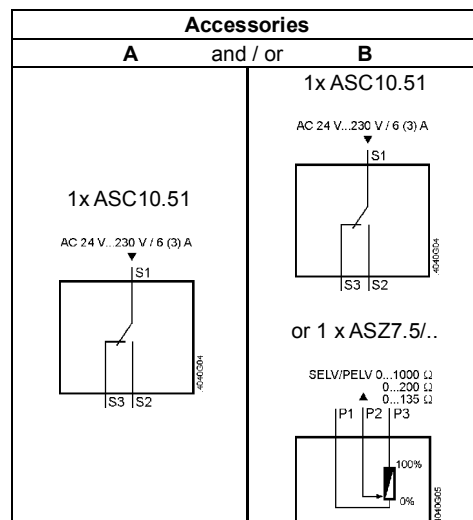
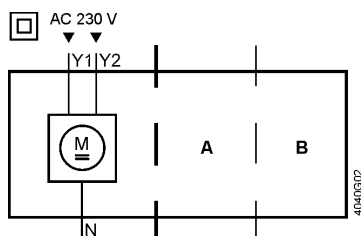
<sup>4)</sup> Transformer 160 VA (e.g. Siemens 4AM 3842-4TN00-0EA0) for actuators operating on AC 24 V

<sup>5)</sup> SAL.T20 / T40 have a minimum holding torque of 14 Nm

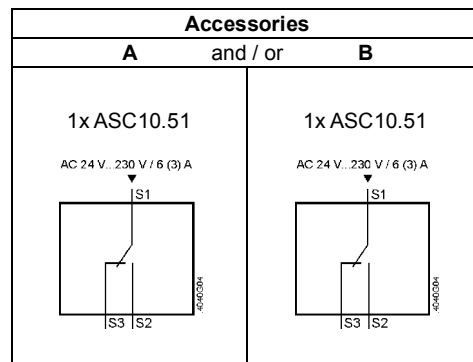
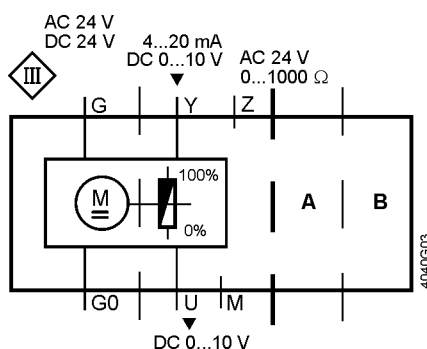
## 6 Connection diagrams and dimensions

### 6.1 Internal diagrams

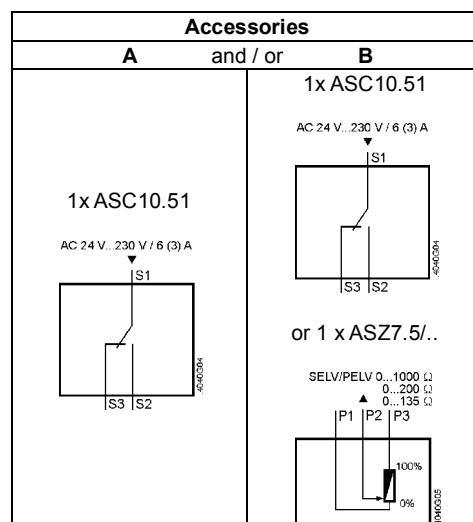
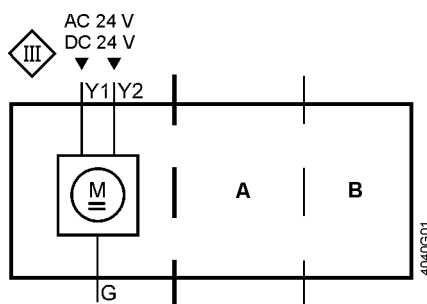
SA..31..



SA..61..



SA..81..



## 6.2 Connection terminals

### 6.2.1 Actuators

#### SA..31..

AC 230 V, 3-position

<b>N</b>	System neutral (SN)
<b>Y1</b>	Positioning signal (actuator's stem extends / actuator's spindle turns clockwise)
<b>Y2</b>	Positioning signal (actuator's stem retracts / actuator's spindle turns counter-clockwise)

#### SA..61..

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

<b>G0</b>	System neutral (SN)
<b>G</b>	System potential (SP)
<b>Y</b>	Positioning signal for DC 0...10 V / 4...20 mA
<b>M</b>	Measuring neutral
<b>U</b>	Position feedback DC 0...10 V - (reference potential is M measuring neutral)
<b>Z</b>	Positioning signal forced control AC/DC ≤ 24 V, 0...1000 Ω

#### SA..81..

AC/DC 24 V, 3-position

<b>G</b>	System potential (SP)
<b>Y1</b>	Positioning signal (actuator's stem extends / actuator's spindle turns clockwise)
<b>Y2</b>	Positioning signal (actuator's stem retracts / actuator's spindle turns counter-clockwise)

### 6.2.2 Electrical accessories

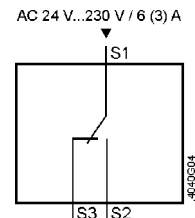
#### Auxiliary switch ASC10.51



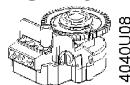
Adjustable switching points, AC 24...230 V

<b>1</b>	System potential (SP)
<b>2</b>	Closing Contact
<b>3</b>	Opening Contact

Switching state always related to extending actuator stem or clockwise turning actuator's spindle turns



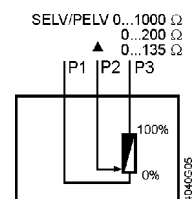
#### Potentiometer ASZ7.5/..



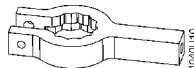
Adjustment of zero point, DC 10 V

<b>1</b>	Measuring neutral
<b>2</b>	0...x Ω
<b>3</b>	x...0 Ω

x = 135 Ω, 200 Ω; 1000 Ω



#### Stem heating element ASZ6.6

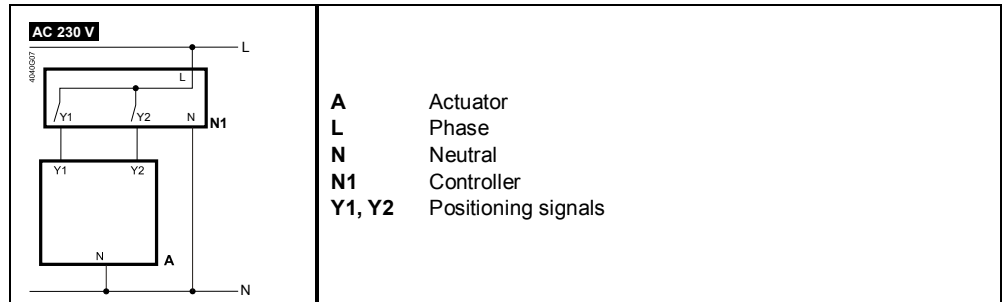


AC 24 V / 30 W / 40 VA / inrush current max. 13A

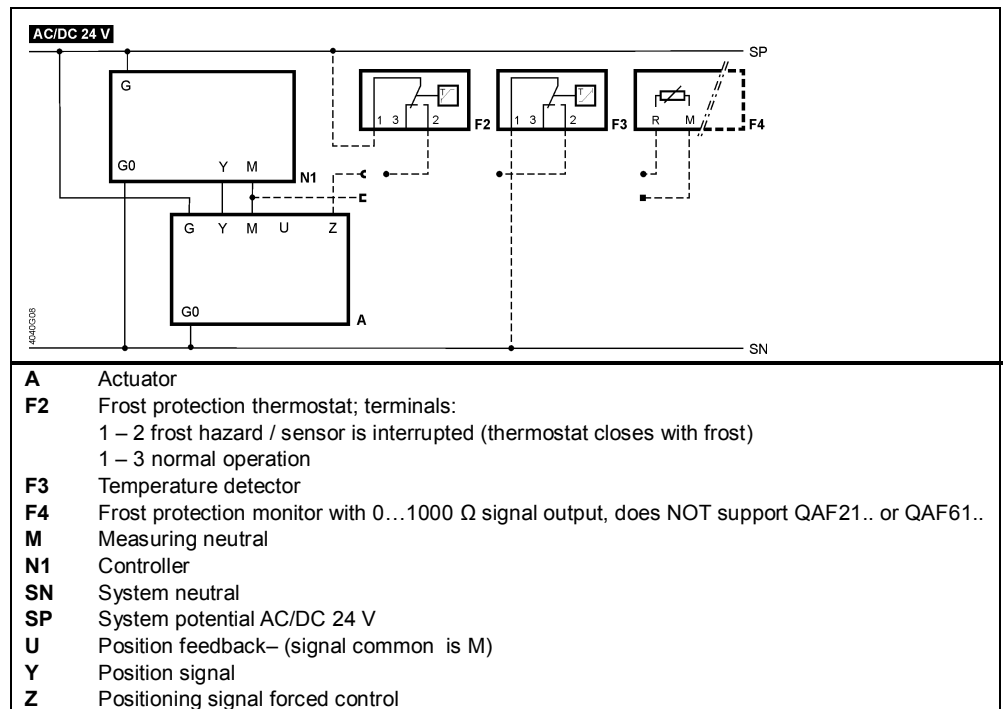
<b>1</b>	System neutral (SN) (red)
<b>2</b>	System potential (SP) (black)

## 6.3 Connection diagrams

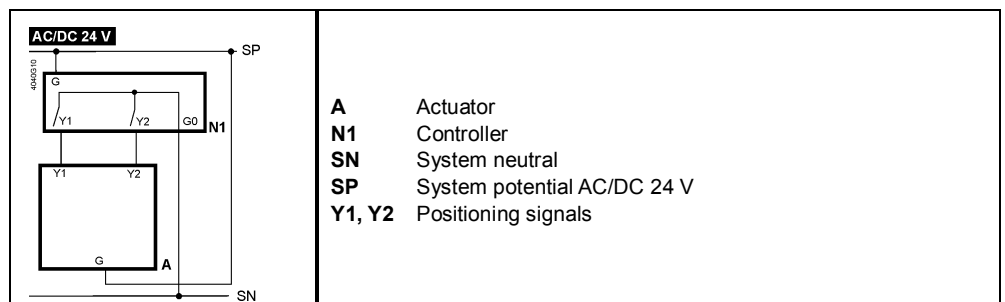
SA..31..



SA..61..



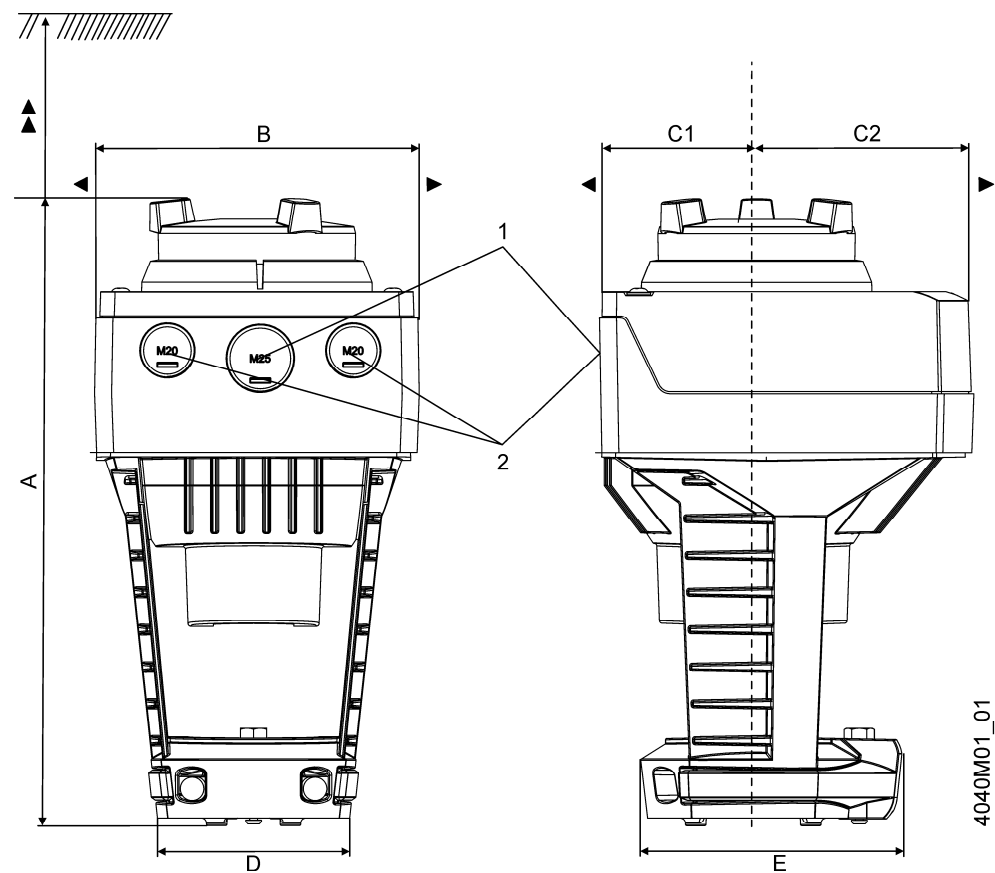
SA..81..



## 6.4 Dimensions

### 6.4.1 Stroke actuators

Dimensions in mm



- 1 SAX.: M25  
SAX..U: ½" (Ø 21.5 mm)  
2 SAX.: M20  
SAX..U: ½" (Ø 21.5 mm)

Type	A	B	C	C1	C2	D	E	►	►►	kg
<b>SAX..00 und SAX..03</b>	242	124	150	68	82	80	100	100	200	1,850
<b>Mit ASK39.1</b>	+25	154	300	200	100	-	-	-	-	2,080

4040M01\_01