



SQS35.50, SQS35.53,  
SQS65.5  
with spring return function, without manual adjuster



SQS35.00, SQS35.03,  
SQS65, SQS65.2,  
SQS85.00, SQS85.03  
without spring return function, with manual adjuster



## Electromotoric Actuators

for valves with 5.5 mm stroke

**SQS35...**  
**SQS85...**  
**SQS65...**

- **SQS35...** operating voltage AC 230 V, 3-position control signal
- **SQS85...** operating voltage AC 24 V, 3-position control signal
- **SQS65...** operating voltage AC 24 V, DC 0...10 V, DC 2...10 V or 0...1000 W control signal
- **Positioning force 400 N**
- **Direct mounting on valves; no adjustments required**
- **Optional auxiliary switch for extra functions with SQS35.00, SQS35.03, SQS85.00, SQS85.03**
- **With or without spring return function to DIN 32 730**
- **Position indication**
- **Manual adjuster on actuators without spring return function**

### Use

For operation of Siemens valves VVG44..., VVG55... and VXG44.... with 5.5 mm stroke for water-side control of hot water and cooling water in heating, ventilation and air conditioning systems.

In conjunction with the ASK30 mounting kit, the former Landis & Gyr-valves with 4 mm or 5.5 mm stroke can also be operated: X3i..., VVG45..., VXG45..., VXG46..., VVI51....

## Type summary

Type reference	Operating voltage	Positioning signal		Positioning time	Spring return function	Spring return time
SQS35.00	AC 230 V	3-position		150 s	NO	—
SQS35.03				35 s		
SQS35.50				150 s	Yes	8 s
SQS35.53				35 s		
SQS65.5	AC 24 V	DC 0...10 V	0...1000 Ω	35 s	Yes	8 s
SQS65		3-position				
SQS65.2			DC 2...10 V	150 s	No	—
SQS85.00			35 s			
SQS85.03						

## Accessories

Type reference	Description	For actuators	Space for
ASC9.6	Auxiliary switch	SQS35.00, SQS35.03 SQS85.00, SQS85.03	1 x ASC9.6

## Order

When ordering, please give the quantity, product name, type reference, and any accessories required.

Example: 20 actuators SQS35.00 and  
20 auxiliary switch ASC9.6

## Delivery

Actuators, valves and accessories are supplied in separate packages.

## Equipment combinations

Type reference	DN	PN class	$k_{vs}$ [m <sup>3</sup> /h]	Data sheet	SQS35...	SQS65...	SQS85...
VVG44...	15...40	PN 16	0.25...25	N4364	ü	ü	ü
VXG44...				N4464	ü	ü	ü
VVG55...	15...25	PN 25	0.25...6.3	N4379	ü	ü	

The admissible differential pressures  $\Delta p_{max}$  and  $\Delta p_s$  for the complete motorized valve are shown in the relevant Data Sheets.

## Function / mechanical design

The reversible synchronous motor is driven by a 3-position or a proportional DC 0...10 V, DC 2...10 V or 0...1000 Ω control signal. The stroke is generated via an antilocking gear train.

### 3-position control signal

- Voltage at Y1: Stem extends, valve opens
- Voltage at Y2: Stem retracts, valve closes
- No voltage at Y1 or Y2: Actuator holds the current position

### DC 0/2...10 V or 0...1000 Ω control signal

- The valve opens / closes in proportion to the control signal at Y or R.
- At DC 0/2 V or 0 Ω the valve is closed (A → AB).
- When power supply is removed, the actuator maintains its current position.

### SQS65...

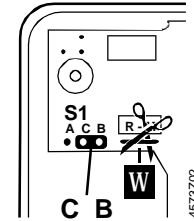
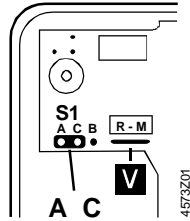
Selecting the flow characteristic

Connector S1 (under the cover, on the printed circuit board) can be repositioned to change the flow characteristic of valves from «equal percentage» to «linear»; in all cases the flow characteristic relates to the through-port of the valve.

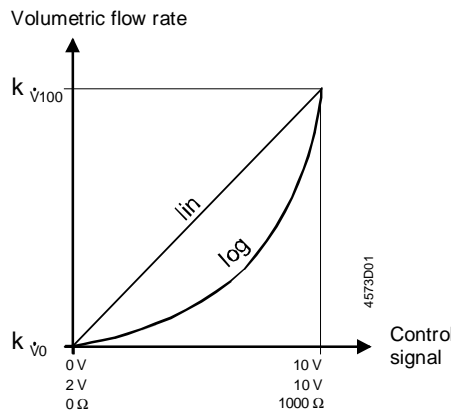
Position of S1

S1 connected to A and C:  
**equal-percentage** flow characteristic (factory setting)

S1 connected to B and C:  
**linear** flow characteristic



Flow characteristic



Relationship between the DC 0...10 V, DC 2...10 V or 0...1000 Ω control signal and the volumetric flow rate

Control signals:

Y = DC 0...10 V or DC 2...10V  
R = 0...1000 Ω; **cut through R - M bridge**

Flow characteristic

log = Equal-percentage valve characteristic (factory setting)

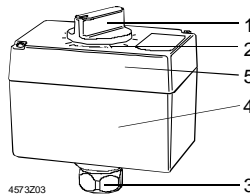
lin = Linear valve characteristic

Flow range

$k_{\#100}$  = Volumetric flow 100%

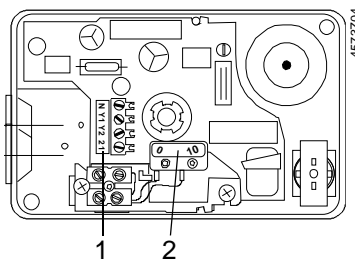
$k_{\#0}$  = Volumetric flow 0 %

Design



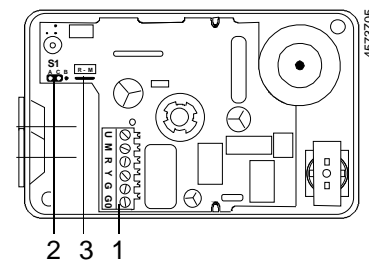
- 1 Manual adjuster (SQS35.00, SQS35.03, SQS65, SQS65.2, SQS85.00, SQS85.03)
- 2 Position indication
- 3 Coupling nut for valve neck
- 4 Housing
- 5 Removable cover

Terminal strip, auxiliary switch



SQS35...

- 1 Terminal strip
- 2 Auxiliary switch built-in as standard in SQS35.50, SQS35.53



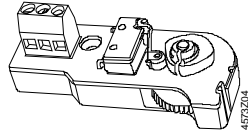
SQS65...

- 1 Terminal strip
- 2 «lin» / «log» connection
- 3 R - M bridge

Features and benefits

- Electromotoric actuator, maintenance-free
- Reversible synchronous motor
- Antilocking gear train
- Load-dependent switch-off in stroke limit positions

## Accessories



### Auxiliary switch ASC9.6

- Suitable for actuator types SQS35.00, SQS35.03, SQS85.00, SQS85.03
- Switching point adjustable from 0...100 % stroke

See «Technical data» for further information on accessories

## Engineering notes

Caution 

The actuators must be electrically connected in accordance with local regulations and the connection diagrams.

**Safety regulations and restrictions designed to ensure the safety of people and property must be observed at all times.**

**SQS65...**

**With the SQS65... actuators, the connector used to select the flow characteristic must be set to «lin» for valve types VVG55...**

Admissible temperatures, refer to «Technical data»

If an auxiliary switch is required, its switching point should be indicated on the plant schematic.

## Mounting notes

Mounting Instructions are enclosed in the product packaging.

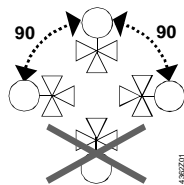
Overview  
Mounting Instructions

Type reference	Mounting Instructions
<b>SQS35.00</b>	M4573.1
<b>SQS35.03</b>	
<b>SQS35.50</b>	M4573.2
<b>SQS35.53</b>	
<b>ASC9.6</b>	G4573.1

Type reference	Mounting Instructions
<b>SQS63.5</b>	M4573.3
<b>SQS65</b>	M4573.4
<b>SQS65.2</b>	M4573.5
<b>SQS85.00</b>	M4573.6
<b>SQS85.03</b>	

Instructions for fitting the actuator to the valve are shown on the back of the actuator housing.

Orientation



## Commissioning notes

When commissioning the system, check wiring and the functions. In addition, select or check the auxiliary switch settings.

Manual adjuster

Switching off the positioning signal.

The valve can be fully closed (= 0 % stroke) by turning the manual adjuster counterclockwise. Control is automatically resumed when the positioning signal returns.

**3-position control**

Every actuator must be driven by a dedicated controller (refer to «Connection diagrams»).

## Maintenance notes

The actuators are maintenance-free.

When servicing the actuator:

- Switch off pump and power supply
- Close the main shutoff valve in the pipework
- Release pressure in the pipes and allow them to cool down completely
- If necessary, disconnect electrical connections from the terminals

The actuator must be correctly fitted to the valve before recommissioning.

### Repair

The actuator can not be repaired. It has to be replaced as a complete unit.

### Disposal



The device contains electrical and electronic components and 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 relating to specific applications are valid only in conjunction with the valves listed in this Data Sheet under «Equipment combinations».

**The use of the actuators in conjunction with third-party valves invalidates all claims under Siemens Switzerland Ltd / HVAC Products warranty.**

### Technical data

		SQS35.00 SQS35.03	SQS35.50 SQS35.53	SQS85.00 SQS85.03	SQS65 SQS65.2 SQS65.5	
Power supply	Operating voltage	AC 230 V ± 15 %		AC 24 V ± 20 %		
	Frequency	50 Hz		50 Hz <sup>1)</sup>		
	Power consumption	SQS35.00: 2.5 VA	SQS35.50: 5 VA	2 VA	SQS65, SQS65.2: 4.5 VA	
		SQS35.03: 3.5 VA	SQS35.53: 6 VA		SQS65.5: 7 VA	
End switches switching capacity, terminals 11 or 12	AC 250 V, 6 A res. 2.5 A ind.	-	AC 250 V, 6 A res. 2.5 A ind.	-		
Signal inputs	Terminals Y1, Y2	3-position			-	
	Terminal Y	-			SQS65, SQS65.5: DC 0...10 V, max. 0.1 mA	
		-			SQS65.2: DC 2...10 V, max. 0.1 mA	
Signal output	Terminal R	-			0...1000 Ω	
	Terminal U	-			DC 0...10 V, max. 0.5 mA max. 10	
	Parallel operation of actuators	not possible				
Operating data	Positioning time in control mode for opening / closing	SQS35.00: 150 s	SQS35.50: 150 s	SQS85.00: 150 s	35 s	
		SQS35.03: 35 s	SQS35.53: 35 s	SQS85.03: 35 s		

	SQS35.00 SQS35.03	SQS35.50 SQS35.53	SQS85.00 SQS85.03	SQS65 SQS65.2 SQS65.5
Positioning time with spring return	-	8 s for closing	-	SQS65.5: 8 s for closing
Positioning force	400 N			
Nominal stroke	5.5 mm			
Admissible temperature	of medium in the valve 1...130 °C (short-time up to 150 °C)			
Cable entry	2 openings Ø20.5 mm (for M20)			
CE-conformity	EMC directive Low-voltage directive		89/336/EEC 73/23/EEC	
Housing protection standard	IP 54 to EN 60529			
Dimensions / Weight	refer to «Dimensions»			
Weight with packaging	0.6 kg	0.7 kg	0.6 kg	0.6 kg SQS65.5: 0,7 kg
Materials	Actuator housing Housing cover and manual adjuster Gear train and stem with coupling Plastics			
Accessories	Auxiliary switch ASC9.6 switching capacity	AC 250 V, 3 A resistive 3 A inductive	-	AC 250 V, 3 A resistive 3 A inductive -

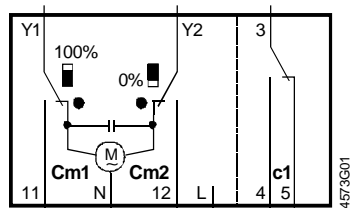
<sup>1)</sup> For applications at 60 Hz use SQS65...U resp. SQS85...U actuators.

### General environmental conditions

	Operation IEC 721-3-3	Transport IEC 721-3-2	Storage IEC 721-3-1
Environmental conditions	Class 3K5	Class 2K3	Class 1K3
Temperature	-5...+50 °C	-25...+70 °C	-5...+50 °C
Humidity	5...95 % r.h.	< 95 % r.h.	5...95 % r.h.

### Internal diagrams

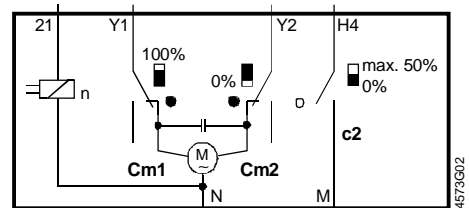
#### SQS35...



#### SQS35.00, SQS35.03

AC 230 V, 3-position, without spring return function

- Cm1 End switch 100 % stroke
- Cm2 End switch 0 % stroke
- c1 ASC9.6 auxiliary switch can be fitted
- L Potential-free auxiliary terminal

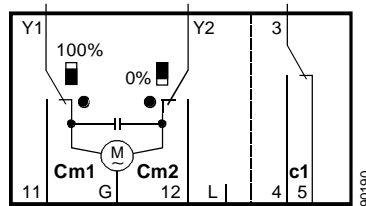


#### SQS35.50, SQS35.53

AC 230 V, 3-position, with spring return function

- c2 Built-in auxiliary switch with fixed preset minimum flow limit control (factory-fitted)
- 21 Spring return function

#### SQS85...



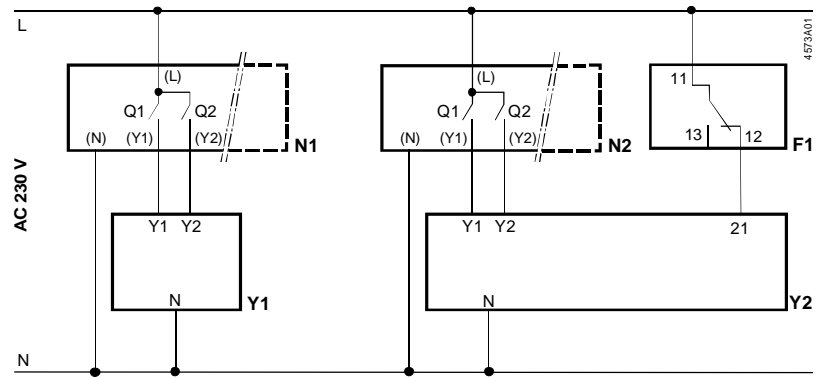
#### SQS85.00, SQS85.03

AC 24 V, 3-pos. without spring return function

- Cm1 End switch 100 % stroke
- Cm2 End switch 0 % stroke
- c1 ASC9.6 auxiliary switch can be fitted
- L Potential-free auxiliary terminal

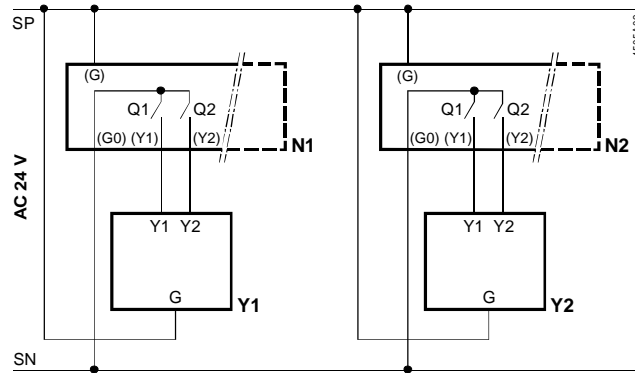
## Connection diagrams

### SQS35...



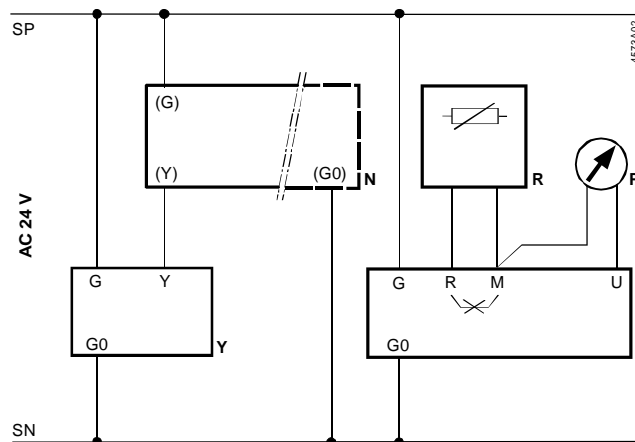
<b>N1, N2</b>	Controller	<b>N</b>	System neutral
<b>Y1</b>	Actuator SQS35.00, SQS35.03	<b>Q1, Q2</b>	Controller contacts
<b>Y2</b>	Actuator SQS35.50, SQS35.53	<b>F1</b>	Maximum limiter (spring return function)
<b>L</b>	System potential AC 230 V		

### SQS85...



<b>N1, N2</b>	Controller	<b>SN</b>	System neutral
<b>Y1, Y2</b>	Actuator	<b>Q1, Q2</b>	Controller contacts
<b>SP</b>	System potential AC 24 V		

### SQS65...



<b>N</b>	Controller	<b>SN</b>	System neutral
<b>Y</b>	Actuator	<b>R</b>	Position indicator, frost detector
<b>SP</b>	System potential AC 24 V	<b>P</b>	Position transmitter

Note If a device is connected to terminal R, the factory-fitted bridge across R – M on the printed circuit board must be cut through.

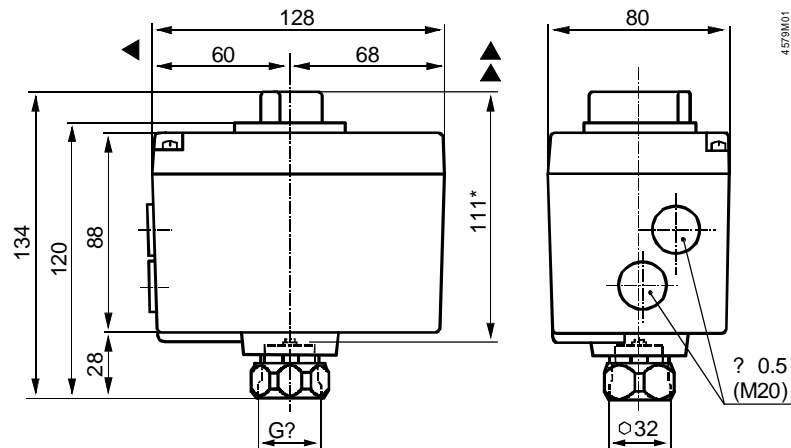
Connection terminals  
SQS65...

U	Position indicator DC 0...10 V
M	Measuring neutral (= G0)
R	Signal input 0...1000 Ω
Y	Signal input DC 0...10 V (SQS65.2: DC 2...10 V)
G	Operating voltage AC 24 V: system potential SP
G0	Operating voltage AC 24 V: system potential SN

4573Z06

## Dimensions

Dimensions in mm



- \* Height of actuator after fitting on valve
- ◄ > 100 mm Minimum clearance from wall or ceiling
- ▲ > 200 mm for mounting, connection, operation, service etc