



SQS359.54
with spring return function, without manual adjuster



SQS359.03, SQS359.05, SQS859.00, SQS659
without spring return function, with manual adjuster



Electromotoric Actuators

for VVG549..., VVP459..., VXP459...,
VVG44... and VXG44... valves

SQS359...
SQS859.00
SQS659

- **SQS359...** operating voltage AC 230 V, 3-position control signal
- **SQS859.00** operating voltage AC 24 V, 3-position control signal
- **SQS659** operating voltage AC 24 V, DC 0...10 V or 0...1000 Ω control signal
- **Positioning force 250 N to 400 N**
- **Direct mounting on valves; no adjustments required**
- **Optional auxiliary switch for extra functions with SQS359.03, SQS859.00**
- **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 VVG549..., VVP459..., VXP459..., VVG44... and VXG44... with 5.5 mm stroke for water-side control of hot water and cooling water in heating, ventilation and air conditioning systems.

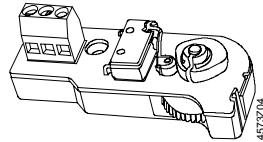
In conjunction with the ASK30 mounting kit, the former Landis & Gyr-valves with 4 mm or 5.5 mm stroke can also be operated: X3i..., VVG45..., VXG45..., VXG46..., VVI51....

Type summary

Type reference	Operating voltage	Positioning signal		Positioning time at 50 Hz	Spring return function	Spring return time
SQS359.03	AC 230 V	3-position		35 s	No	—
SQS359.05				15 s		
SQS359.54				20 s	Yes	5 s
SQS859.00	AC 24 V	DC 0...10 V 0...1000 Ω		150 s	No	—
SQS659				35 s		

Accessories

Auxiliary switch ASC9.6



- Suitable for actuator types SQS359.03 and SQS859.00
- Switching point adjustable from 0...100 % stroke (refer to «Technical data»)

Order

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

Example: 20 actuators SQS359.03 and
20 auxiliary switches ASC9.6

Delivery

The actuators are delivered in packs of 20 pieces.
Actuators, valves and accessories are supplied in separate packages.

Equipment combinations

Type	DN	PN class	k_{vs} [m ³ /h]	Data sheet	SQS359.03	SQS359.05	SQS359.54	SQS859.00	SQS659
VVG549...	15...25	PN 25	0.25...6.3	Q4380	✓	✓	✓	✓	✓
VVP459...	15...40	PN 16	0.63...25	Q4845	✓	✓	✓	✓	✓
VXP459...					✓		✓	✓	✓
VVG44...			0.25...25	N4364	✓			✓	✓
VXG44...					N4464	✓			✓

The admissible differential pressures Δp_{max} and Δp_s for the complete motorized valve are shown in the relevant Data Sheets.

Technical design / mechanical design

Features and benefits

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

The reversible synchronous motor is driven by a 3-position or a proportional DC 0...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...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 V or 0 Ω the valve is closed (A → AB).
- When power supply is removed, the actuator maintains its current position.

SQS659

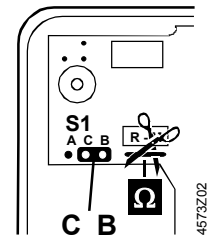
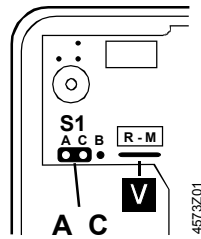
Selecting the flow characteristic

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.

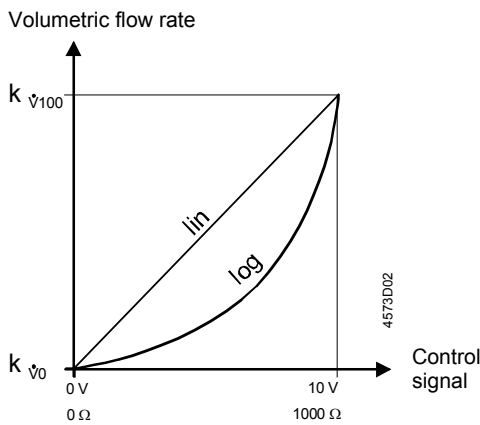
Position of S1

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

S1 connected to B and C:
linear flow characteristic



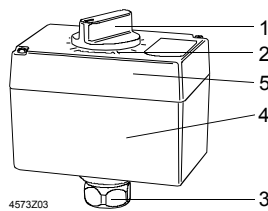
Flow characteristic



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

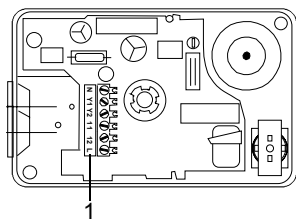
- Control signals:
 Y = DC 0...10 V
 R = 0...1000 Ω; **cut through R – M bridge**
- Flow characteristic
 log = Equal-percentage valve characteristic (factory setting)
 lin = Linear valve characteristic
- Flow range
 $k_{\dot{v}_{100}}$ = Volumetric flow 100%
 $k_{\dot{v}_0}$ = Volumetric flow 0 %

Design

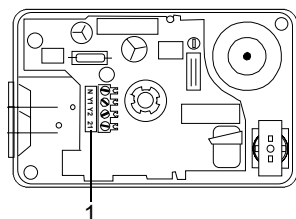


- 1 Manual adjuster (SQS359.03, SQS359.05, SQS859.00, SQS659)
- 2 Position indication
- 3 Coupling nut for valve neck
- 4 Housing
- 5 Removable cover

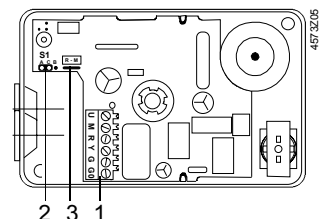
Terminal strip



SQS359.0..., SQS859.00
1 Terminal strip



SQS359.54
1 Terminal strip (terminal 21 for spring return function)



SQS659
1 Terminal strip
2 «lin» / «log» connection
3 R – M bridge

Engineering notes

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

Caution 

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

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.

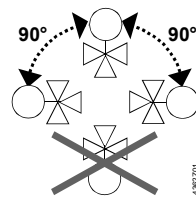
Overview
Mounting Instructions

Type reference	Mounting Instructions
SQS359.03	74 319 0315 0 M4579
SQS359.05	
SQS359.54	
SQS859.00	4 319 5628 0

Type reference	Mounting Instructions
SQS659	74 319 0495 0 M4579.2
ASC9.6	4 319 5566 0 G4573.1

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

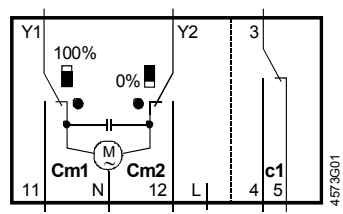
		SQS359.03	SQS359.05	SQS359.54	SQS859.00	SQS659	
Power supply	Operating voltage	AC 230 V ± 15 %			AC 24 V ± 20 %		
	Frequency	50 Hz					
	Power consumption	3.5 VA	4.5 VA	6 VA	2 VA	4.5 VA	
Signal inputs	End switches switching capacity, terminals 11 or 12	AC 250 V, 6 A resistive 2.5 A inductive			AC 250 V, 6 A resistive 2.5 A ind.		
	Terminals Y1, Y2	3-position					
	Terminal Y						DC 0...10 V, max. 0.1 mA
Terminal R	0...1000 Ω						
Signal output	Terminal U						DC 0...10 V, max. 0.5 mA
	Parallel operation of actuators						not possible
Operating data	Positioning time in control mode for opening / closing	35 s	15 s	20 s	150 s	35 s	
	Positioning time with spring return			5 s for closing			
	Positioning force	400 N	250 N	300 N	400 N		
	Nominal stroke	5.5 mm					
Electrical connections	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			89/336/EEC		
Norms and standards		Low-voltage directive			73/23/EEC		
	Housing protection standard	IP 54 to EN 60529					
Dimensions / Weight	Dimensions	refer to «Dimensions»					
	Weight without packaging	0.5 kg		0.6 kg	0.5 kg		
Materials	Actuator housing	Plastics					
	Housing cover and manual adjuster	Plastics					
	Gear train	Plastics					
Accessories	Stem with coupling	Metal			Plastics		
	Auxiliary switch ASC9.6	AC 250 V, 3 A resistive			AC 250 V, 3 A resistive		
	switching capacity	3 A inductive			3 A inductive		

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.

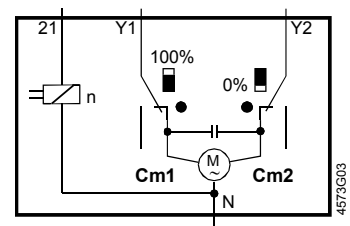
Internal diagrams

SQS359...



SQS359.03, SQS359.05
 AC 230 V, 3-position, without spring return function

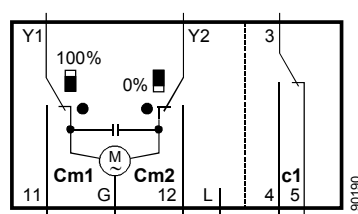
Cm1 End switch 100 % stroke
 Cm2 End switch 0 % stroke
 c1 ASC9.6 auxiliary switch can be fitted (in SQS359.03)
 L Potential-free auxiliary terminal



SQS359.54
 AC 230 V, 3-position, with spring return function

Cm1 End switch 100 % stroke
 Cm2 End switch 0 % stroke
 21 Spring return function

SQS859.00

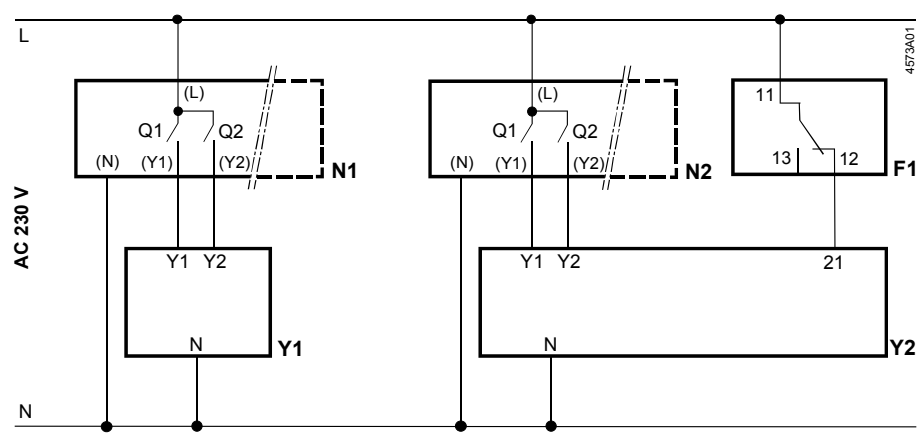


SQS859.00
 AC 24 V, 3-pos. without spring return function

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

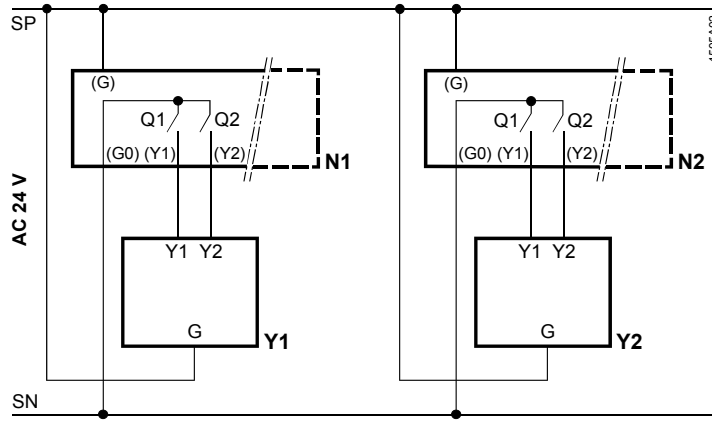
SQS359...



N1, N2 Controller
Y1 Actuator SQS359.03, SQS359.05
Y2 Actuator SQS359.54
L System potential AC 230 V

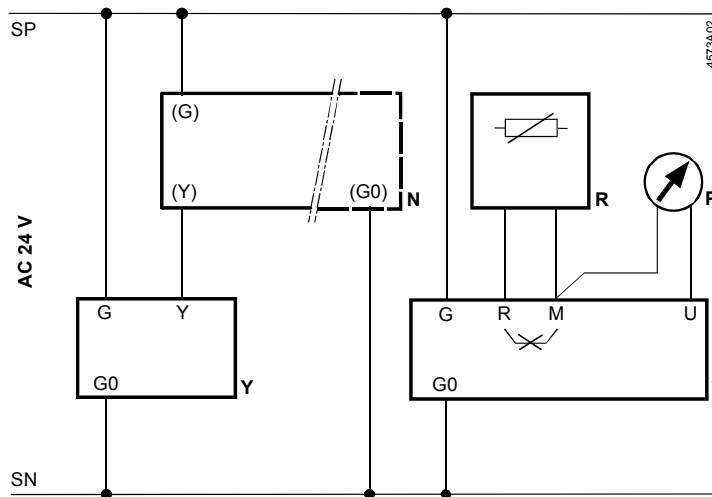
N System neutral
Q1, Q2 Controller contacts
F1 Maximum limiter (spring return function)

SQS859.00



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

SQS659



N Controller
Y Actuator
SP System potential AC 24 V
SN System neutral
R Position indicator, frost detector
P 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.

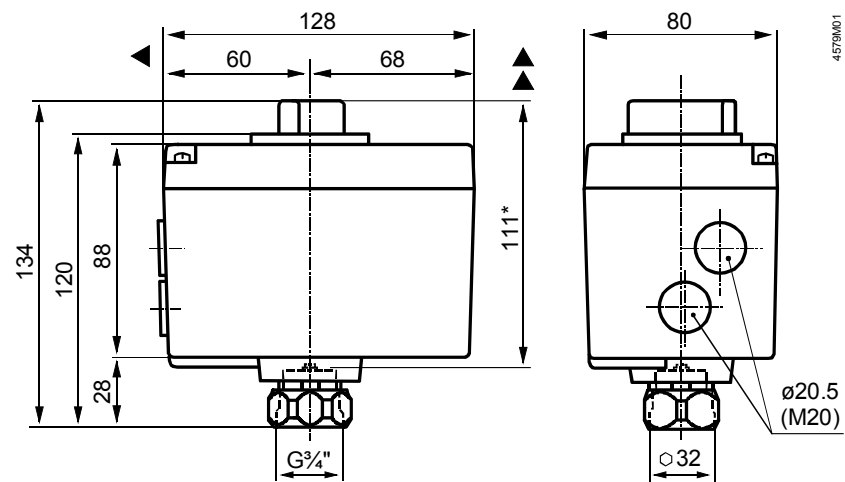
Connection terminals
 SQS659

- U** Position indicator DC 0...10 V
- M** Measuring neutral (= G0)
- R** Signal input 0...1000 Ω
- Y** Signal input DC 0...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