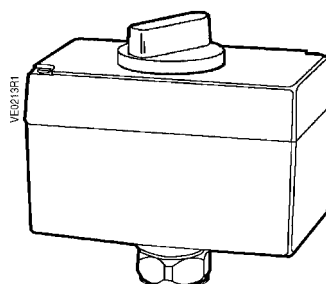
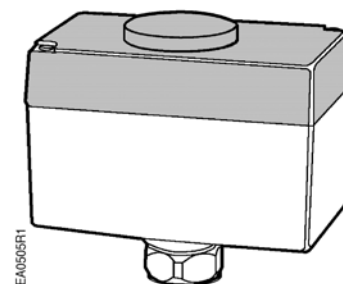


Powermite 599 Series

MT Series SQS Electronic Valve Actuator 24 Vac Proportional Control



SQS65U



SQS65.5U

Description	The Powermite 599 Series MT Series SQS electronic valve actuator requires a 24 Vac supply and receives a 0 to 10 Vdc or a 0 to 1000 ohm control signal to proportionally control a valve. This actuator is designed to work with Powermite 599 MT Series terminal unit valve with a 7/32-inch (5.5 mm) stroke.
Features	<ul style="list-style-type: none"> • Maintenance-free with reversible motor • Voltage or resistance signal input • Position output signal 0 to 10 Vdc • Manual adjustment knob with indication of stroke allows for repositioning in power-off condition (SQS65U actuator only) • Mechanical spring allows the valve to return to normal position in power off condition (SQS65.5U actuator only)
Application	For use in small to medium HVAC installations with Powermite 599 Series valves and Siemens Building Technologies standard valves with a 5.5 mm (7/32-inch) stroke requiring a minimum of 67 pounds force (300N). They can be used in liquid and steam service applications.

Table 1. Ordering Information.

Product Numbers	Product Number	Actuator type	Actuator Prefix Code
	SQS65U	Fail-in-place	264
	SQS65.5U	Fail-safe	265

Ordering Information To order a complete valve plus actuator assembly from the factory, combine the actuator prefix code with the suffix of the valve product number. See Technical Bulletin (TB) 251 (155-306P25) for selection procedures.

To order an actuator only, use the product number in Table 1.

Specifications

Power Requirements	Operating voltage	60 Hz 24 Vac, + 20%, -15%
	Frequency	60 Hz
	Power consumption	
	SQS65U	4.5 VA
	SQS65.5U	7 VA
Control Characteristics	Control signal (Y)	
	Voltage	0 to 10 Vdc
	Current	0.1 mA
	Input impedance	100K ohms
	Control signal (R)	
	Resistance	0 to 1000 ohms
	Position output (U)	
	Voltage	0 to 10 Vdc
Functional Operation	Current	0.5 mA max running time
	Running time	
	at 60 Hz	30 s
	at 50 Hz	35 s
	Fail-safe (SQS65.5U only)	≈8 s
	Nominal stroke	7/32-inch (5.5 mm)
	Nominal Force	90 lbs. (400N)
	Fail-safe (SQS65.5U only)	Mechanical spring
Agency Approvals	UL	UL873
	cUL	CSA C22.2 No. 24-93
Environmental Conditions	Ambient temperature	
	Operation	23°F to 122°F (-5°C to 50°C)
	Transport and storage	-13°F to 149°F (-25°C to +65°C)
	Ambient humidity	0 to 90% rh (non-condensing)
Physical Characteristics	Medium temperature	41°F to 248°F (5°C to 120°C)
	Weight	
	SQS65U	1.1 lbs. (0.5 kg)
	SQS65.5U	1.3 lbs. (0.6 kg)
	Dimensions	See Figure 6

Service Kits

If the actuator is inoperative, replace the unit.

Operation

A zero voltage control signal returns the valve to its normal position.

In the event of a power failure:

- SQS65U holds its last position (fail-in-place)
- SQS65.5U returns the valve to its normal position (fail-safe)

The position output 0 to 10 Vdc signal “U” produces position feedback to the field panel.

An additive control input at R for 0 to 1000 ohm allows control by either a low temperature detector or a remote setting unit.

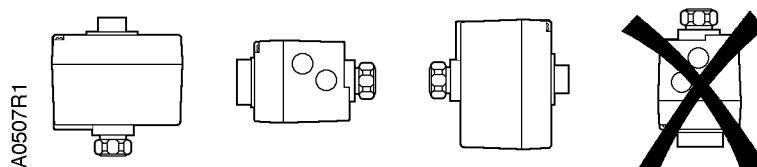
**Mounting and
Installation**

Figure 1. Mounting Position.

Mount the actuator in any position except with the actuator beneath the valve.

Start-Up

The SQS... valve actuator circuit card contains a jumper that allows the selection of either equal percentage or linear signal-to-stroke flow characteristic. The factory setting is equal percentage. Table 2 shows the recommended jumper setting.

Table 2. Setting for Recommended Flow Characteristic.

Valve Action	Recommended Setting for Selector Plug
NC Steam	C-B
NC Liquid	A-C Factory setting
NO	C-B

Equal Percentage Flow
(Factory Setting)

Linear Flow



Figure 2. Flow Characteristic Jumper Settings.

To change the jumper setting, remove the actuator cover and move the selector plug.

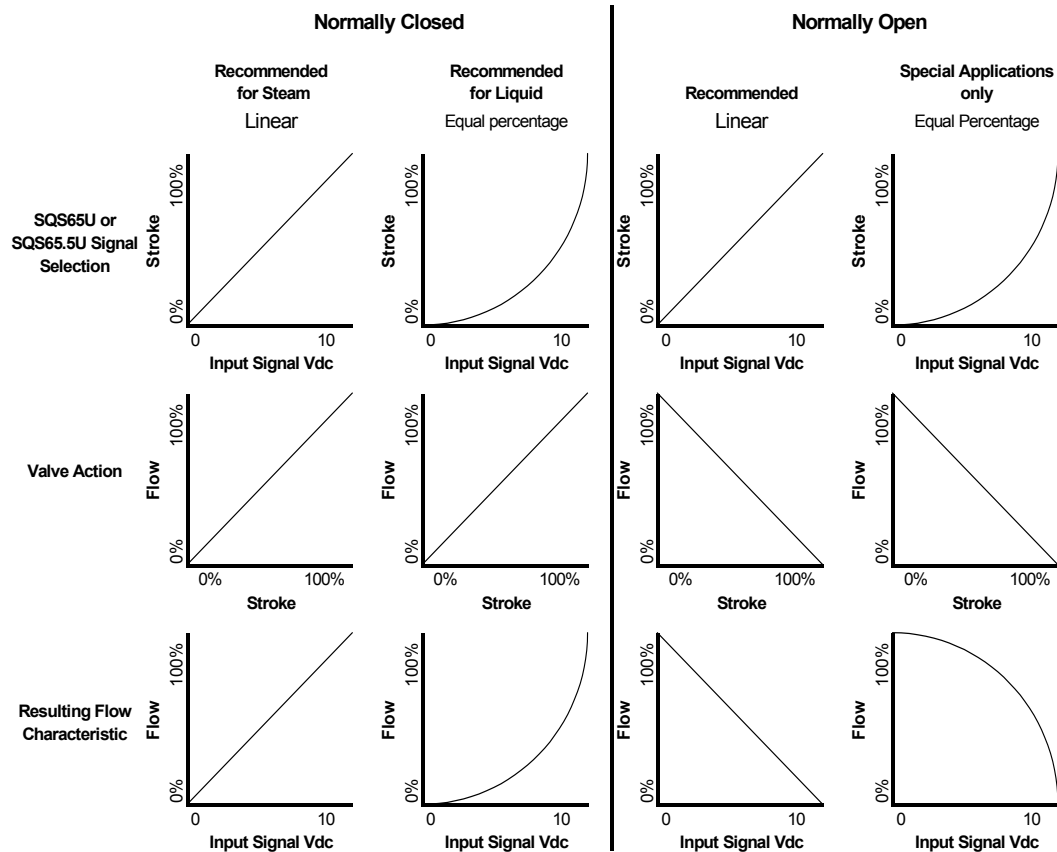


Figure 3. Correlation of Actuator Jumper Settings and Flow Characteristic.

Wiring

Do not use auto transformers. Use earth ground isolating step-down Class 2 power supplies.

Determine supply transformer rating by summing total VA of all actuators used.

It is recommended that one transformer power no more than 10 actuators.

To use a 0 to 1000 ohm input signal on terminal R, the circuit board jumper R—M must be cut. If the circuit board jumper R—M is cut, you cannot wire the R and M terminals on the terminal block to re-establish the connection.

The 0 to 1000 ohm signal is additive to the 0 to 10 Vdc control signal. For example, a controller commanded to 2 Vdc (20%) plus a remote override input to 300 ohms (30%) results in a position of 50% stroke.

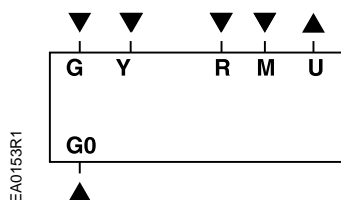


Figure 4. Terminal Connections of the SQS65...

G, G0 24 Vac operating voltage

G System potential

G0 System neutral

Y 0 to 10 Vdc control signal

R Input for 0 to 1000 ohm remote setting unit or low temperature detection unit

M Measuring neutral

U Output for 0 to 10 Vdc position indication



WARNING:

Terminal connection "G" is 24 Vac HOT, not ground.

CAUTION:

G0 and G must be properly wire for correct function and full life of the actuator.

Wiring Diagrams

- All units connected to terminals Y and U, together with the SQS65U... must be connected to the same G0.
- When wiring the position output to AI terminations, connect terminal "U" to SIG and terminal "GO" to COM.

Troubleshooting

- Check Wiring for appropriate connections.
 - Check the selector plug for desired location.
-

Wiring Diagrams,
continued

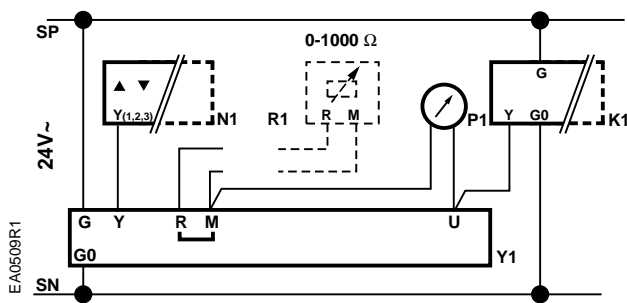


Figure 5. Wiring for Applications.

K1	On/Off switch	P1	Indicating unit
N1	Controller	R1	Remote setting unit
Y1	Actuator		0 to 1000 ohm

The diagram shows all possible connections. The application determines which connections are used.

Dimensions

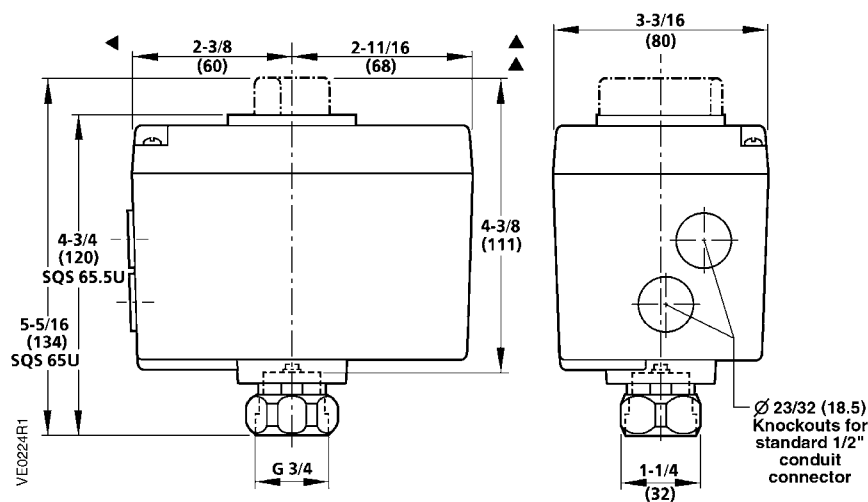


Figure 6. Dimensions of the SQS65U... Actuator. Dimensions Shown in Inches (Millimeters).

Service Envelope

Minimum access space recommended



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