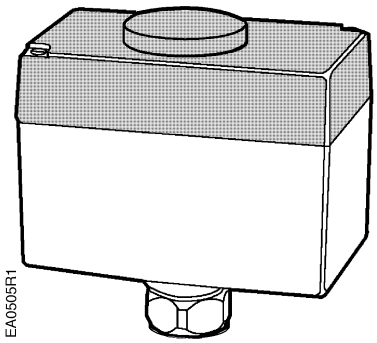
SIEMENS

Technical Instructions
Document No. 155-308P25
EA 599-14
August 20, 2007

Powermite 599

MT Series SQS Electronic Valve Actuator, 24 Vac, Floating Control (3-position)

c UL US LISTED



Description	The Powermite 599 MT Series SQS85.53U Electronic Valve Actuator requires a 24 Vac supply and receives a floating control signal to provide three-position control. The actuator controls Powermite 599 Series MT Series terminal unit valves with a 7/32-inch (5.5 mm) stroke. With no control voltage or in the event of a power failure, a mechanical spring allows the valve to return to its normal (fail-safe) position.
Features	• Maintenance-free with reversible motor. • UL listed for plenum installations. • Floating control signal input. • Mechanical spring returns the valve to its normal (fail-safe) position in power-off condition.
Application	For use in small to medium HVAC installations with Powermite 599 Series MT Series terminal unit valves and Siemens Building Technologies standard valves with a 7/32-inch (5.5 mm) stroke requiring a minimum of 90 pounds force (400N). They can be used in liquid and low pressure steam service applications.
Product Number	SQS85.53U Actuator prefix code 266
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 *TB251, Powermite 599 Series MT Series Terminal Unit Valve and Actuator Assembly Selection* (Document No. 155-306P25) for selection procedures. To order an actuator only, use the product number.

Specifications

Power Requirements	Operating voltage/frequency	24 Vac, ±20%, 60 Hz
	Power Supply	Earth ground, isolating Class 2, 24 Vac transformer
		NOTE: Do *not* power more than 10 actuators with one transformer. (Use 0.5 amp fuse on secondary per actuator.)
	Power consumption	5 VA
Control Characteristics	Control signal	Floating (3-position)
	Y1	24 Vac power extends actuator shaft (0 to 1)
	Y2	24 Vac power retracts actuator shaft (1 to 0)
Functional Operation	Running time	
	at 60 Hz	30-seconds
	Spring return time	≈ 8-seconds
	Nominal stroke	7/32-inch (5.5 mm)
	Nominal force	90 lb (400 N)
	Fail-safe	Mechanical spring
Agency Approvals	UL	UL listed to UL873
	cUL	certified to 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° to 149°F (-25°C to 65°C)
	Ambient humidity	0 to 90% rh (non-condensing)
	Medium temperature	41°F to 248°F (5°C to 120°C)
Physical Characteristics		
	Conduit opening	Knockouts for standard 1/2-inch (12.7 mm) conduit connector
	Weight	1.3 lb (0.6 kg)
	Dimensions	See Figure 3

Service Kit

If the actuator is inoperative, replace the unit.

Operation

A 24 Vac control signal to Y1 extends the actuator shaft proportionately to the length of time the signal is applied.

A 24 Vac control signal to Y2 retracts the actuator shaft proportionately to the length of time the signal is applied.

In the event of a power failure, the SQS85.53U actuator returns the valve to its normal (spring return) position.

Mounting and Installation

Mount the actuator in any position *except* with the actuator lower than the valve.

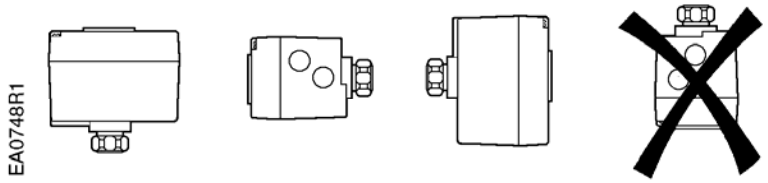


Figure 1. Mounting Positions.

Wiring

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

Determine supply transformer minimum rating by summing total equipment on circuit. The maximum rating for Class 2 step-down transformers is 100 VA.

Do *not* power more than 10 actuators with one transformer. (Use 0.5 amp fuse on secondary per actuator.)

WARNING:

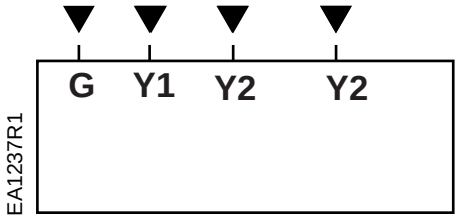
Housing rated for flex conduit only.

Wiring Diagrams

WARNING:

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

CAUTION:
Terminals G and 21 must be properly wired for correct function and full life of the actuator.



G, 21 … 24 Vac operating voltage
G = System neutral
21 = System potential

Y1 … Extends actuator shaft

Y2 … Retracts actuator shaft

Figure 2. SQS85.53U Terminal Connections.

Start-Up

The valve body assembly determines the action of the complete valve/actuator assembly as follows:

Normally Closed Valve:

- When the actuator shaft extends, the valve opens (0 to 1).
- When the actuator shaft retracts, the valve closes (1 to 0).

Normally Open Valve:

- When the actuator shaft extends, the valve closes (0 to 1).
- When the actuator shaft retracts, the valve opens (1 to 0).

Three-Way Valve:

- When the actuator shaft extends (0 to 1), the valve opens between port A and AB.
- When the actuator shaft retracts (1 to 0), the valve opens between port B and BA.

Troubleshooting

Check wiring for proper connections and secure attachments.

Check for adequate power supply.

Dimensions

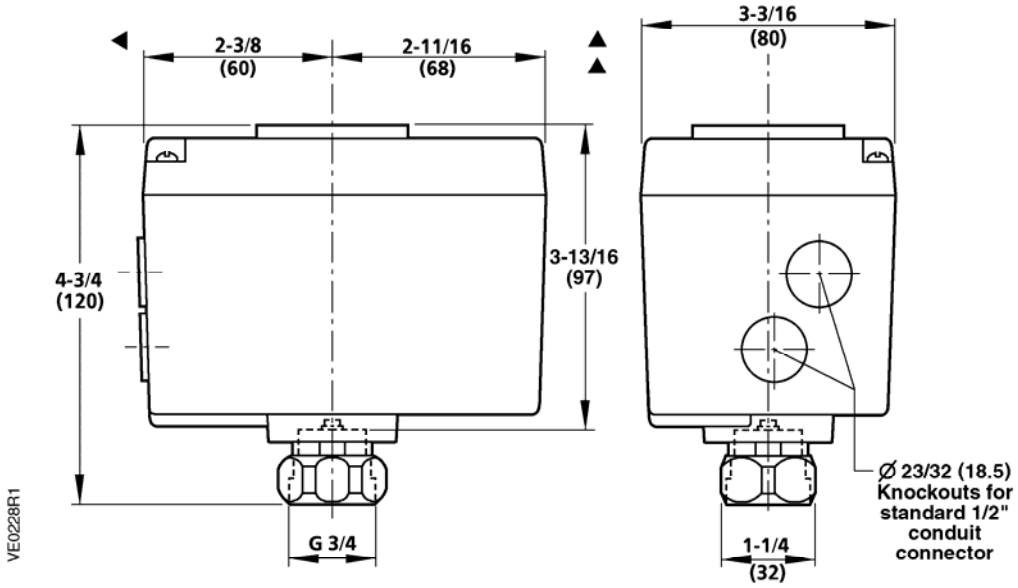


Figure 3. Dimensions of the SQS85.53U Actuator. Dimensions shown in Inches (Millimeters).

Service Envelope

Minimum access space recommended

4 inches (100 mm) 8 inches (200 mm)