

# SQS85.53U Spring Return (Fail-Safe) Electronic Valve Actuator

## Product Description

The Powermite 599 MT Series SQS85.53U Electronic Valve Actuator requires a 24 Vac supply and provides floating control (three-position). The actuator controls Powermite 599 MT Series terminal unit valves with a 7/32-inch (5.5 mm) stroke. In the absence of power supply, a mechanical spring returns the valve to its normal position.

## Product Number SQS85.53U



## Estimated Installation Time

- 12 minutes for wiring a factory installed actuator
- 30 minutes for field replacement of actuator

## Required Tools

- No. 2 Phillips or flat-blade screwdriver
- 1-1/4 inch open-end wrench
- Flat-blade calibration screwdriver (3 mm) for wiring connections
- Wire cutter/stripper

## Warning/Caution Notations

<b>Warning</b>		Personal injury/loss of life may occur if you do not follow a procedure as specified.
<b>Caution</b>		Equipment damage may occur if you do not follow procedures as specified.

## Prerequisites



### WARNINGS:

If mounting the actuator to a valve already in line, either close the shut-off valves in the piping (upstream first, then downstream) or switch off the pump to allow the differential pressure in the valve to drop.

Disconnect the controller power before replacing an actuator.

## Mounting

Figure 2 shows actuator mounting positions. The vertical position is recommended for mounting the actuator.

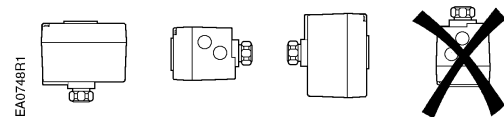


Figure 2. Actuator Mounting Positions.

## Installation

### Remove Existing Actuator from Valve

1. Remove actuator cover screws using either a No. 2 Phillips or a No. 2 flat-blade screwdriver and detach actuator cover.
2. Identify and disconnect wires.
3. Replace actuator cover. If cover does not fit easily, turn 180 degrees. Use cover screws to secure actuator cover in place.
4. Use a 1-1/4 inch open-end wrench to loosen coupling piece (Figure 3, No. 1). Remove actuator from valve (Figure 3, No. 2).

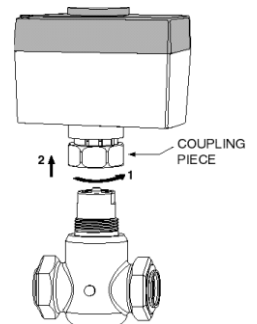


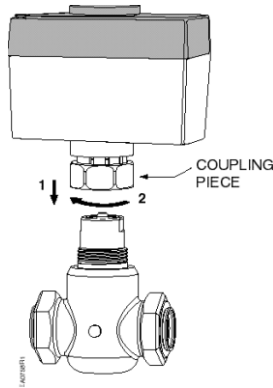
Figure 3. Remove Actuator from Valve.

### Mount Actuator on Valve

1. If attaching actuator to a new valve, remove protective plastic cap from valve stem.
2. Place actuator on valve (Figure 4, No. 1).

### Mount Actuator on Valve (Continued)

- Use a 1-1/4 inch open-end wrench to tighten coupling piece (Figure 4, No. 2).
- Continue with *Wiring* section.



**Figure 4. Mount Actuator on Valve.**

### Wiring

All wiring must conform to NEC and local codes and regulations.

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

Determine supply transformer rating by adding up the total VA of all actuators used.

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 actuator.)

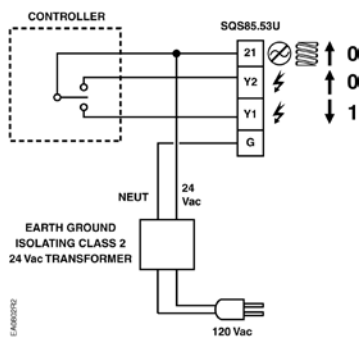
- Remove actuator cover screws using either a No. 2 Phillips or a No. 2 flat-blade screwdriver and detach actuator cover.
- Access terminal block and attach wires per Figure 5.
- Replace actuator cover. If cover does not fit easily, turn 180 degrees. Use cover screws to secure actuator cover in place.



#### CAUTIONS:

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

If the actuator makes a buzzing noise upon reaching setpoint, G and 21 are improperly wired and should be reversed.



**Figure 5. SQS85.53U Terminal Connections.**

G, 21 ...  
 24 Vac operating voltage:

G = System neutral  
 21 = System potential

Y1 ...  
 Extends actuator shaft

Y2 ...  
 Retracts actuator shaft

### Start-Up

The valve body assembly determines action of the complete valve/actuator assembly.

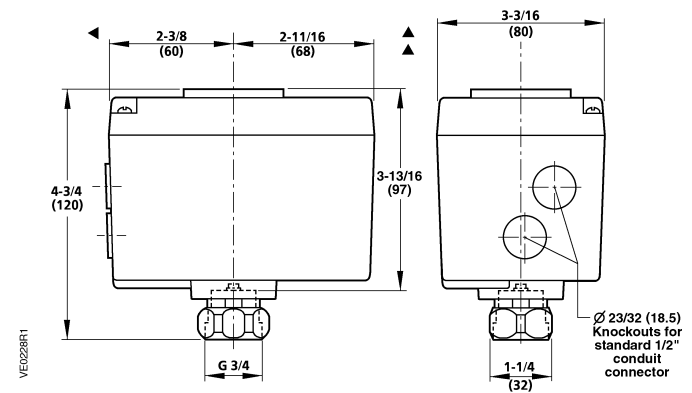
### Troubleshooting

- Check wiring for proper connections and secure attachments.
- Check for adequate power supply.

### References

- EA 599-14, Powermite 599 Series, MT Series SQS Electronic Valve Actuator, 24 Vac, 3-Position (floating) Control, Fail-Safe, Technical Bulletin, Document Number 155-308P25
- TB 251, Powermite 599 Series, MT Series Terminal Unit Valve and Actuator Assembly Selection Technical Bulletin, Document Number 155-306P25

### Dimensions



Minimum access space recommended:

- 4 inch (100 mm) sides
- 8 inch (200 mm) top

**Figure 6. SQS85.53U Actuator Dimensions in Inches (Millimeters).**

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