



SQS65 Series Electronic Valve Actuator

Product Description

The SQS actuator requires a 24 Vac, Class 2, supply and 0 to 10 Vdc signal to control Powermite 599 Series terminal unit valves with 7/32-inch (5.5 mm) stroke.

Installation Conventions

Warning		Personal injury/loss of life may occur if a procedure is not performed as specified.
Caution		Equipment damage, or loss of data may occur if the user does not follow procedure as specified.

Product Number

SQS65U – Fail-in-place actuator

SQS65.5U – Fail-safe actuator

Required Tools

- 1-1/4-inch open end wrench
- #2 Phillips or flat-blade screwdriver
- Flat blade calibration screwdriver (3mm) for wiring connections

Estimated Installation Time

12 minutes for wiring a factory installed actuator

30 minutes for field replacement of actuator

Prerequisites



WARNING:

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.

WARNING:



Disconnect the controller power before replacing the actuator.

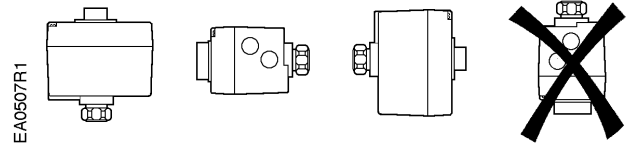


Figure 1. Acceptable Mounting Positions.

The vertical position is recommended for mounting.

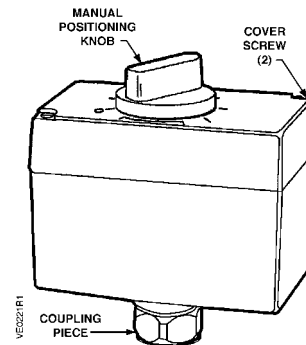


Figure 2. SQS Actuator.

Instructions

If you are mounting an actuator on a new valve, begin with the instructions *Mounting an Actuator to a Valve*.

Removing the actuator from a valve

1. Remove the actuator cover using either a #2 Phillips or a #2 flat blade screwdriver.
2. Disconnect and identify the wires. Place the cover back on the actuator.
3. Use a 1-1/4-inch open end wrench to loosen the coupling piece.
4. Remove the actuator from the valve.

Mounting an Actuator to a Valve

1. If you are attaching the actuator to a new valve, remove the protective plastic cap from the valve stem.
2. On the SQS65U actuator, turn the manual-positioning knob to "0".
3. Place the actuator on the valve.
4. Use a 1-1/4-inch open-end wrench to tighten the coupling piece.
5. Use either a Phillips head screwdriver or a flat blade screwdriver to remove the actuator cover for access to the terminal block, selector plug, and jumper.
6. Attach wires, set the selector plug, and remove the R–M jumper, if necessary. Refer to *Wiring* and *Start-Up*.
7. Place the cover on the actuator. The positioning knob must be at "0" to fit into the shaft. If the cover does not fit easily, turn it 180 degrees.
8. Fasten the cover with the screws.

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 the supply transformer rating by summing the total VA of all actuators used. The maximum rating for Class 2 step-down transformer is 100 VA.

It is recommended that no more than 10 actuators be powered by one transformer.

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. See *Figure 8*.

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.

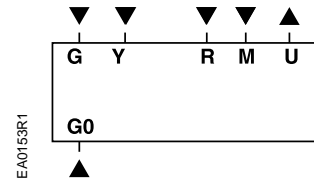


Figure 3. Terminal Connections of the SQS65U...

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 wired for correct function and full life of the actuator.

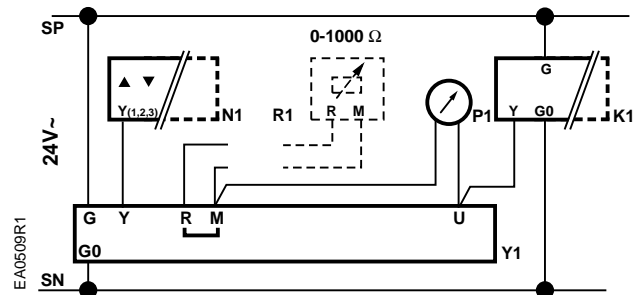


Figure 4. Wiring for Applications.

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.

- All units connected to terminals Y and U, together with the SQS 65U... must be connected to the same G0.
- When wiring the position output to AI terminations, connect terminal U to SIG and terminal G0 to COM

Start-Up

1. Set the selector plug for the recommended flow characteristic.
2. To change the jumper setting, remove the actuator cover and move the selector plug.

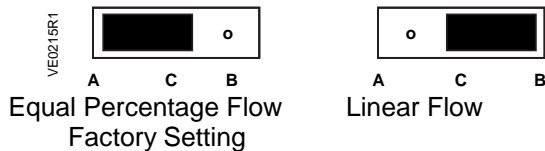


Table 1. Setting for Recommended Flow Characteristic.

Valve Action	Recommended Setting for Selector Plug
N C Steam	C-B
N C Liquid	A-C Factory setting
N O	C-B

Manual Override for SQS65U (Fail-in-place)

- Turn manual override knob (Figure 1) clockwise to move actuator coupling piece outward.
- Turn manual override knob counterclockwise to move actuator coupling piece inward.

Dimensions

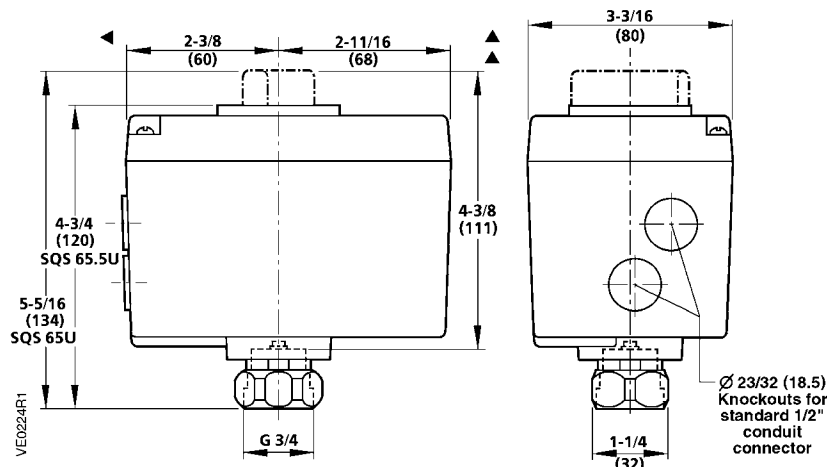


Figure 6. SQS65U... Dimensions in inches (millimeters in parentheses).

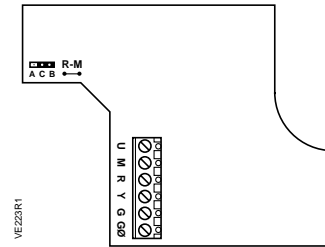


Figure 5. Location of the Terminal Strip, Selector Plug, and R-M Jumper on the Circuit Board.

Troubleshooting

- Check wiring for the proper connections.
- Check selector plug for recommended position.

References

Technical Instruction
 EA 599-8
 Powermite 599 Series SQS Electronic Valve Actuator
 Proportional Control

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 155-190P25

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