



SQD Series Valve Actuators

(For use with 1-1/2-inch to 2-inch Pressure Independent Control Valves)

Product Description

The SQD Actuator requires a 24 Volt power supply and a 0 to 10Vdc or floating signal to control the Siemens 1-1/2 inch and 2-inch 599 Series Pressure Independent Control Valves with 1/4-inch (6.5 mm) stroke.

Warning/Caution Notations

WARNING:		Personal injury/loss of life may occur if you do not perform a procedure as specified.
CAUTION:		Equipment damage may occur if you do not perform a procedure as specified.

Product Number

Description		Actuator Code
SQD65U	0 to 10 Vdc control	235
SQD85.03U	3-position (floating) control	234

Required Tools

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

Estimated Installation Time

- 15 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.

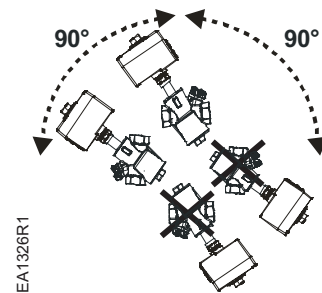


Figure 1. Acceptable Mounting Positions with Valve.

NOTE: Vertical mounting is recommended.

Instructions

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

Remove Actuator from Valve

1. Remove the actuator cover using either a #2 Phillips or a #2 flat blade screwdriver. See Figure 2.

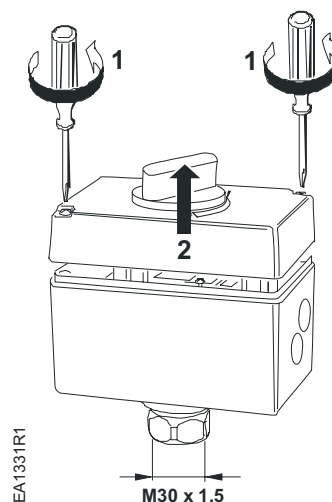


Figure 2.

2. Disconnect and identify the wires. Place the cover back on the actuator.

Remove Actuator from Valve, Continued

- Use a 1-1/4-inch open end wrench to loosen the coupling piece.
- Remove the actuator from the valve.

Mounting an Actuator to a Valve

- If you are attaching the actuator to a new valve, remove the protective plastic cap from the valve stem. See Figure 3.

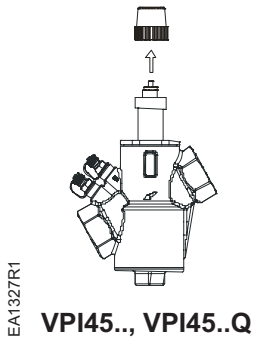


Figure 3.

- Turn the manual-positioning knob counterclockwise to "0". See Figure 4.

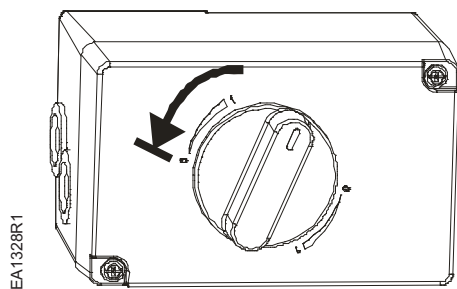


Figure 4.

- Place the actuator on the valve. See Figure 5.

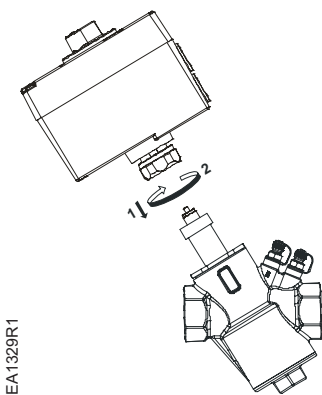


Figure 5.

- Use a 1-1/4-inch open-end wrench to tighten the coupling piece to a maximum of 22 ft-lbs. See Figure 6.

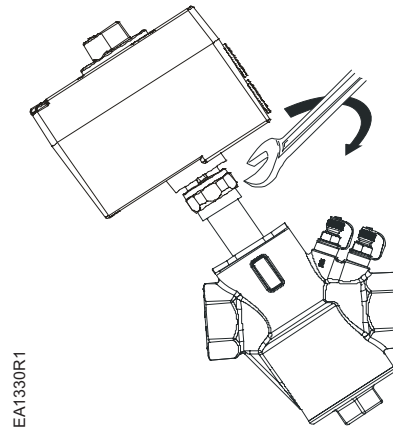


Figure 6.

- 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 wire. See Figure 7.

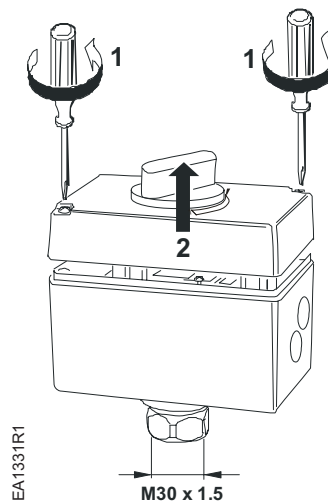


Figure 7.

- Attach wires, set the selector plug and if necessary, cut the R-M jumper. See *Wiring*.
- Place the cover on the actuator. The positioning knob must be at "0" to fit into the shaft. If the cover does not fit, turn it 180 degrees.

8. Fasten the cover with the screws. See Figure 8.

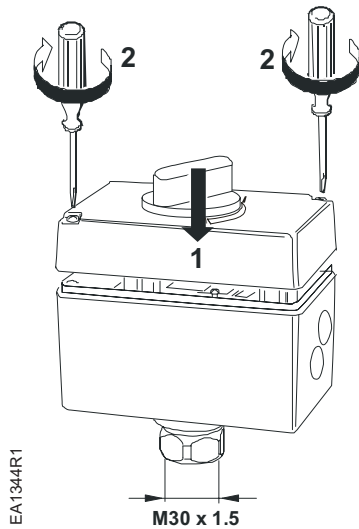


Figure 8.

The installation is now complete.

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 adding 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.

SQD65U

To use a 0 to 1000 ohm input signal on terminal R, the circuit board jumper R—M must be cut.



CAUTION:

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.

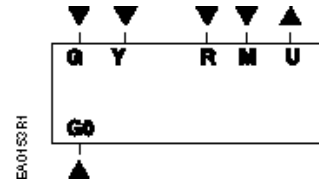


Figure 9. SQD65U Terminal Connections.

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.

CAUTIONS:



- G0 and G 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 G0 are improperly wired and should be reversed.

SQD85.03U

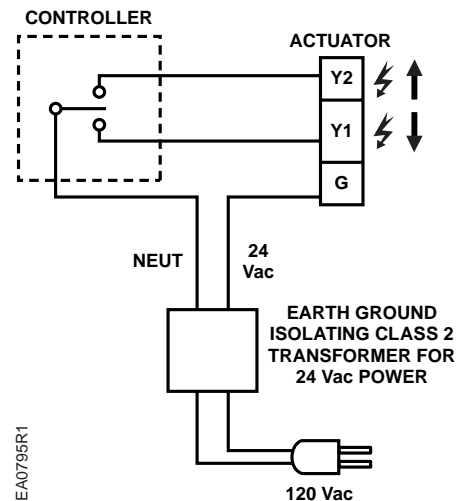


Figure 10. SQD85.03U Wiring.

G	24 Vac operating voltage (system potential)
Y1	Output shaft extends, valve opens
Y2	Output shaft retracts, valve closes

Manual Override for SQD65U Non-Spring Return

Turn the manual positioning knob **clockwise** to move the actuator stem outward. See Figure 11.

Turn the manual positioning knob **counterclockwise** to move the actuator stem inward. See Figure 11.

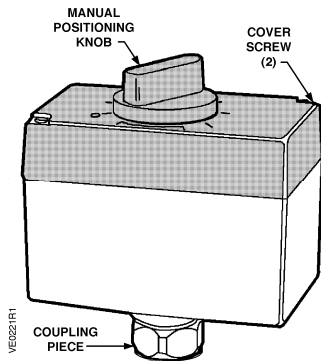


Figure 11.

Troubleshooting

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

References

Technical Instructions	Document Number
SQD Series Electromotoric Actuators	155-777
Pressure Independent Control Series Two-Way Brass Valve Bodies, 1/2-Inch to 2-Inch, ANSI 250	155-774

Dimensions

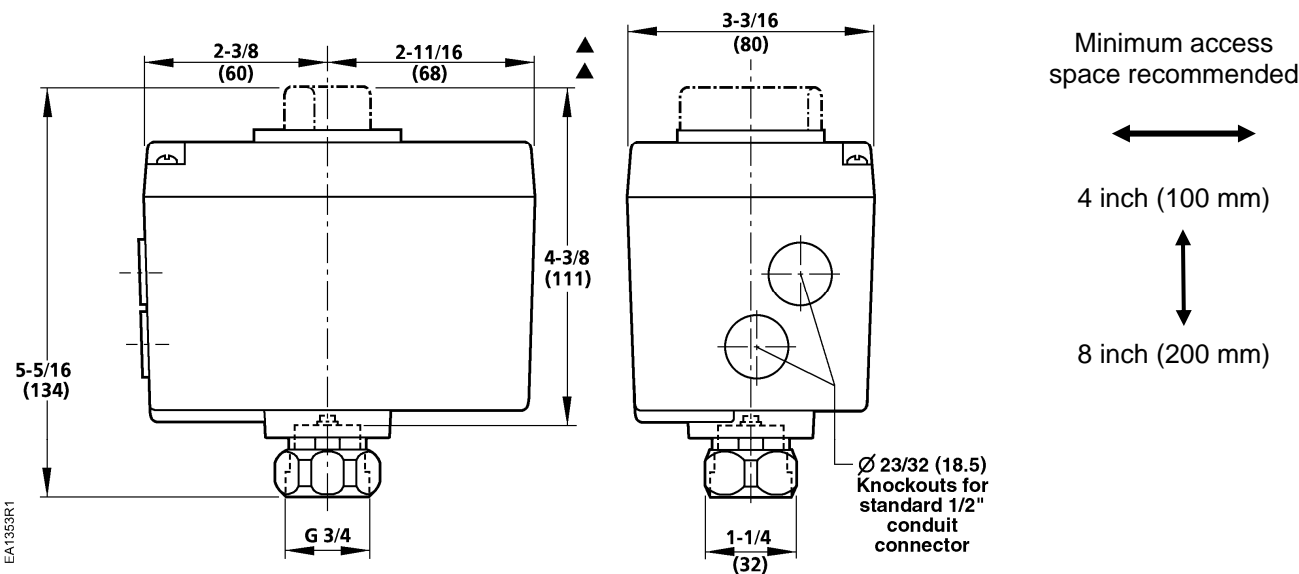


Figure 12. SQD Series Dimensions in Inches (Millimeters).

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