

SAS81 Series Electronic Valve Actuators

Product Description

The SAS81 Series Actuators require a 24Vac or 24 Vdc supply and provide floating (three-position) control for Powermite 599 MT Series terminal unit valves with 7/32-inch (5.5 mm) stroke. In the SAS81.33U, a mechanical spring returns the valve to its normal position when there is no power supply.

Product Numbers

SAS81.03U – Non-spring Return (Fail-in-place) actuator

SAS81.33U – Spring Return (Fail-safe) actuator



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
- Flat-blade calibration screwdriver (3 mm) for wiring connections
- Wire cutter/stripper

Warning/Caution Notations

Warning		Personal injury or loss of life may occur if you do not follow a procedure as specified.
Caution		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 1 shows acceptable actuator mounting positions for water applications. The recommended mounting position of the actuator for low pressure steam applications is between 45° and horizontal.

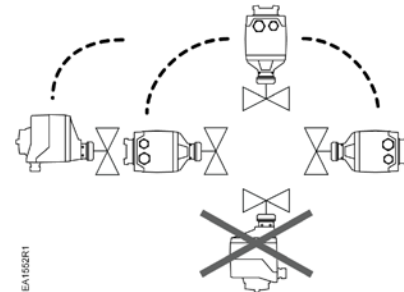


Figure 1. Acceptable Mounting Positions.

Installation

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 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. Use cover screws to secure actuator cover in place.
4. Loosen coupling piece.
5. Remove actuator from 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 SAS81.03U Actuator, turn the manual-positioning knob counterclockwise to its end point.
3. Place the actuator on the valve.
4. Hand-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.
6. Attach wires. See *Wiring and Start-Up*.
7. Place the cover on the actuator.
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 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.)

1. Remove actuator cover screws using either a No. 2 Phillips or a No. 2 flat-blade screwdriver and detach actuator cover.
2. Access terminal block and attach wires per Figure 2 through Figure 5.
3. Replace actuator cover. Use cover screws to secure actuator cover in place.



CAUTIONS:

Terminals G and G0 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.

G	Hot (+)
Y1	Connected to Neutral (-) extends actuator stem
Y2	Connected to Neutral (-) retracts actuator stem

Figure 2. SAS81.03U 24 Vac NSR Floating Control – Neutral Switch.

G	Neutral (-)
Y1	Connected to Hot (+) extends actuator stem
Y2	Connected to Hot (+) retracts actuator stem

Figure 3. SAS81.03U 24 Vac or 24 Vdc NSR Floating Control – Hot Switch.

G	Hot (+)
G0	Neutral (-)
Y1	Connected to Neutral (-) extends actuator stem
Y2	Connected to Neutral (-) retracts actuator stem

Figure 4. SAS81.33U 24 Vac SR Floating Control – Neutral Switch.

G	Hot (+)
G0	Neutral (-)
Y1	Connected to Hot (+) extends actuator stem
Y2	Connected to Hot (+) retracts actuator stem

Figure 5. SAS81.33U 24 Vac or 24 Vdc SR Floating Control – Hot Switch.

Start-Up

The valve body (normally open or normally closed) determines action of the complete valve/actuator assembly.

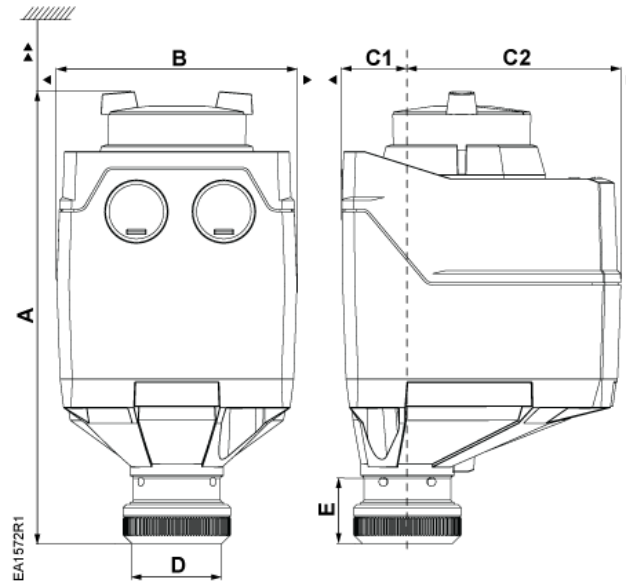
Troubleshooting

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

References

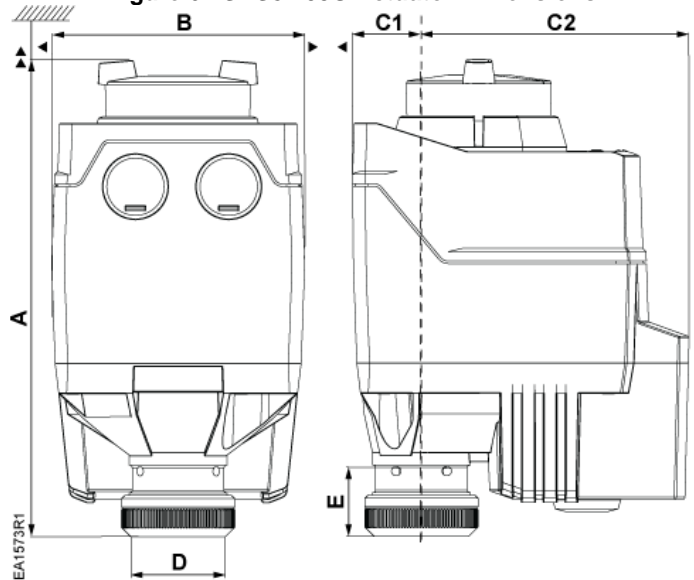
Powermite 599 MT Series SAS Electronic Valve Actuator, 24 Vac or 24 Vdc, Floating Control (3-Position) Technical Instructions (155-681).

Dimensions



	A	B	C1	C2	D	E	▶	▶▶
Inches	5.9	3.1	0.9	2.8	1.2	0.9	4	8
mm	151	80	21.9	71.1	29.9	21.8	100	200

Figure 6. SAS81.03U Actuator Dimensions.



	A	B	C1	C2	D	E	▶	▶▶
Inches	5.9	3.1	0.9	3.3	1.2	0.9	4	8
mm	151	80	21.9	84.6	29.9	21.8	100	200

Figure 7. SAS81.33U Actuator Dimensions.

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