

Powermite 599

MT Series SAS Electronic Valve Actuator, 24 Vac or 24 Vdc, Floating Control (3-Position)



SAS81.03U



SAS81.33U

Description The Powermite 599 MT Series SAS Electronic Valve Actuator requires a 24 Vac or 24 Vdc 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.

- Features**
- Position indicator.
 - UL listed for plenum installations.
 - Floating control signal input.
 - Manual positioning knob with stroke indication allows for repositioning.
 - Mechanical spring returns the valve to its normal (fail-safe) position in power-off conditions (SAS81.33U only).

Application For use in small to medium HVAC installations with Powermite 599 Series terminal unit 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 **Table 1. Ordering Information.**

Product Number	Actuator Type	Actuator Prefix Code
SAS81.03U	Non-Spring Return (Fail-in-place)	363
SAS81.33U	Spring Return (Fail-safe)	366

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 Technical Bulletin* (155-306P25) for selection procedures.

To order an actuator only, use the product number in Table 1.

Specifications

Power Requirements

Operating voltage/frequency	24 Vac/Vdc, $\pm 20\%$
Frequency	45 to 65 Hz
Power Supply	Earth ground, isolating Class 2, 24V transformer
	NOTE: Do <i>not</i> power more than 10 actuators with one transformer. (Use 0.5 amp fuse on secondary per actuator.)
Power consumption - running	
SAS81.03U	2.5 VA
SAS81.33U	3.4 VA

Control Characteristics

Control signal	Floating (3-position)
Y1	Positioning signal extends actuator stem.
Y2	Positioning signal retracts actuator stem.

Functional Operation

Running time	
at 60 Hz	30-seconds
Spring return time (SAS81.33U only)	<14-seconds
Nominal stroke	7/32-inch (5.5 mm)
Nominal force	90 lbs (400 N)
Fail-safe (SAS81.33U only)	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 131°F (–5°C to 55°C)
Transport and storage	–13°F to 158°F (–25°C to 70°C)
Humidity	<95% rh
Max. permissible media temperature in valve	34°F to 248°F (1°C to 120°C)

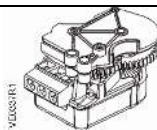
Physical Characteristics

Conduit opening	Knockouts for standard 1/2-inch (12.7 mm) conduit connector
Weight	
SAS81.03U	0.9 lbs. (0.4 kg)
SAS81.33U	1.5 lbs. (0.68 kg)
Dimensions	See Figure 6 and Figure 7.

Service Kit

If the actuator is inoperative, replace the unit.

Accessory



Auxiliary Switch ASC10.51 switches on or off when a certain position is reached. The switching point can lie between 0 to 100%.

Operation

- A 24V control signal to Y1 extends the actuator stem proportionately to the length of time the signal is applied.
- A 24V control signal to Y2 retracts the actuator stem proportionately to the length of time the signal is applied.
- In the event of a power failure:
 - SAS81.03U is non-spring return and holds its last position.
 - SAS81.33U 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 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.

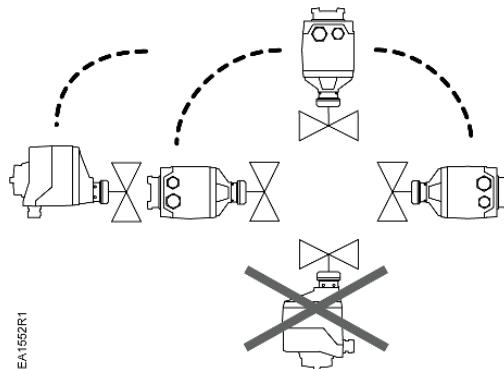


Figure 1. Acceptable Mounting Positions.

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



CAUTION:

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

Normally Closed Valve:

- When the actuator stem extends, the valve opens.
- When the actuator stem retracts, the valve closes.

Normally Open Valve:

- When the actuator stem extends, the valve closes.
- When the actuator stem retracts, the valve opens.

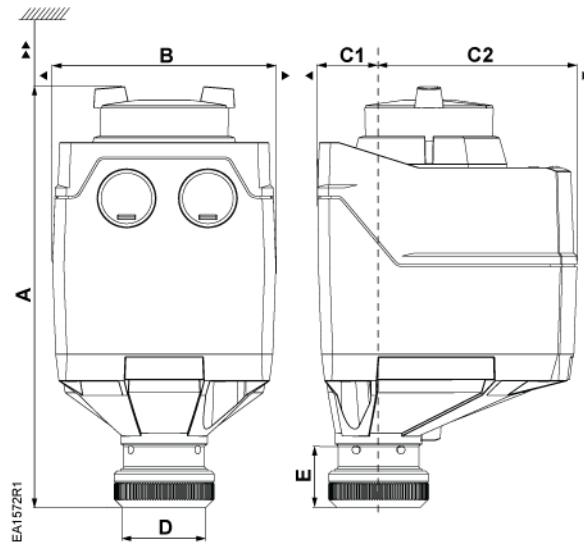
Three-Way Valve:

- When the actuator stem extends, the valve opens between port A and AB.
- When the actuator stem retracts, the valve opens between port B and AB.

Troubleshooting

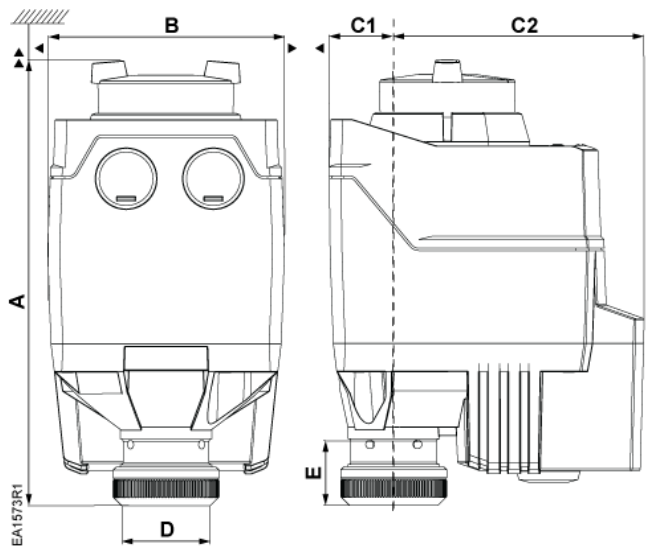
- Check wiring for proper connections and secure attachments.
- Check for adequate power supply.

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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