SIEMENS

Technical Instructions

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Powermite 599

MT Series SAS Electronic Valve Actuator 24 Vac or 24 Vdc, Proportional Control







SAS61.03U

SAS61.33U

Description

The Powermite 599 MT Series SAS Electronic Valve Actuator requires a 24 Vac or 24 Vdc supply and receives a 0 to 10 Vdc or a 4 to 20 mA control signal to proportionally control a valve. This actuator is designed to work with Powermite 599 MT Series terminal unit valve with a 7/32-inch (5.5 mm) stroke.

Features

- Position indicator.
- UL listed for plenum installations.
- 0 to 10V or 4 to 20 mA.
- LED status indicator.
- Auto calibration
- Position output signal 0 to 10 Vdc.
- Manual positioning knob with stroke indication allows for repositioning.
- Mechanical spring returns the valve to its normal (fail-safe) position in power-off conditions (SAS61.33U Actuator 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.

Table 1. Ordering Information.

Product Numbers

Product Number	Actuator type	Actuator Prefix Code
SAS61.03U	Non-Spring Return (Fail-in-place)	364
SAS61.33U	Spring Return (Fail-safe)	365

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 TB 251 *Powermite 599 Series MT Series Terminal Unit Valve and Actuator Assembly Selections Technical Bulletin* (155-306P25) for selection procedures.

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

Power Requirements							
Power Requirements Frequency Power supply Power supply - grower consumption - running SAS61.03U SAS61.008 kg)	Specifications	Operating volta	ge	24 Vac ± 20%, 24 Vdc, + 20%, -15%			
Power supply	Power Requirements			45 to 65 Hz Earth ground isolating, Class 2,			
SAS61.03U 5.3 VA SAS61.33U 5.9 VA	· cuci noquiionio	•					
Control Characteristics Parminal Passignation Y		Power consump	otion - running				
Control Characteristics Terminal Designation Y Control Signal 0 to 10 Vdc, 4 to 20 mA 50.1 mA for 0 to 10 Vdc control 4 to 20 mA ± 1% for 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for 4 to 20 mA control 4 to 20 mA ± 1% for		SAS61.03L	J	5.3 VA			
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U Position feedback Voltage			Current draw				
Voltage Load impedence			Input impedance	>100K ohms			
Load impedence S10K Ω res.		U	Position feedback				
Z Forced control Resistance 0 to 1000Ω, stroke proportional to R Resistance Z connected to G Max. stroke 100% Max. 24 Vac to 20%, Max. 24 Vdc+20%,-15% Sol. mA Sol. mA Sol. mA Max. 24 Vdc+20%,-15% Sol. mA So							
Resistance			Current load	1 mA max.			
Current draw ≤0.1 mA Functional Operation Running time at 60 Hz Spring return (SAS61.33U only) 30 seconds Spring return (SAS61.33U only) <14 seconds Nominal stroke Nominal Force Spring return (SAS61.33U only) 90 lbs. (400N) Spring return (SAS61.33U only) Mechanical spring Agency Approvals UL CUL UL873 Certified to CSA C22.2 No. 24-93 Environmental Conditions Operation Operation 23°F to 131°F (−5°C to 55°C) Transport and storage 1-13°F to 158°F (−25°C to 70°C) Humidity 405% 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 conduit connector Weight SAS61.03U SAS61.33U 0.9 lbs. (0.4 kg) 1.5 lbs. (0.68 kg)		Z	Resistance Z connected to G Z connected to G0	Max. stroke 100% Min. stroke 0% Max. 24 Vac to 20%,			
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Conditions Operation Transport and storage Humidity Max. permissible media temperature in valve Onduit opening Conduit opening Weight SAS61.03U SAS61.33U SAS61.33U SAS61.03U SAS61.33U SAS61.310 SAS61.33U		Ambient tempe	rature				
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Conduit opening Knockouts for standard 1/2-inch conduit connector Weight SAS61.03U SAS61.33U 0.9 lbs. (0.4 kg) 1.5 lbs. (0.68 kg)		Max. permissible media temperature in valve		34°F to 248°F (1°C to 120°C)			
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SAS61.33U 1.5 lbs. (0.68 kg)		_		0.9 lbs. (0.4 kg)			
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Difficialities Section Of Figure 7 and Figure 3.		Dimensions		See Figure 4 and Figure 5.			

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Accessory



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

Service Kit

If the actuator is inoperative, replace the unit.

Operation

A zero voltage control signal returns the valve to its normal position.

In the event of a power failure:

- SAS61.03U is non-spring return and holds its last position.
- SAS61.33U returns the valve to its normal spring return position.

The position output 0 to 10 Vdc signal "U" produces position feedback to the controller.

Mounting and Installation

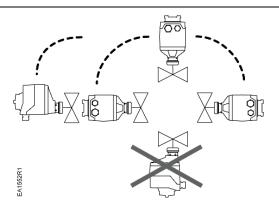


Figure 1. Acceptable Mounting Positions.

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.

Wiring

- All units using the same control signal must utilize the same neutral reference (G0).
- Use earth ground isolating, step-down Class 2 transformers. Do not use auto transformers.
- Determine supply transformer minimum rating by summing the 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.



WARNING:

Housing rated for flex conduit only.

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Wiring Diagrams

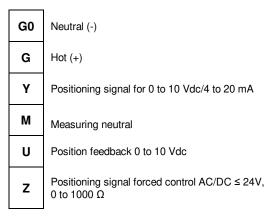


Figure 2. Terminal Connections.



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.

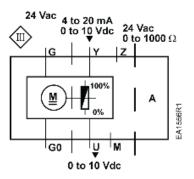


Figure 3. Wiring Diagram.

The diagram shows all possible connections. The application determines which connections are used.

Start-up

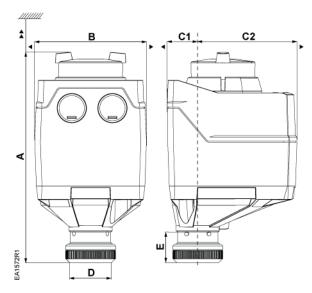
The valve body (normally open or normally closed) determines the action of the complete valve/actuator assembly.

Troubleshooting

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

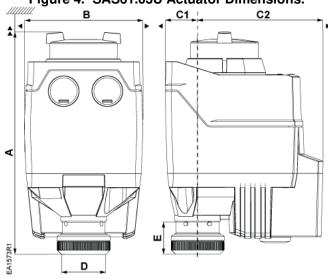
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Dimensions



	Α	В	C1	C2	D	Е	•	>>
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 4. SAS61.03U Actuator Dimensions.



	Α	В	C1	C2	D	Е	•	>>
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

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Figure 5. SAS61.33U Actuator Dimensions.

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