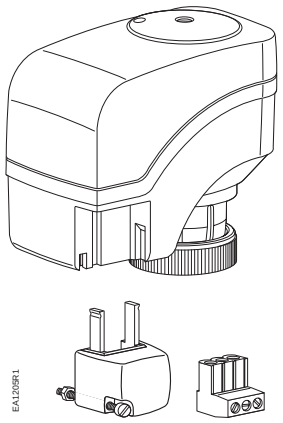
SIEMENS

Technical Instructions
Document No. 155-710
September 16, 2009

599 Series Zone Valve Actuator

SSA/P Series 24 Vac Electronic Valve Actuator: Floating or 0 to 10 Vdc Control Fail-in-Place



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Description

The 599 Series SSA/P Electronic Valve Actuator requires a 24 Vac power supply and receives a 0 to 10 Vdc or a floating control signal to control a valve. This actuator is designed to work with 599 Series Zone Valves with a 1/10-inch (2.5 mm) stroke and a threaded valve bonnet that fits the actuator.

Features

- Direct-coupled installation without tools
- Manual override with hex wrench
- Visual position indication

Application

For use in heating and cooling HVAC applications with Siemens 599 Series Zone Valves that need 24 lb (105N) nominal force.

Product Number

Part Number	Description			Prefix Code
SSA81U	24 Vac	Floating	Normally Closed	244
SSA61U		0 to 10 Vdc		245
SSP61U			Normally Open	248

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.

To order a single actuator, use the product number (for example, SSA61U).

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.

Specifications

		SSA81U	SSA/P61U
Power supply	Operating voltage	24 Vac ±20%	24 Vac ±20%
	Frequency	50/60 Hz	50/60 Hz
	Power consumption	0.8 VA	2.5 VA
Function	Running time		
	SSA81U	150 seconds	
	SSA/P61U	34 seconds	
	Nominal stroke	1/10-inch (2.5 mm)	
	Nominal force	24 lb (105N)	
Ambient conditions	Ambient temperature		
	Operation	41°F to 122°F (5°C to 50°C)	
	Transport and storage	-13°F to 158°F (-25°C to 70°C)	
Agency certification			
CE Conformance	EMC directive	89/336/EEC	
	Low Voltage direction	73/23/EEC	
UL		UL873, cUL Certified to Canadian Standard C22.2 No. 24-93	
Miscellaneous	Medium temperature	34°F to 230°F (1°C to 110°C)	
	Dimensions Inches (mm)	3.26 H×3.26 W×1.9 D (82×83×48)	
	Weight	9 oz (0.25 kg)	

Accessory

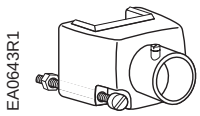


Figure 1. Conduit Connector.

ASY97: Conduit connector, quantity one (1).

Service Kits

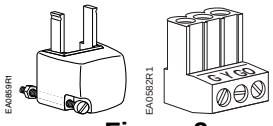


Figure 2.
Block Cover and Terminal Plug

ASY99: Terminal block cover and terminal plug for SSA81U, quantity one each.

Service Kits, Continued

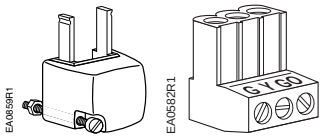


Figure 3.
Block Cover and Terminal Plug

ASY100: Terminal block cover and terminal plug for SSA/P61U, quantity one each.

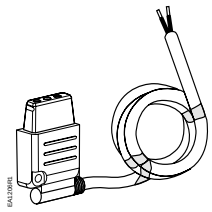


Figure 4. Cable Connector.

ASY8L15: Cable connector, 1.5m cable, CE rated, quantity one.

ASY8L45: Cable connector, 4.5m cable, CE rated, quantity one.

NOTE: These cables are not plenum rated.

ASY98: Replacement screw and nut for conduit connector quantity one (1).

Operation

The actuators can be driven manually to any position between 0 and 1 with a 3 mm hex wrench. The control signal from the controller; however, will take priority over any manual position.

Mounting and Installation

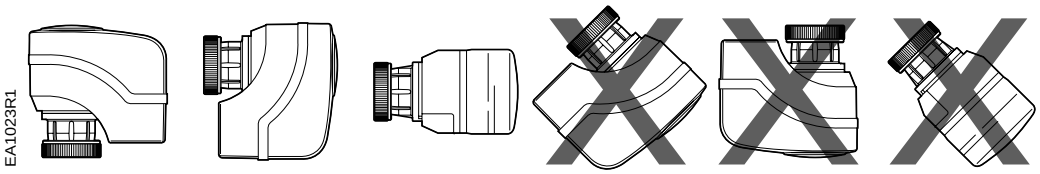


Figure 5. Mounting Position.

Mount the actuator in one of the allowable positions shown in Figure 5.

NOTE: Vertical is the recommended position.

When mounting the actuator in a plenum, the proper cable must be attached to meet local codes.

Allow 8-inches (200 mm) above the actuator and 8-inches (200 mm) behind the cable for service.

Installation Instructions are included with the actuator.

Wiring

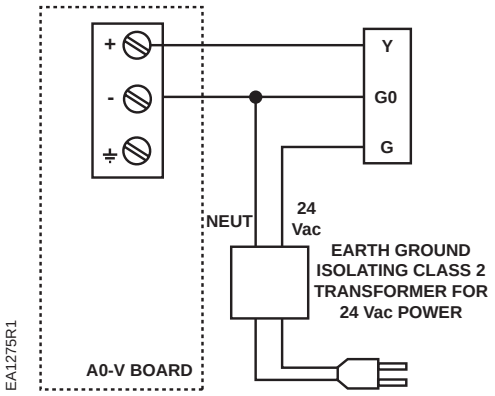


Figure 6. SSA/P61U Wiring Diagram.

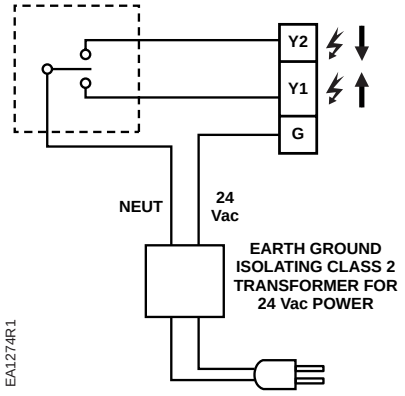


Figure 7. SSA81U Wiring Diagram.

- Do not use autotransformers.
- Use earth-ground isolating, step-down, Class 2, power supplies.
- Determine supply transformer rating by summing total VA of all actuators used.
- Use one transformer to power up to 10 actuators.

WARNINGS:

- Wire connection G is 24 Vac HOT on the SSA/P61U, not neutral.
- G0 and G must be properly wired for correct function and full life of the actuator.

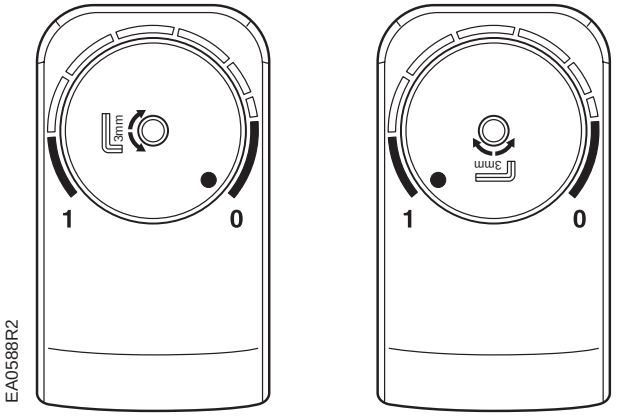
Manual Override

The actuators can be driven manually to any position between "0" and "1" with a 3 mm hex key. The actuator will maintain its position until power is provided or restored. A control signal from the controller, however, will take priority over any manual position.

NOTES:

- Do not perform a manual override while the power supply is connected: The actuator will not track properly when the control signal is applied. A short power-off/power-on sequence is recommended to recalibrate the actuator.
- To hold the actuator in the manually set position, the connecting cable must be unplugged.

NOTE:
The "0" and "1" position markings are for reference only and not for stroke measurement.



Position Indicator at 0 Position Indicator at 1

Figure 8. Position Indicator.

Start-Up

Check the wiring and the position indication. See Figure 8 for referred positions “0” and “1” on the position indicator disc.

SSA61U and SSA81U Normally Closed

- When the position indicator disc is at the "0" position the output shaft is extended (two-way valve closed).
- When the position indicator disc rotates to position “1”, the output shaft is retracted (two-way valve open).

SSP61U Normally Open

- When the position indicator disc is at the "0" position, the output shaft is *retracted* (two-way valve open).
- When the position indicator disc rotates to position “1”, the output shaft is *extended* (two-way valve closed).

CAUTION:
The SSA61U and the SSP61U calibrate (calibration stroke) during start-up. Correct functioning cannot be guaranteed if the actuator is operated without a valve.

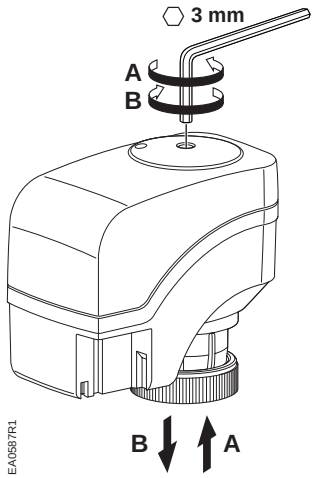


Figure 9. SSA61U and SSA81U Normally Closed.

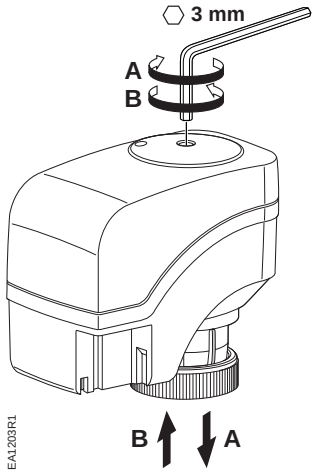


Figure 10. SSP61U Normally Open

- (A) Turn the hex wrench counterclockwise and spindle retracts.
- (B) Turn hex wrench clockwise and spindle extends.

- (A) Turn the hex wrench *clockwise* and spindle extends.
- (B) Turn hex wrench *counterclockwise* and spindle retracts.

Troubleshooting

See *Wiring* for proper connections.

If the actuator does not provide full flow or full close off, check that the actuator is properly attached to the valve. If not, turn power off, tighten the bonnet ring on to the valve completely, and power up to recalibrate.

If the actuator becomes inoperative, replace it.

Dimensions

Inches (Millimeters)

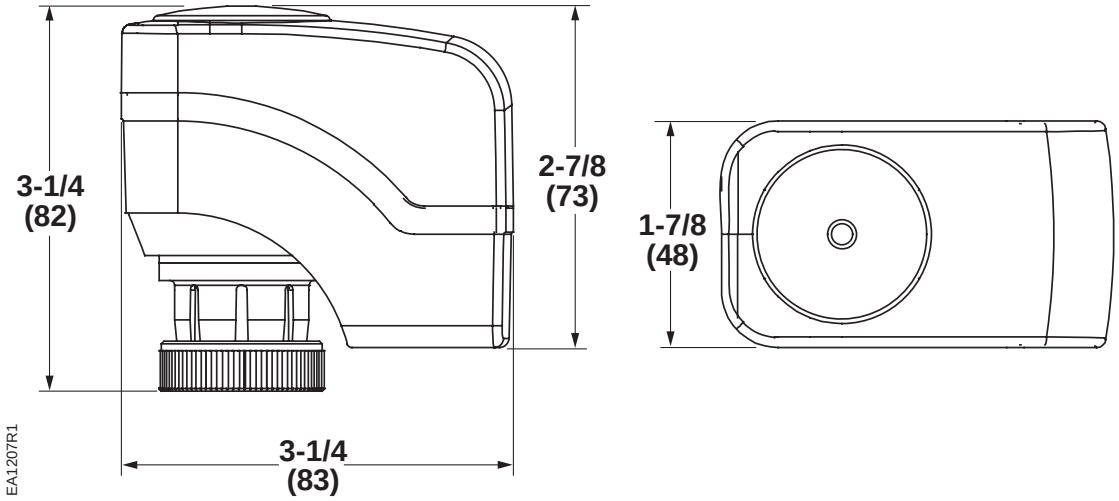


Figure 11. Dimensions of the SSA/P Series Actuator in Inches (mm).

Service envelope

Minimum access space recommended:

8-inches (200 mm) above the actuator and beside the terminal plug.