

599 Series Zone Valves 2-Way, 3-Way Zone Valve Electric Actuators



Description

The 599 Series Zone Valves work with any SFA/P Series, SSA or SSE/F Series electric actuator. The actuators accept 24 Vac/dc, 24 Vac or 120 Vac power supplies signal to provide two-position, three-position or 0 to 10 Vdc control. Typical applications include hot or chilled water for zones with radiators; floor heating via manifolds; fan coil units; cooling ceilings (Zone Valves); wall-mounted boilers (zone valves); and VAV applications.

Features

Zone valves have a direct-coupled universal bonnet. SFA/P, SSA, and SSE/F actuators are UL listed. Actuators have a direct-coupled installation; are hand-tightened without tools, provide manual override and visual position indication.

Product Numbers

Use the product numbers in the tables to order the valve and the actuator assembled together. The product number consists of a 3-digit prefix code, a hyphen, and a 5-digit suffix code. The prefix specifies an actuator. The suffix specifies the valve body.

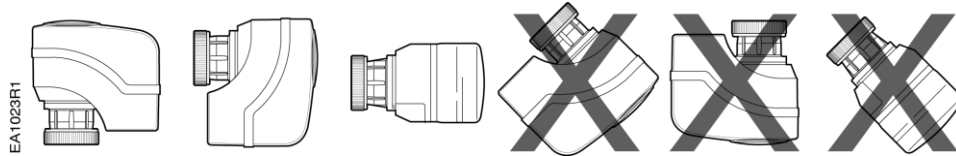
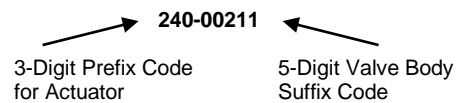


Figure 1. Preferred Mounting Position For the SFA/P Series, SSA or SSE/F Series Electric Actuator.

Table 1. Product Numbers: Electric Actuator/2-Way Zone Valve Assemblies.

| Connection | Line Size | | Flow Rate | | Valve Body | 120 Vac | | 24 Vac or 24 Vac/dc | | | | |
|------------|-----------------|---------------|-----------------|-------------------|-------------------|-------------------|------------------------|---------------------|-------------------|-------------------|-----------|-----------|
| | | | | | | Fail Safe (SR) | | Fail Safe (SR) | | Fail-in-Place | | |
| | 2-Position | | 2-Position | | | 3-Position | 0 to 10 Vdc Modulating | | | | | |
| | Normally Closed | Normally Open | Normally Closed | Normally Open | | Normally Closed | Normally Closed | Normally Open | | | | |
| | SFA11U | SFP11U | SFA71U | SFP71U | | SSA81U | SSE161.05U | SSF161.05U | | | | |
| Inch | Mm | Cv | Kvs | Actuator Code 240 | Actuator Code 241 | Actuator Code 242 | Actuator Code 243 | Actuator Code 244 | Actuator Code 245 | Actuator Code 248 | | |
| NPT | .50 | 15 | 1.0 | .85 | 599-00210 | 240-00210 | 241-00210 | 242-00210 | 243-00210 | 244-00210 | 245-00210 | 248-00210 |
| | .50 | 15 | 2.5 | 2.0 | 599-00211 | 240-00211 | 241-00211 | 242-00211 | 243-00211 | 244-00211 | 245-00211 | 248-00211 |
| | .50 | 15 | 4.0 | 3.4 | 599-00214 | 240-00214 | 241-00214 | 242-00214 | 243-00214 | 244-00214 | 245-00214 | 248-00214 |
| | .75 | 20 | 4.1 | 3.5 | 599-00212 | 240-00212 | 241-00212 | 242-00212 | 243-00212 | 244-00212 | 245-00212 | 248-00212 |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00213 | 240-00213 | 241-00213 | 242-00213 | 243-00213 | 244-00213 | 245-00213 | 248-00213 |
| Sweat | .50 | 15 | 1.0 | .85 | 599-00510 | * | * | * | * | * | * | * |
| | .50 | 15 | 2.5 | 2.0 | 599-00511 | * | * | * | * | * | * | * |
| | .50 | 15 | 4.0 | 3.4 | 599-00514 | * | * | * | * | * | * | * |
| | .75 | 20 | 4.1 | 3.5 | 599-00512 | * | * | * | * | * | * | * |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00513 | * | * | * | * | * | * | * |

* Order valve and actuator separately.

NOTE: For more information, see *599 Series Zone Valve Bodies: Two-Way and Three-Way Technical Instructions (155-320P25)*, *599 Series Zone Valve Actuator SF Series Electronic Valve Actuator, 2-Position Control Technical Instructions (155-321P25)*, *599 Series Zone Valve Actuator SSA81U 24 Vac Electronic Valve Actuator: Floating Fail-in-Place Technical Instructions (155-710)*, and *Electromotoric Actuator SSE161.05U/SSF161.05U Data Sheet (A6V12681514)*.

Table 2. Product Numbers: Electric Actuator/3-Way Zone Valve Assemblies.

| Connection | Line Size | | Flow Rate AB→A | | Valve Body | 120 Vac | | 24 Vac or 24 Vac/dc | | | | |
|------------|-----------|----|-------------------|--------------|------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|---------------------------------------|
| | | | | | | 2-Position | | 2-Position | | 3-Position | 0 to 10 Vdc Modulating | |
| | | | Fail AB▶B | Fail AB▶A | | Fail AB▶B | Fail AB▶A | Fail-In-Place | Fail-In Place | | | |
| | Inch | Mm | Cv | Kvs | | SFA11U Actuator Code 240 | SFP11U Actuator Code 241 | SFA71U Actuator Code 242 | SFP71U Actuator Code 243 | SSA81U Actuator Code 244 | SSE161.05U Actuator Code 245 | SSF161.05U Actuator Code 248 |
| NPT | .50 | 15 | 1.0 | .85 | 599-00230 | 240-00230 | 241-00230 | 242-00230 | 243-00230 | 244-00230 | 245-00230 | 248-00230 |
| | .50 | 15 | 2.5 | 2.0 | 599-00231 | 240-00231 | 241-00231 | 242-00231 | 243-00231 | 244-00231 | 245-00231 | 248-00231 |
| | .50 | 15 | 4.0 | 3.4 | 599-00234 | 240-00234 | 241-00234 | 242-00234 | 243-00234 | 244-00234 | 245-00234 | 248-00234 |
| | .75 | 20 | 4.1 | 3.5 | 599-00232 | 240-00232 | 241-00232 | 242-00232 | 243-00232 | 244-00232 | 245-00232 | 248-00232 |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00233 | 240-00233 | 241-00233 | 242-00233 | 243-00233 | 244-00233 | 245-00233 | 248-00233 |
| Sweat | .50 | 15 | 1.0 | .85 | 599-00530 | * | * | * | * | * | * | * |
| | .50 | 15 | 2.5 | 2.0 | 599-00531 | * | * | * | * | * | * | * |
| | .50 | 15 | 4.0 | 3.4 | 599-00534 | * | * | * | * | * | * | * |
| | .75 | 20 | 4.1 | 3.5 | 599-00532 | * | * | * | * | * | * | * |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00533 | * | * | * | * | * | * | * |

* Order valve and actuator separately.

NOTE: For more information, see *599 Series Zone Valve Bodies: Two-Way and Three-Way Technical Instructions (155-320P25)*, *599 Series Zone Valve Actuator SF Series Electronic Valve Actuator, 2-Position Control Technical Instructions (155-321P25)*, *599 Series Zone Valve Actuator SSA81U 24 Vac Electronic Valve Actuator: Floating Fail-in-Place Technical Instructions (155-710)*, and *Electromotoric Actuator SSE161.05U/SSF161.05U Data Sheet (A6V12681514)*.

Valve Specifications

Line size: 1/2-inch to 1-inch (15 mm to 25 mm)
 Action:
 2-way NO/NC determined by actuator
 3-way diverting (mixing, limited application)
 Valve body rating: ANSI Class 125
 Leakage rate: ANSI Class III
 Close off ratings: According to ANSI/FCI 70-2
 Medium temperature range: 34°F to 230°F (1°C to 110°C)
 Flow characteristic: Linear

Electric Actuator SFA/P Series Specifications

Control Signal: Two-position
 Operating voltage: 24 Vac ±20% 120 Vac ±20%
 Power Consumption: 9.8 VA 9.8 VA
 Frequency: 50/60 Hz
 Agency certification: UL listed to UL873
 cUL certified to Canadian Standard C22.2 No. 24-93
 Mounting location: NEMA 1 (interior only)
 Weight: 1.18 lb (0.54 kg)
 Dimensions inches (mm): 3.4 (85) H x 4.4 (111) W x 2.3 (58) D

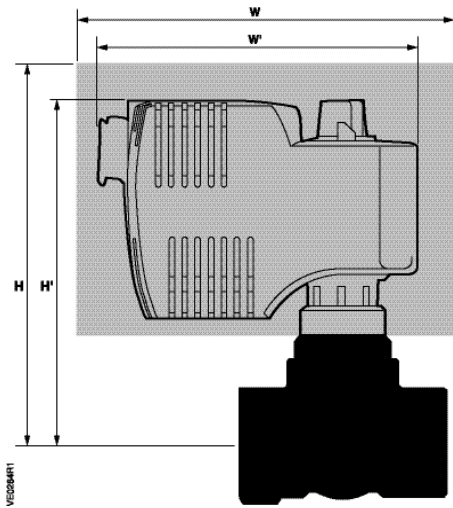


Figure 2. SFA/P Electric Actuator with 2-Way Valve: Assembly Service Envelope.

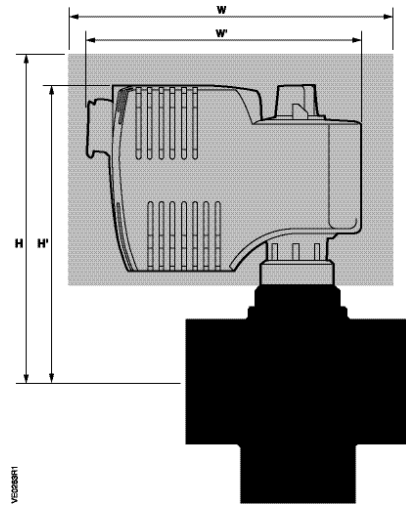


Figure 3. SFA/P Electric Actuator with 3-Way Valve: Assembly Service Envelope.

Table 3. SFA/P Electric Actuator/Valve Assembly Dimensions and Recommended Service Envelope in Inches (mm).

| Actuator Prefix Codes | Valve Line Size | Valve Centerline to Top of Actuator H1 | | Service Height H | | Width or Diameter of Actuator W1 | | Assembly Service Width W | |
|-----------------------|-----------------|--|-------------|------------------|-------|----------------------------------|-------|--------------------------|-------|
| | | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way |
| | | 240 | .50 (15) | | | | | | |
| 241 | .75 | 4.38 | 4.38 | 12.38 | 12.38 | 4.38 | 4.38 | 12.38 | 12.38 |
| 242 | (20) | (112) | (112) | (315) | (315) | (112) | (112) | (315) | (315) |
| 243 | 1.00 (25) | | | | | | | | |

Electric Actuator SSA Series Specifications

SSA81U

Control Signal: 3-Position
 Operating voltage: 24 Vac ±20%
 Power Consumption: 0.8 VA
 Frequency: 50/60 Hz

Agency Certification: UL873 Conforms to CE requirements, cUL conforms to Canadian Standard 22.2 No. 24-93
 Mounting location: NEMA 1 (interior only)
 Weight: 9 oz (0.25 kg)
 Dimensions inches: 3.26 H x 3.26 W x 1.9 D
 (mm) (82x83x48)

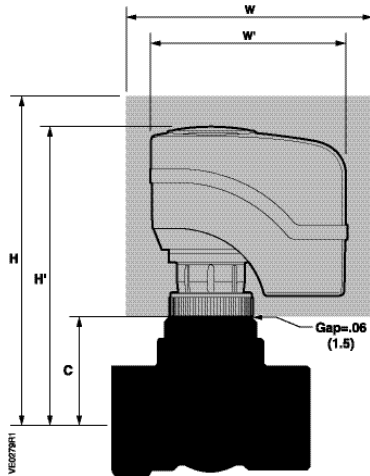


Figure 4. Electric Actuator SSA81U with 2-Way Valve: Assembly Service Envelope.

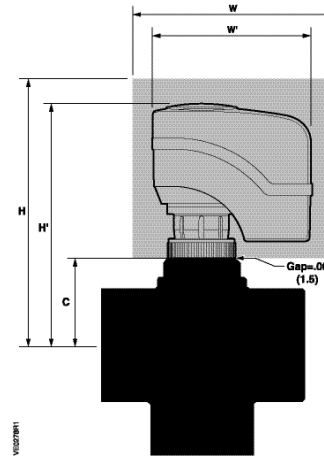


Figure 5. Electric Actuator SSA81U with 3-Way Valve: Assembly Service Envelope.

Table 4. SSA/P Electric Actuator/Valve Assembly Dimensions and Recommended Service Envelope in Inches (mm).

| Actuator Prefix Codes | Valve Line Size | Valve Centerline to Top of Actuator H1 | | Service Height H | | Valve Centerline to Actuator Coupling C | | Width or Diameter of Actuator W1 | | Service Width W | |
|-----------------------|-----------------|--|-------|------------------|-------|---|-------|----------------------------------|-------|-----------------|-------|
| | | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way |
| | | | | | | | | | | | |
| 244 245 | .50 (15) | 4.26 | 4.26 | 12.26 | 12.26 | 1.00 | 1.00 | 3.26 | 3.26 | 11.26 | 11.26 |
| | .75 (20) | (108) | (108) | (311) | (311) | (25) | (25) | (83) | (83) | (286) | (286) |
| | 1.00 (25) | | | | | | | | | | |

Electric Actuator SSE/F Series Specifications

SSE/F161.05U

Control Signal: 0 to 10 Vdc
 Operating voltage: 24 Vac ($\pm 15\%$) or 24 Vdc ($\pm 20\%$)
 Power Consumption: 3 VA (AC); 1.2 W (DC)
 Frequency: 50/60 Hz

Agency Certification: UL as per UL60730-1, UL60730-2-14
 cUL as per CSA CAN E60730-1, E730-2-14
 FCC CFR 47 Part 15 Class B
 Mounting location: NEMA 2/IP40 (interior only)
 Weight: 7.7 oz (0.22 kg)
 Dimensions inches: 3.7 H x 4.1 W x 1.9 D
 (mm) (92.6x104.4x49)

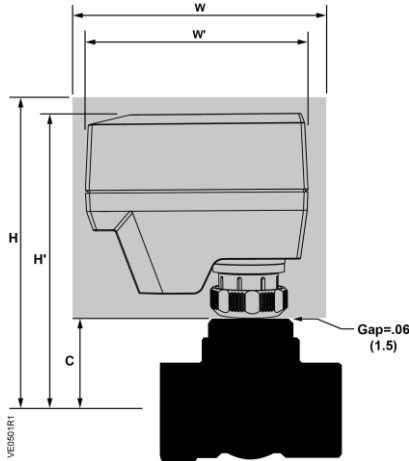


Figure 6. Electric Actuator SSE/F Series with 2-Way Valve: Assembly Service Envelope.

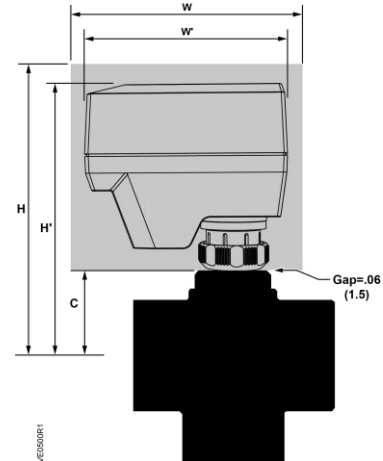


Figure 7. Electric Actuator SSE/F Series with 3-Way Valve: Assembly Service Envelope.

Table 5. SSE/F Electric Actuator/Valve Assembly Dimensions and Recommended Service Envelope in Inches (mm).

| Actuator Prefix Codes | Valve Line Size | Valve Centerline to Top of Actuator H1 | | Service Height H | | Valve Centerline to Actuator Coupling C | | Width or Diameter of Actuator W1 | | Service Width W | |
|-----------------------|-----------------|--|-------|------------------|-------|---|-------|----------------------------------|---------|-----------------|---------|
| | | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way |
| 245 248 | .50 (15) | 4.7 | 4.7 | 12.7 | 12.7 | 1.00 | 1.00 | 4.1 | 4.1 | 12.1 | 12.1 |
| | .75 (20) | (118) | (118) | (321) | (321) | (25) | (25) | (104.4) | (104.4) | (307.4) | (307.4) |
| | 1.00 (25) | | | | | | | | | | |

Disposal



The actuators are considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the actuators through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.
- Do not dispose of valves as household waste.
- Special handling of individual components may be mandated by law or make ecological sense.

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