

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

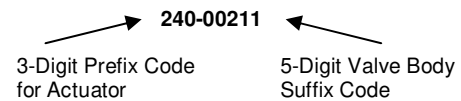


Description

The 599 Series Zone Valves work with any SFA/P Series or SSA/P Series electric actuator, or with the STA/P73U Series thermic actuator (See Table 5). The actuators accept one of either 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.

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.



Features

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

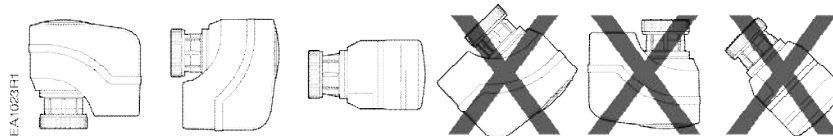


Figure 1. Preferred Mounting Position For the SFA/P Series or SSA/P Series Electric Actuator.

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

| Connection | Line Size | | Flow Rate | | Valve Body | 120 Vac | | 24 Vac | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|----------------|------------------------|---------------|-----------|-----------|
| | | | | | | 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 | SSA61U | SSP61U | | | | |
| 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 | 240-00510 | 241-00510 | 242-00510 | 243-00510 | 244-00510 | 245-00510 | 248-00510 |
| | .50 | 15 | 2.5 | 2.0 | 599-00511 | 240-00511 | 241-00511 | 242-00511 | 243-00511 | 244-00511 | 245-00511 | 248-00511 |
| | .50 | 15 | 4.0 | 3.4 | 599-00514 | 240-00514 | 241-00514 | 242-00514 | 243-00514 | 244-00514 | 245-00514 | 248-00514 |
| | .75 | 20 | 4.1 | 3.5 | 599-00512 | 240-00512 | 241-00512 | 242-00512 | 243-00512 | 244-00512 | 245-00512 | 248-00512 |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00513 | 240-00513 | 241-00513 | 242-00513 | 243-00513 | 244-00513 | 245-00513 | 248-00513 |

NOTE: For more information, see *Technical Instructions* (155-320P25, 155-321P25, and 155-710).

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

| Connection | Line Size | | Flow Rate ABL A | | Valve Body | 120 Vac | | 24 Vac | | | | |
|------------|-----------|----|--------------------|-----|------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------|-----------------------------------|-----------------------------------|
| | | | | | | 2-Position | | 2-Position | | 3-Position | 0 to 10 Vdc Modulating | |
| | Inch | Mm | Cv | Kvs | | Fail AB▶B | Fail AB▶A | Fail AB▶B | Fail AB▶A | Fail-In-Place | Fail-In Place | |
| | | | | | | SFA11U Actuator Code 240 | SFP11U Actuator Code 241 | SFA71U Actuator Code 242 | SFP71U Actuator Code 243 | | SSA81U Actuator Code 244 | SSA61U Actuator Code 245 |
| 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 | 240-00530 | 241-00530 | 242-00530 | 243-00530 | 244-00530 | 245-00530 | 248-00530 |
| | .50 | 15 | 2.5 | 2.0 | 599-00531 | 240-00531 | 241-00531 | 242-00531 | 243-00531 | 244-00531 | 245-00531 | 248-00531 |
| | .50 | 15 | 4.0 | 3.4 | 599-00534 | 240-00534 | 241-00534 | 242-00534 | 243-00534 | 244-00534 | 245-00534 | 248-00534 |
| | .75 | 20 | 4.1 | 3.5 | 599-00532 | 240-00532 | 241-00532 | 242-00532 | 243-00532 | 244-00532 | 245-00532 | 248-00532 |
| | 1.00 | 25 | 7.0 | 6.0 | 599-00533 | 240-00533 | 241-00533 | 242-00533 | 243-00533 | 244-00533 | 245-00533 | 248-00533 |

NOTE: For more information, see *Technical Instructions* (155-320P25, 155-321P25 and 155-710).

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 × 4.4 (111) W × 2.3 (58) D

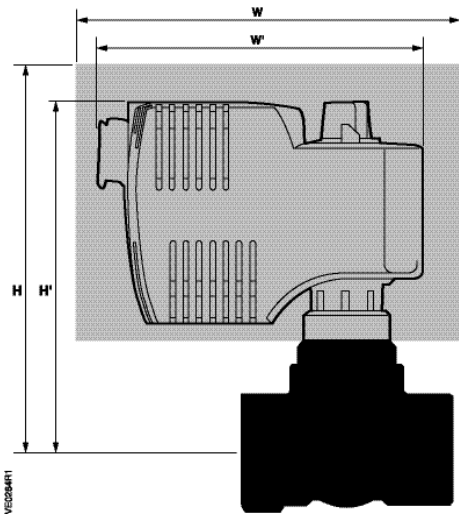


Figure 2. SFA/P Electric Actuator with 2-Way Valve: Assembly Service Envelope.

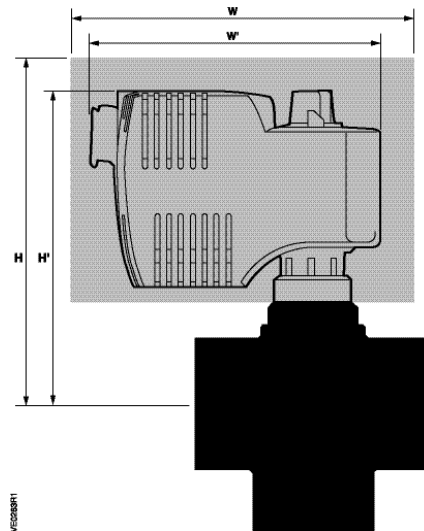


Figure 3. SFA/P Electric Actuator with 3-Way Valve: Assembly Service Envelope.

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 (20) | 4.38 (112) | 4.38 (112) | 12.38 (315) | 12.38 (315) | 4.38 (112) | 4.38 (112) | 12.38 (315) | 12.38 (315) |
| 242 | 1.00 (25) | | | | | | | | |
| 243 | | | | | | | | | |

Electric Actuator SSA/P Series Specifications

| | | |
|--------------------|---------------|-----------------|
| | <u>SSA81U</u> | <u>SSA/P61U</u> |
| Control Signal: | 3-Position | 0 to 10 Vdc |
| Operating voltage: | 24 Vac ±20% | 24 Vac ±20% |
| Power Consumption: | 0.8 VA | 2.5 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)

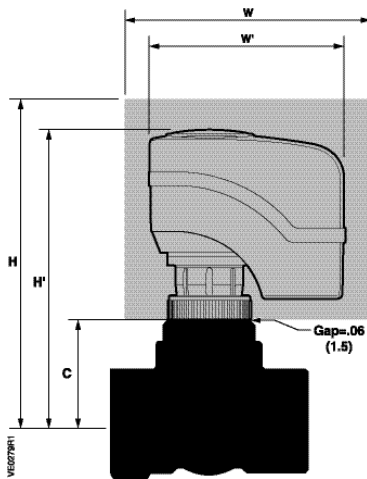


Figure 4. Electric Actuator SSA/P Series with 2-Way Valve: Assembly Service Envelope.

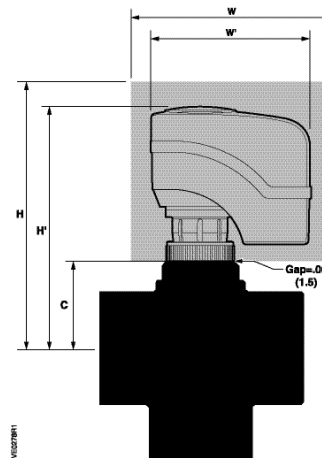


Figure 5. Electric Actuator SSA/P Series with 3-Way Valve: Assembly Service Envelope.

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 | .50 (15) | | | | | | | | |
| 245 | .75 (20) | 4.26 (108) | 4.26 (108) | 12.26 (311) | 12.26 (311) | 1.00 (25) | 1.00 (25) | 3.26 (83) | 3.26 (83) | 11.26 (286) | 11.26 (286) |
| 248 | 1.00 (25) | | | | | | | | | | |

Thermic Actuators: STA/P73U Series Specifications

Control Signal: Two-Position
 Operating voltage: 24 Vac or 24 Vdc ±20%
 Power Consumption:
 Normal Operation: 2.5W
 Power up: 6 VA
 Frequency: 50/60 Hz
 Agency certification: Conforms to CE requirements
 Mounting: NEMA 3 (IP54)
 Weight: 0.40 lb (0.18 kg)
 Dimensions Inches (mm): 2.9 H × 2.6 W (74 × 65)

NOTE: Actuators may be installed in any position.

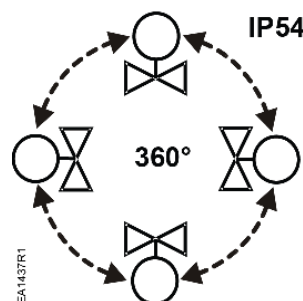


Figure 6. Acceptable Mounting Positions.

Table 5. Product Numbers: STA/P73U Thermic Actuator/Two-way Valve Assembly

| Valve Body | Connection | Line Size | | Flow Rate | | Valve Body | 24 Vac | | | |
|------------|------------|-----------|----|-------------------|-------------------|-------------------|-------------------|---------------|------------|------------|
| | | | | | | | 2-Position | | | |
| | | Inch | mm | Cv | Kvs | | Normally Closed | Normally Open | Fail AB▶ B | Fail AB▶ A |
| | | | | | | | STA73U | STP73U | STA73U | STP73U |
| | | | | Actuator Code 346 | Actuator Code 347 | Actuator Code 346 | Actuator Code 347 | | | |
| 2-way | NPT | .50 | 15 | 1.0 | .85 | 599-00210 | 346-00210 | 347-00210 | — | — |
| | | .50 | 15 | 2.5 | 2.0 | 599-00211 | 346-00211 | 347-00211 | — | — |
| | | .50 | 15 | 4.0 | 3.4 | 599-00214 | 346-00214 | 347-00214 | — | — |
| | | .75 | 20 | 4.1 | 3.5 | 599-00212 | 346-00212 | 347-00212 | — | — |
| | | 1.00 | 25 | 7.0 | 6.0 | 599-00213 | 346-00213 | 347-00213 | — | — |
| | Sweat | .50 | 15 | 1.0 | .85 | 599-00510 | 346-00510 | 347-00510 | — | — |
| | | .50 | 15 | 2.5 | 2.0 | 599-00511 | 346-00511 | 347-00511 | — | — |
| | | .50 | 15 | 4.0 | 3.4 | 599-00514 | 346-00514 | 347-00514 | — | — |
| | | .75 | 20 | 4.1 | 3.5 | 599-00512 | 346-00512 | 347-00512 | — | — |
| | | 1.00 | 25 | 7.0 | 6.0 | 599-00513 | 346-00513 | 347-00513 | — | — |
| 3-Way | NPT | .50 | 15 | 1.0 | .85 | 599-00230 | — | — | 346-00230 | 347-00230 |
| | | .50 | 15 | 2.5 | 2.0 | 599-00231 | — | — | 346-00231 | 347-00231 |
| | | .50 | 15 | 4.0 | 3.4 | 599-00234 | — | — | 346-00234 | 347-00234 |
| | | .75 | 20 | 4.1 | 3.5 | 599-00232 | — | — | 346-00232 | 347-00232 |
| | | 1.00 | 25 | 7.0 | 6.0 | 599-00233 | — | — | 346-00233 | 347-00233 |
| | Sweat | .50 | 25 | 1.0 | .85 | 599-00530 | — | — | 346-00530 | 347-00530 |
| | | .50 | 15 | 2.5 | 2.0 | 599-00531 | — | — | 346-00531 | 347-00531 |
| | | .50 | 15 | 4.0 | 3.4 | 599-00534 | — | — | 346-00534 | 347-00534 |
| | | .75 | 20 | 4.1 | 3.5 | 599-00532 | — | — | 346-00532 | 347-00532 |
| | | 1.00 | 25 | 7.0 | 6.0 | 599-00533 | — | — | 346-00533 | 347-00533 |

NOTE: For more information, see Technical Instructions (155-320P25 and 155-780).

Dimensions

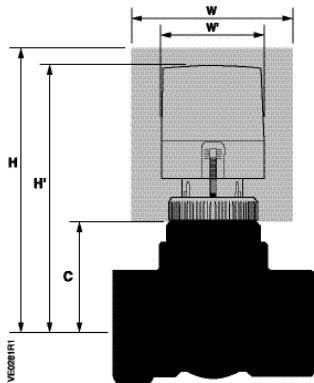


Figure 7. Thermic Actuator: 2-Way Valve Assembly Service Envelope.

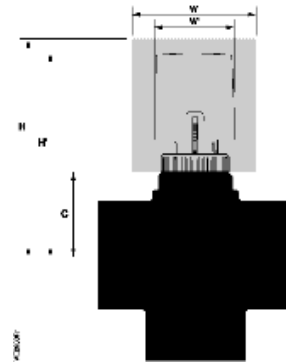


Figure 8. Thermic Actuator: 3-Way Valve Assembly Service Envelope.

Table 6.
 Thermic Actuator STA/P Series Dimensions and Recommended Service Envelope in Inches (mm).

| Actuator Prefix Codes | Valve Line Size Inches (mm) | Valve Centerline to Top of Actuator H ¹ | | Service Height H | | Valve Centerline to Actuator Coupling C | | Width or Diameter of Actuator W ¹ | | Service Width W | |
|-----------------------|-----------------------------|--|-------|------------------|-------|---|-------|--|-------|-----------------|-------|
| | | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way | 2-Way | 3-Way |
| 346 | .50 (15) | 3.90 | 3.90 | 8.20 | 8.20 | 1.00 | 1.00 | 1.75 | 1.75 | 9.86 | 9.86 |
| 347 | .75 (20) | (99) | (99) | (200) | (200) | (25) | (25) | (44) | (44) | (251) | (251) |
| | 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.
- Observe all local and currently applicable laws and regulations.

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