

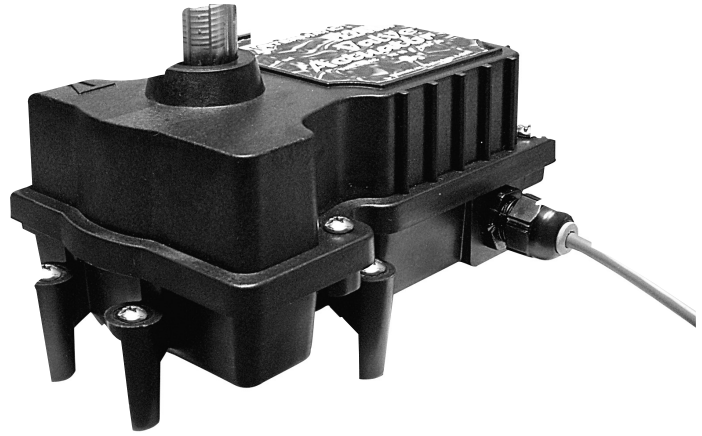


Spring Grove, Illinois 60081  
www.intermatic.com

# ReadySet™ Electronic Valve Actuator

Model PE24RSVA

Installation and operation manual



## SAFETY SECTION

### Warning

#### Risk of Fire or Electrical Shock.

- Disconnect power at circuit breaker(s) or disconnect switch(es) before installing or servicing.
- Connect to a Class 2 circuit only.
- Installation and/or wiring must be in accordance with all national and local electrical code requirements.

## SPECIFICATIONS

|                        |   |
|------------------------|---|
| Voltage                | 24 VAC supplied by a Class 2 power source             |
| Amperage               | .75 A Maximum   |
| Frequency              | 60 Hz   |
| Operating Temperature  | -4° F to 122° F; -20° C to 50° C                      |
| Operational Duty Cycle | One (1) minute ON (MAX)<br>Four (4) minutes OFF (MIN) |

## PRODUCT DESCRIPTION

The ReadySet Electronic Valve Actuator (model PE24RSVA) is suitable for pool and spa equipment applications. This actuator is intended for connection to a Class 2 circuit and has electrical ratings of 24 VAC, 60 Hz and .75 A, with an ambient temperature of 50° C (MAX). The PE24RSVA utilizes electronic “ReadySet” programming, eliminating the need to disassemble the actuator to set the stop points.

## COMPLIANCE STATEMENT

This device complies with part 15 of the FCC Rules, and CAN ICES-3(B)/NMB-3(B). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## INSTALLATION

### Mounting the Actuator on Top of the Valve

1. Unscrew the hold-down knob and remove the handle from the valve shaft. Set aside the knob and handle for later use. See FIG. 6 for more detail.

**Note:** If the fit of the hold-down knob included with the valve is loose, use the hold-down knob included with the actuator.

2. Using a Phillips screwdriver, remove the four (4) screws from the valve body. See FIG. 1.
3. Turn the actuator over and visually locate the teeth.
4. Place the actuator over the valve shaft so that the small tooth in the actuator engages with the small slot in the valve shaft. See FIG. 2.

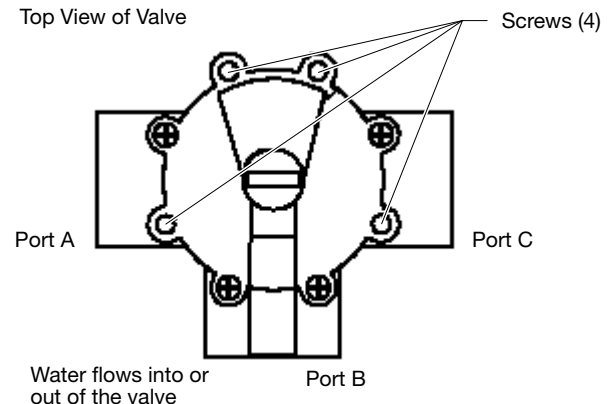
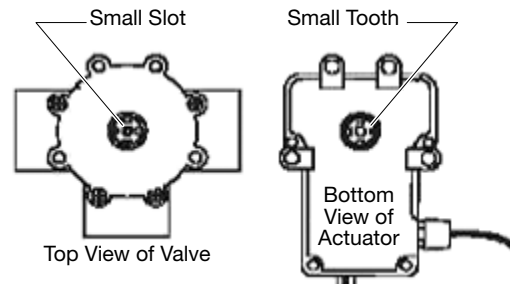


FIG. 1. Standard Plumbing

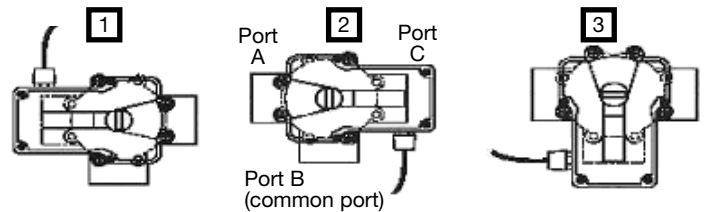
5. Choose a mounting position:
  - **Standard Plumbing:** Uses a three-port valve. Port B (middle) is the incoming (common) port and ports A and C are the outlet ports. See FIG. 1.
  - **Standard Actuator Mounting:** The main body of the actuator is over port B. See example 2 in FIG. 3.

**Note:** *The actuator can be mounted on top of a valve using any of the positions shown in FIG. 3. Depending on the plumbing of the valve and mounting position of the actuator, the actuator may need re-programming. See "Programming" on page 3.*

6. Rotate the actuator to line up the actuator posts with the four holes that match the chosen mounting position.
7. Use four (4) long stainless steel screws (supplied) to attach the actuator to the valve.
8. Reconnect the handle to the valve shaft using the hold-down knob set aside in step 1.
9. Connect the power supply cord to a Class 2 circuit only, rated 24 VAC nominal.



**FIG. 2.** Actuator Mounting



**FIG. 3.** Mounting Positions

## READYSET INSTRUCTIONS

1. Determine the COMMON and EXIT port(s) of the valve for the application.

**Note:** *The actuator is preprogrammed before shipment with stop points at 0° and 180°. This configuration is intended for position 3 in FIG. 3. If the preprogrammed stop points need optimization, or a complete re-programming, this process is still applicable.*

2. Apply power to the actuator.

The actuator has a 3-position toggle switch: *AUTO ON 1*, *OFF*, and *AUTO ON 2*. The actuator reacts in one of the following ways (a, b or c listed below), based on the position of the toggle switch:

**Note:** *The small slot represents the OFF or FLOW BLOCKED position of the valve. For the purposes of these actuator reactions, the small slot of the actuator is factory set to the 0° stop point. See FIG. 2.*

- a. **The toggle switch is in the position for powering the actuator to the 0° stop point.** After applying power, the actuator:
  - light quickly flashes green and blue, then turns solid red to indicate the actuator is ready and set.
  - output shaft does nothing.
- b. **The toggle switch is in the position for powering the actuator for rotation toward the preprogrammed 180° stop point.** After applying power, the actuator:
  - light quickly flashes green and blue, then turns solid red to indicate the actuator is ready and set.
  - output shaft starts to rotate clockwise toward the 180° stop point. It will stop at the 180° point automatically.

**Note:** *If rotation to the 180° stop point is not desired, flip the toggle switch to the opposite position. The motor will change direction and stop in the 0° stop point position.*

- c. **The toggle switch is in the center (OFF) position.** After applying power, the actuator:
  - light quickly flashes blue and green, then turns solid red to indicate the actuator is ready and set.
  - motor will remain off and ready for MANUAL operation.

**Note:** *If AUTO operation is desired, flip the toggle switch to the position (AUTO ON 1 or AUTO ON 2) that will initiate movement to the 180° stop point. If the actuator does not respond, flip the toggle switch to the opposite position.*

## Programming

To reprogram the actuator stop points, follow these steps:

**Note:** Green on the indicator light indicates the first program point regardless of the direction moved to reach the program point. When the stop points are programmed, the actuator will always move between the 0° and 270° positions. The actuator will not accept or move automatically through a programming point between 270° and 360° (some leeway is allowed for seal optimization at 0° and 270°).

1. Flip the toggle switch to the position that causes no motion. If the toggle switch is flipped to a position that initiates motion, reverse the toggle switch and wait until the actuator stops motion.
2. With the actuator stopped, flip the toggle switch into the center (OFF) position and wait approximately five (5) seconds. The actuator will sound a beep and flash a green indicator light for 10 seconds, to indicate that it is in PROGRAMMING MODE. Initiate the programming during these first 10 seconds.

**Note:** If you miss the 10-second time to initiate movement toward the first stop point, the actuator will go into OFF MODE. The current programmed stopped points are not lost. See "Manual Rotation" on page 4 for steps to exit OFF MODE and re-initiate programming.

3. Flip the toggle switch to the position that will rotate the actuator toward the first desired program point.

**Note:** If the toggle switch position rotates in the opposite direction from the desired point, reverse the toggle switch position and proceed with the instructions.

4. Once the small slot reaches the desired position, flip the toggle switch to the center position. The actuator will beep and the indicator light will change from flashing green to flashing blue.
5. To set the second stop point, flip the toggle switch to the opposite position of the last move.

**Note:** If the movement toward the second stop point is not initiated, the actuator will flash red and beep repeatedly. Moving the toggle switch to initiate rotation will restart the flashing green, indicating that the process is starting over.

6. Once the slot reaches the desired position, flip the toggle switch back to the center position.

The actuator will continue flashing blue for a few seconds, then play a long beep and 2 short beeps, then change the indicator light to solid red. This indicates the program is accepted.

7. Testing the stop points and operation at this time is recommended.

- a. Flip the toggle switch in the direction of the last movement.

The actuator should already be at the stop point and should not move. This indicates that the actuator is ready for AUTO operation between the two programmed points.

- b. Flip the toggle switch in the opposite position.

The actuator will start to move toward the first programmed test point and stop automatically. This indicates that the actuator is ready for AUTO operation.

## SYNCHRONIZATION

The actuator is not synchronized if it is rotating in the wrong direction in respect to its controller or another actuator. To test the synchronization of the system, connect the actuator(s) to the controller and observe the function. If an actuator is not synchronized, flip the 3-position toggle switch at the rear of the actuator to the opposite position.

### Synchronization Example

FIG. 4 represents the valves and actuators for a pool/spa combination. The suction valve is plumbed the opposite of the return valve. In this case, activating the actuators turns one to the spa, while the other is turning to the pool. The actuators need to be synchronized. To synchronize the actuators, flip the toggle switch found at the rear of the unsynchronized actuator to the opposite position. See FIG. 5.

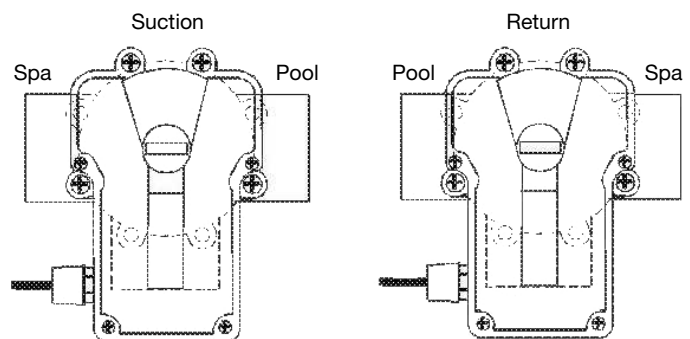


FIG. 4. Synchronization Example

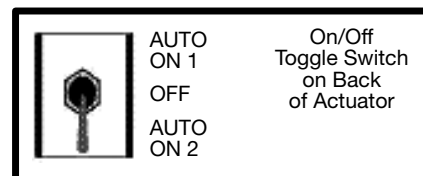


FIG. 5. Toggle Switch

## OPERATION

---

During the normal operating season, the valve may need to be rotated for draining or filling the pool/spa. The valve can be rotated electrically or manually. If the system has power, rotate the valve electrically. If there is no power, rotate the valve manually.

### Electrical Rotation

1. At the rear of the actuator, flip the toggle switch until the desired rotation of the valve is reached. See FIG. 5.
2. Flip the toggle switch to the center (OFF) position.
3. Flip the toggle switch to the original position.

### Manual Rotation

1. When the actuator is stopped, flip the toggle switch to the center (OFF) position.

**Note:** Allow the PROGRAMMING MODE to time out. Now the actuator is in OFF MODE and can be operated manually. If the actuator is operated manually while in AUTO MODE, the motor will turn on. Place the toggle switch in the center position and wait for it to time out to OFF MODE, and then proceed to operate it manually.

2. Loosen the hand-locking knob four full turns.
3. Press down firmly on the locking knob to disengage the actuator gear train from the valve shaft.
4. Turn the handle to rotate the actuator valve to an AUTO ON position.
5. Pull up on the handle and turn it gently back and forth to return to the operating (drive) condition.
6. Tighten the locking knob on the top of the handle and toggle the switch to its original AUTO ON position.

**Note:** The programmed stop points will be intact. Testing is recommended after MANUAL operation. For testing details, see Step 7 on page 3.

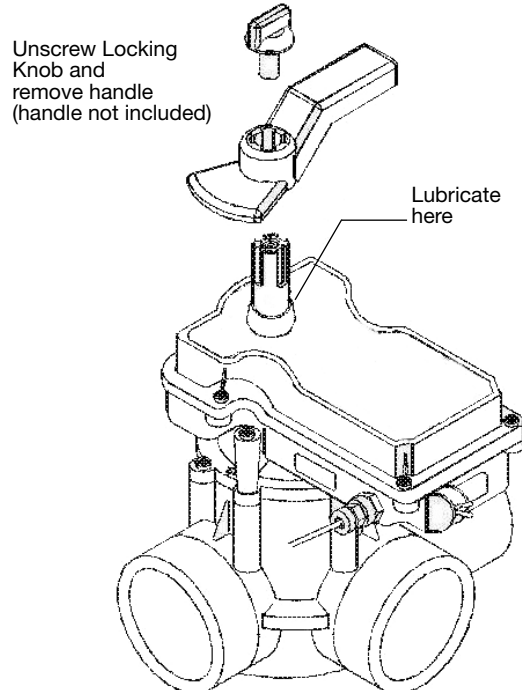
## MAINTENANCE

---

### Servicing the Electronic Valve Actuator

The electronic valve actuator seals need to be lubricated once a year. The lip seal is located under the actuator, where the shaft exits the lower housing. There are two ring seals in the lid, where the shaft exits at the top. Use only silicone-based, O-ring lubricant suitable for the purpose.

1. At the rear of the electronic valve actuator, flip the toggle switch to the center (OFF) position. See FIG. 5.
2. Loosen the hand-locking knob four full turns.
3. Press down on the locking knob to disengage the actuator gear train from the valve shaft.
4. Using a small brush, apply a small amount of silicone lubricant around the exposed portion of the shaft, between the bottom of the actuator and the top of the valve.
5. Turn the handle completely around twice to spread the lubricant evenly.
6. Pull the handle to ensure the gears are engaged and the actuator is in AUTO MODE.
7. Remove the locking nut and handle. Apply a small amount of lubricant around the shaft where it exits the lid. See FIG. 6.
8. Reinstall the handle and flip the toggle switch to the desired position.



**FIG. 6.** Actuator Maintenance

# TROUBLESHOOTING

|  |   |   |
|--|---|---|
| Actuator handle oscillates                                       | Lack of valve-seal lubrication            | Lubricate valve   |
|  | Obstruction in valve body                 | Remove actuator and valve lid, and inspect                                  |
| Actuator motor works, but the valve diverter does not turn       | Broken actuator shaft                     | Replace actuator  |
|  | Broken valve diverter                     | Replace valve diverter  |
|  | Actuator is in manual position            | Pull up on handle while rotating counterclockwise                           |
|  | Actuator gear train is damaged            | Replace actuator  |
| Actuator motor does not turn                                     | No power to the actuator                  | Check black (common), red, and white wire voltage                           |
|  | Toggle switch is in OFF position          | Flip toggle switch to the AUTO ON 1 or AUTO ON 2 position, as needed        |
|  | Motor has failed                          | Replace actuator  |
|  | Failed or broken relay or microprocessor  | Replace actuator  |
| Actuator rotates in one direction but does not rotate back again | Broken or damaged relay or microprocessor | Replace actuator  |
|  | Bad connection(s)                         | Check all connections. Repair, as needed                                    |
|  | Bad control relay switch                  | At power source, check operation of control relay/switch. Repair, as needed |
|  | Broken wire                               | Check red and white wires. Repair, as needed                                |
| Water inside actuator  | Damaged seals                             | Replace top lid and grease seals  |

# TECHNICAL INFORMATION

## Wiring

- Black - Common
- Red - Power Dir 1
- White - Power Dir 2

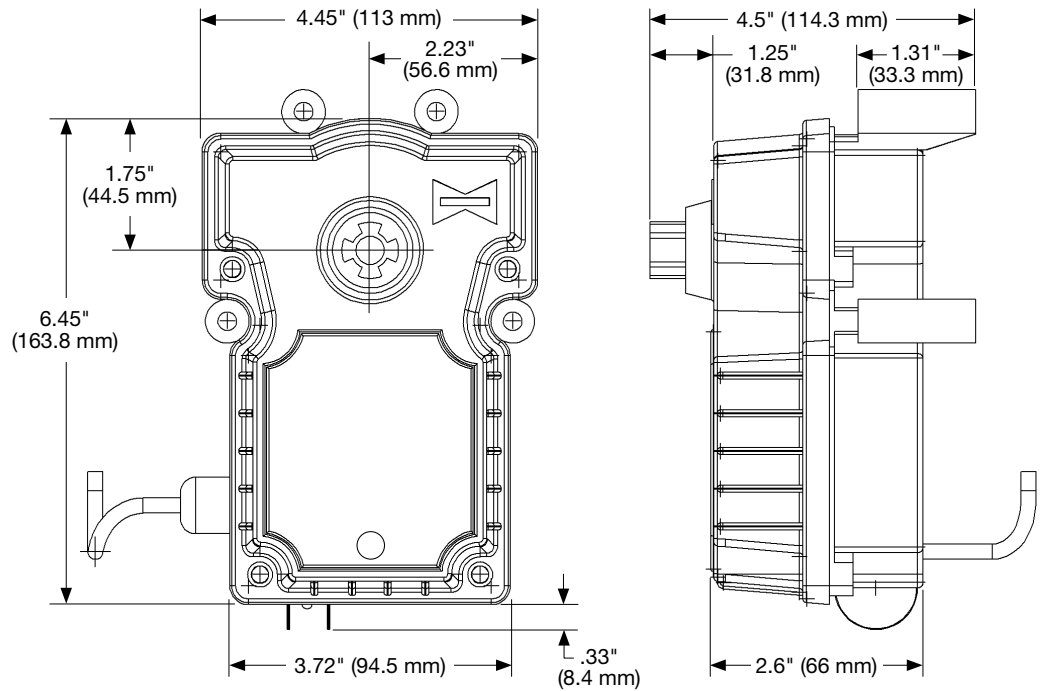


FIG. 7. Actuator Dimensions

## ONE YEAR LIMITED WARRANTY

---

If within the warranty period specified, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it, at its sole option, free of charge. This warranty is extended to the original household purchaser only and is not transferable. This warranty does not apply to: (a) damage to units caused by accident, dropping or abuse in handling, acts of God, or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product; (e) sealed lamps and/or lamp bulbs, LED's and batteries; (f) the finish on any portion of the product, such as surface and/or weathering, as this is considered normal wear and tear; (g) transit damage, initial installation costs, removal costs, or reinstallation costs.

**INTERMATIC INCORPORATED WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY MODIFIED TO EXIST ONLY AS CONTAINED IN THIS LIMITED WARRANTY, AND SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.**

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased or (b) completing a warranty claim online at [www.intermatic.com](http://www.intermatic.com).

This warranty is made by: Intermatic Incorporated, Customer Service 7777 Winn Rd., Spring Grove, Illinois 60081-9698. For warranty service go to: <http://www.intermatic.com> or call 815-675-7000.

*Because of our commitment to continuing research and improvements, Intermatic Incorporated reserves the right to make changes, without notice, in the specifications and material contained herein and shall not be responsible for any damages, direct or consequential, caused by reliance on the material presented.*