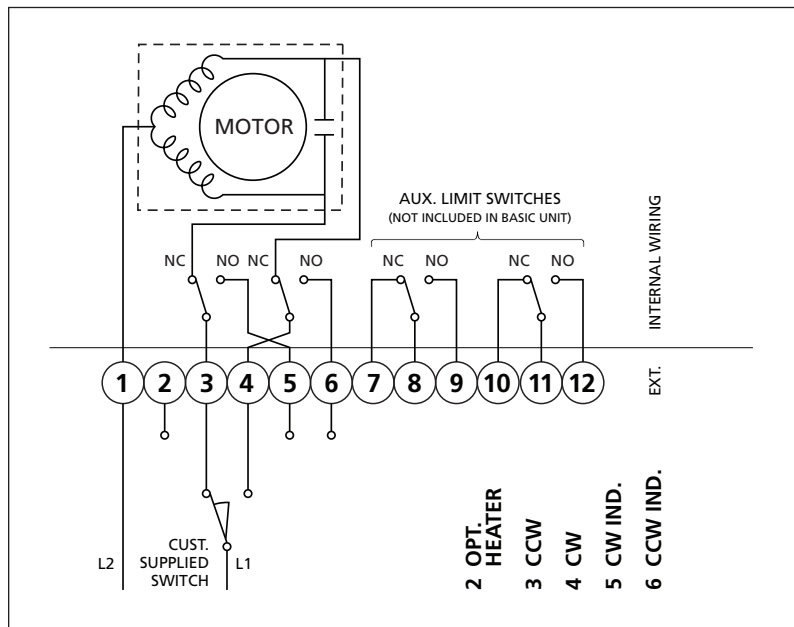
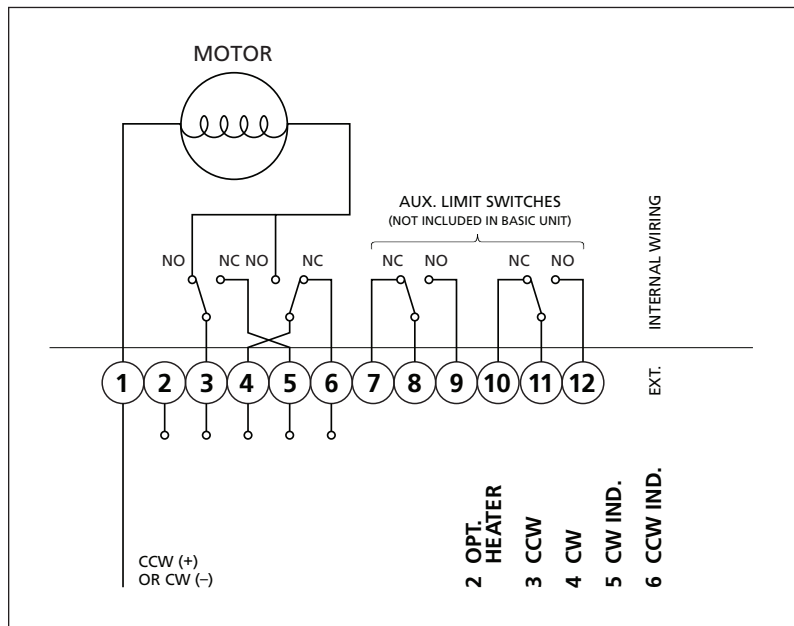


## TYPICAL VAC WIRING SCHEMATIC



## TYPICAL VDC WIRING SCHEMATIC



## R Series

### Use & Care Manual



#### 1. INTRODUCTION

Assured Automation's R Series Electric Actuators are designed to provide reliable and efficient operation of 1/4 turn ball valves. The supported torque range for actuation is between 8 and 50 lb/ft (11 and 68 Nm). The R Series does have brakes as standard. The R Series is available in AC models with a 25% duty cycle and DC models with a 100% duty cycle.

#### 2. INSTALLATION

R Series AC voltage actuators use a split phase motor with two limit switches.

It is important to verify that the actuator output torque is appropriate for the torque requirements of the valve and that the actuator duty cycle is appropriate for the intended application.

- Before applying power to the unit and before mounting it onto a valve, make sure the unit is able to rotate freely. If the unit is equipped with a manual override use a wrench to rotate it back and forth.
- Also make sure manually that the valve rotates freely. Remove any physical valve stops if possible to prevent valve damage from stalling the motor.

- Mount the actuator onto the valve such that it is in the same operating sequence as the valve (i.e. valve open – actuator open).
- Carefully align the output shaft of the actuator with the valve or damper stem. Mis-alignment will cause pre-mature failure. Tighten the bolts to the actuator evenly.
- Position the valve/actuator assembly in the mid-stroke position manually before applying power to prevent damage.
- Connect to a power supply as per the wiring instructions. The identification label on each actuator specifies the voltage and current requirements for the actuator. To operate the R Series actuator, the user supplies power to the actuators motor through two limit switches. The limit switches control the

actuator's mechanical travel limits and are factory set at 90 degrees.

VAC: To drive the actuator counterclockwise (CCW), apply power to terminals 1 and 3. To drive the actuator clockwise (CW), apply power to terminals 1 and 4. The actuator can be driven fully open (CCW) or fully closed (CW) by maintaining power to the motor until the actuator trips the internal limit switches. Power can also be disconnected at any point during the travel to position the actuator.

VDC: DC voltage actuators require a reversing of the power polarity. To drive the actuator CW, apply power so that terminal 1 is negative and terminal 4 is positive. To drive the actuator CCW, apply power so that terminal 1 is positive and terminal 3 is negative.

All wiring is to be completed in accordance to National and Local electric codes.

8. Once wired, the unit should be rotated electrically to verify directional operation.

### 3. OPERATION

#### Limit Switches

Whenever an actuator is removed from the valve and then remounted, the limit switch settings must be checked to make sure the valve is making the proper travel.

**Caution:** Before removing the cover, shut off electric power and disconnect electric connections.

If adjustment of the open or closed position is required, proceed as follows:

1. Adjust the OPEN limit switch cam:
  - 1.1 Using a hex wrench, loosen the set screw in the OPEN limit switch cam (the second up from the bottom).

- 1.2 Apply power to terminals 1 and 3 to drive the actuator to the open position (counterclockwise rotation).
- 1.3 Remove the power from the actuator.
- 1.4 Rotate the cam slowly in the clockwise direction until the limit switch "clicks" closed. Then rotate the cam counterclockwise until it just "clicks" open. Secure the cam by tightening the set screw.
- 1.5 Set the vertical cam position so that the bottom of the cam is in contact with the limit switch arm. Tighten the cam set screw to secure the cam in position. Do not over-tighten the screws (use less than 8 in./lbs. [11 Nm] of tightening torque). If the cam is not set "high" as described, the cam will become disengaged from the limit switch arm when using the manual override feature.

2. Adjust the CLOSED limit switch cam:
  - 2.1 Using a hex wrench, loosen the set screw in the CLOSED limit switch cam (the bottom one).
  - 2.2 Apply power to terminals 1 and 4 to drive the actuator to the close position (clockwise rotation).
  - 2.3 Remove the power from the actuator.
  - 2.4 Rotate the cam slowly in the counterclockwise direction until the limit switch "clicks" closed. Then rotate the cam clockwise until it just "clicks" open. Secure the cam by tightening the set screw.
  - 2.5 Set the vertical cam position so that the bottom of the cam is in contact with the limit switch arm. Tighten the cam set screw to secure the cam in position. Do not over-tighten the screws (use less than 8 in./lbs. [11 Nm] of tightening torque). If the cam is not set "high" as described,

the cam will become disengaged from the limit switch arm when using the manual override feature.

#### Manual Override

To operate the actuator manually, push the override shaft down approximately 1/4" (6.35 mm) and use a wrench on the flats of the shaft to rotate the actuator. The coupling must be designed to accommodate this shaft movement. The override shaft can also be used to provide visual identification of the valve's position. If the ER is mounted on to a valve using a two piece coupling, the coupling must be loosened before the override can be used.

### 4. MAINTENANCE

When servicing a valve/actuator assembly, the best practice is to remove the entire assembly from service.

**Caution:** Always use the correct parts. Failure to do so could result in improper operation or personal injury. Contact Assured Automation for authentic replacement parts.

These actuators require no lubrication, and under normal operating conditions only, periodic observation is needed to see that they are functioning properly. Maintenance or adjustments other than those described herein should be referred to Assured Automation for service.

### 5. TROUBLE SHOOTING

**PROBLEM:** Motor will not run.

1. Check incoming voltage.
2. Check that all plug-in connectors are tight.
3. Review the LIMIT SWITCH Section to insure that the switches are set correctly.
4. Allow the motor to cool.

5. If these steps fail to correct or identify the problem, contact Assured Automation for assistance.

### 6. TECHNICAL ASSISTANCE

Assured Automation will be more than happy to provide technical assistance should it become necessary. Please have the following available when calling for assistance:

1. Actuator model number.
2. Actuator serial number.
3. Input signal being used.
4. Valve application.