



STYLE 9303 NAVIGATOR™ ELECTRIC VALVE CONTROLLER INSTALLATION AND OPERATING INSTRUCTIONS

I. GENERAL PRODUCT GUIDELINES

All fire fighting products should be carefully inspected after each use, in order to ensure no damage incurred, and they are in good working order. If not in good working order or damaged, the product should be repaired and re-tested to ensure the product meets the specification.

All Akron Brass fire fighting equipment should be operated by trained and knowledgeable fire fighters only.

All Akron Brass product is designed for fire fighting use only. If you anticipate using this product in another application, approval should be gained prior to use with our Akron Brass Customer Service Department.

All fire fighting products should be operated in accordance with recognized standards and training manuals.

If any portion of the fire fighting device is not operational, do not use the product in a fire fighting application. Have it repaired and re-tested to ensure all is well before placing it back into service.

All products attached to fire trucks should be installed using good engineering installation practices.

Ensure the valve is mounted far enough away from the engine or exhaust systems, to ensure rubber or plastic parts do not degrade with the excessive temperature encountered

Do not use other controllers to operate Akron Brass valves.

This controller is for use with an Akron Electric Valve Actuator. Do not attempt to use it with other actuators. The controller may be used with all 2" through 3 1/2" Akron valves except for the discontinued EPIC series. The 4" Swing-Out™ Valves and 4" through 6" Butterfly Valves must have 64:1 marked on gear housing.

CAUTION: Always disconnect all wiring and cables from the valve controller before electric arc welding at any point on apparatus. Failure to do so will result in damage to the controller.

II. MASTER CONTROLLER INSTALLATION

- A. Select the mounting location on the control panel for the controller. The controller is mounted from the outside of the panel and will need a clear space behind the mounting position of 2.5 inches. The dimensions of the panel cut-outs for the controller housing and mounting screws are shown on Figure 1.

⚠ WARNING: The controller is a sealed unit and should not be disassembled. Disassembly will damage the seal. This can result in the controller malfunctioning.

- B. Attach the controller to the panel using the four screws provided.
- C. Connect the electrical system of the apparatus to the controller. The controller is designed to operate with both 12 and 24 volt systems. Use the proper wire gauge when connecting the controller to the power hook-up. Wire requirements depend on the length of the run. However, we recommend a minimum of 10 awg wire be used.

NOTE: Any intermediate connections or loads between controller and power source can impact operation of the controller.

It is recommended that direct runs be used for all connections. Do not splice. A minimum of 11.5 volts is required under full load (28 amps). Typical current draw is 2 to 4 amps during normal travel; however, when the mechanical stop is contacted current draw can reach 28 amps. This will activate the red and green lights on the controller. For maximum performance, the engine should always be running when operating the valves.

CAUTION: Exercise caution when working with the truck electrical system. Disconnect the cable from truck battery positive terminal before connecting power to the controller. See truck manual for additional information. **NOTE:** It is essential that all connections be watertight to prevent water from wicking up the wires and into the controller. All units are provided with a weatherpack connector. Use only a mating weatherpack connector. (Parts for mating connector are available at most auto parts stores.) **DO NOT CUT THE WIRES TO BY PASS THE CONNECTOR. DOING SO WILL VOID ALL WARRANTIES.**

- D. Attach the Wiring Harness to valve motor and controller. (Standard length is 10') One additional wiring harness may be added to a maximum of 20 feet.) If more than 20' is required, special wiring harness with potting boxes are available for distances up to 50'. Contact Customer Service for details. Never splice a Wiring Harness or connect through collector (slip) rings, as voltage drop will be increased. Distances beyond 50 feet will require an auxiliary controller. These controllers, (connected to the master controller) can operate up to 370 feet from the master control. Also, the auxiliary cable can be spliced to connect through turret collector (slip) rings on aerial devices. **NOTE: All splices must be well sealed to prevent water from wicking through the wires into the controller.**
- E. Once installation is complete, operate the controller Open/Close switches through a complete cycle to ascertain the valve is operating properly and to calibrate the valve position readout.

III. AUXILIARY CONTROLLER INSTALLATION

NOTE: The auxiliary controller may only be used with Akron Master Controller.

An Auxiliary Controller can be installed using the same mounting instructions as the Mater Controller noted previously. All Auxiliary Controllers have a 10 1/2' cable with a Brad Harrison connector and plug. Akron Brass offers additional Auxiliary cable lengths, if needed. Contact Customer Service for details. However, the total distance between an Auxiliary and Master Controller should not exceed 370'.

If the Auxiliary Controller is to be located a great distance from the Master Controller, such as on an aerial basket, the Master Controller must be the closest to the power supply and valve.

IV. OPERATING INSTRUCTIONS

The electrically actuated valve is operated by the momentary Open/Close switches of the Controller. The Controller features a lighted display indicating when the valve is fully open (Green), in a throttling position (Yellow) or fully closed (Red).

TO OPEN VALVE - Push the OPEN valve button, hold the button until the valve attains the desired position, then release the button. (If one touch open is desired, see optional open feature below.)

TO CLOSE VALVE - Push the CLOSE valve button, hold the button until the valve attains the desired position, then release.

AUXILIARY CONTROLLERS

Both Master and Auxiliary controllers operate using the same procedure. However, a Master controller will override any Auxiliary operations.

MANUAL VALVE OPERATION - If the valve fails to operate during use, disconnect the electrical connector on the valve. Use a $\frac{7}{16}$ " wrench to turn the hex head on the end of the motor drive shaft.

DANGER - Always disconnect the electrical connector on the valve when the gear cover is removed. **KEEP FINGERS AWAY FROM THE MOVING GEARS!**

V. OPTIONAL AUTO OPEN FEATURE

Auto Open is not preset. The following steps must be preformed to establish the Auto Open feature:

A. To turn the Auto Open feature on:

1. Press and hold the Open and Close Buttons simultaneously for 30 seconds, until the Yellow Light begins to flash.
2. Press the Open Button (The Yellow and Green lights will flash alternately.)
3. Press and hold the Open and Close Buttons simultaneously for 3 seconds. The Yellow Light will flash initially then remain lit.

The Auto Open feature is now selected.

Cycle the Valve full open to full close one time.

To verify the Auto Open feature is on, with the Valve fully closed, touch the Open Button and the Valve will fully open. Note: The Auto Open feature will apply to any Auxiliary Controller but the set up must be done using the Master Controller.

B. To turn the Auto Open feature off:

1. Press and hold the Open and Close Buttons simultaneously for 30 seconds, until the Yellow Light begins to flash.
2. Press the Close Button (The Yellow and Red lights will flash alternately.)
3. Press and hold the Open and Close Buttons simultaneously for 3 seconds. The Yellow Light will flash initially then remain lit.

The Auto Open feature is now cancelled.

Cycle the Valve full open to full close one time.

To verify the Auto Open feature is off, with the Valve in the fully closed, touch and release the Open Button. The Valve movement will stop as soon as the button is released.

VI. TROUBLESHOOTING

<u>PROBLEM</u>	<u>CAUSES</u>	<u>SOLUTION</u>
Lights do not illuminate, but valve will open and close.	1. Wiring Problem	<ol style="list-style-type: none"> 1. Truck engine must be running. 2. Check voltage and amps to meter. Controller required 11.5 volts and 28 amps. 3. Jump a positive and ground cable from the controller to the battery + & -. Use a minimum 12 gauge wire for up to 20 feet away. If controller operates properly during this test, check the wire gauge used from the battery to the terminal strip or junction box. It may not be heavy enough for all electrical requirements. Also, check for poor connections and improper ground.
Red and green lights illuminate prematurely. (Before valve is fully opened or closed.)	<ol style="list-style-type: none"> 1. Short in motor or controller. 2. Gear system jammed. 3. Seat or ball damage. 	<ol style="list-style-type: none"> 1. Motor - Remove motor from gearbox. Measure current required to operate motor. Should be 1.5 amps. 2. Actuator or gear damage - Remove gear cover. Check operation using a 7/16" wrench. It should turn easily with no binding. Look for bent shaft or gear tooth breakage. Also, check for gear sector crack at trunnion mounting square. 3. Check valve seats and valve ball for damage. <p>Remove gear cover. Check shaft and worm pin for disengagement. Also, check gear for disengagement.</p>
Yellow light illuminated, but valve does not open or close. (motor continues to run)	Worm shaft, worm or gear disengaged	
Valve Actuator moves at end of open or closed function.	Some motion is normal from torque. However, if it appears to be excessive, screws may be loose where mounted to valve body.	Remove cover from sector housing. Remove four socket head cap screws and lift actuator off. Manually rotate the sector to remove one screw. Apply Permabond LM113 or Loctite 222 on screws reassemble. NOTE: On the 4" Swing-Out Valve, also remove the adapter mounting plate under the gear housing and put the adhesive on those screws.

<u>PROBLEM</u>	<u>CAUSES</u>	<u>SOLUTION</u>
Controller shows no power.	Power break or damaged PC board	Check power connections.
Valve Actuator does not work. Motor does not drive.	<ol style="list-style-type: none"> 1. No signal from controller to actuator motor. 2. Defective actuator motor. 3. Worm gear system jammed. 4. Planet gear system jammed. 	<ol style="list-style-type: none"> 1. Check that Deutsch connections are engaged. Check voltage through wiring harness. (Should be at least 11.5 VDC.) Also, disconnect at controller and check for signal from controller. You can also run power directly to motor for a very short time. It would be best to disengage motor shaft from planet gears when doing this. 2. Remove motor from actuator power up and check shaft. 3. Remove gear sector cover and check worm gear arrangement. Using a wrench, check manual operation. 4. Remove motor and check planet gears.
Motor runs, but actuator does not drive.	<ol style="list-style-type: none"> 1. Roll pin out of shaft and worm gear not turning. 2. Gear sector disengaged from worm gear. 3. Motor shaft disengaged from planet gears. 	<ol style="list-style-type: none"> 1. Remove gear sector cover and check pin in shaft and worm gear. 2. Remove gear sector cover and see if worm gear is disengaged from gear sector. 3. Remove planet gear housing and check engagement.
Valve closes when OPEN button presses and vice versa.	<ol style="list-style-type: none"> 1. Gear sector in wrong position. 2. Cable wiring reversed. 	<ol style="list-style-type: none"> 1. Remove gear sector and reposition. 2. Replace cable.
Valve Open/Close lights switch immediately from red to green and vice versa.	<ol style="list-style-type: none"> 1. Wiring. 2. Short in relays of controller. 	<ol style="list-style-type: none"> 1. Check wiring as explained in Problem 1. 2. Replace controller.

Figure 1

