



Changing valve position on any small valve Alicat controller

The items you will need for to change the position on any small valve Alicat controller:

1. Your Alicat flow controller
2. Razor blade or utility knife
3. T-8 Torx driver
4. 3/32 and 7/64 Hex drivers

Changing the valve position on any small valve Alicat controller:

First, carefully slice the warranty label along the case parts seam using the razor blade.

Now remove the two screws located at the top of the valve shell using the 3/32nds hex driver and remove the black plastic cap straight up, as well as the aluminum cover as shown in the video.

Next, remove the two large screws which mount the valve assembly to the sensor head. Use the 7/64ths hex driver and be careful not to lose any pieces when pulling the assembly apart.

We will now need to remove six of the eight T8 Torx screws which attach the electronics case to the device. Note it is not necessary to remove the two screws on the lower rear case half. With the six screws removed, pull the front case half out from the bottom. You can also remove the case top at this stage as well.

Now grasp the membrane switch ribbon cable and carefully pull straight up until the case front is released from the electronics connector.

Using the tip of your razor blade pry out the two red retaining rings, this will allow you to remove the LCD display in the next step. Be careful not to scratch the PCB or LCD when using the razor. To remove the LCD panel, simply grip the display as shown and pull it straight out away from the main PCB. Use slow and steady force as to protect the electronic components.

With everything now disassembled, move the valve wires and grommet to the right side case cutout.

Replace the recently removed LCD, being careful to correctly line up the 10 pink connector before pushing it on. Once the display is seated firmly, complete this step by pressing on the red plastic rings with your thumb.

Recasing the device is the reverse of the disassembly process:

First attach the ribbon cable of the membrane switch to the display header, the connector is a flat multi-pin block. Please be sure to verify that all pins are connected properly as it is easy to accidentally offset the connection.

Now, using the T8 Torx driver, screw in the 6 K screws making sure to properly seat the top plate onto the connection ports. To complete the casing phase, reinsert the plastic plug into the left side hole on the case seam.



Rotate the brass valve 180 degrees within the valve coil. Please note that the inlet hole is closer to the valve stem and the outlet hole is near the bottom. (It is important to note that the brass valve block has a specific inlet and outlet orientation.)

Now we are ready to reattach the valve and its associated components:

Once again, note the orientation of the valve block components so that the hole passages are aligned with the brass valve. With gas flowing left to right, the inlet of the valve is on the high side and the outlet of the control valve is on the low side of the brass block.

Lay the brass valve into the receiving piece and place the steel alignment pins into the two holes that flanked the gas outlet hole.

Place the N block onto the assembly, once again noting the orientation of the flow passages. Before inserting the 7/64th screws into this assembly verify the o-ring gaskets are present and seated properly.

Also, verify the alignment pins are locked into their respective detents.

Firmly tighten the 7/64th screws in unison, but do not over torque. It is also helpful to reassemble this step on a flat surface as to assist in proper alignment.

The final step is to prepare the valve driver circuit board for encasement within the protective valve shell. Carefully twist the circuit board as needed to allow for a properly orientated, compact fitting of the wires and PCB. Then simply slide the aluminum valve shell over the valve coil followed by the plastic top cap in screws. Some wiggling of the valve screws may be necessary to get them to seat properly. Use the 3/32nds hex driver to tighten the screws.

Verify the valve controls flow as expected, stops flow when closed and that there is no leak through. If any of the aforementioned problems occur, the valve or related blocks may be installed.