

QUARK 2.0 ELECTRONIC BOOSTER PUMP

STARTUP GUIDE

A simplex VFD booster pump system startup requires careful checks, proper system priming, and careful commissioning to avoid damage and ensure correct operation. This guide outlines general steps but always refer to your specific manufacturer's manual for detailed instructions and safety warnings.

Pre-Installation Checks

Verify Installation:

Ensure all mechanical and electrical installations were performed by qualified personnel and comply with local codes.

Inspect Connections:

Confirm all piping connections are secure and do not impose strain on the pump unit. Ensure the appropriate isolation valves, check valves, and a potential pressure relief valve are installed.

Check Electrical Supply:

Verify the incoming power supply matches the voltage and phase requirements on the VFD nameplate and motor nameplate.

Confirm Tank Pre-charge:

The system is supplied with a 2 gallon bladder tank. Ensure its air charge pressure is correct (typically 0.7 times the setpoint pressure). *NOTE THAT THE MAXIMUM SYSTEM OPERATING PRESSURE IS 150 PSI.*

Priming the Pump

The pump must be completely filled with water and vented of all air before operation to prevent damage from running dry.

Close Discharge Valve:

Ensure the manual isolation valve on the pump discharge is in the closed or partially open position.

Open Suction Valve:

Fully open the isolation valve on the suction side of the pump.

Purge Air:

Open a bleed valve or the discharge isolation valve slightly, or open valves at the highest points and farthest away from the system in the piping network, to allow air to escape until a steady stream of water flows out.

Secure the System:

Once all air is purged, securely close the bleed points and ensure the pump suction valve is fully open. The discharge valve should remain closed or partially open for the initial run.



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Initial Start-Up and Commissioning

Apply Power:

Turn the main disconnect switch to the "ON" position to energize the controller.

Turn OFF to Check Rotation:

When first powered, the controller will be in the AUTO position and the green light on the AUTO button will be flashing. Immediately hit the OFF key. The green light on the AUTO button will stop blinking. You are ready for the next step.

Verify Motor Rotation:

Hit the green HAND button to start the pump in MANUAL mode. Hit the ENTER key to allow you to adjust the motor speed. Use the RESET(>), UP(^) and DOWN(V) arrows to adjust the speed of the pump to a slow speed (5 HZ), so you can observe the direction of the motor shaft. Hit the ENTER key to save the hand speed.

Observe the rotation by watching the back end of the motor. It should be rotating CLOCKWISE.

If the rotation is correct, go to **Set the Setpoint Pressure** section.

If the rotation is incorrect, you will need to reverse the motor rotation.



Reversing Rotation:

Hit the OFF button.

First, turn off the main power and lock out the power to prevent power from going to the unit while you work on it. Wait until the display on the VFD goes out, to ensure all residual power from the drive capacitors has dissipated.

To change the motor direction, swap the T1 and T2 leads of the three motor leads. (NOTE THAT T1, T2, T3 lead to the motor, not the power source).

When the wires have been swapped, turn on the power, hit the HAND button and recheck the rotation to see that it has been changed to CLOCKWISE rotation.

Hit the OFF button after rotation has been confirmed as correct.

Set the Setpoint Pressure

Hit the OFF button.

Press the DOWN arrow to open the setpoint screen. The current setpoint, in PSI, will be displayed.

To change the setpoint pressure, hit the ENTER button to allow changes to the value. Use the >, UP and DOWN arrow keys to position the cursor and change the value to the desired output PSI. Hit the ENTER key to save the value. Wait until the leftmost digit stops blinking.

Hit the ESC key to leave the setpoint screen. Hit the UP key to see the feedback value (discharge pressure).

Start the System:

Hit the AUTO button to put the system in AUTO mode. The green light on the AUTO button will blink to tell you the system is in AUTO.

Gradually Open Discharge Valve:

The pump will start and build pressure. Slowly and gradually open the discharge isolation valve to avoid water hammer and allow the system to reach the set pressure smoothly. You will hear the pump speed up and slow down to maintain the setpoint pressure.

Verify Operation:

Monitor the pressure gauge and the digital pressure shown on the screen, to ensure the system is providing the pressure desired.

The VFD will modulate pump speed to maintain the desired set pressure

The pump should eventually go into a "sleep" mode if there is no water demand for a set period, which is a normal function.



Adjust Setpoint (If Needed):

If the target pressure is not met, follow the steps above in **Set the Setpoint Pressure** step.

Post-Startup

The system is now operational. Double check to be sure all wire covers have been replaced, there are no leaks in the system and it is operating in the manner that you desire.