KSI AUTOMATION

KSi BasicTreat

Best Practices / Troubleshooting

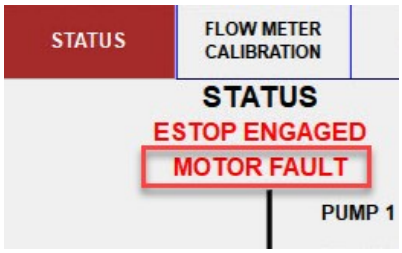
DAILY BEST PRACTICES

- Make sure that the E-Stop button is released.
- Run at least one device in hand to ensure power is on to the motor devices.
- Open/close the air gate to ensure that there is air pressure to the system.
- Make sure that the scale readout on the touch screen is reading the scale weight. It is a good idea to stand or put weight on the scale and make sure that the touch screen registers that weight.
- Zero the scale and ensure that there is an accurate box empty weight in the Box Weight field (on the setup page)
- Calibrate each of your pumps twice a day.
    - **Flow Meter Calibration Process**
        - Possibly the single most important point that can affect system accuracy is the flow meter calibration procedure. ***The data proves that slower and longer calibration cycles provide the most accurate calibration and system accuracy results.***
        - Use the following guidelines when setting up the calibration cycle:
        - Optimal Calibration Cycle Time is 120-180 seconds. It is better to run the pump slower (as slow as 10% speed) to get the cycle time longer.
        - Optimal Calibration Cycle Volume is 90-100 oz. This is the second item of importance when running a flow meter calibration.
        - The pump speed should be adjusted to allow optimal cycle time **first** and optimal cycle volume **second**. This provides the best combination for the control system to work with the flow meter in establishing an accurate calibration factor. This procedure should happen at least once per day per flow meter.
        - **PLEASE NOTE:** You can run the pump in recirc before a calibration cycle and watch the flow rate at various pump speeds to get a better idea of the appropriate speed settings for optimal calibration.
        - **PLEASE NOTE:** KSi BasicTreat automatically begins each cal cycle using a cal factor of 1, *not* using the previously established cal factor. This means that if you intend to run the cal cycle more than once as a check you must make a note of the cal factor after each cal cycle is run. Then by comparing each cal cycle's calibration factor you can make a judgment on repeatable accuracy.
- Reset manual valves to drain cal tube and direct liquid to treater. Prime if needed. You are now ready to run your system.

TROUBLESHOOTING / FAQ'S

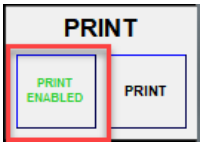
- System is not saving the values I type into the text fields.
    - The value does not save in the system until the enter key is pressed. Make sure that you are pressing enter once you have keyed in the text.

- My conveyors will not start
    - This could be due to a motor fault. Go to the Status page and check to see if there is a "Motor Fault" message flashing towards the top of the page. If so, identify the motor that is not starting and open up the panel and reset the motor start or power cycle the VFD to reset the fault. Once reset, turn the device on in hand from the Manual Operation page to reset the fault in the system and ensure that the device starts.

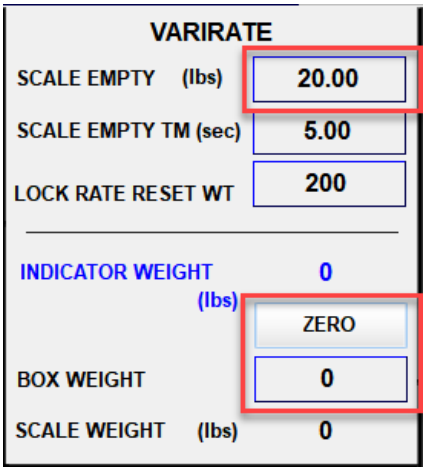


    - This could also be due to the Estop being engaged. If ESTOP ENGAGED is flashing on the Status menu, none of the devices will run. Release the Estop by pulling out on the Estop and the ESTOP ENGAGED message should go away.

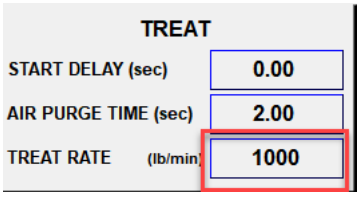
- My ticket printer isn't printing
    - Ensure that the printer is plugged in and powered on, and that the print functionality is enabled from the Setup page. If this says Print Disabled, select this button so that it displays Print Enabled in Green text.
    - To reprint the previous order press the Print button.



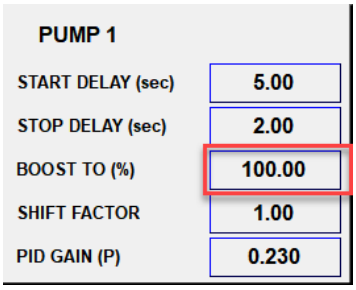
- The pumps continue to run once the system is out of seed.
    - If the scale weight is not returning to a value that is less than the Scale Empty weight the pumps will continue to run. Ensure that the scale is returning to a value less than the scale empty weight (Setup page).
    - Ensure that the scale is zeroed with no weight on the scale, and that there is an accurate box empty weight in the Box Weight field (Setup page).



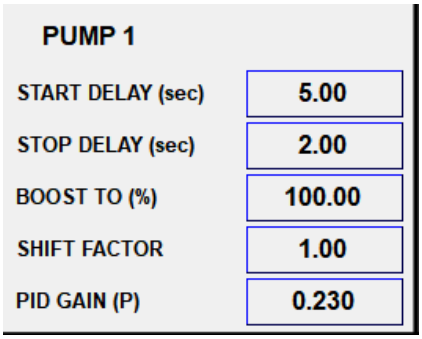
- My pumps are not boosting or starting correctly.
    - Ensure that the Treat Rate, on the Setup page, accurately reflects the actual treating rate, as set by the manual flow gates on the hopper. This treat rate setting should be within 100 lbs/min of the actual treat rate.



    - Review the Shift Factor, on the Pump Setup page, for the specific pump that is not boosting correctly and ensure that the Boost To (%) is not 0. This value will typically be between 80-100%.



Understanding Pump Parameters



- **Start Delay** – The amount of time the pumps will delay starting after the seed flow starts.
- **Stop Delay** – The amount of time the pumps will delay stopping after the seed flow stops.
- **Boost To** – This value defines what percent of the liquid delivery target the pump will boost to at the beginning of the run. This value uses the treat rate (set from the SETUP page) to calculate a starting pump speed to turn the pump on as close to the target amount as possible without being over aggressive at the beginning of the run.
- **Shift Factor -** This value will “shift” the pump set point up or down by the percentage set in this field. The default value for this field is 1 which means the system will run at the defined setpoint. Example: If a specific pump is consistently over treating by 2%, this shift factor could be set to .98 to pull the set point down by 2% to improve the accuracy.
- **PID Gain (P)** – This is the Proportional Gain value of the PID loop control for the pump. The higher this value is, the more aggressive the pump is going to respond to change. The lower this value is, the slower the pump is going to respond to a change. Ideally, this value should be high enough so that the pump responds quickly, but not so quickly that the pump is overcompensating the entire run. The standard setting for this value is 0.2.