

Feed-R-Meter Controller

1. **DISPLAY.** This is the user interface screen. It is used to see the flow count during the feeding process, as well as adjust flow rate and calibration. It will also display voltage of the system when in diagnostic mode.
2. **AUTOMATIC/MANUAL Switch.** This switch allows the user to switch between Automatic Feed Mode, where the preset number will stop the flow, and Manual Mode. Manual mode allows the user to dispense indefinitely while still counting on the display. The system should be set in Automatic Mode while dispensing feed and cleaning the system.
3. **FEED 1/Feed 2 Switch.** This is the selector for the 2 user presets that determine dispensing rate. This can be changed at any time. There is no preset rate or “factory setting”, so any change made to this number will remain until the preset is changed again. This function can be accessed by depressing the ‘A’ button with the selector switch in either FEED 1 or FEED 2, and typing in your desired rate (ie. 2 quarts would be 2.0 on the display. This would be represented by 2 and 0 on the key pad. This allows fractions of a quart. 2.5, 3.5, etc.)
4. **User Keyboard.** The numbers can be used to input flow rate or adjust calibration. Pressing the alpha keys enters the specific function. Pressing the key a second time exits the function. The lettered keys are set up as the following:

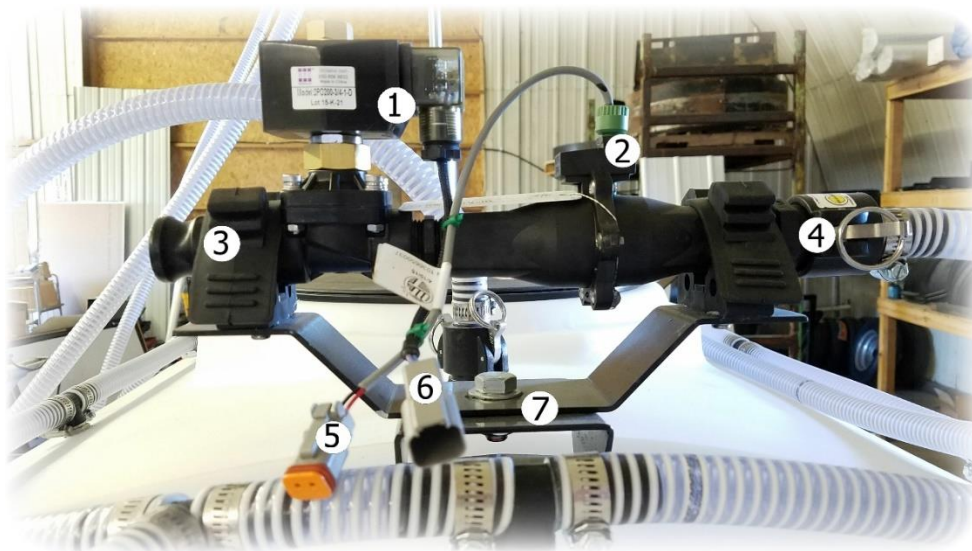
A. Flow rate for automatic dispensing. When this key is depressed, the LED to the right of the key will illuminate. At this point, the rate may be entered. Remember to enter the digits with a decimal. In which case, 2 quarts is represented on the keypad as 2-0. Switching between FEED 1 and FEED 2 will allow the user to set the preset flow rates.

B. Screen Brightness. 10-100. Factory setting is generally 30.

C. Calibration. To adjust calibration, depress the 'C' key and enter the code: **1-2-3-#**. This will make the display blink the number. If you are experiencing too little flow when the automatic systems stops, raise the number. If the flow rate is too much, lower the number. Consult the operation instructions for resetting the calibration by volume.

‘.’ The dot key enters the controller into diagnostic mode which will display the line voltage on the user screen. Depressing the '#' key will send power to the solenoid on the flow meter and display the voltage drop when the solenoid fires. This is a useful tool to diagnose mechanical problems with the system.

5. **LED Function Lights.** When a light is illuminated, the corresponding key's function is activated. Pressing the key again will exit that function. All LED lights must be out prior to feeding.
6. **Main Power Switch/Fuse.** This switch will allow you to remove power from the control system. Cycling the switch off and then on again resets the controller back to zero (hard restart). All feed rates and calibration numbers are stored and are not effected by shutting down the power.



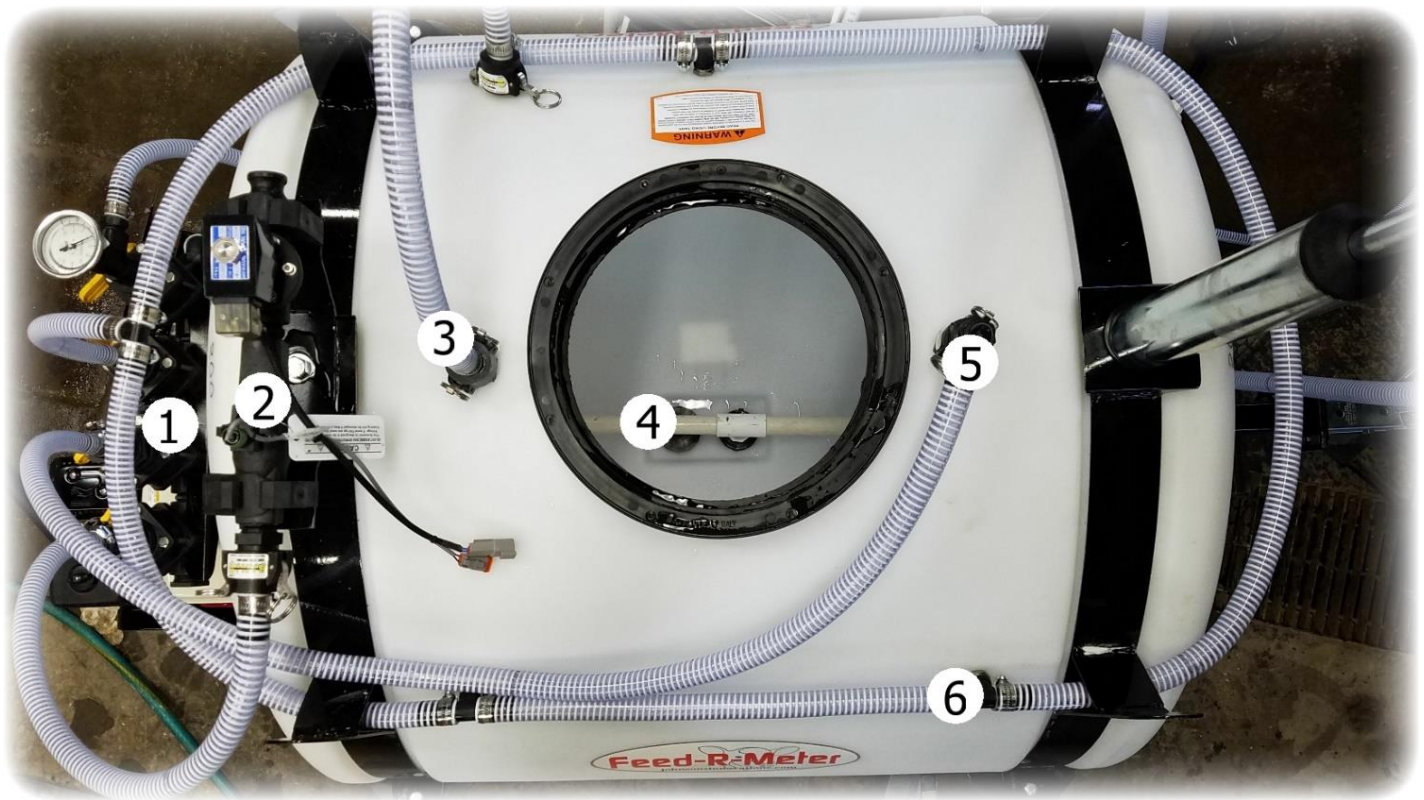
Flow Meter Assembly

1. **Electric Solenoid.** Used to stop the dispensing flow once rate has been achieved. The only time that the solenoid is activated is in AUTOMATIC mode. The solenoid should be fired at least 15-20 times during the cleaning process to clean the upper side of the valve.
2. **Flow Meter/Sensor.** The flow volume is calculated here. The flow meter uses a magnetic turbine impeller and a foil sensor to send the count to the controller. Be sure that the cartridge filter is in place to keep all debris out of the flow meter housing.
3. **Rubber Mount.** The rubber mount makes the removal of the flow meter a simple process. It also acts as a shock mount for the flow meter. This tag is on the outlet side of the meter.
4. **Meter Inlet.** The side that the flow must enter to operate the meter correctly.
5. **Flow Sensor Connector.** Connect the corresponding harness terminal here for the controller to see the pulse count.
6. **Solenoid Connector.** Connect the corresponding harness connector here to operate the solenoid from the controller.
7. **Flow Meter Bracket.** Steel bracket designed to hold the flow meter in place. It will pivot if the dispenser hose is pulled to help stop damage to the meter from shock.



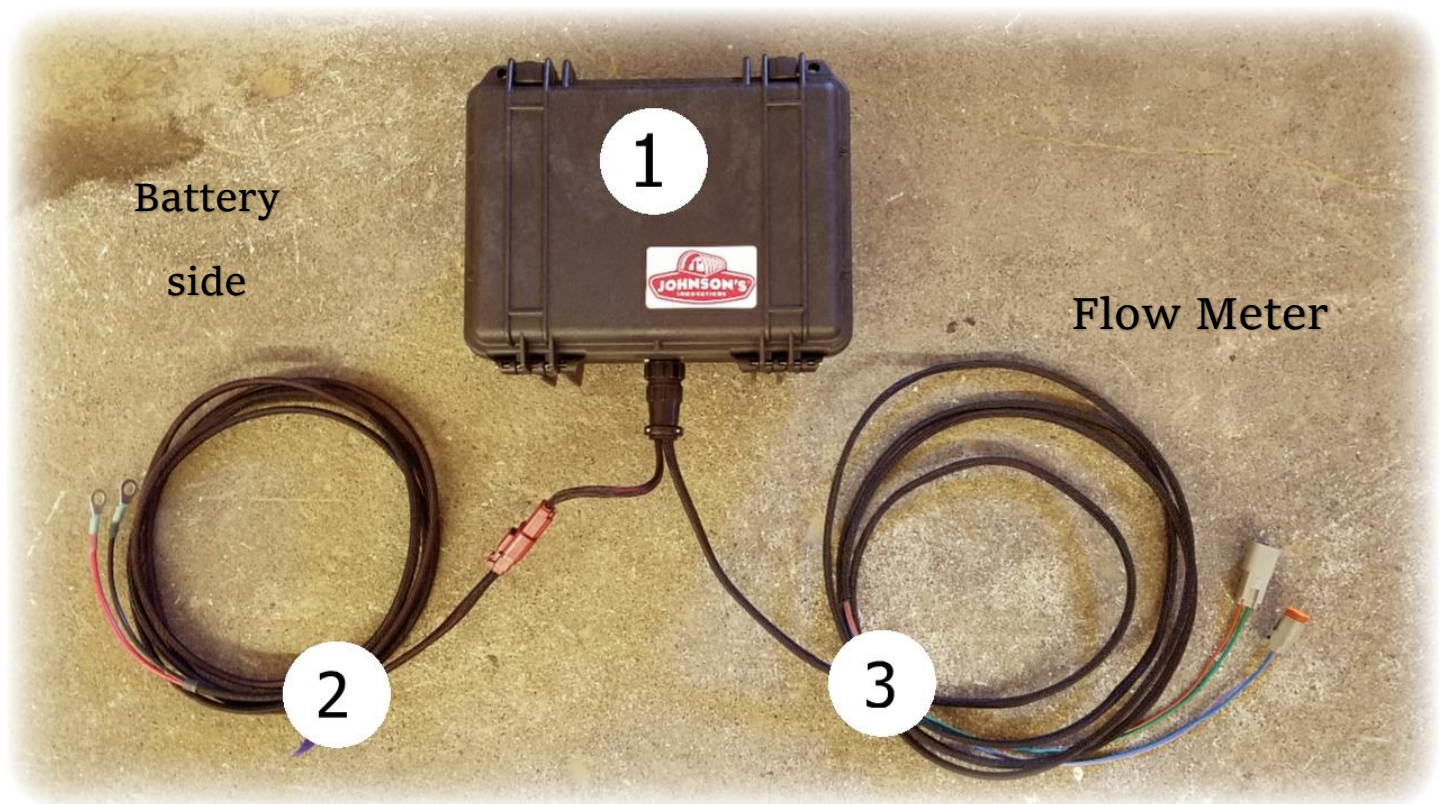
Feed-R-Meter Valve Manifold

1. **Sparge Agitation Valve/Thermometer.** This valve operates the flow through the sparge agitator at the bottom of the tank. Opening this valve helps keep any solids added to the liquid feed in suspension during feeding. The thermometer keeps a real-time measurement of the liquid temperature. Note that the thermometer is not activated when the valve is off.
2. **Mixing Injector Valve.** This valve activates the injectors that run along the top of the tank. Along with the sparge, the injectors continually mix during the filling process to create a uniform product. This valve can be turned on during the cleaning cycle as well to help clean the inside of the tank. This operation will generally not be used during the actual feeding process.
3. **Spinner Ball Cleaner Valve.** This valve activates the Spinner Ball cleaner inside the tank. This valve should only be open when fresh water and detergent are added to clean out the system. Separating and cleaning the Spinner Ball periodically will help increase its life expectancy.
4. **Dispensing Valve.** This valve is generally used to send liquid to the flow meter and then to the dispensing line. It can also be used in conjunction with the jumper hose to fill the tank through the Quick Fill valve (if installed). Always shut this valve off when servicing the flow meter or moving hoses.



General Tank Layout

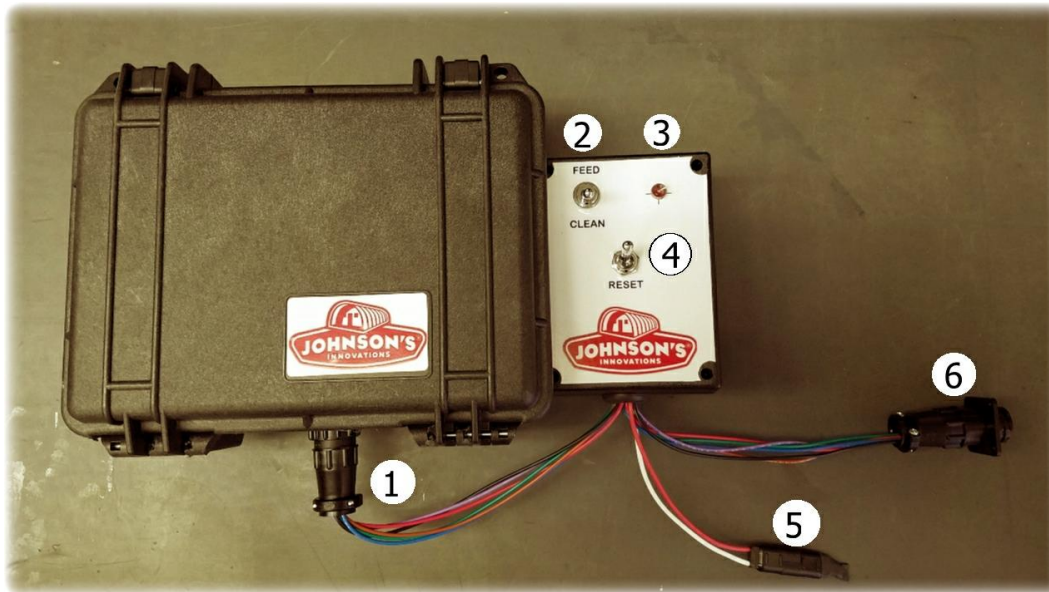
1. **Valve Manifold.** See manifold explanation.
2. **Flow Meter Assembly.** See description in Flow Meter Section.
3. **Tank EZ Fill connection.** This port can be used to fill the tank from a hydrant or through the Quick Fill valve on the pump (if Installed).
4. **Sparge Tube.** This agitator bar helps keep solids in suspension during the feeding process and aids in agitation during mixing. Be sure that the liquid level is above the sparge and the pump is running before adding solid product to mix.
5. **Spinner Ball Cleaner.** This port allows access to the spinner ball for cleaning the tank.
6. **Mixing Injectors.** These injectors are mounted around the top of the tank to mix solid product into liquid suspension. They can also be used during cleaning.



Harness Configuration

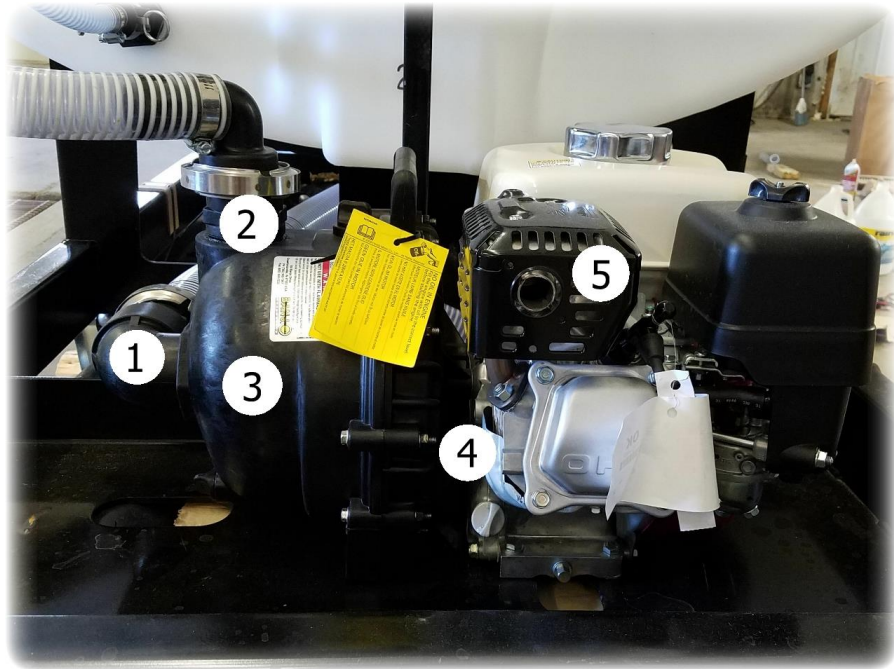
- 1. Controller.** Main Computer controller. The harness attaches with a 9 pin connector that only installs one direction.
- 2. 12 Volt DC Power Lead.** Attach this harness section to a 12 volt dc (battery) system and plugs into the main controller harness.
- 3. Flow Meter/Main Harness.** This harness connects the power and the flow meter to the controller. This piece will either be a single 10 foot lead (as shown) for the Cross or stand-alone systems, or two 10 foot harnesses connected in the center by another 9 pin connector for trailered systems that keep the controller in the tow vehicle.

The Controller can be mounted anywhere that power is available. When the lid is closed, the box is waterproof. Generally, the controller would be mounted near the operator, but it is not necessary. This diagram represents normal connection during operation.



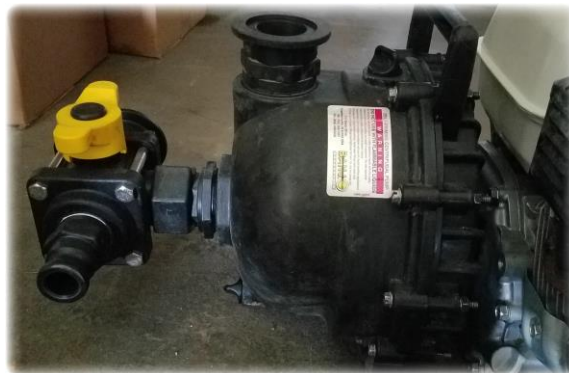
Bucket Cleaner/Feed Control Module

- 1. Controller Terminal.** Interface plug between the controller computer and the Feed-R-Cleaner module.
- 2. Feed/Clean Switch.** Set to FEED, the module follows the standard Feed-R-Meter feeding protocol. When set to CLEAN, the module locks the solenoid until the reset switch is activated, or the switch is flipped to FEED.
- 3. LED Indicator.** This LED light warns that the solenoid is engaged. It will illuminate whenever the solenoid is active. Its function is to allow the operator to know that the system is drawing power. The longer the solenoid is engaged, the more prone it is to failure from heat damage, and possible congealing of the milk product inside the solenoid.
- 4. On-Board Reset Switch.** Resets the system to open the solenoid and allow flow through the system. This switch can also be activated remotely via the remote switch lead.
- 5. Remote Switch Lead.** When an external switch is plugged into this terminal, a remote switch can be located near the operator to reset the system. The jumper lead that is supplied will protect the terminal, and also redirect the signal to the on-board reset switch.
- 6. Flow Meter Terminal.** This terminal allows connection between the control computer and the flow meter, as well as the 12 VDC power lead. This will emulate the terminal at the bottom of the control computer box.



Dispensing Pump

1. **Pump Inlet.** Intake from the tank. The standard inlet is a 90° fitting. If you are using the Quick Valve, it will look like this:



2. **Pump Outlet.** Fluid dispenses from this side when the pump is in operation.
3. **Pump Body.** The main housing for the pump assembly. This is a rebuildable unit.
4. **Watch here for leaks!** If the seal pack inside the pump breaks down, fluid will leak here, between the pump and drive motor. It is very important to repair the pump if a leak occurs.
5. **Drive Motor.** While a gasoline powered motor is shown, a hydraulic motor will operate the pump in the same manner and are also available.

