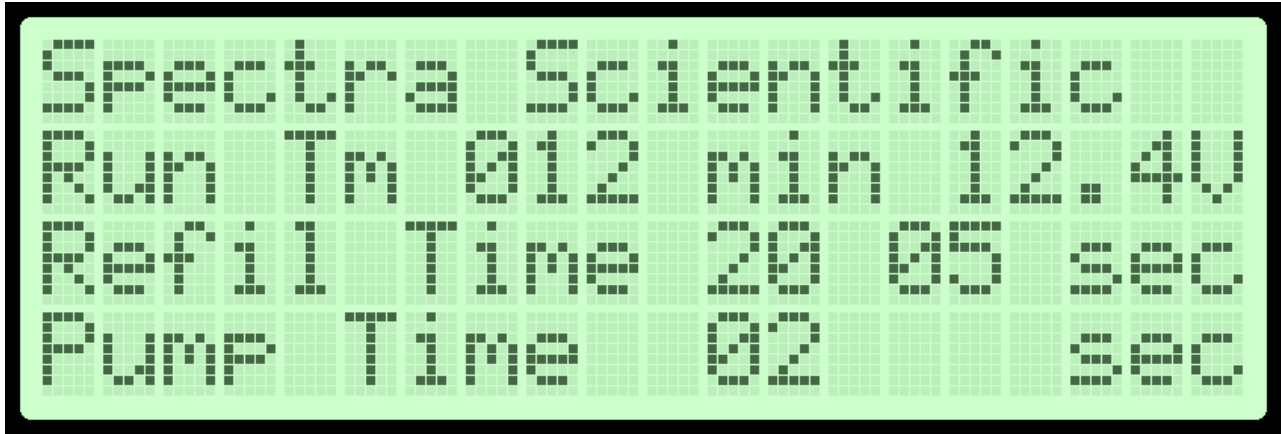


Spectra Hydro Pro Operational Cheat Sheet



Run Time (Run Tm): This refers to the TOTAL time the controller has been ON, displayed in minutes.

Refill Time (Refil Time): This refers to the Refill Time, with a set time between 1 – 60 seconds. The refill time is the period in which the compressor is not pressurizing the internal bladder chamber, meaning the bladder is expanding and refilling with water via hydrostatic pressure.

Pump Time: This refers to the period when the compressor is actively pressurizing the internal chamber and pushing water through the water line. Depending on the depth it takes between 5 seconds and 20 seconds to empty the bladder.

Both Refill and Pump have a countdown time located to the right of the set time. This is to give users an estimate of the time left in each cycle.

A battery voltage is also displayed in the top right corner, this displays the voltage of the connected battery.

Determining Pump and Refill Times:

Below is the recommended Hydro Pro setup. This is an approximate estimation based on 3-4ft of submergence, it is recommended to start at this setup and adjust as need be in the field. To increase Flow Rates, divide Refill Time by a factor of 2 while maintaining Pump Time. This will double Flow Rate.

Example 1: To achieve 150 ml/min at 30ft, set at 5 sec Pump Time and Refill Time at 27 seconds. This will provide 2 strokes of the Bladder Pump (each stroke being 75ml) within a minute making the total output 150ml/min (75ml + 75ml). These are averages and will not be exact but will serve as a starting point for technicians on the field.

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Table 1

Pump Time	Refill Time	Flow Rate	Depth
5 sec	55 sec	75ml/min	30ft – Shallow
8 sec	52 sec	75ml/min	60ft – Medium
10 sec	50 sec	75ml/min	90ft - Deep

Additional Notes:

- Using the Spectra Hydro Pro it takes an average of 5-10 seconds to empty the internal bladder of the Spectra Bladder Pump (depending on depth). Technicians can determine the exact amount of time it takes depending on their specific conditions by observing the water line during the **Pump Cycle** (the amount of time it takes for the bladder to empty/water is being released from the line). Follow Table 1 if confused.
- Table 1 applies to a water line that is filled with water. When a client is first setting up the system they can operate at a faster cycle in between Pump and Refill Time to fill up the water line. An ideal setup for the initial filling of the water line can be: **5 sec Pump Time, 10 sec Refill Time.**

Warnings:

- Do not over torque the potentiometer on the Pump and Refill Times, this can damage the unit and will require factory repair.
- The Internal Compressor is 170PSI Full Duty Cycle Rated and requires the use of a fully charged Marine Battery for optimal performance, low charged batteries will cause performance issues.
- Take care to ensure the correct connection between the Military connection and the output connector on the Hydro Pro, incorrect turning of the connection can lead to damage of the wire which can cause internal shorts.

For Field Technical Support Contact your local office or Spectra Scientific Inc directly at 1 877-480-0024



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Spectra Hydro Pro Faceplate Diagram

