HydroCycle-PO₄ sensor quick start

Set up sensor (Refer to user manual section 3.1 for details)

Caution: The waste solution from the cartridges is Hazardous Waste. Follow the applicable regulations to discard the solution. Wear Personal Protective Equipment (PPE) to work with cartridges.

1. Remove the sensor and the spare parts kit from the plastic case.
2. Remove the three cartridges from the fiberboard box.
3. Slide the protective sleeve off the sensor. Keep the screws and the sleeve.
4. Install the yellow cartridge and then the red cartridge. The cartridges are correctly installed if they can't be pulled off of their bases.

Install software (Refer to user manual section 3.2 for details)

1. Use the cable from the spare parts kit to connect the sensor to the PC that the software will be installed on and a 12V power supply.
2. Run the installer from the manufacturer’s website. Follow the prompts to install the software.
3. Start the software. Select the COM port on the PC that the Cycle is connected to. Use the PC’s Device Manager or the USB-serial adapter’s software to determine the COM port.
4. Turn on the power supply.
5. Go to the Tools menu of the software and select the Deployment Wizard (Ctrl-D).
6. Select Autonomous or Synchronous file mode (SDI-12) then push Next.
7. Select the priming start date and time and the sampling start date and time. Set the sample interval. Put a value in the “Number of Samples” area. Do not leave it blank. Make sure the “Skip Prime Cycle” checkbox is not selected. Choose a time for priming that is after deployment.
8. Set the “Cal Frequency” value. A value of less than 2 can reduce the number of samples per set of cartridges to less than 1000.
9. Push Send Settings to Cycle, then OK to make a settings report. Save the report.
10. Push Finish, then Yes to make a results report, then push Yes to add it to the previous report.

Prepare sensor for deployment (Refer to user manual section 3.3 for details)

Caution
The contents of the syringe after pulling a vacuum are considered Hazardous Waste. Dispose of properly.

For first time use or after shipping the sensor:
1. Prime the sensor with a vacuum: attach the supplied syringe with a 1/16” barb to the outlet tube of R1. Pull the plunger to 10 mL. At the Settings tab, set the pump to operate for 100 cycles. Do this step again for the R2 and Cal cartridges.
2. Make sure the reagent tubing that connects the cartridges and the inlet barbs does not have any air bubbles: Fill the supplied syringe with DI water and attach it to the 1/8” tubing from the sample hose barb. Push water to drip out of the bottom of the filters. Pinch the tubing and carefully connect it to the sample inlet barb again. Try not to let air into the tubing.
3. Make sure that the tubing is wound around the eyebolts for transport.
4. Install the blue protective outer sleeve again. Align the indentations on the outer sleeve with the eye bolts and screw holes.

Deploy the sensor (refer to user manual section 3.4 for details)

1. Make sure that the sensor is in low power “sleep” mode, then disconnect the host cable.
2. Put the sensor in a bucket in approximately 20 cm of water. Take the sensor to the deployment site.
3. Connect the sensor to the power source, then submerge the sensor in the bucket at the mooring if possible.
4. Make sure the effluent tubing coming out of the top of the sensor is not pinched, kinked, or blocked.
HydroCycle-PO\textsubscript{4} sensor field service guide

Caution:
The waste solution from the cartridges is Hazardous Waste. Follow the applicable regulations to discard the solution. Wear Personal Protective Equipment (PPE) to work with cartridges.

Prepare sensor for service (refer to the user manual for details)
1. Wear gloves to make and use a 2\% solution of Micro-90 or bleach to clean the sensor.
2. Make sure the sensor is not on. Select “Stop” or “Stop Now” if the sensor is in low power (sleep) mode, or “Stop and Flush” if the sensor is in operation. (4.4)
3. Remove the sensor from its deployment. Be careful to keep air out of the sensor. (4.4)
4. Remove the protective sleeve. (3.1)
5. Connect the sensor to the PC and power supply. (3.3.1)

Maintain the sensor (refer to user manual section 7 for details)
Use a 2\% solution of Micro-90 or bleach to clean the sensor.
1. Clean sensor of macro-fouling.
2. Pull the tubing straight off the hose barb.
3. Unwrap the exhaust tubing from the top of the sensor and put one end into a clean container of cleaning solution.
4. Connect a syringe to a 25 cm length of 1/8" ID tubing.
5. Use the syringe to fill the tubing.
6. Connect the other end of the tubing to the “S” barb.
7. Disconnect the syringe and put the tubing it was connected to into the container of cleaning solution.
8. Go to the Settings tab of the software and push Flush.
9. Let the solution soak in the sensor for ½ to 1 hour.
10. Change the reagent cartridges. (7.7)
11. Change the filters and screens. (7.6)
12. Flush the cleaning solution from the sensor. (7.2.1)
13. Fill filters with water and reattach the filter tubing. (7.6)
14. Clean and lubricate the bulkhead connectors. (7.8)
15. Wrap the tubing around the eye hooks. (3.4)
16. Install the protective sleeve again. (3.1)

Prepare sensor for deployment again
1. Use the Deployment Wizard to set up the sensor for deployment. Be sure to schedule an automated prime sequence to start once the sensor is in-situ. (3.2)
2. Make sure that the sensor is in “sleep mode,” then disconnect the host cable. (3.4)
3. Attach the sensor to its deployment mounting. (4.2)
4. Connect the sensor to the deployment cable. Make sure the outlet tubing has no blockages or kinks. (4.3)
5. Attach a safety rope to one of the eye bolts. (4.3)
6. Make sure the supplied power is sufficient for deployment. (3.3.1)
7. Reagent cartridges can be sent back to manufacturer for recycling. (7.10)