Cleaning and Maintenance

Overview

What to Expect From Your dipperLog Groundwater Data Logger

As with any groundwater or surface water monitoring project, you should determine the best instrument to use, and how to maintain that instrument, based on the monitoring environment specific to your application. When using dipperLogs, ensure the monitoring temperatures are within the logger's specifications. Make sure that the wetted materials of your dipperLog are compatible with the site's chemistry, and determine the proper deployment method for the job. A maintenance schedule and precautionary measures should be implemented, especially if exposing your dipperLogs to environments you expect to be harsh on instrument sensors.

Selecting the Proper dipperLog

Heron dipperLogs are available in a variety of pressure ranges, from:
(B) 10m/30ft
(C) 30m/100ft
(D) 60m/200ft
(E) 120m/400ft

The dipperLog can withstand 2x overpressure, however outside the stated pressure range, accuracy cannot be guaranteed. This can also damage the sensor.

A temperature detector is used to accurately compensate for temperature changes, within the range of 0°C to 50°C for the dipperLog line. Your dipperLog will record pressure and temperature in its thermal range of -20°C to 80°C, however, outside the compensation range, readings will be less accurate. Using beyond the thermal range may cause damage to the logger.

dipperLog specification sheets contain a list of wetted materials to help check for chemical compatibility with the monitored water. Prior to deploying your dipperLog, you can check the chemical compatibility of the wetted materials by obtaining a sample of the water you will be monitoring in, and measuring the chemicals of concern for your site. This can be done by attaching a bailer to a dipper-Tag multipurpose tag line, and retrieving your sample.

Placing your dipperLog in the sampled water for a closely monitored test period, although actual expected pressure and temperature conditions may not be emulated, it will give you a good idea of how your dipperLog will react/perform in the chemical environment of that site. This test can be used for all of our products, including: water level meters, inspection cameras, oil/water interface meters and data loggers.

Scheduling Maintenance

If you are unsure of how your dipperLog will perform in your site's environment, we recommend you to schedule site inspections and physically examine your dipperLogs and their function periodically during the course of the deployment.

NOTE: If you do not check your site regularly, you will not know how the monitoring environment is affecting your equipment.

Each time that you inspect your dipperLog it is recommended that you take manual water level measurements. These measurements can be logged and compared to the readings of the dipperLog to ensure the dipperLog is performing properly. If your readings are not accurate, it may be time to clean your dipperLog. Sensors will experience some longterm drift from their original calibrated state, but not following the maintenance suggestions in this document could cause sensors to be less accurate at a quicker rate.

Manual measurements can be taken using a Heron dipper-T Water Level Meter. These measurements can then be compared to the readings of the dipperLog to ensure accuracy over time.

Determining how often you visit your site is based on your monitoring environment. In good quality freshwater, like a municipal production well, inspecting a dipperLog and taking manual readings may be done once a season; whereas physical cleaning of the dipperLog may only need to be cleaned once a year. Meanwhile, in harsher environments, like a contamination site, inspections and cleaning should be more often.

NOTE: Your maintenance schedule will be based on your past experience, familiarity with the monitoring site, and results of previously scheduled site inspections.

Preventative Maintenance

If you are familiar with the conditions of your monitoring site, and know you are going to require extra corrosion resistance, or protection from ice accumulation, there are precautionary steps that can be taken.

To prevent icing, the easiest method is to lower the dipperLog to a point in the water column below the frost line or ice formation depth. In shallow streams, wetlands or ponds where icing/ freezing may reach to the bottom, install the dipperLog in a vented stilling well embedded into the bottom of the water body beyond the frost line. Alternatively, place the dipperLog inside, rubber balloons filled with a non-toxic, non-corrosive anti-freeze solution or saltwater solution (dipperLog-TOUGH only). The anti-freeze solution will protect the dipperLog from ice expansion; yet transmit any pressure and temperature fluctuations.

Maintaining dipperLogs

Generally, cleaning your dipperLog consists of rinsing and using a mild, non-residual, non-abrasive, household cleaner with a very soft plastic bristled brush.
Do not insert any object through the pressure transducer holes at the sensor end of the dipperLog.

To help get the most out of your Heron dipperLog, purchase the dipperLog Maintenance Kit (PN# 5024) to keep your dipperLogs accurate and performing at their peak for many years.

The maintenance kit consists of:
- 5x packs of Alconox® Powdered Precision Cleaner
- 25x Replacement O-Rings
- O-Ring Applicator Guide & Pick
- Cleaning Cloth
- Rubber Gloves

NOTE: This Maintenance Kit is designed specifically for the dipperLog 64+, dipperLog VENTED+, dipperLog 32+, 4-20mA Pressure Transmitter and barLog. Upon inspection, if you come across damaged O-Rings in a dipperLog TOUGH+, contact us at loggersupport@heroninstruments.com

Some Cases May Require Specific Maintenance

Hard Water: Hard water can result in the precipitation of calcium and magnesium deposits on the dipperLog body and pressure transducer. These deposits can be dissolved using a diluted solution (≤ 10%) of acetic or phosphoric acid. Store-bought products designed for household use can also be used.

Suspended Solids: High suspended solid loads may block the pressure transducer holes or clog the internal pressure cell. To minimize this, dipperLogs should be placed in areas with higher flow. Simply rinse the dipperLog holes to remove any particles.

Bacteriological or Chemical Fouling: Sessile bacteria, other microorganisms, barnacles, mussels and algae can buildup on the dipperLog body, as well as the sensors. Chemical deposits can also be a result of electrical charge differential between the dipperLog and the monitored liquid. Both forms of fouling can be removed by soaking in a diluted (≤ 10%) solution of sulphuric acid. Hard-to-remove deposits may require several hours of soaking.

O-Ring Damage: There are o-rings on the dipperLog's communication ends and in the dipperLog caps, which are designed to prevent leaks. Depending on your application, you may be unscrewing the caps and/or direct read cables from the dipperLog communication end more frequently. This could result in damage to the o-rings. These o-rings should be inspected regularly and replaced as required (contact Heron for replacements).

Storage Tips: Before storing dipperLogs for any extended period, they should be stopped from recording (using the dipperLog Software), cleaned as described above, and stored with the cap on to prevent unintended moisture intrusion.