Levelogger Batteries

All Solinst Levelloggers use a lithium battery as their power source. Levelogger battery life estimates are based on standard operating conditions, with no external or internal interferences (i.e. under ideal conditions).

The estimates are based on a set sampling rate. For example, the Levelogger Edge has a battery life estimate of ten years, based on a sampling rate of one reading per minute. Below is a table showing standard battery life estimates for each Levelogger type.

<table>
<thead>
<tr>
<th>Battery Life Estimates</th>
<th>Levelogger &amp; Barologger Edge</th>
<th>Levelogger Junior Edge</th>
<th>LTC Levelogger Edge</th>
<th>Rainlogger Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years based on 1 reading per minute</td>
<td>5 years based on 1 reading per minute</td>
<td>8 years based on 1 reading every 5 minutes</td>
<td>Approximately 10 years typical</td>
<td></td>
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</tbody>
</table>

A more rapid sampling rate will deplete the battery more quickly. For example, if a Levelogger Edge is set in Continuous Mode (loops and overwrites data when memory is full) at a sampling rate of 1 second, the battery will be depleted in about 4 months. If a Levelogger Junior Edge is used at a sampling rate of 5 seconds, the battery will be depleted in approximately 2.5 months.

It is also important to note, in Event Based sampling, although the Levelogger may only log readings in memory when an “Event” occurs, the battery consumption is still mainly a function of sampling rate. This means that a smaller sampling interval (checks for an Event occurrence) will consume battery power more quickly whether readings are stored or not.

What Else Can Affect Battery Life?

In addition to sampling rate, there are other internal and external factors that can have an impact on battery life. Levelloggers have a specified operating temperature range; the Levelogger Edge has an operating range of -20ºC to +80ºC. Exposure to the temperature extremes can adversely affect the battery life.

There could also be an internal electronic component failure or an issue during a firmware upgrade, which could cause a short, or the Levelogger system to get stuck in an operational loop. This leads to battery drain. A leak that reaches the inside components of the Levelogger can also cause this to happen.

Moisture on the optical eyes of a Levelogger can also be a problem during communication. Additional battery consumption will occur during any communication process, if condensation, moisture, or dirt is present on the optical eyes. Moisture and dirt impedes communication, and requires more power than would normally be required with a dry, clean connection.

Levelogger Battery Status

The battery % consumption display on the Datalogger Settings window of the Levelogger Software, changes based on usage, type of activity, and the power consumption of the main internal components of the Levelogger. This does not take into account factors such as temperature effects on the battery. It also does not allow for inherent differences in available power between batteries in different Levelloggers. The power consumption from communicating with moist or dirty optical eyes cannot be measured within the Levelogger, therefore, the battery status cannot account for this either.

You may be able to diagnose what has caused your battery to drain more quickly than expected, by using the Levelogger Software Diagnostic Utility. The Utility will display the temperatures your Levelogger has been exposed to, an estimate of the number of logs that were taken, as well as the battery voltage and charge levels.

Dealing with a Drained Battery

Levelloggers can be returned to Solinst for assessment and/or battery replacement. Solinst can measure the battery voltage when it comes in for assessment, but it cannot always be determined what specifically caused the battery to drain. If a Levelogger is within its warranty period, and there is no obvious misuse of the Levelogger, the repairs may be covered under warranty.

It is rarely a low or defective battery that is the sole cause of a non-communicating Levelogger, considering so many factors can affect battery function.