

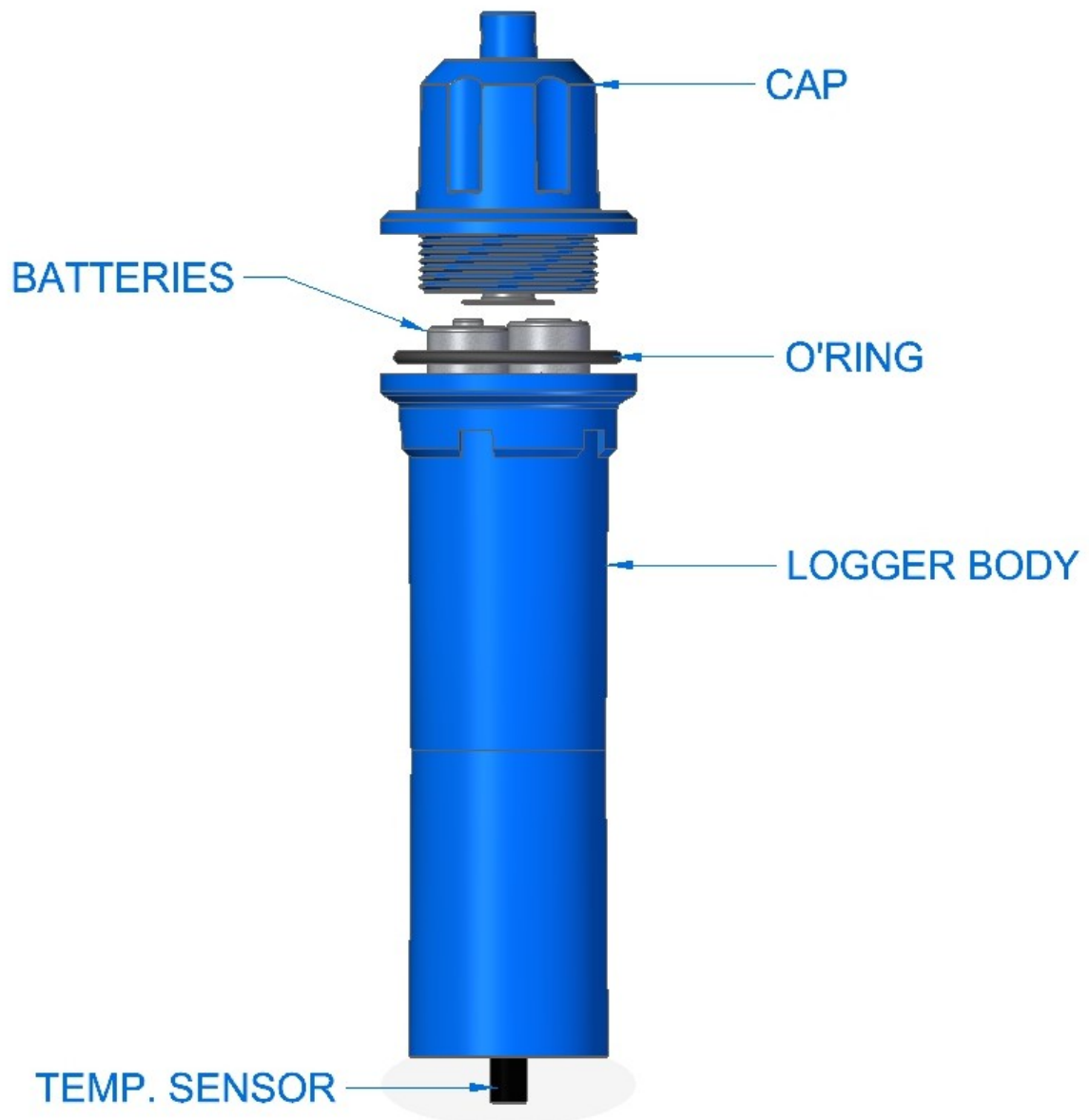


ODYSSEY
XTREAM

Odyssey® Xtream Temperature Logger User Manual

Xtreem Temperature Logger User Diagram

(Submersible logger shown below)





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Principal of Operation

The Odyssey® Xtream temperature logger is available in two types: submersible and extended.

1. The submersible logger's external temperature sensor protrudes out from the logger and can be fully submersed.
2. The extended logger's external temperature sensor is located at the end of a removable 1m cable.

Both types of loggers have a second internal temperature sensor which is located inside the logger body close to the bottom of the logger.

All temperature sensor types used in these logger are a NTC (Negative Temperature Coefficient) resistor element.

The logger software applies a 5th order polynomial correction to achieve the stated accuracy.

Installation

1. Submersible – Typical installation location is submersed up to 30m under the sea. As the logger is mostly plastic, apart from the stainless steel sensor tube, it can be immersed in any of the following, salt water, fresh water and light oils. The cap has a mounting hole in it to tie the logger to a chain, post or weighted object.
2. Extended – As there are two temperature sensors the external sensor can be installed in liquid while the logger itself records the ambient temperature. Even though the logger is waterproof, it should not be submerged for long periods of time. Outside in the rain the logger should be mounted vertically to keep the rain from driving into the connector. Also available from Odyssey® is a mounting clamp to mount the logger to a post.

Getting the best Performance

These loggers are very accurate. To get the best performance out of the system follow these simple procedures.

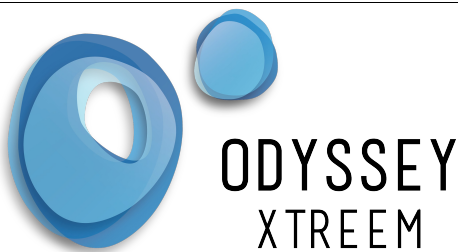
1. Keep the logger and sensor away from direct sunlight.
2. Make sure the temperature sensor is as close as possible, preferably in contact with the object being measured.

Installing the Xtract Application

Search Google Play Store or Apple App Store for the Odyssey® Xtract application and install as usual. The application must have access to Bluetooth communications and GPS location services. In the Settings screen enter your username and password provided by Dataflow Systems.

Press the green **SERVER SYNC** button to load the Odyssey® Xtream logger(s) and configuration(s) from the Xpert Web Portal.

The latest Odyssey® Xtract user manual and other user manuals are available on Xpert once you have logged in.



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Identifying the Logger

By default the Odyssey® Xtream logger will arrive with its name being a hexadecimal representation of its serial number. In the Xtract Application press the View button. Once scanned, the Odyssey® Xtream logger located will be shown in the list. The Xtream logger with the highest signal (also coloured green if it is very close) is the logger that is closest to the tablet / phone.

Setting Up the Logger

The first time the logger is used, unscrew the top cap and remove the battery insulation disc. All user configuration is carried out in the Xpert Web portal. The tablet / phone running the Xtract application transfers the logged data from the Xtream logger to the Xpert web portal and transfers the configuration into the Xtream logger. Using a web browser (Firefox is preferred) navigate to www.xpert.nz, then enter your username and password provided by Dataflow Systems. On the Map page (default), select Home from the drop down selection box, then select a logger from the logger selection drop down box. An icon for the selected logger will display on the Map. Click on this icon and an information box above it will pop up. To locate the icon it may be necessary to zoom the Map out to find the Logger.

Download the full Odyssey® Xpert user manual from www.OdysseyDataRecording.com.

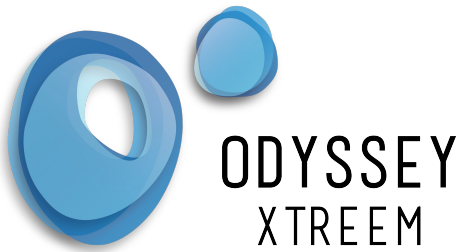
Logger Configuration

1. Select the Logger Config Tab. Enter a Logger Name that will be used to Identify the Logger from now on. The serial number can be used however this is very long and difficult to remember.
2. For most situations, use continuous logging. This means that once the memory is full it will start overwriting the oldest data first. Start and stop times can also be entered.
3. Choose a logging Interval in Hours, Minutes and Seconds. Intervals selected below 1 minute will force continuous logging to be disabled. At an interval of 30 minutes the logger will not overwrite data for more than a year.
4. In the Site box, add some brief location information to help locate the logger in the future. In the Notes box add any information that may be of use.
5. Select the Time Zone the Logger is deployed at. This is important as it may be different from the time zone where the data is viewed.
6. Press the Submit button to apply the Logger Configuration.

Sensor Configuration

For the Submersible logger there is no configuration required.

1. Select the Sensor Config Tab.
2. Ensure the serial number located on the sensor cable is correctly selected in this tab. Note: For best accuracy we recommend sensors cables are not switched between loggers and the



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sensor which was attached to the logger when supplied, is to be used.

Calibration

No user calibration is required. These loggers and sensor cables are factory calibrated. For recalibration please contact Odyssey®.

Transfer Configuration to Logger

The configuration will be sent to the logger automatically (typically less than 10 minutes) through the tablet / phone running the Xtract Application. To apply this immediately, press the '**SERVER SYNC**' button in the Settings screen. Once the button has been pressed the time below the button will display the word 'Never', then once synced, it will change to a valid time.

Select the History screen in the Xtract Application to view the logger name(s) entered for the Odyssey® Xtream logger(s).

The next time the tablet / phone sees the logger, it will connect to it and automatically apply the settings.

Collecting Data

Bring the tablet / phone with the Xtract application running within range of the logger and the application will automatically find, connect and collect the logs from the logger. This can be seen happening on the main screen of the Xtract application. If any configuration changes have been made since the logger was last connected, these will be applied at this time. If there is a firmware update for the logger this will also be sent (this takes several minutes to complete) to the logger if automatic firmware updates have been enabled (Contact Dataflow Systems to enable Automatic firmware updates).

To confirm the date of the last log that has been collected, select the History screen then tap on the logger name.

Viewing Data

Using a web browser (Firefox is preferred) navigate to www.xpert.nz then enter your username and password provided by Dataflow Systems. On the Map page (default) select Home from the drop down box then select a logger to be configured. An Icon for the logger will display on the Map. Click on the icon. (It may be necessary to Zoom the Map out to find the Logger).

ICON pop-up

This pop up shows brief data on the selected logger

Selected Logger Box

This shows the logger which has been selected on the Map tab.



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Latest Information Box

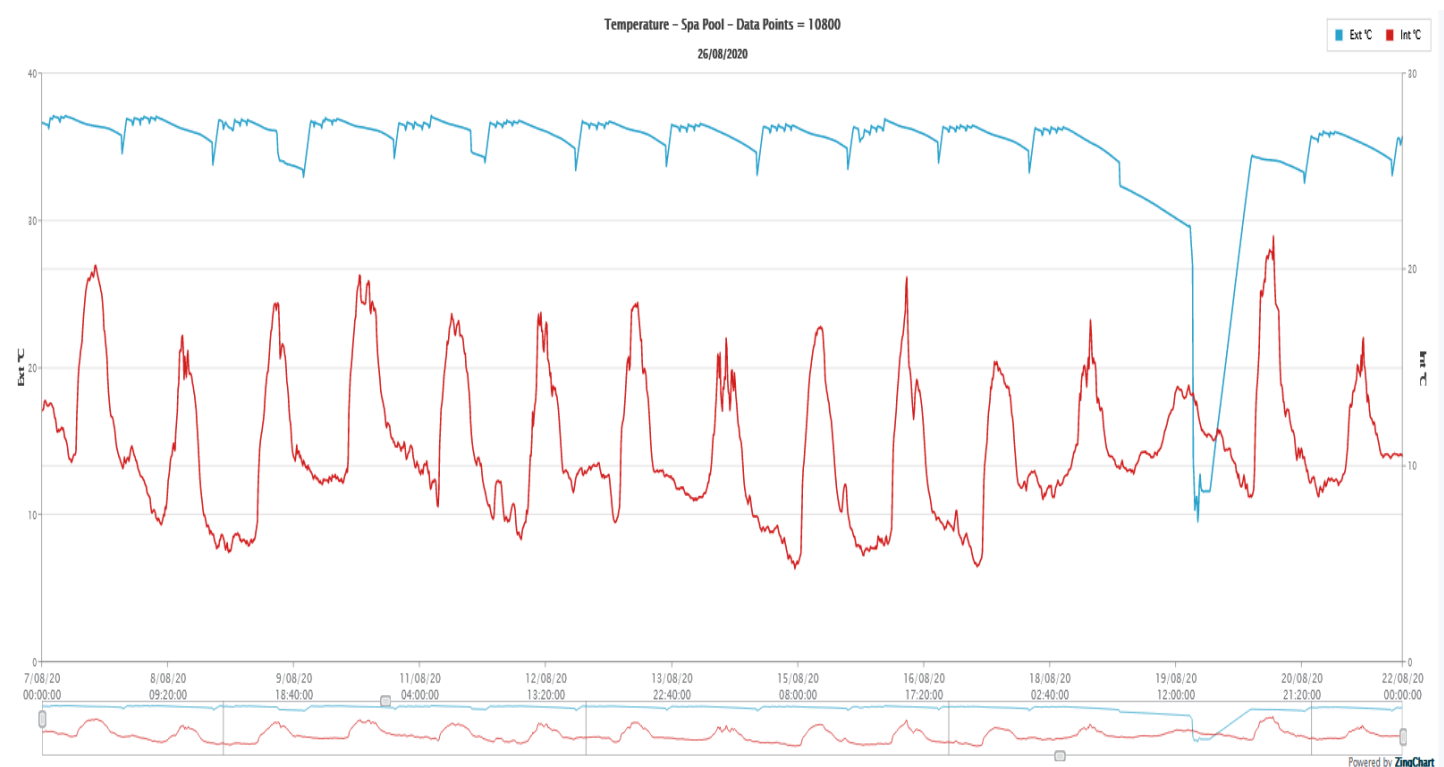
This shows the latest known information about the logger.

Chart

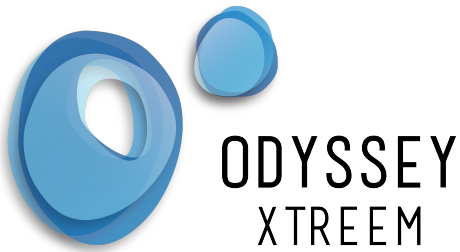
Once the logger has been selected choose the chart option from the menu.

To view a graph of the logged data, select a date range, then press the Go button. For a quick view press one of the Last Day, Last 7 Days, or Last 30 Days buttons. To export the data right mouse click on the graph, then select the export format required. Alternately, enter a date range then press the Send Report button. A link to download the file will be sent to the registered email address. To view other data collected from the logger, in the drop down box showing 'Primary Data' select 'Diagnostic Data', then select a date range or press one of the quick Day buttons.

The example chart below is of an extended temperature logger with the external probe in a spa pool and the logger outside the spa. The blue trace shows the external temperature (in the pool) and the red trace shows the internal (ambient) logger temperature .



Example Temperature Chart



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Memory Storage Capacity

The memory is capable of recording at least 60000 records. The number of recording days before the memory is full can be calculated using the following formulae. If continuous logging is enabled the oldest will be overwritten first. If continuous logging is disabled, no more data will be collected.

$$\text{Recording Days} = \frac{60000}{\text{Records per day}}$$

Examples.

Interval (mins)	Records per Day	Recording Days
60	24	2500
30	48	1250
15	96	625
10	144	416.67
5	288	208.33

It is recommended to use the longest acceptable interval as this reduces the collection time and speeds up the graphing process.



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Batteries

Life

The battery life is dependent on a number of variables, including the sampling interval and operating temperature. The remaining battery life is indicated in the Xpert web portal. In typical conditions (25°C), battery life is expected to be approximately 2 years.

Replacement

To replace the batteries, unscrew the cap and lift out the 2 batteries. Over time the cap can become very tight, so use the special Odyssey® spanner for opening the cap which is available from www.OdysseyDataRecording.com. As the batteries are non-hazardous, disposal is with your normal rubbish. We recommend, with temperatures greater than 0°C, to use the Energizer Max E91 with PowerSeal Technology batteries, as these have been tested in our Xtream products to give the best life and are least likely to leak. At 0°C the battery life is reduced to half of its calculated life and it further reduces to 1/8th of its life at -20°C.

For temperatures below 0°C we recommend Energizer Lithium L91 batteries and these will have a life of greater than 2 years even at -20°C. Replace the batteries in the logger in the indicated orientation in the battery holder. (Note: The unit will not be damaged if the batteries are inserted incorrectly). Before replacing the cap check the O-Ring seal is present, clean and free from dirt. If required, apply some silicon grease (available from www.OdysseyDataRecording.com). Replace the cap and tighten by hand. Do Not use any tools to tighten the cap.

If the logger is scheduled to remain unused for more than a year, then remove the batteries to prevent any chance of leaking.

Specifications

	Description
Radio	NRF52832 Bluetooth SOC from Nordic Semiconductor
Frequencies	2402 – 2480MHz
Modulation	GFSK
Bandwidth	1MHz
Output Power	+4.0dBm max
Antenna	Ceramic Chip with 0.5dB gain.Return Loss -9.5dB UFL (external)
Operating Temperature	-20 to 55°C (standard)
Relative Humidity	0% to 100%
Water Proof	IP68 30m
Dimensions	46mm Diameter, 160mm Length Ext Snsor Length 1 02 meters.



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Intellectual Properties

- Bluetooth® is a registered trademark owned by Bluetooth SIG Inc.
- Odyssey® is a registered trademark of Dataflow System Limited.

Legal Information

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiation Exposure Statement

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Japan (MIC)

The Xtream loggers are approved for use in the Japanese market.
In Japan, certification is valid for 80 channels between 2402...2481 MHz

CE Warning

This device has been tested for compliance with the relevant standards for the EU market.
A copy of the Declaration of Conformity is available upon request to the manufacturer.
Dataflow Systems, PO Box 13672, Christchurch 8023, New Zealand

Radiation Exposure Information

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Industry Canada

This device complies with ISSED's licence-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be chosen so that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Radiation Exposure Statement

This equipment complies with ISSED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.