



Odyssey[®] Xtream Capacitive Water Level Logger Datasheet

The Xtream water level logger measures the depth that the sensor cable is immersed in the water and can be user calibrated. The water level reading is stored in the internal non-volatile memory along with the ambient temperature (measured inside the logger) and a timestamp. When in range, the logger wirelessly communicates to the Odyssey[®] Xtract software application (download free from Play Store or App Store) on your android phone or tablet and stores the readings on your device. When the Xtract application detects a network connection, it sends the data to the cloud database servers. Using any standard internet browser, connect to our Odyssey[®] Xpert Web portal to analyse your data.



Features

- Standard depth sensor lengths 0.5m, 1m, 1.5m, 2m, 3m, 4m, 5m.
- Low Cost
- Wireless
- Waterproof Logger and sensor to IP67
- Removable sensor cable.
- Internal Ambient Temperature reading.
- Can be installed into a PVC stilling well.
- Variable logging Interval
- Continuous ring buffer storage

Specification: (typical conditions, Battery Voltage 3V, Temperature 22°C)

Accuracy: Water Level	with factory temperature calibration & compensation
– Sensor Length 1m or less	±1.0mm
- Sensor Length 2m or less	±1.5mm
- Sensor Length 3m	±2.0mm
- Sensor Length 4m	±2.5mm
- Sensor Length 5m	±3.0mm
Resolution: Water Level – Sensor Length 1m or less	±0.10mm
- Sensor Length 2m or less	±0.15mm
- Sensor Length 3m	±0.20mm
- Sensor Length 4m	±0.25mm
- Sensor Length 5m	±0.30mm
Accuracy: Temperature	±0.5°C typical (±2.0°C max)
with factory temperature calibration & compensation	±0.3°C
Resolution Temperature	0.0625°C
Drift due to Ambient Temperature (uncompensated)	±0.15mm (mm/°C) for 1m sensor
Calculated Battery Life – (Extended / Standard)	2 Years typical. Based on 15min recording interval.
– (Industrial)	5+ Years (Dependent on average temperature)
Memory Capacity	60,000
	Including ambient temperature



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Water Proof (with sensor cable attached)	IP67, (IP68 Optional)
Logger Dimensions	46mm Diameter, 160mm Length
Operating Temperature – (Standard) – (Extended / Industrial)	-20 to 55°C (Standard battery with reduced life below 0°C) -20 to 60°C / -30 to 85°C
Bluetooth LE	4.0
Supported Phone/Tablet	Android™ V6.0 or greater. Apple IOS® V9.3.6 or greater.
Battery (standard) (2 per logger)	Alkaline AA 1.5V (Energizer Max® E91)
Approvals	FCC, RSS, MIC, CE, AS, NZ

Installation

For groundwater measurements or in bores the probe can be lowered into the bore vertically. On the top of the logger cap there is a position to hang it from. In an open water situation the logger can be mounted in a PVC stilling well (pipe internal diameter 37mm). You can also purchase logger mounting clamps from Odyssey[®] to secure the logger to a wooden stake or pole. The sensor cable is very sensitive so we recommend keeping the sensor cable away from any other object by at least 50mm and away from any other electrical devices by 10m. For accurate ambient temperature readings keep the logger out of direct sunlight.

Upon inserting the batteries into the logger, the loggers default settings are to start continuous logging.

User Length Calibration

Calibration is carried out by marking the cable at 2 points, a low point (typically 200mm above the weight) and a high point (typically 100mm below the logger). Measure the total length between these two points and record the logger readings at these two points. Once these values are entered into the Odyssey[®] Xpert Web portal the logger will then report the calibrated water level in units of mm.

Factory Logger Temperature Calibration & Compensation

The water Level logger can be optionally ordered with factory temperature calibration which is traceable to NIST standards. If this has been chosen then a temperature compensation figure is also calculated and applied to the water level sensor reading.

Maintenance

It is normal for bio-fouling to occur on the teflon sensor cable and the brass weight. To keep the logger reading accurately, periodic cleaning of these parts is required. For cleaning use water, detergent or methylated spirits with a soft cloth. Do not use any abrasive materials on the cable. Be careful not to put any kinks into the cable or bend it in a radius tighter than 100mm. If the deposits cannot be removed then recalibration will be necessary. The brass weight should be washed then lightly sanded with 2000 grit wet and dry sand paper. If the cable is beyond cleaning, unplug the sensor cable and order a new sensor cable from Odyssey[®].

Sensor removal

If needed the sensor can be removed from the the logger. Using your finger tips, grip the connector on the logger end of the cable and rotate anti clockwise ¼ turn then gently pull to release. The connector is fitted with an O-Ring and an internal seal to keep it water proof. Once the sensor cable is disconnected, the cable and the logger are no longer water proof.



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Batteries

The battery life is dependent on a number of variables including sampling interval and operating temperature. The remaining battery life is indicated in the Xpert web portal. To replace the batteries, unscrew the cap and lift out the 2 batteries. Over time the cap can become very tight so we have available a special tool for opening the cap. As the batteries are non-hazardous, disposal is with your normal rubbish. We recommend with temperatures greater than 0°C that you use the Energizer Max E91 with PowerSeal Technology batteries as these have been tested in our Xtrem products to give the best life and are least likely to leak. At 0°C the battery life has 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 (Extended temperature range) we recommend Energizer Lithium L91 batteries.

For temperatures above 55°C (Industrial temperature range) we recommend our 3.6V Lithium Batteries.

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 Odyssey[®]). Replace the cap and tighten by hand. Do Not use any tools to tighten the cap. If you are not using the logger for more than a year, then remove the batteries to prevent any chance of leaking.

Battery orientation is indicated inside the battery holder.

Quick Start Guide

Once you purchase loggers you will be sent a username and password which will allow you to login to the Odyssey[®] Xpert web portal. You will also receive instructions on how to download and install the Xtract application to your data collection device. Check our Odyssey[®] website for a low cost tablet.

Browse to the Odyssey[®] Xpert web portal and enter the supplied username followed by your password. You will then be presented with a map showing your loggers with map pins. Zoom in on the map and select the logger you wish to configure. Once selected the logger details will appear on the right side of the map.

From the menu select Logger config. It is important to choose a unique name for your logger. It can include numbers, an asset code or anything you like to help you identify it, as the serial number of the logger is long. At this time you should also write the logger name on the logger label to help identify it. If you enable continuous logging, the logger will continuously log until its memory is full and then start overwriting the oldest readings first. If desired you can select a Start and End date/time. Select your time zone that the logger is installed at. Typically this will be your time zone. You can also add a site description and any deployment notes you may want. Once you press submit the settings will be stored in the database.

Start the Xtract application on your device (phone/tablet), select settings from the menu and enter the provided username and password. The Xtract application device will periodically check to see if any settings have been changed and download them into the device. Once the logger is turned on and in range, the Xtract application will automatically connect to the logger and update the logger settings. If there is any stored data on the logger it will also collect the data and automatically send it to the cloud database servers. You can view the progress by opening the Xtract Application. See the Odyssey[®] Xtract user manual for more features of this application.

To view the recorded data in the Xpert Web portal select your logger from the map and choose chart from the menu. Select a date range, then press the Go button and your recorded data will be displayed in the graph below. Right mouse click on the chart to see a menu of the various export options. See the Odyssey[®] Xpert user manual for more features of this application.