



bathylogger

bl200 user manual

The BathyLogger BL-200 single beam echo sounder was designed to be the most portable survey grade echosounder in the world and also the easiest to use. Just add your GPS and data collector or PC.

EQUIPMENT SUPPLIED

**BL-200 - 200 KHz transducer with power
USB or DB9 data cable
Li-ion battery and charger
Transducer mounting bracket**

**5x - 12" survey poles
Waterproof rugged case
Flash USB manual
1 year limited warranty (parts and labor)**

Switching the system on: Simply plug in the power leads and the transducer will start to ping, it must be in water to give a depth. Testing in a small bucket is fine but realize the depths will be incorrect from the shallowness and noise. **Note:** The transducer comes with a cap for protection, remove this before use.

Data Collection: The BathyLogger outputs the Universal NMEA DBT format Most data collection software made today recognize this format. Hypack, Field Magnet, SurvCE, Access, Survey Controller, Terra Sync, Leica , Hydro Magic Etc. Please visit the support page on the bathylogger.com website to find the specific setup guide for your application.

Baud Rate: 4800 , 8 , none , 1 , none

Example of NMEA output data format

\$SDDBT,1.38,f,0.42,M,0.23,F*3B

\$SDDBT	NMEA designation
1.38,f	depth in feet
0.42,M	depth in meters
.23,F	depth in fathoms

USB: Only version BL200. Very simple to use, insert the USB into any windows based PC, the driver should load. You can check in Device Manager > Com Ports. " FTDI". You are ready to transfer data.

DB9: Version BL200 gives you three ways to connect. RS232, USB and the optional Bluetooth module. If you are using a Windows PC platform use the RS232 or the USB adaptor included. Data collectors will benefit from the Bluetooth module.

Bluetooth: The optional Bluetooth module for the DB9 output model is simple plug and play. No need to add external power. Use code 1234 to pair to your device.

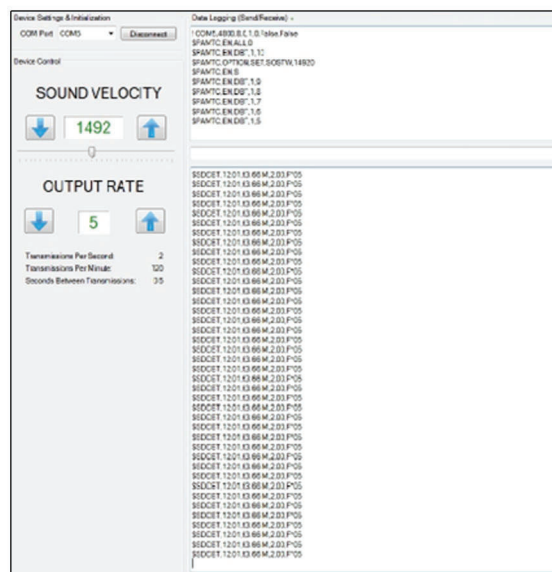
Bar checking: Bar checking is calibrating the system for the sound velocity of the water you will survey in. There are normally three methods of doing this but we have found that in shallow water (100m or less) using the third option, Thermometer and a Sound Velocity Table is plenty accurate.

1. A digital bar check (example Odom Digibar Pro).
2. Building a bar check consisting of a flat, large base at a fixed distance from the transducer.
3. For shallow water, print out the sound velocity tables on the flash drive included to set your BathyLogger to the desired setting. To do this you would get a water temperature from mid water column and refer to proper sound velocity table for fresh or salt water. Please call if you have further questions. Using the sea bed distance for calibration is not acceptable; this should only be used for rough check. Note: Certain jobs will spec a SVP is used.

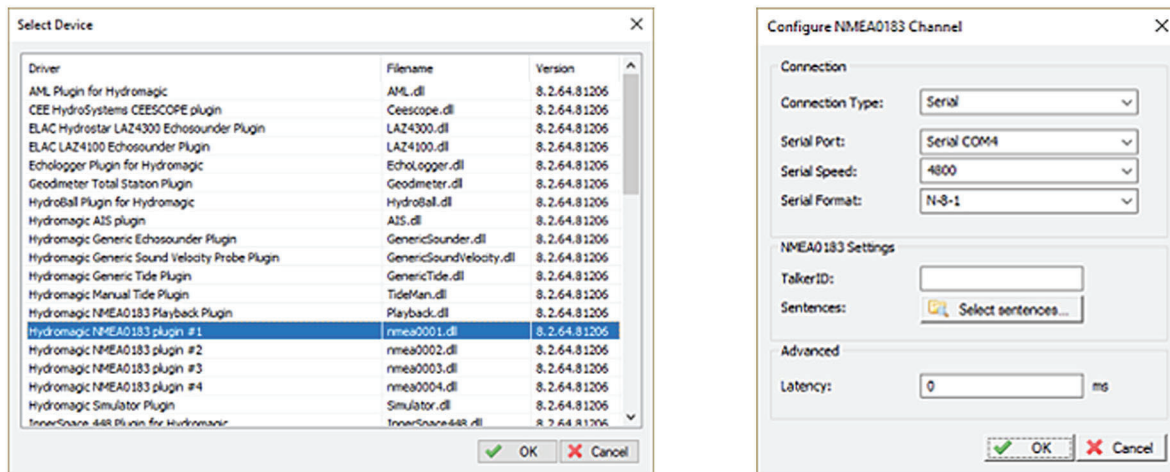
Battery Charging: Charge the battery fully before each use and on long, remote surveys bring a spare. **IMPORTANT:** The battery must be in "ON" position during charging. After the battery is full you can turn it off until you are ready to survey. Do not leave the battery on charge for days or weeks.

Maintenance: Avoid scratching the bottom of the transducer and also don't use chemical cleaners. Always rinse Boat mount kit, transducer and cable after use, especially when used in salt water environment. Avoid getting the USB and charge ends wet.

BathyLogger Software: Load our BathyLogger setup software onto your PC. You can adjust the sound velocity here as well as the output rate. Depending on the type of survey or software used, you can choose between 1 sounding /sec up to 10 soundings /sec. In Hypack or Hydromagic most surveyors would go max 10/sec, but if you're logging in a data collector 2hz is most common. The lower windows shows your output data string. Note the output rate is below the setting arrows next to "Transmissions per second." **IMPORTANT: Disconnect from this software after you make your changes.**



Hydromagic > Preferences> devices



Read the section below carefully:

Mounting and Surveying Tips:

- Mount the pole kit straight and adjust once personnel are seated. This will ensure you are getting the depth below the boat.
- The bottom of the transducer should be just lower than the boat draft. If it is just a few inches under, returning soundings could be reflected off the hull.
- A motion sensor is not needed unless you are offshore in swells.
- Try and mount over the side to avoid aeration from the motor.
- When using a RTK GPS you may take a rod height offset and enter that into the data collector. Most GPS field software today will apply this depth below transducer to the rod offset and you will log bottom elevation in real time. Most land surveyors compare this to doing a continuous topo on a quad.
- Others may just measure the draft from the transducer bottom to the water surface. This will depend on the GPS you are using and the software you are collecting data in.

Single beam echo sounder Survey FYI:

Typically survey boat speed is 1 m/s and you would work in a back and forth pattern across the shortest distance (similar to the lines on a football field). Line spacing will be determined by how large the area is and how much detail you need. I usually survey some additional lines in the perpendicular direction from the original lines. This ties the lines together and creates a more accurate finished product. Ping rate or soundings/second is also a factor you can adjust that with our Bathyløgger software.

As the surveyor you control the amount of points you log. In the Hydrographic community, using Hypack or Hydromagic, we are used to collecting a lot of points. Land surveyors are typically not used to this and space soundings out quite a bit. River crossings may not require a lot of points, but pre and post dredging and bridge scouring surveys would be beneficial to have dense data to create an accurate map of the bottom.

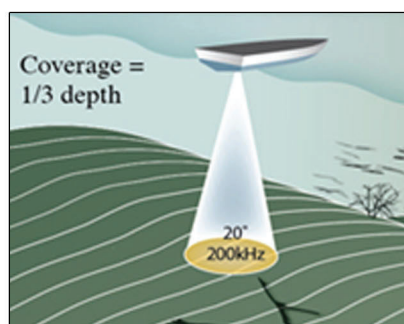
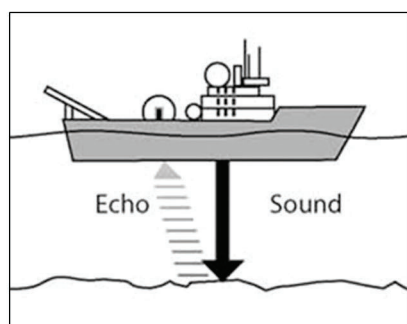
When you get around 1.3 feet (.39m) of water depth you may experience what's called double or triple returns. The sounding will appear deeper. All 200Khz transducers will do this, just keep that in mind. Shorelines should be done with a rod.

Vegetation can give echo sounders problems. If its thick enough it will give false readings or zero depth readings. Despite popular belief, a dual beam is not the answer as you will also get bottom penetration readings and not actual seabed with a low 30Khz transducer. Some options are to use a rod in these areas or wait until after winter while the vegetation is dead.

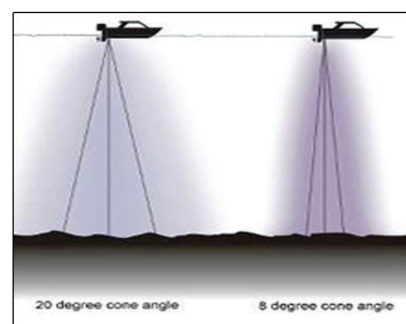
The sonar cone is 9 degrees and would look like an upside down ice cream cone. If the transducer is close to a seawall, piling, dock etc, it will take the first and nearest return (which may not be the sea-floor).

Sonar FYI

Echosounding sonar uses the time interval between a series of soundings and echos for several purposes like range finding (survey), fish finding or imaging. The bathyløgger is a single beam, single frequency 200 kHz echosounder made for conducting survey grade bathymetric (Hydrographic) surveys. Over 90% of bathymetric surveys in the world are still done with single beam echo sounders. Survey echosounders have a narrower beam (cone) and cannot see fish in the water column. We just want to track the bottom and interpret the returns for accuracy (unlike a fish finder). In photo three you can see the difference of the beam angle.



(example sonar cone)



(example beam width)

The sonar cone is like an upside down ice cream cone. An echosounder will take the first return it gets within this cone, so slight movement of the cone won't affect getting the first return directly below the boat. Typically, survey's are conducted as slow as possible (2-4 mph) and working the survey back and forth (similar to the lines on a football field). Also, going in the perpendicular direction will form a grid and really tie the survey in nicely.