bathylogger

bathycat user manual

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The BathyCat Survey Catamaran, when used with the BL-200 echo sounder, can perform very accurate Bathymetric Surveys safely from shore. This user Manual will help get your BathyCat ready to go.

EQUIPMENT SUPPLIED

Futaba T6K Transmitter and Receiver
2 Lipoly 8000mah Batteries and Charger
HDPE Enclosed Catamaran Hull
2 Thrusters 11lb f each
Transducer Mounting Plate
Transducer cable Large Bore Waterproof Cable Gland
4 Handles
2x on/off switches
Hatch - opening = 18 7/8" x 9 1/8"
GPS mounting plate 5/8 x 11
2 Electronic Thruster Controllers
1 year Limited Warranty on Parts and Labor

Quick Start: It's best to run through the quick start at the office or at your vehicle before carrying it to the water.

1. Open the hatch.

2. Install charged batteries.

3. Turn on the Futaba Transmitter, left stick down and then back to center to disable the alarm. Level both sticks in the middle. Check trims are set to 0.

4. Turn on switch on the BathyCat, the motors will sync.

5. Test right and left thruster - note do not run hard or long as they get lubrication from the water.

Futaba T6K Basic Operation: On the RC BathyCat we use the right and left sticks similar to a skid-steer type vehicle, this allows for precise control. For advanced setup of this transmitter please refer to the online Futaba T6K user manual. This remote uses 4x AA batteries.

1. After turning on the transmitter move the left stick to the bottom and back to the middle to disable the alarm.

2. On the home screen see that all 4 trims are set to zero. These are used to fine tune operation if needed. The little black knobs below and to the side of the sticks are used to adjust this.

3. To ensure the Counter rotating props are moving at the same speed, at the same throttle stick position you can perform a throttle range calibration. One side at a time. Please see the Video user manual for a detailed view.

4. Right Thruster goes in Receiver port 2 , Left Thruster goes in Receiver port 3. see below futaba receiver image.

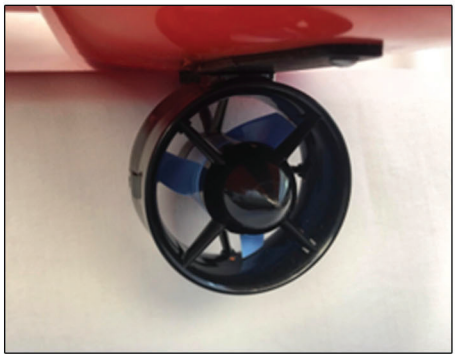
5. The program Card included to make changes to the Electronic thruster Controller settings. There are 4 settings, we set these to 2-1-3-1 in that order. Please see the Video user manual for a detailed view.

Charging Lipoly Batteries: This is very easy, a giant leap over the older style Lipoly chargers. Just plug in the Cube to a 110 volts standard plug. Insert the white balance plug clip on the battery into the corresponding slot on the charger. The lights on top will tell you when its at 100%. Image above.

Thrusters: The Thrusters on the BathyCat are low cost, robust and easy to work on. With 2 Allen key sizes, 2mm, 4mm and a Philips head screwdriver you can do all related Thruster Maintenance or repair. In 3 quick moves the motor is apart and you can do what is needed.

1. Remove the thruster plate 2x Allen heads, 4mm
2. Remove the round Nozzle from that plate section 4x nuts 2mm Allen heads
3. Remove motor from Nozzle, 4 Philips screws.

With the Motor removed you can change props (2mm Allen), replace Motor or just clean. Please note the props are counter rotating inward. Note: the Thruster cable easily can be pulled through the cable gland if needed., no cutting and re-soldering needed. Please see the Video user manual for a detailed view.



Transducer install: The BL-200 Transducer is removable and made so it can also be used on any other craft, manned or unmanned. To do this you will need a Philips head screwdriver or a screw gun. Please see the video user manual for a detailed view.

1. Open the hatch and remove the 4 screws on the round white cable pass through, remove the white cover, then remove the rubber plug.

2. On the bottom of the BathyCat thread the male 5/8x11 transducer into female 5/8x11 thread of the transducer mounting plate on the bottom of the BathyCat. Next feed the transducer cable (both ends and cable) into the Bathycat. Coil up on inside to keep neat.

3. Attach rubber plug around the cable at a good spot, insert plug back firmly into the white cap, screw the white cap back on inside the boat. Note there should be only just enough slack below the boat going into the cable gland. if there is too much you may want to pull some in.

Cleaning and Maintenance: After use if is best to dry out any water inside the boat before moving it. If salt water gets inside, remove water and wipe inside with freshwater on a damp towel or sponge. Leaving a sponge in each hull is not a bad idea even though getting water inside is rare. Rinsing off with fresh water after each use is recommended, its especially needed after salt water use. After saltwater use run the props slowly while flushing with fresh water. You may also wash with soapy water. Hosing out and cleaning debris from props is recommended. If you are going to a remote area having some spare parts is recommended and available on our website.

1. 1x spare futaba Receiver
2. 2x Batteries
3. 1x speed thruster controller assembly
4. 1x spare thruster,includes 2 props
5. waterproof silicone clear - small tube
6. electrical tape
7. Tools

If you have any questions please email bathylogger@gmail.com or call 530-387-7556. Also visit our BathyCat FAQ on the support page of the website.

Please see additional survey tips on page four.

Survey Tips: Typical survey speed is 2-4 mph and you would work in a back and forth pattern, line spacing will be determined by how large the area is and how much detail you need. I usually survey line in the perpendicular direction to form a grid. This ties the lines together and creates a more accurate finished product. Ping rate is also a factor and you can adjust that with our Bathylogger software.

As the surveyor you control the amount of points you log. For us in the Hydrographic community using Hypack or Hydromagic, we are used to collecting a lot of points. The land surveyors are not typically 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, it 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.

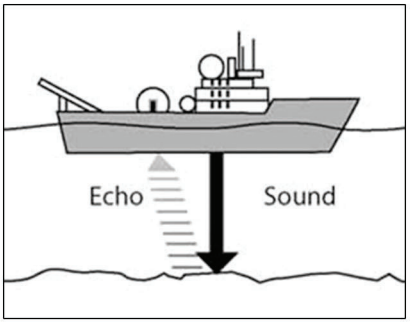
Vegetation can give echosounders problems. If it's thick enough it will give false readings or zero depth readings. Despite popular belief a dual beam is not the answer as you will also get bottom penetration readings and not actual seabed with a low 30Khz transducer. Options are use a rod in these areas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

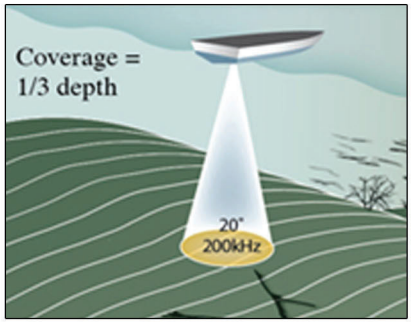
The sonar cone is 9 degrees and would look like a upside down ice cream cone. If the transducer is close to a seawall, piling, dock etc, it will take the first and nearest return which may not be the seafloor.

Please see sonar details on page five.

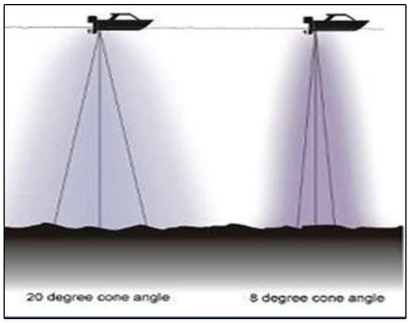
Sonar FYI: Echo Sounding Sonar uses the time interval between a series of soundings and echos (pic one) for several purposes like range finding (survey) , fish finding or imaging. The bathy logger is a singlebeam , single frequency echosounder made for conducting survey grade bathymetric surveys. Over 90% of bathymetric surveys in the world are still done with single beam echosounders. Survey Echosounders have a narrower beam (cone) and can not see fish in the water column. We just want to track the bottom and interpret the returns differently then a fishfinder. In pic two you can see the difference of the beam angle.

The sonar cone is similar to a upside down ice cream cone. An echo sounder will take the first return it gets within this cone, so slight movement of the cone wont 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.





(example sonar cone)



(example beam width)