



Bathy-2010 Quick Reference Guide

About This Guide – This guide can be a useful tool for the inexperienced operator to be able to power-up and run the system in a manner that will provide a depth output under most conditions. Users of the Bathy-2010 should really read over the Operations Manual to have a better working knowledge of the entire system and all its features.

System Overview - The Bathy-2010 system consists of a 5 or 10kw LPT Transmitter (located at the bottom of the rack), a Sonar Processor, and Server Unit with a keyboard/mouse and an LCD monitor. It is designed to provide the user full ocean depth Bathymetry and sub-bottom profiling.

B2010 System Start Up

- From a cold start the LPT Transmitter needs to be powered-on via the circuit breaker switch on the bottom right corner of the LPT front panel.
- The Sonar Processor Unit is powered via the LPT power strip. The system runs on a Windows XP platform. Once the system computer is booted, you are now ready to run the Bathy-2010 application.

Tip: If you are having trouble getting the system to boot properly, try performing a Sonar Reset (Reset Switch located on Sonar Unit front panel), if that doesn't fix the problem, try a normal Windows restart.

- Start up the Bathy-2010 application by double clicking the Icon on the Windows XP Desktop. During start up view the Sensor Status window located on the left side of the screen about 1/3 from the bottom. Once the status window indicates a "SENSOR:IDLE" message, you are now ready to start pinging and operate the system.

Tip: If you do not get to a "SENSOR:IDLE" message, try performing a Sonar reset.

- Before starting system operation you need to ensure that the system operating frequency (Ch. 1 – 3.5khz/Ch. 1 – 12khz) matches the setting on the Transducer Select switch located on the front of the transmitter. To change the system operation frequency, select the appropriate frequency under the "VIEW" drop-down menu. Selecting the system frequency at this time should be done as well.

NOTE: Some systems are configured with a "Multi-Frequency Linear Power Transmitter. If this is your configuration, the transducer select switch located on the front of your LPT needs to be in the appropriate position for the frequency you select.



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B2010 System Operation

System Frequency Selection - For most cases where you simply want to obtain depth readings (Bathymetry), 12kHz is the preferred mode due to better noise rejection and less subbottom penetration. The following details the preferred selections based on water depth:

- Shallow Water (<80 meters) – Use 12KHz due to less Transmit Pulse reverberation.
- Mid Depth Water (80 meters – 6000 meters) – Use 12Khz for more accurate bottom readings (less penetration).
- Deep Water (>6000 meters) – Use 3.5KHz due to much higher signal source level and less attenuation in the water.
- Subbottom Profiling – Use 3.5KHz in all cases for maximum subbottom penetration.

Bottom Depth Acquisition -

- Before starting acquisition, verify that the system is in the preferred Acquisition mode of operation, which is FM (Frequency Modulation) with a Hamming window (shapes the bottom return signal optimally for FM). It can be verified on the bottom of the sonar screen (AQ – FM-Hamming). To change your Acquisition mode select “Configure Acquisition Parameters” under the “EDIT” drop-down menu.
- To start system operation (pinging), toggle the GREEN transducer icon located on the toolbar. The RED transducer icon will stop pinging. The system status window will indicate that you are pinging. You should then toggle the “AUTO ALL” button, which sets the following system parameters automatically; Transmit Power, Ch. 1 Gain, and Range.
- View the Amplitude display on the right side of the Normal Display window to check for the bottom echo return. It will be a large amplitude spike after the transmit energy (at the top of the display).
- If the bottom echo return is in less than 50 meters of water, the AUTO ALL mode may have difficulty finding and retaining the bottom depth. In less than 50 meters of water the system should be used in MANUAL mode.

NOTE: AUTO ALL will work under most conditions, however if the system does not find and lock on to the bottom in AUTO ALL mode after about 3-4 minutes, Manual Mode operation is required. See below for more information on Manual Mode operation.



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Manual Mode Operation - To operate in Manual Mode you generally need to manipulate the following three parameters in the order they are listed below:

- RANGE (available to select on the main sonar screen)
- TRANSMIT POWER (access “Configure Acquisition Parameters” under the “EDIT” drop-down menu.)
- GAIN (available to select on the main sonar screen)

The first parameter you should select is RANGE. If you have a general idea what the depth is (from charts etc.) than you can select an appropriate RANGE based on that value. If not then referencing Table 1 below, scroll through the various RANGES and select the appropriate TRANSMIT POWER and GAIN levels.

NOTE: All references to GAIN are ‘Ch 1-Gain’, not “BT Gain”. BT Gain is used primarily as a science function. BT Gain can be left in the 0.0dB/m position. Consult the Operation Manual for details.

Tip: If approximate bottom depth is unknown, try 150m Range, then 500m Range, then the 5000m Range selection to try to narrow down where the bottom is. Ranges less than 80 meters should NOT be used when trying to find the bottom depth.

Tip: In heavy seas higher TRANSMIT POWER levels may be required.

RANGE	3.5khz		12khz	
	Transmit Power (dB)	Gain (dB)	Transmit Power (dB)	Gain (dB)
40m	-24, -18	3 -21	-24, -18	6 - 24
80m	-18	6 - 24	-18	6 - 24
150m	-18, -12	6 - 24	-18, -12	6 - 24
300m	-18,-12	6 - 24	-18,-12	6 -24
500m	-18,-12	6 -24	-18,-12	12 – 30
750m	-12	6 - 24	-12	12 – 30
1000m	-12, -6	6 - 24	-12, -6	24 – 36
2000m	-6, 0	6 - 24	-6, 0	24 – 36
5000m	0	12 - 24	0	24 – 36
12000m	0	12 - 36	0	24 - 48

Table 1 – Transmit Power/Gain values FM mode in Meters



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Switching System Frequency –

IMPORTANT NOTE: To switch between operating frequencies the following procedure must be used:

- A) Insure that the system is not transmitting (pinging) by toggling the RED transducer icon.
- B) Wait until the system status window displays a “SENSOR:IDLE” message.
- C) Switch the Transducer Select Switch on the 5kw Transmitter if applicable.
- D) Switch the Operation Frequency under the “VIEW” menu.
- E) You can then start pinging by toggling the GREEN transducer icon.

Shallow Water Operation -

In shallow water there will be many multiple bottom returns so the best plan is to use a very low Ch. 1 Gain setting: 3 to 12db. When working in 10-20 meters of water or less the best mode of operation is CW at a low power level.

For optimum shallow water operation set your Bathy 2010 or 2010P to the following settings for the best results:

Operational Mode CW
Power Level to -24db
Depth Range to 40 meters
Ch. 1 Gain 3db
BT Gain to 0.0db
Zoom Window to Bottom Zoom
Zoom Range to 20 meters

Look on your display and determine if you have obtained a bottom return. if not present slowly increase the Ch. 1 Gain from 3db to 6db etc.. until you see a bottom return present on the display.

Then increase the BT gain to 0.2db then you should start to see some sub bottom layering if any is present. Dependent on the bottom type a second third or fourth bottom return may be present and can not be avoided.

Water depth is always a limiting factor on bottom penetration results as some of the sub bottom data may be hidden by the 2nd bottom return or multiple returns. The 2nd bottom return can be processed or filtered out in post processing in some instances. But for best results a lower Ch. 1 gain value will always provide the best results.

Additional System Features – The system Operations Manual covers all features not included in this guide. The Operations Manual is available in .pdf format on the Bathy-2010 Installation CD. It is also accessible from the B2010 Operator Interface via the “HELP” tab on the tool bar.

END OF GUIDE