



Bathy-2010P Quick Reference Guide

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

System Overview - The Bathy-2010P system consists of a Bathy 2010P server, a 5kw LPT-5 Linear Power Transmitter, a Sonar Processor Unit with a keyboard/pad and an LCD monitor drawer. It is designed to provide the user Deep-water depth Bathymetry and CHIRP Sub-bottom Profiling.

B2010P System Start Up -

- Power up the Bathy 2010P Server. The system runs on a Windows XP platform. Once the system server is booted, you are now ready to run the Bathy-2010P application.
- From a cold start the LPT-5 Linear Power Transmitter needs to be powered-on via the switch on the bottom left corner of the LPT-5 front panel.
- The Bathy 2010P Sonar Unit power is provided from the LPT-5.
- Start up the Bathy-2010P application by double clicking the Icon on the Windows XP Desktop. During start up via 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.

System Frequency Selection - For most applications, the B2010P operates using a single center frequency. For users with single frequency systems, there is NO frequency selection so this step can be eliminated. For multi frequency systems, users should select the correct frequency for the desired application as shown below.

There are many B2010P system variants as required by our customers but most of the applications make use of some combination of the following transducers/frequencies:

- 3.5KHz/TR109 Array – Sub-bottom applications for shallow, mid, and deep water.
- 10KHz/Stratabox Transducer – Sub-bottom applications for shallow water.
- 12KHz/ 12KHz Transducer – Bathymetry for mid and deep ocean applications.
- 33KHz -> 210KHz Transducers – Bathymetry for shallow and mid water applications.



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Operation Mode Selection – There are two modes of operation for the B2010 system: FM CHIRP mode and CW mode. The Operation Mode is selected under “Configure Acquisition Parameters” using the “EDIT” menu.

- **FM CHIRP Mode** - For most applications, the B2010P should operate using only FM CHIRP mode. Sub-bottom profiling application results are almost always best in FM CHIRP mode. The only exception is for shallow water applications at low frequencies where the CHIRP processing is difficult due to Pulse Length limitations. For users with 3.5KHz systems and TR109 transducers, the 20m and 10m ranges will show artifacts due to the limits of the signal processing. For these ranges it may be best to use CW mode even for Sub-bottom profiling.
- **CW Mode** – CW or Energy Detection mode can be used for shallow and mid depth bathymetry applications. It is also best in very shallow water sub-bottom profiling applications due to the limitations of pulse length for FM CHIRP processing.

Data Acquisition – Now the user is ready to start collecting data with the B2010P system. In shallow water applications (< 40 meters), MANUAL mode is best, in deeper water (> 40 meters) either AUTO ALL or MANUAL mode may be used depending on the needs of the user.

- Depress AUTO ALL if Depth > 40 meters. For < 40 meters select the 40 meter **Range**, set the **Power Level** (Configure Acquisition Parameters) to -12dB, set the **ChX Gain** to 9dB and set the **BT Gain** to 0.0 dB/m.
- Start the B2010 system pinging by toggling 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.
- To verify system operation 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).
- From the “FILE” menu select “Start Recording” to make sure that the data collected is stored in both ODC and SEG Y file formats.
- When an End of Line or appropriate time is reached to end the file recording, select “Stop Recording” from the “FILE” menu.
- To stop the B2010 system from pinging, toggle the RED Transducer icon and verify that the system status window indicates “Idle”.
- If the bottom echo return is in less than 40 meters of water, the AUTO ALL mode may not provide the optimum sub-bottom presentation. In less than 40 meters of water the system should be used in MANUAL mode.

NOTE: AUTO ALL will work under most conditions, however for many sub-bottom applications MANUAL mode is preferred. 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.
- **Ch1 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: In heavy seas higher TRANSMIT POWER levels may be required.

RANGE	3.5khz	
	Transmit Power (dB)	Gain (dB)
40m	-12, -6	3 -21
80m	-12, -6	6 - 24
150m	-6	6 - 24
300m	0	10 – 30
500m	0	10 – 30
750m	0	10 – 30
1000m	0	15 – 35
2000m	0	15 – 35
5000m	0	18 – 38
12000m	0	21 – 42

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

Shallow Water Issues – Shallow water operation offers the most common and challenging application for use of the B2010 system. Since the B2010 systems are operating at low frequencies and high energy levels to accomplish the purpose of sub-



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bottom penetration, there are 2 operation considerations that need to be evaluated in shallow water: Transmit Pulse Reverberation and FM mode correlation issues.

- **Transmit Pulse Reverberation** – Transmit reverberation can result in the Depth digitizer effectively locking on the transmit pulse in some instances. To remedy this issue the “Configure Gate Limits” box is available under the “EDIT” menu. It allows the user to select to the minimum and maximum limits on which the Bathy 2010P will look for a valid bottom return. *(Example in 8 meters of water minimum gate limit set to 6m and maximum set to 39m) * Note the gate limits work in manual mode only.*
- **FM Mode Correlation** – In the 20m and 10m ranges there are issues with the FM correlation processing that may produce a “scalping” effect on the acoustic data due to low frequencies, short pulse length’s, and correlation sampling limits. When this effect is noticeable, the CW mode of operation should be selected for data acquisition.

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-2010P Installation CD. It is also accessible from the B2010P Operator Interface via the “HELP” tab on the tool bar.

END OF GUIDE