WinFrog Device Group:	**LBL ACOUSTIC**
Device Name/Model:	**Oceano LBL10**
Device Manufacturer:	Oceano Technologies Rue Rivoalon - Sainte-Anne du Portzic 29 200 Brest France tel: +33 (0)298 05 6700 (operator) fax: +33 (0)298 45 7071 email: enquiry@oceano-technologies.fr
Device Data String(s) Output to WinFrog:	LBL10 data strings
WinFrog Data String(s) Output to Device:	Nil
WinFrog Data Item(s) and their RAW record:	Transceiver (LBL TRANSCEIVER) 420 Transponder (XPONDER) 421

DEVICE DESCRIPTION:
Long base line acoustic equipment. Used to position underwater vehicles or surface vehicles. Uses fixed transponders placed upon the bottom and other transponders placed on vehicles; relays only. Also see the WinFrog User's Guide, specifically chapter 5 "WORKING FILES", chapter 17 "LBL ACOUSTICS" and chapter 20 "ACOUSTIC CALIBRATIONS".

The data is expected to be in a specific format; note all characters are converted to upper case when received. Description of expected data is as follows:
The first line must contain the word LEVEL and CYCLE
e.g., *01-01-1990 01:23:05 Level: 1 Cycle: 21 Rm: 1 Rl: 1:*
Essentially this line is used for synchronization and to obtain the cycle number. If the cycle number is odd, then the range data that follows is assumed to belong to the acoustic module. If it is even, it is assumed to be associated with a relay. Note the operator may interchange the useage of odd and even.
The line containing "CURRENT FLAGS" is ignored.
The lines containing the ranges must contain the characters "CH" and "RAW RANGE" and the flag must be –1 for valid data. Each range is converted to a travel time by dividing by 1.5metres/millisecond. A total of 16 channels are expected.
After the range data WinFrog expects a line containing "AM" and "ABSOLUTE" followed by the coordinates then followed by a line containing "RELAY" and "ABSOLUTE".
e.g., *Relay # 1 of AM # 1 absolute fix: rms/x/y/z/time:*
The phrase *Relay # 1* is used to determine which relay the range data belongs to, if it is relay data as determined by an even cycle number. A name is generated by combining R with the number, i.e. R1. WinFrog then expects this name to match the name of this relay transponder found in the transponder file.

If the range data is determined to be associated with a relay, then the range between the acoustic module and the relay is expected to be found in the channel number of the fixed transponder's interrogation channel. Which is also the code entered when editing the LBL TRANSCEIVER data item (see below and the LBL ACOUSTICS CHAPTER).

e.g., Given 3 transponders F1 and F2 are fixed on the bottom and R1 is a relay.

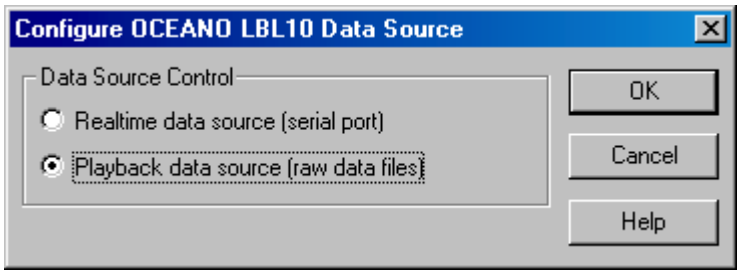
Transponder	F1	F2	R1
RX	3	3	4
Tx	1	2	3

01-01-1990 01:23:10 Level: 1 Cycle: 22 Rm: 1 Rl: 1:

Current Flags and Raw Ranges of RM # 1 :
Ch 1 Flag 0 Raw Range 2010.3 m Ch 2 Flag 0 Raw Range 150.0 m
Ch 3 Flag -1 Raw Range 1122.0 m Ch 4 Flag 0 Raw Range 0.0 m
…
Here the range between the relay and the acoustic module is 1122 metres.

DEVICE CONFIGURATION INSTRUCTIONS:

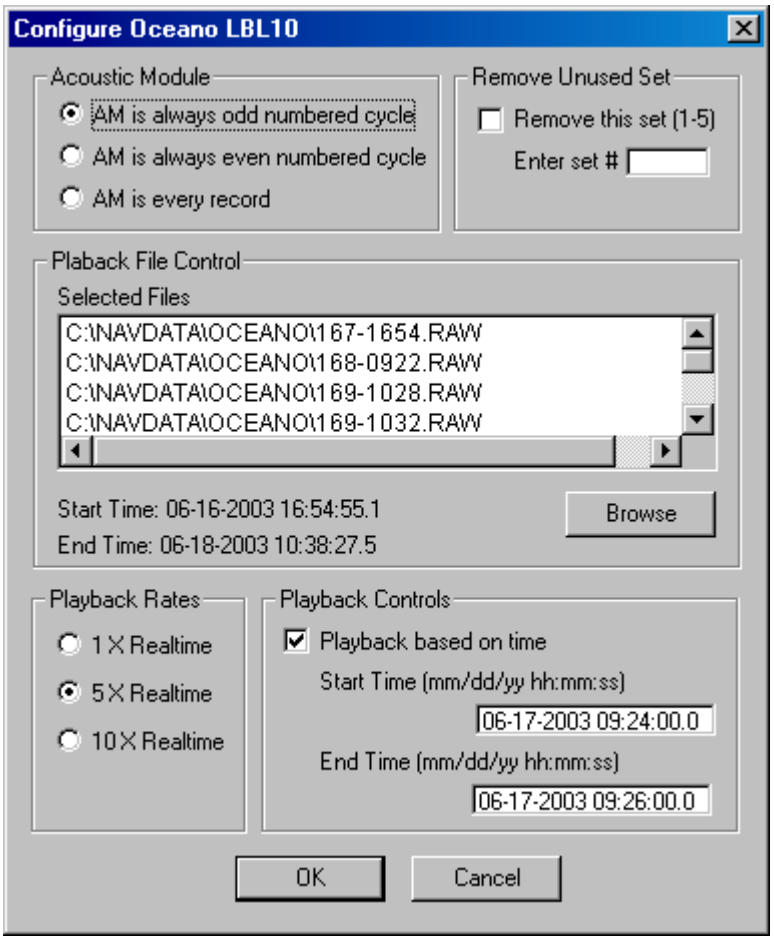
WINFROG I/O DEVICES > EDIT I/O:
This device supports playback of raw data files directly via the device driver, as well as the standard realtime serial port interface. When the device is added for the first time or the Edit I/O option is accessed, you are presented with the following dialog.



If it desired to run in realtime, select the ***Realtime data source (serial port)*** option. If this option is selected, clicking the ***OK*** button takes you to the standard ***Device I/O Parameters*** dialog. If it is desired to playback data from WinFrog *.raw files, select the ***Playback data source (raw data files)***. Clicking the ***OK*** button with this option selected just exits the dialog.

WINFROG I/O DEVICES > CONFIG OPTIONS:
This device must be configured at the I/O Device window level. In the I/O Devices window, click the device name to select it, then right-click and select Configure Device. The Configure Oceano LBL10 dialog box appears, as seen below. The top two panels

are applicable to both realtime and playback operations. The lower three panels are specifically for playback. In realtime mode, they are disabled.



Acoustic Module
This determines which data set belongs to the acoustic module and which belongs to a relay. It is expected that the default is always the correct selection. Refer to ***Device Description*** for further information.

Remove Unused Set
Because of restrictions on the incoming data, it is necessary to remove sets manually. A set is considered an LBL TRANCEIVER that was setup on a vehicle after the code is assigned or a BEACON data item setup with a relay transponder on a vehicle. WinFrog allows for five such sets e.g. An LBL TRANCEIVER and four relay BEACONS. To remove a set, first remove it from the vehicle then open this dialog, check the box and enter the number in the edit box. To determine which set number belongs to which code, look in the I/O Device window for the set number and code no longer required. If the code and/or data item is not first removed from the vehicle, WinFrog will add it back.

Playback File Control
This list box displays the raw data files (*.raw) that have been selected for playback. Note that if they have just been selected, they may not be in sequential order. If the dialog has just been opened they will be listed sequentially. To select *.raw files, click the ***Browse*** button, navigate to the appropriate folder, select the file(s) and click ***OK*** to return to this dialog. The selected files are scanned to determine the start and end times for the period covered by the files. This information is displayed below the list box in MM-DD-YYYY HH:MM:SS.S format.

Playback Rates
The *.raw files can be played back at realtime, 5 X realtime and 10 X realtime. Note that this does not affect the actual use of the data for position, speed and advance computations, only the speed that the data is retrieved. This setting can be changed while the data is being played back and will take affect with the next record read.

Playback Controls
The playback of the *.raw files can be refined by setting a start and end time. If this is desired, select the ***Playback based on time*** option and enter the desired start and end times using the MM-DD-YY HH:MM:SS format.

OK Button
The changes made to the realtime and playback settings only take affect if this dialog is exited using the ***OK*** button. Otherwise, the settings, including the file selections, are discarded.

NOTE: Changes to the Playback File List or the Playback Controls will result in a complete reset of the driver's data sets and the playback state will revert to Not Started.

Playback Execution
The control of the data playback is executed via the ***I/O Devices*** window. Select the LBL10 device in the device panel and with the cursor in the data panel, click the right mouse button. The options are listed depending upon the state of the playback and include RUN, PAUSE, RESUME, RESET. The first three are self explanatory. Selecting RESET re-initializes the loading of the raw data and results in the subsequent right mouse click to display the RUN option. If no files have selected, no options are available.

The status of the playback is displayed in the ***I/O Devices*** window. This includes the current state, file that the current raw record is from, the count of processed records, the current record ID and the actual record timestamp. Otherwise, the data is displayed in playback mode in the same manner as when in realtime mode.

NOTE: When playing back *.raw files, the configuration of the associated data items (sensor offsets, LOP accuracy, primary/secondary setting, etc.), gating and filters are configured and manipulated as in realtime.

WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > DEVICE DATA ITEM > EDIT:

Adding the Oceano LBL10 device creates two data items: LBL TRANSCEIVER and XPONDER. Once the data items have been added to the vehicle, they must be edited to suit the application.

Data item: LBL, Oceano LBL10, TRANSCEIVER

See the LBL ACOUSTICS CHAPTER (chapter 17 of the WinFrog User's Guide) for details on setting these parameters. They are the same across all LBL TRANSCEIVERS except for the **Transmit Code**. The "transmit code" must match exactly what the unit outputs. This value must also match exactly that which is entered as the Receive value in the transponder file.

Data item: LBL, Oceano LBL10,XPONDER

See the LBL ACOUSTICS CHAPTER (chapter 17 of the WinFrog User's Guide) for details on setting these parameters. They are the same across all transponders (XPONDERS).

Relay Transponder

Currently WinFrog uses an observed range from the transceiver to a fixed transponder to reduce the observed relay transponder's range (which includes the ranges: vessel to relay, relay to fixed transponder and transponder to transceiver, sometimes called sing-around range). Consequently, the LBL TRANSCEIVER must be setup to interrogate with a transmit code.

Note: If more that one relay is present, when selecting the fixed transponders also select the relay and only the one relay that belongs to this particular vehicle.