



Triton

Acoustic Receiver Software Manual

ADVANCED TELEMETRY SYSTEMS

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The ATS Triton Interface Software is required for interfacing with the receiver whenever a USB connection is used (USB 2.0B is recommended). It is intended for receivers using firmware versions 11 and above. Any receiver using a firmware version below version 11 will have limited communication when using the Triton software. Such receivers should either use legacy software (*Trident Acoustic Receiver*) or have their firmware updated to version 11 or higher.

1.0 Getting Started

1.1 Housing Diagrams

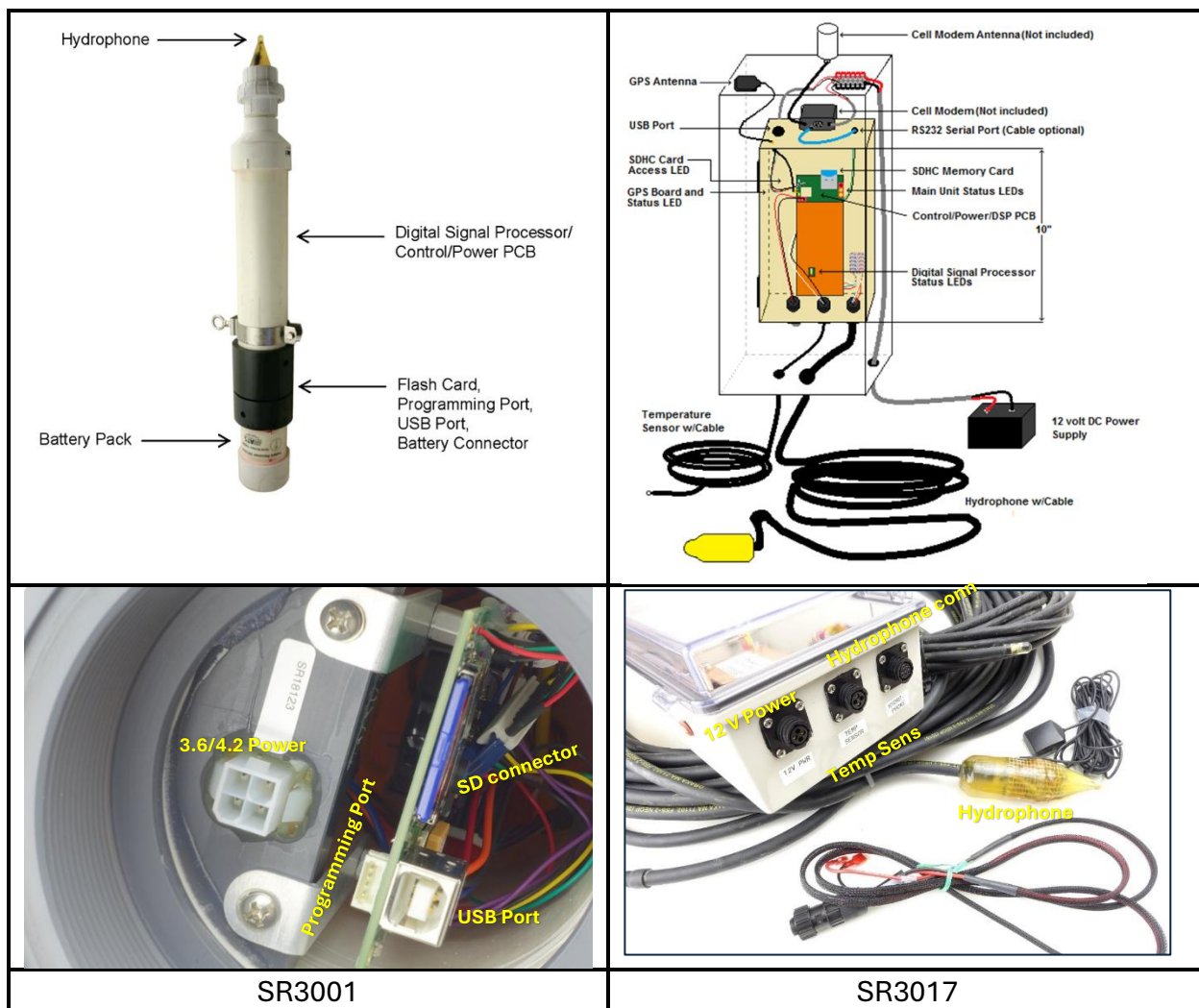


Figure 1A – Connection Diagrams

1.2 Quick Start Procedure

Step 1) Ensure that the receiver is powered with the correct battery/voltage. A SR3017 uses ~12 Volts, and both SR3001/SR3000 use ~3.6 Volts. If using a battery pack the receiver life will depend on the battery's size, see section [3.2 Model Specifics on Powering the Device](#) for more information.

Step 2) After powering the device, it should be connected to the appropriate receiver software via USB or RS232 (more information on RS232 connections later).

The software will automatically attempt to detect and make the USB connection, but the connection can be manually controlled using the USB controls near the lower right corner of the main window (circled in red below).

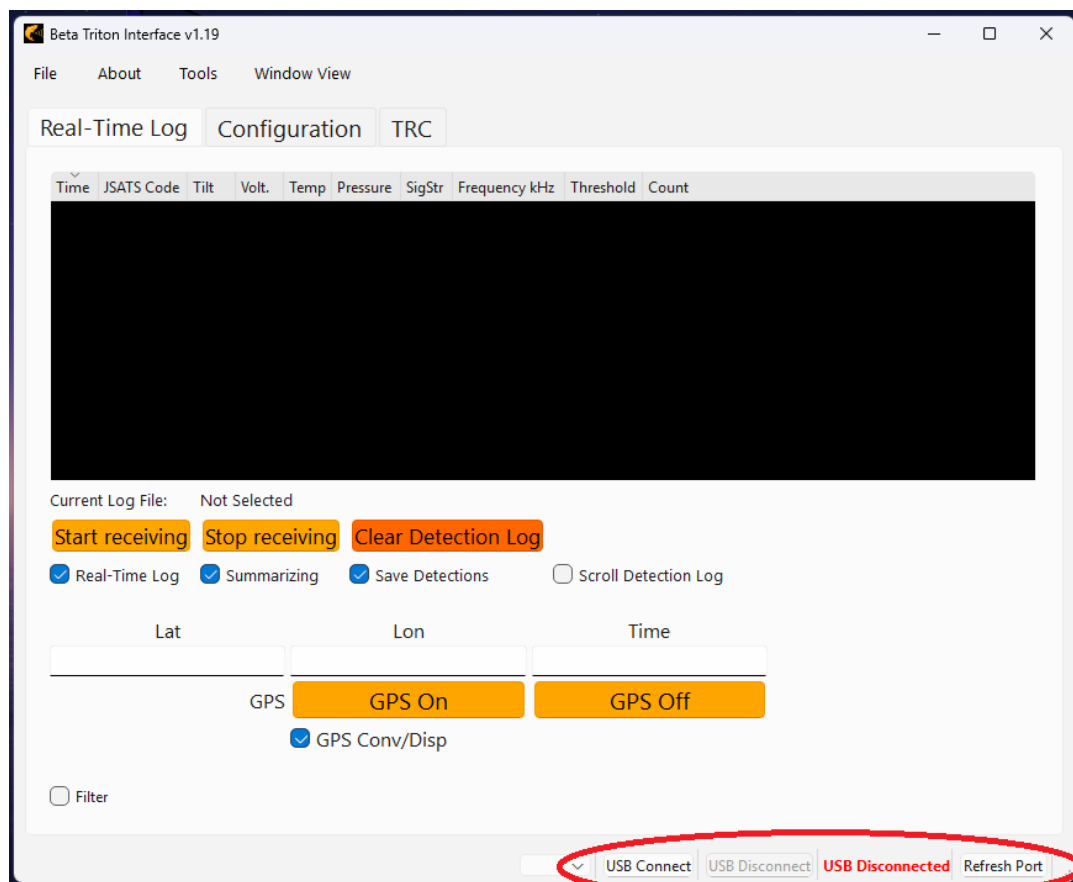


Figure 1B – Real-time logging tab with USB connection circled in red.

Note: The software will always attempt to automatically connect to the receiver whenever the software is started.

Step 3) After the receiver connects, set the receiver time and date. This is done by going into the configuration tab and synchronizing the receiver’s clock to the PC clock (red arrow).

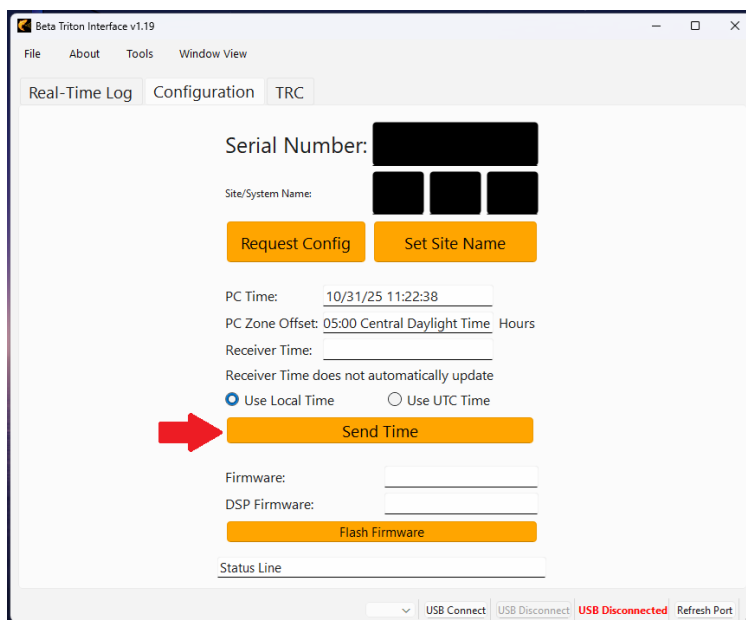


Figure 1C – Configuration tab showing how to set the Receiver Time

Step 4) Once the time is set, return to the Real-Time Log tab and click the “Start Receiving” button. The software will create a log file, then logging will start. At this point a reference tag can be placed by the hydrophone tip and detections should begin appearing in the logging window. This verifies the receiver’s functionality and demonstrates how real-time logging is displayed.

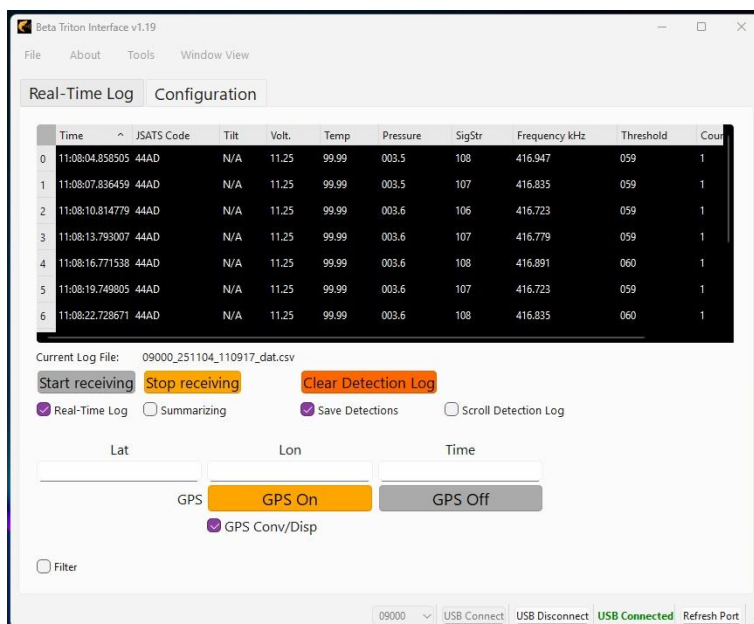


Figure 1D. Real-Time logging in progress

Step 5) Once the receiver’s functionality has been confirmed (reference tag detections) it is then recommended to set up the SD card. See [3.2 Model Specifics on Powering the Device](#) for SD card recommendations. Due to the environmental and study conditions that receivers can operate in, there are different configuration options for how the data can be saved to the SD card. These are covered in the section [3.0 File Format](#). If a blank, formatted card is used at this point without making any changes, the default option is used which is one continuous file (Formatting info for SD card is in model manuals).

Step 6) The receiver should now be set up for basic data-logging of tags.

2.0 Additional Controls and Features

2.1 Drop-Down Menu Controls

File – Allows creation, selection, deselection, or deletion of Log files, Code files, and other .CSV files.

.CSV (comma-separated values) files are a common form of data files that can be viewed using Microsoft Excel or other spreadsheet applications.

The Log file is a .CSV file created to store data from transmitter signals detected and interpreted by the receiver.

A Log file is required for the data to be recorded to the PC. If the user does not create and/or designate a file, a file will be automatically created using the default format ‘SR#####_ymmdd_hhmm##_dat.csv’ (see [3.0 File Format](#) for more details) and stored in the subfolder “...Generated Files\Realtime output”. This subfolder will be created in the same location where the original application is executed from. The “dat” in this filename distinguishes it from files stored on the SD card, which have a more substantial header before the data.

A Code file is a .CSV file created with a list of transmitter IDs that the software is set up to search for specifically. These files are typically created manually by the user using Excel and contain a single column of transmitter IDs organized in a single column of cells (column A). Creating a Code file to add codes to will put the header “Code” in row one of the columns, which is required.

About – Contains summary explanations and brief instructions about various software features.

Tools – Features options for filtering or graphing .CSV data files created by the receiver software. See [3.4 Filtering](#) for more information.

Window View – Allows the user to turn on or turn off the displaying of various functions in the software.

2.2 Real-Time Log Tab

This is the main operational tab. It allows the user to view active detections as they occur and provides options for displaying them. It can show GPS satellite fixes and terminal information as the data is received and provides the user with several options for controlling or filtering the incoming data.

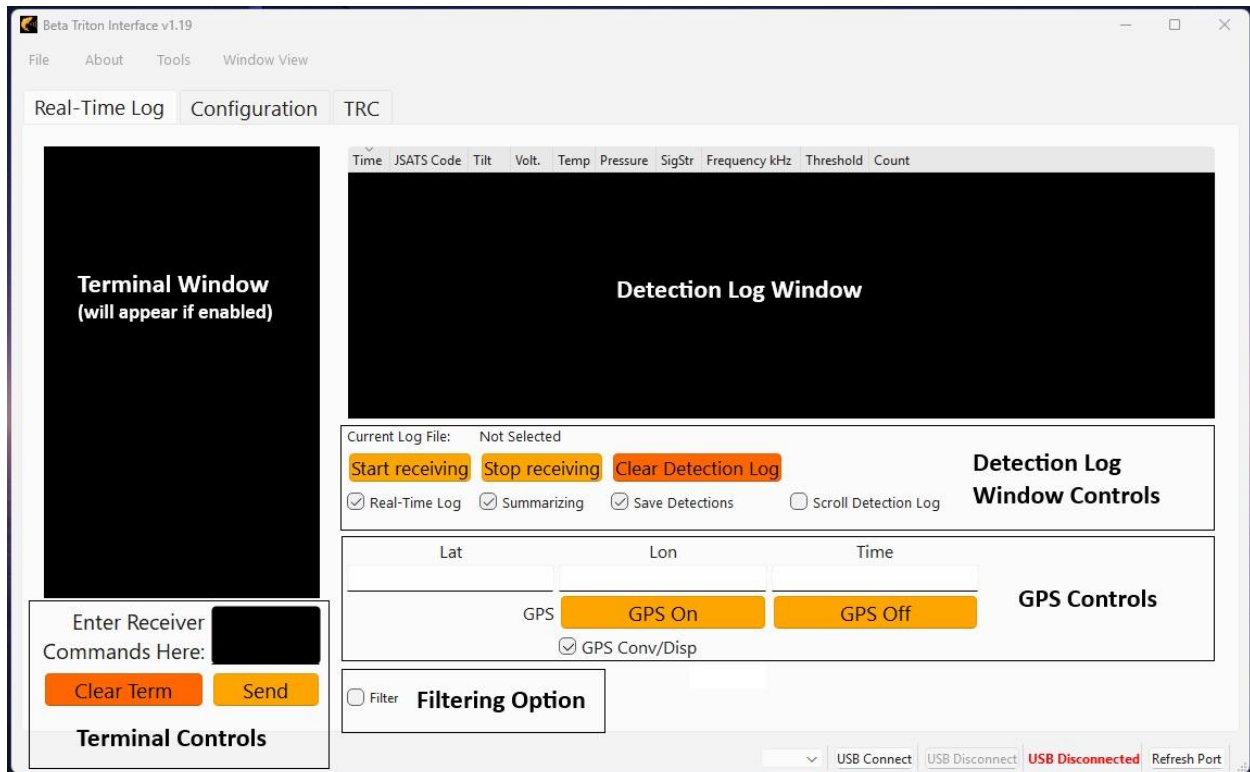


Figure 2A – The Real-Time Log tab controls.

2.2.1 Terminal Window and Command Line Entry

The terminal window can be turned on or off from commands in the **Window View** drop-down menu or press “Ctrl+t” on the keyboard. It allows the user to view data in its raw form as it is being processed by the receiver. Turning this window on also opens the command line entry option, which allows manual entry of text commands. While many commands have a button or control for ease of use, the manual entry line allows for many more options to be used for customizing how the data received is both view and/or saved. Sending a ‘?’ to the terminal window will give a list of all receiver commands that are available. Appendix A at the end of this manual also contains a full list of these commands.

2.2.2 Detection Log Window and Controls

The detection window displays all incoming detection data in columns that allow the user to identify specific information quickly. It can be customized to show individual detections or summaries of each tag code’s performance. The detection

window controls below the window allow setting the window's display options and can be changed to suit the user's needs. Note: The Clear Detection Log button only clears the visible display. It does not affect the stored files.

2.2.3 GPS Controls

Acoustic receivers come with a built-in GPS modem on board. The GPS feature is primarily intended for shore-based models since GPS signals cannot be received underwater (although GPS fixes can often be obtained on any model when not submerged). All units include a built-in internal GPS antenna, but an external antenna is highly recommended for better performance (purchased separately). GPS settings are saved by the receiver.

Since GPS fixes cannot be obtained underwater, the GPS modem should be left off for models deployed underwater to prevent unnecessary power consumption and conserve battery life.

When you first receive the unit, the GPS modem is off by default. To turn the GPS modem on, click the **GPS On** button. The software will send a command to the receiver to activate GPS power. The GPS modem requires a short period of time to initialize, find orbiting GPS satellites and then acquire a fix. When that occurs, Latitude, Longitude, and Time will appear in the corresponding locations. If the Terminal window is open, then GPS sentences and commands in addition to the tag data will be visible as they are received and calculated.

The status of the GPS settings can be viewed by sending the command **gpsMODE**. This will display the status of the GPS modem in the terminal window. The images below show the two ways that the GPS status is reported in the terminal window.

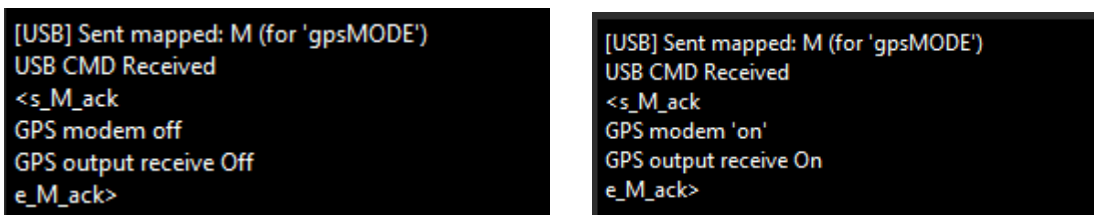


Figure 2B – gpsMODE Terminal Reports

To save GPS fixes to the SD card, use the command **setGPSfreq HHMMSS** (where HH=hours, MM=minutes, and SS=seconds) It is recommended to use '**setGPSfreq 000003**' or higher to keep the rate at 3 seconds or more. Otherwise, functionality can't be guaranteed at faster rates.

If you simply want the software to handle saving GPS fixes you will need to make sure that GPS is on (The 'GPS On' button or the '**gps**' terminal command can do this). On the software make sure that the "Saving Detections", "GPS Conv/Disp", "Real-Time Log" checkbox options are all selected, and that you have created a log

file in the **FILE** drop-down menu (or selected an existing file) designating where to save the data.

2.2.3 Filtering Option

The filtering option is just a single checkbox, but when selected it provides several options for filtering the data. Data can be filtered to search for a single tag ID, or a group of tag IDs contained in a Code File. Currently, the filtered file is autogenerated and saved to the same location as the Log file.

2.3 Configuration Tab

This tab allows the user to set up, send, or retrieve the receiver's configuration settings, as well as update the receiver firmware (if required).

Beta Triton Interface v1.19

File About Tools Window View

Real-Time Log Configuration TRC

Serial Number: [Redacted]

Site/System Name: [Redacted] [Redacted] [Redacted]

Request Config Set Site Name

PC Time: [Input Field]

PC Zone Offset: [Input Field]

Receiver Time: [Input Field]

Receiver Time does not automatically update

☒ Use Local Time ☐ Use UTC Time

Send Time

Firmware: [Input Field]

DSP Firmware: [Input Field]

Flash Firmware

Status Line [Input Field]

USB Connect USB Disconnect USB Disconnected Refresh Port

Figure 2C- Configuration Tab

2.3.1 Request Config

This button will retrieve the previously saved configuration settings as well as the date and time from the receiver and display that information in the configuration tab. Note that the date and time from the receiver is a snapshot taken from the receiver and does not continuously update in the configuration tab.

2.3.2 Serial Number

This is a serial number unique to each receiver. It is assigned at the factory by ATS and cannot be changed. If this number ever changes to '9000', it is an indication of a problem with the receiver and should be reported to ATS for diagnosis and repair. In some instances, this might be resolved without returning the receiver for repair.

2.3.3 Set Site Name

This button allows the user to assign data to the three fields designating the Site/System name. This can benefit the user primarily for recording the location of the receiver's deployment. For example, the first field might be an abbreviation for a river name, the second field could denote a specific mile (or kilometer) of the river from an established starting point, and the third field could be a number representing the order of receiver(s) set up in that location, or the depth of deployment, or any of many designations. These fields are very flexible and can be used for whatever purpose suits the user's needs.

2.3.4 Send Time

This button will synchronize the receiver's date and time to the PC's date and time. It is therefore important to make sure that the PC's date, time, and time zone are accurate.

There is an option for selecting UTC Time (Universal Time Coordinated). This can be helpful if the user does not want Daylight Savings Time to have an impact on the data, or if comparing 'live' data recordings from different time zones.

2.3.5 Flash Firmware

This button controls firmware update functionality, which requires extra hardware and is outside the scope of standard operation. Contact ATS with any questions.

3.0 SD Card File Format

Each data log file will have a header structure and a data structure. These in combination make up the log files on the SD. The extension of this log file is a csv file and so most text editors can open it. A small note is that excel can often have trouble opening the csv file if there is a lot of data. It is recommended that large files be opened using notepad (Visual Studio Code works very well for this as well). The default file creation of the receiver is just one continuous file separated by headers. There is a daily and hourly file creation option which is recommended for keeping file sizes down (signified with an H or D in the file name).

File name will have the format SR#####_ymmdd_hhmm##.csv

Example: SR23073_250805_115801.csv – Continuous file format

SR23073H250805_115801.csv – Hourly file format

SR23073D250805_115801.csv – Daily file format

Note how these filenames do not have the “dat” designation. This differentiates them from Real-Time Log files created by the software on the PC.

3.1 Header Format

Line Contents	Description
Site/System Name	Descriptive name defined by the user and separated by two commas (e.g. “ATS, NC, 02)
File Name	8-character site name which consists of “SR” followed by the serial number then a “_”, “H”, or “D” depending on whether it is a single, hourly or daily type file. This is followed by date, time of file creation and partition number. (e.g. “SRser##_ymmdd_hhmm##.csv”)
Receiver Serial Number	A five-character serial number that designates the year of receiver production and three characters that designate sequential production number (e.g. “17035”)
Rec. Firmware Version	The name and version of the receiver supervisory firmware and the name
DSP Firmware Version	The name and version of the DSP firmware
File Format Version	Version number of the file format
File Start Date	Date and time of log file creation/opening. (mm/dd/yyyy) Followed by the time zone. (hhz) Ending with the time stamp of when the DSP and RTC synced their times/oscillators. (mm/dd/yyyy) Timestamp is taken whenever time is set or on powerup.
File End Date	Date and time of log file closing. (mm/dd/yyyy) Followed by the timestamp. (mm/dd/yyyy)

Table 3.1 Header Format

3.2 Data Format

Column Name	Description
Internal	Diagnostic and timing information. First 4 characters are the hex counter of the DSP (15 second counter). The following 6 characters are the “second counter” going from 0-15 seconds. Next 4 characters are the DSP address, should be sequential. The last 7 characters are the total time of the DSP and should equal the first 10 characters after conversion. The first character of the 8-character sequence is for indicating GPS status. ‘E’ for enabled, ‘D’ for disabled. If the row indicates a GPS fix, then the data in this field will be Latitude & Longitude values.
SiteName	Descriptive name defined by the user and separated by two commas (e.g. “ATS , NC, 02”).
DateTime	Date recorded as mm/dd/yyyy. Time of detection is defined as the time the signal arrives at the hydrophone (TOA) and shall be recorded with microsecond precision (hh:mm:ss.ssssss). Rows with GPS fixes are only recorded down to the second.
TagCode	9-digit tag code as decoded by receiver (e.g. “G720837eb”) “GPS fix” will appear when a fix from the GPS modem is saved to the log file.
Tilt	Tilt of the receiver (degrees). (optional feature) Usually this will appear as “N/A” since this sensor is typically not included.
VBatt	Voltage of the receiver batteries (V.VV).
Temp	Temperature (C.CC°). (optional feature) Usually this will read NA or 99.99 since this sensor is typically not included.
Pressure	Pressure outside of receiver (absolute PSI). (optional feature) Usually this will appear as “N/A” if disabled (or a relatively stationary value if enabled with no pressure sensor present)
SigStr	The logarithmic value for signal strength (in DB) “-99” signifies a signal strength value for an absent tag. Not present during GPS fixes.
BitPeriod	Optimal sample rate at 10 M samples per sec. To convert to frequency in kHz divide into 100,000. Not present during GPS fixes.
Threshold	The logarithmic measurement of background noise used for tag detection threshold. Not present during GPS fixes.

Table 3.2 Data format

3.3 Example file

This example file contains both tag detections and GPS fixes. The GPS frequency save rate was set to three seconds. The reference tag used had a period of ~3 seconds. The threshold indicates that there was no hydrophone tip connected. With SigStr being loosely correlated to distance from the connection point. The GPS fix format is in DDMM.MMMM (latitude) & DDDMM.MMMM (longitude). To convert to degrees simply use DD + (MM.MMMM/60).

On very rare occasions when the GPS feature turns on and attempts a fix, there can be a lag in establishing its connection with the system processor. This is unavoidable and can sometimes cause random but obvious errors to be saved in the row with the GPS fix data (syntax errors or strange characters). If the errors are saved, it can simply be removed by deleting that entire row of data.

Note that the time of the GPS fix is in UTC time and different than the receiver's time. This is normal and is **not** indication that the receiver's time is wrong.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Site Name: H20	IS	MN										
2	File Name: SR25108_251103_134201.csv												
3	Serial Number: 25108												
4	ATS Triton Receiver FVersion: 11.13												
5	DSP v:07.90												
6	File Format Version: 3.0												
7	File Start: 11/03/2025 13:42:44 00z 10/30/25 12:22:58												
8													
9	Internal	SiteName			DateTime	TagCode	Tilt	VBatt	Temp	Pressure	SigStr	Bit Period	Threshold
10													
11	5b3e C01081 44F0 E00558AE	H20	IS	MN	11/03/2025 13:42:40.587137	G7244AD52	N/A	11.23	99.99	3.5	176	239 29/31	59
12	5b3e C22733 4500 E00558AE	H20	IS	MN	11/03/2025 13:42:40.724019	G7245491E	N/A	11.23	99.99	3.5	117	239 30/31	59
13	5b3f 0898AC 4510 E00558B1	H20	IS	MN	11/03/2025 13:42:43.563372	G7244AD52	N/A	11.23	99.99	3.5	175	239 30/31	59
14	5b3f 0ACA04 4520 E00558B1	H20	IS	MN	11/03/2025 13:42:43.707076	G7245491E	N/A	11.23	99.99	3.5	116	239 30/31	59
15	5b3f 36028F 4530 E00558B4	H20	IS	MN	11/03/2025 13:42:46.539599	G7244AD52	N/A	11.23	99.99	3.5	176	239 29/31	59
16	5b3f 384D9D 4540 E00558B4	H20	IS	MN	11/03/2025 13:42:46.689885	G7245491E	N/A	11.23	99.99	3.5	117	239 30/31	59
17	5b3f 636C96 4550 E00558B7	H20	IS	MN	11/03/2025 13:42:49.515862	G7244AD52	N/A	11.23	99.99	3.5	176	239 29/31	59
18	5b3f 65D17B 4560 E00558B7	H20	IS	MN	11/03/2025 13:42:49.672763	G7245491E	N/A	11.23	99.99	3.5	117	239 30/31	59
19	5b3f 90D714 4570 E00558BA	H20	IS	MN	11/03/2025 13:42:52.492244	G7244AD52	N/A	11.23	99.99	3.5	176	239 29/31	60
20	5b3f 935569 4580 E00558BA	H20	IS	MN	11/03/2025 13:42:52.655657	G7245491E	N/A	11.23	99.99	3.5	117	239 30/31	60
21	4529.7394N09314.8283W	H20	IS	MN	11/03/2025 19:43:31.0	GPS Fix	N/A	11.23	99.99	3.5			
22	5b3f BE401B 4590 E01558BD	H20	IS	MN	11/03/2025 13:42:55.468251	G7244AD52	N/A	11.23	99.99	3.3	176	239 29/31	60
23	5b3f C0DBE2 45A0 E01558BD	H20	IS	MN	11/03/2025 13:42:55.639202	G7245491E	N/A	11.23	99.99	3.3	116	240	60
24	4529.7394N09314.8283W	H20	IS	MN	11/03/2025 19:43:34.0	GPS Fix	N/A	11.23	99.99	3.3			
25	5b40 06C8A3 45B0 E00558C0	H20	IS	MN	11/03/2025 13:42:58.444579	G7244AD52	N/A	11.23	99.99	3.3	176	239 29/31	59
26	5b40 098145 45C0 E00558C0	H20	IS	MN	11/03/2025 13:42:58.622917	G7245491E	N/A	11.23	99.99	3.3	117	239 30/31	59
27	4529.7394N09314.8283W	H20	IS	MN	11/03/2025 19:43:37.0	GPS Fix	N/A	11.23	99.99	3.3			
28	5b40 3431BB 45D0 E00558C3	H20	IS	MN	11/03/2025 13:43:01.420603	G7244AD52	N/A	11.23	99.99	3.3	176	239 29/31	59
29	5b40 37064A 45E0 E00558C3	H20	IS	MN	11/03/2025 13:43:01.606090	G7245491E	N/A	11.23	99.99	3.3	116	239 30/31	59
30	4529.7394N09314.8283W	H20	IS	MN	11/03/2025 19:43:40.0	GPS Fix	N/A	11.23	99.99	3.3			
31	5b40 619B57 45F0 E00558C6	H20	IS	MN	11/03/2025 13:43:04.396759	G7244AD52	N/A	11.23	99.99	3.3	176	239 29/31	60
32	5b40 648A72 4600 E00558C6	H20	IS	MN	11/03/2025 13:43:04.589042	G7245491E	N/A	11.23	99.99	3.3	117	239 30/31	60
33	4529.7394N09314.8283W	H20	IS	MN	11/03/2025 19:43:43.0	GPS Fix	N/A	11.23	99.99	3.3			

Figure 3.3.0 Example file output

3.4 Filter Data Tool

Advanced Telemetry Systems provides a tool for post-filtering data files received from ATS acoustic receivers. This is separate from the filter option on the Real-Time Log tab. To use this filter, navigate to the **Tools** drop-down menu and select “Filter File(s).” After clicking “Filter File(s),” a window will pop up with several settings (Figure 3.4.1).

The first line selects the filters that are desired. Both the regular filter and the code filter can be used together or separately. The code filter requires an additional file which is a .CSV file of the codes to be kept (Figure 3.4.2).

The following two options are some direct filter settings: minimum signal strength and PRI. Only one PRI can be selected so make sure to select the correct PRI. The filter works best when the correct PRI is chosen, otherwise some detections may get filtered or left in when they shouldn’t be.

The remaining options are to select if a summary file is desired and select the headers that are to remain in the filtered data output. The summary file isn’t required and only shows some basic summary information. If the Apply Code Filter option is selected, then the software will next prompt for a Code file to be selected. After selecting the Code file, the files that are to be filtered will need to be selected next.

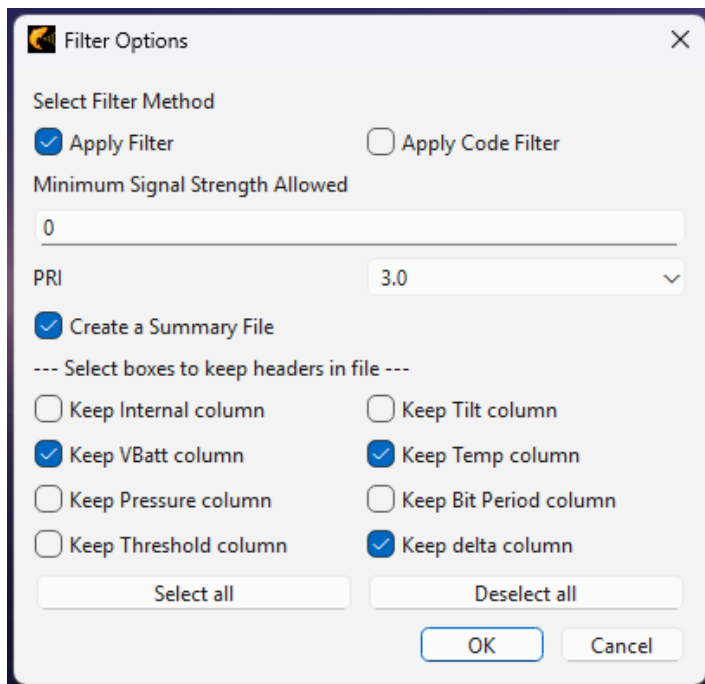


Figure 3.4.1 Filter Settings

	A	B	C
1	Codes		
2	4545		
3	3AB5		
4	21a4		
5	2B37		
6	BA3B		
7			
8			
9			
10			
11			
12			

Figure 3.4.2 Code Filter File

Example (5 codes)

3.5 Graph Data Tool

Advanced Telemetry Systems also provides a diagnostic tool for visually conducting a quick inspection of sample data files received by ATS acoustic receivers. These diagnostic tests are best done using a close-proximity reference tag to get measurable results.

To use this option, record a data file with the reference tag being detected by the receiver. Afterwards, navigate to the **Tools** drop-down menu and select “Graph File(s).” After clicking “Graph File(s),” a window will pop up with options for Detection Frequency and Delta Graphs (Figure 3.5.1).

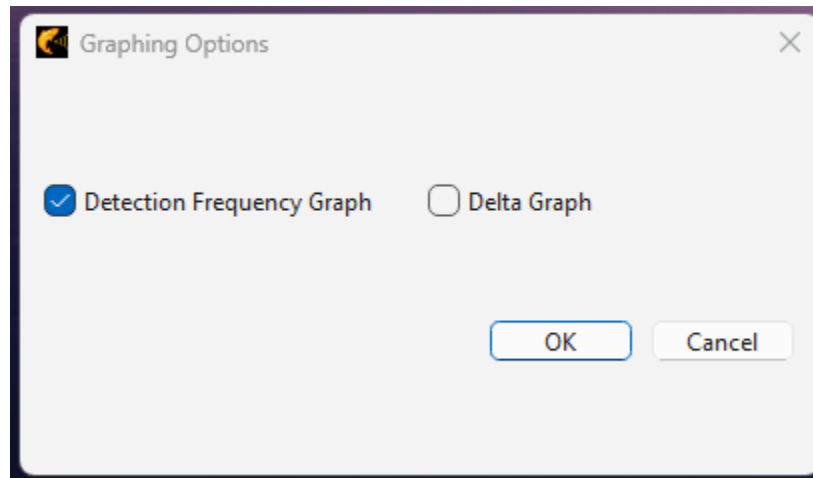


Figure 3.5.1 – Graphing Options

After selecting the desired graph(s), the user will be asked to browse to the desired .csv file. Find the recorded reference tag data and select it. A confirmation prompt will then ask the user to re-confirm the file selection, and then the graph(s) will be created.

Note: Having GPS fixes in the data file can have unintended results due to the time zone differences. It is better to have GPS fixes turned off when recording data to use with these graphing tools.

The graphs shown in Figure 3.5.2 and Figure 3.5.3 represent data from a test file recorded using a single reference tag. Multiple tags would create a different pattern, and tags in the field would be more chaotic, inconsistent, and less predictable, though the graphing tool would still plot those detections.

The first graph shows a diagonal, upsloping line. This indicates the steady and correct rate of detections over time from the reference tag.

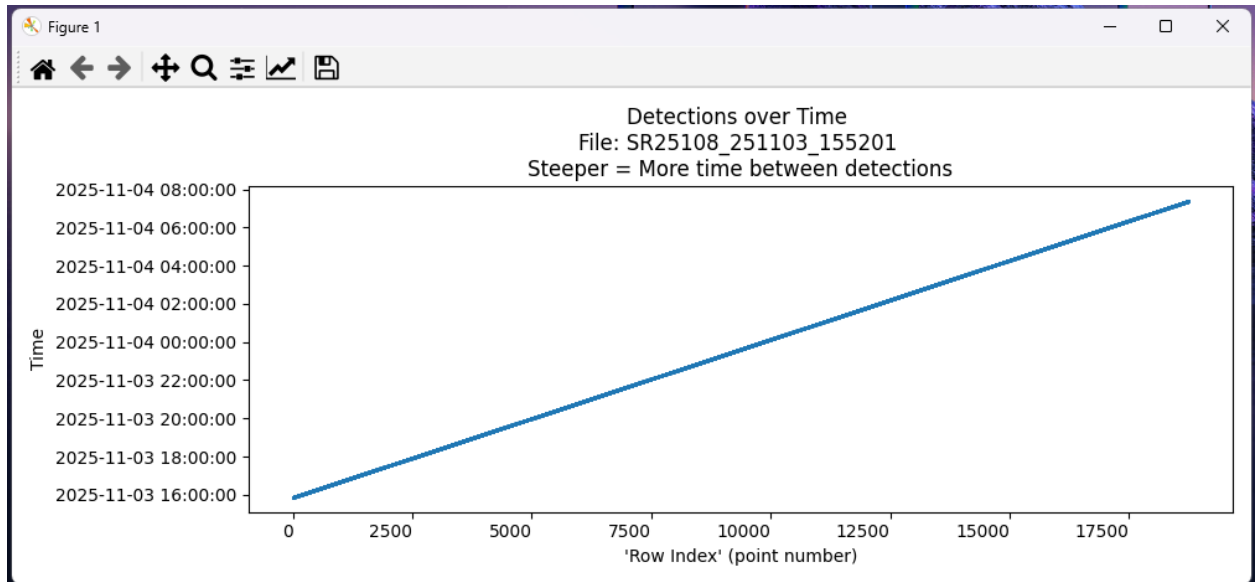


Figure 3.5.2 – Detections over Time Graph

The second graph shows the time between detections. A reference tag running at a 3-second pulse rate interval should produce a nearly flat line like this. Using a reference tag produces a second, less dense line of dots because the receiver picks up the slight variance in rate every fifteen minutes when the tag is re-calibrating.

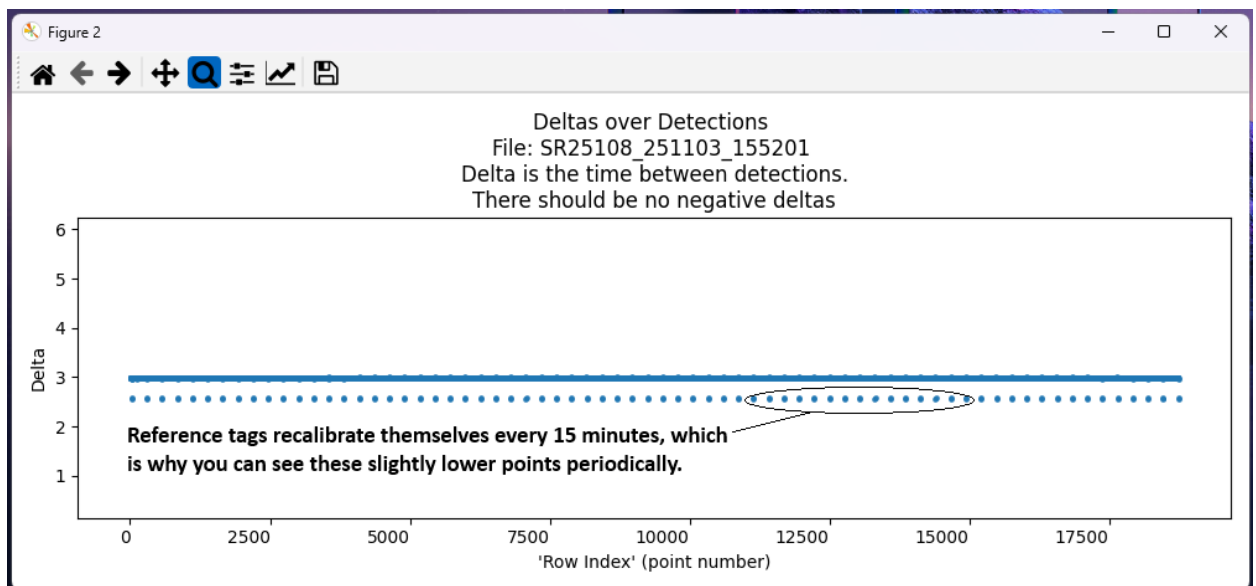


Figure 3.5.3 – Deltas over Detections Graph

4.0 Device Information

4.1 Overview

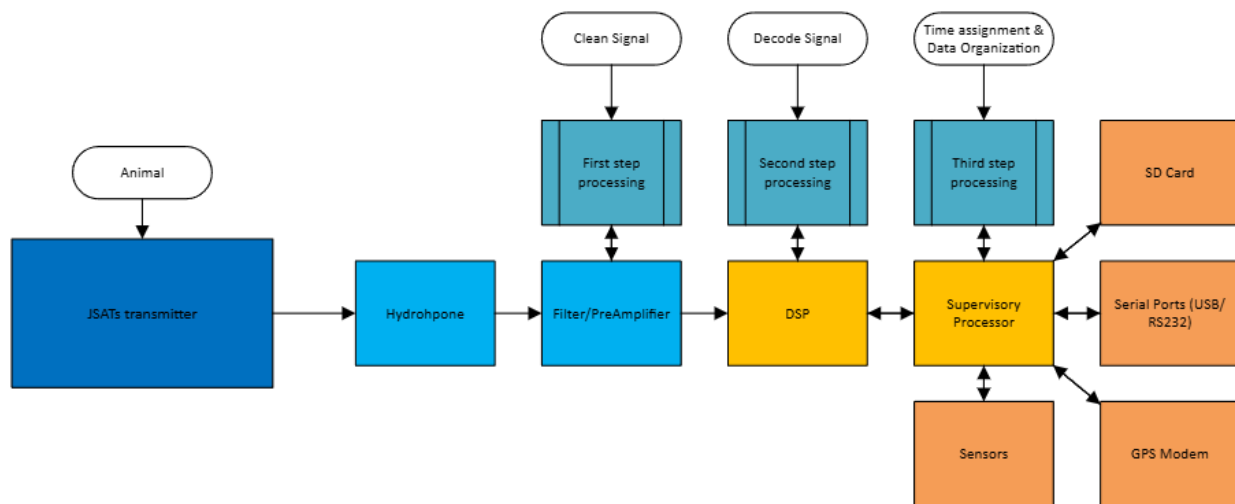


Figure 4.1.0 System Overview

The hydrophone receives high frequency mechanical vibrations sent through the water by the JSATS transmitter (in fish) and converts them to weak electrical voltages. These weak voltages are amplified and filtered by the preamplifier of the Control/Power board (to reduce noise) and then sent to the Digital Signal Processor (DSP) for processing.

The incoming filtered signals are then sent to the DSP to examine using detection and decoding algorithms. The detection algorithm looks for the existence of a tag, and the decoding algorithm decides what specific tag code is present.

When a valid code is verified by the DSP it passes the detection information on for storage to the SDHC (High-capacity SD flash memory) card. The supervisory processor on the board manages the clocks, sensor measurements, data storage and communication with the external USB and RS232 connections.

Every receiver is outfitted with a GPS modem. Temperature, tilt, and pressure sensors are additionally available for purchase. The GPS is used to obtain the receivers' location.

The data format has added columns for temperature, tilt, and pressure which are optional sensors for acoustic receivers. The data recorded for these sensors will be displayed as "N/A" or a non-sequitur if not enabled. The receiver queries sensors (if enabled) and voltage approximately every 15 seconds.

The receiver is equipped with a USB port that can be used to view real-time data. This port can be accessed from the top edge of the housing by unscrewing the cover on the connector (SR3017) with the USB label. It uses a standard USB cable.

The receiver is equipped with an RS232 serial port that can be used to pull or push data stored on the SDHC memory card. This is handy for connecting to a cell modem, a serial RS232 to WIFI Converter or something similar for use in getting your data remotely. This can be done with or without added software provided by ATS. The com port settings are 115200, N, 8, 1 with no hardware handshaking. To see the available commands send '?'. This port can be accessed from the top edge of the housing (SR3017) by unscrewing the cover on the connector with the RS232 label. It uses an optional serial cable for use with a cell modem or a serial cable for use with a PC provided on request. Make sure to specify the intended use. The RS232 connector for SR3001s is typically inaccessible due to the casing.

4.2 Model Specifics on Powering the Device

SR3017 -

The receiver is powered using a 12V power supply such as a deep cycle marine battery or solar panel.

Notes:

1. The power consumption of the receiver is ~70 milliamps during normal operation.
2. The recommended SDHC flash card is the SanDisk with a capacity of 32GB or smaller. The maximum data that can be stored on the card by the receiver is 32GB. The maximum file size is ~ 1GB. Additional files will be created till the 32 GB limit is reached. Important Note: Make sure the flash card has been formatted using the Default format options. The file system usually will be FAT32. DO NOT format using the quick format option.
3. A card reader (not supplied) is required for the SDHC card.

SR3001 -

The receiver is powered through the means of an on-board battery pack. The battery pack yields approximately 3.6V and comes as either a rechargeable or non-rechargeable package.

Notes:

1. The power consumption of the receiver is approximately 80 milliamps during normal operation. Under normal operation the 6 D-cell battery pack will yield a theoretical life of 50 days.
2. The recommended SDHC flash card is the SanDisk with a capacity of 32GB or smaller. The maximum data that can be stored on the card by the receiver is 32GB. The maximum file size is ~1GB. Additional files will be created till the 32 GB limit is reached. Important

Note: Make sure the flash card has been formatted using the Default format options. The file system usually will be FAT32. DO NOT format using the quick format option.

3. A card reader (not supplied) is required to access data stored on the SDHC card.

SR3000 -

The receiver is powered through means of an on-board battery pack. The battery pack yields approximately 3.6V and comes as either a rechargeable or non-rechargeable package.

Notes:

1. The power consumption of the receiver is approximately 80 milliamps during normal operation. Under normal operation the 6 D-cell battery pack will yield a theoretical life of 50 days.

2. The recommended compact flash (CF) card is the SanDisk Ultra II, which has 2GB of capacity. Important Note: Make sure the flash card has been formatted using the FAT16 (FAT).

3. A card reader (not supplied) is required to access data stored on the CF card.

Appendix A

Terminal commands

It is important to understand that when entering terminal commands, capitalization matters.

?

Displays the list of commands. receiver info, file information (hourly, daily, dumps), sensor information.

RequestConfig

Queries the receiver for its hardware information, serial #, RTC time, firmware version, DSP version, site name, file name label, and pressure/temperature calibration values.

SetSiteN ###,##,##

Sets the site name of the receiver. The commas are necessary.

tset MMDDYYHHMMSS

Sets the time of the real time clock chip (RTC). Also sets DSP to the new time.

zone ## or -##

Sets the time offset hours from GMT-0.

setGPSfreq HHMMSS

Sets how often the receiver will try to save a GPS fix to the SD card. Information is only saved if the receiver has a valid GPS fix. Avoid setting faster than 3 seconds.

dtag

Outputs the tag detections out the serial port. Must be on for real time logging.

time

Displays the current RTC time.

timeS

Displays when the DSP was last synchronized.

gps

Turns on GPS sentences being sent out a serial port, needed for software to know GPS.

gpsOUT

Toggles internal communications register. Use if GPS sentence communication is frozen.

gpstog

Toggles the GPS modem power.

gpsMODE

displays the current GPS settings such as power and communication activity.

gpsUART

Debug command that toggles directly sending out the GPS information over the serial port.

gpsPOW

Toggles GPS modem power.

fileDump filename

Either exports all file contents of the SD card or an individual file if given a filename out via the serial port.

dir

Displays file(s) structure/names on the SD card.

dlp

Displays one filename/struct(?) Not fully understood

del filename

Deletes the specified file, name required (limited testing done, not recommended to use). Unstable.

hon

Turns on hourly files.

hoff

Turns off hourly files. Not recommended for long term usage.

don - doff

Turns on file dumps. Turns off file dumps

dayon

Turns on daily files.

dayoff

Turns off daily files.

temptog - pressuretog - tilttog - debugtog - diagtog - verbosetog

Sensor toggles. Additional print information toggles. Diag and verbose are reserved and not implemented yet.

SetPressureOffset ## or -##

Adjusts the pressure offset, which comes pre-calibrated. IF CHANGED sensor accuracy is not guaranteed.

SetTempOffset ## or -##

Adjusts the temperature offset, which comes pre-calibrated. IF CHANGED sensor accuracy is not guaranteed.

DisplaySensorVals - SetSensorRate SS

Turns on a flag to send out sensor values (that are enabled). This includes voltage.

SetSensorRate

Sets the rate at which the sensors are turned on and polled, this rate is in seconds and has a max of 60 seconds. Changing this value for receivers that have a tilt sensor may cause issues. Additionally, the receiver may consume more power, recommended to leave this value as the default 15 seconds.

resetMain

Forces a software reset of the receiver's main processor.

*** CAPITALIZATION MATTERS ***

Appendix B

LEDs on Acoustic Receivers

- 1) SR3017s will always have the three main LEDs active or “enabled”
- 2) SR3001s will have the three main LEDs active for 5 minutes, then they are disabled to conserve power. They can be re-enabled for two minutes with each magnet swipe.
- 3) The three main LED states are independent and **DO NOT** depend on each other.

All three LEDs Flashing 	The SD card is not inserted or defective. Other LED states can still be present, but they will be overshadowed by the flashing LEDs.
Green LED flashing 	General: Indicates the health status of receiver. Good State: This light will continuously flash at one second intervals. If this LED is not “breathing” for ~30 seconds there could be an issue with the receiver. Keep in mind that the SR3001 will deactivate all LEDs after five minutes (unless the magnet switch is used).
Yellow On/Off 	General: Indication of data present on the main chip. Good State: Turns on when data is detected, and off when that data is written to the SD card. When using Real-Time Logging, writing to the SD card is immediate, otherwise it's at 30-second intervals.
Red Flashing 	General: Indicates potential issues with the receiver. Good State: Will usually be off. If the threshold of five sequential detections is below 100, this LED will turn on and start flashing (regardless of model), signifying that the hydrophone could have an issue. (2 Second on/off pattern)
Blue Surface mount LED 	If this light is on, then the main processor is interacting (probably writing) with the SD card. This LED is right next to the USB-B port.
Four surface mount LEDs by SN 	Indicates DSP events. If none of these turn on after monitoring for at least 15-30 seconds, there could be an issue with the receiver. These LEDs are only visible on the SR3017 Model. However, for the SR3001, these LEDs are difficult to see.