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ARGOS
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GONIOMETER 2

RXG-234

ARGOS Goniometer / Direct Receiver

USER MANUAL

CLS-ENV-MU-20-0106

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1 Highlights

The CLS Goniometer is a very highly sensitive direction finder that provides the signal direction as well as an indication of the signal power of an Argos transmitter for field recovery. It is fully compatible with:

A2: Argos-2 low data rate transmitters

A3/ZE: Argos-3 and Argos-3-ZE low data rate transmitters

VLD-A4: Argos-4 very low data rate transmitters

It can be used with two types of antenna:

- The AXG-234 Goniometer antenna
- Any BNC (Bayonet Neill–Concelman) antenna tuned for the correct frequency.

Mounted with the Goniometer antenna (AXG-234), the RXG-234 can be used as a direction finder as well as direct receiver. Depending on the Goniometer antenna altitude, the Argos platform transmission power and the environmental conditions, the Argos signal can be received by the RXG-234 from a few meters up to more than 100 km.

With a BNC antenna, the RXG-234 can only be used as a direct receiver. In this configuration, the Argos signal can be received by the RXG-234 from a few meters up to more than 100 km , depending on the RXG-234 altitude, the antenna size, performance, and power output of transmitters.

In direct reception mode, You must know (from manufacturers) the message format and how are encoded the GPS latitude/longitude into it in order to setup this information into the RXG-234. In this mode GPS positions of the platform can be displayed directly on the Goniometer if the two conditions below are satisfied:

- the Argos platform is equipped with a GPS receiver,
- the message is not encrypted, and the latitude and longitude are coded simply (sign bit + decimal degrees)

In this case, received Argos messages are instantaneously decoded by the RXG to display the latitude/longitude contained into the message. If GPS of the RXG is ON, it will also calculate the exact distance in meter and heading to the transmitter. If you are using the AXG-235 Goniometer antenna , you can still access the signal direction information changing to Goniometry mode (shortcut to switch mode by clicking on the central green cross).

The CLS Goniometer is an autonomous device with up to 50 hours of operation. All messages received for platforms declared as favorite are recorded into the internal memory and downloadable later with the Argos Gonio Manager Software.

GONIOMETER ANTENNA RECOMMENDATIONS

- Install the Argos Goniometer antenna as high as possible
- Don’t hold the antenna with your hands, only with the provided support
- Keep the antenna vertical during bearings searches
- Place the white antenna pointer, at the base of the antenna, in your movement direction
- Wait for at least 2-3 collected signals before using a direction for the first location

- Be careful of incorrect measurements in noisy environments: multi path effects (cf Recommendation for Goniometry document)
- Don’t go directly in the bearings’ direction, use a spiral technique to get closer :

PRECAUTION OF USE

- Store the Goniometer in a dry place with temperature from -20°C to +50°C
- When charging the battery through USB, ensure that room temperature is from 0°C to 45°C
- Do not open the Goniometer: doing so will void the warranty
- Use a microfiber cloth to clean the screen: ensure the Goniometer is off, and do not use alcohol or soap detergent
- In case of salt water spray, lightly rinse in fresh water then dry with a microfiber cloth
- The battery should be fully charged before using the Gonio
- Do not bend the Goniometer antenna cable < 5cm radius, as it will affect the signal to the measurements

2 Product overview

Please ensure that all items listed in this section are in the case and have not been damaged during shipping.

2.1 List of supplies

Your Goniometer is delivered in a hard case:

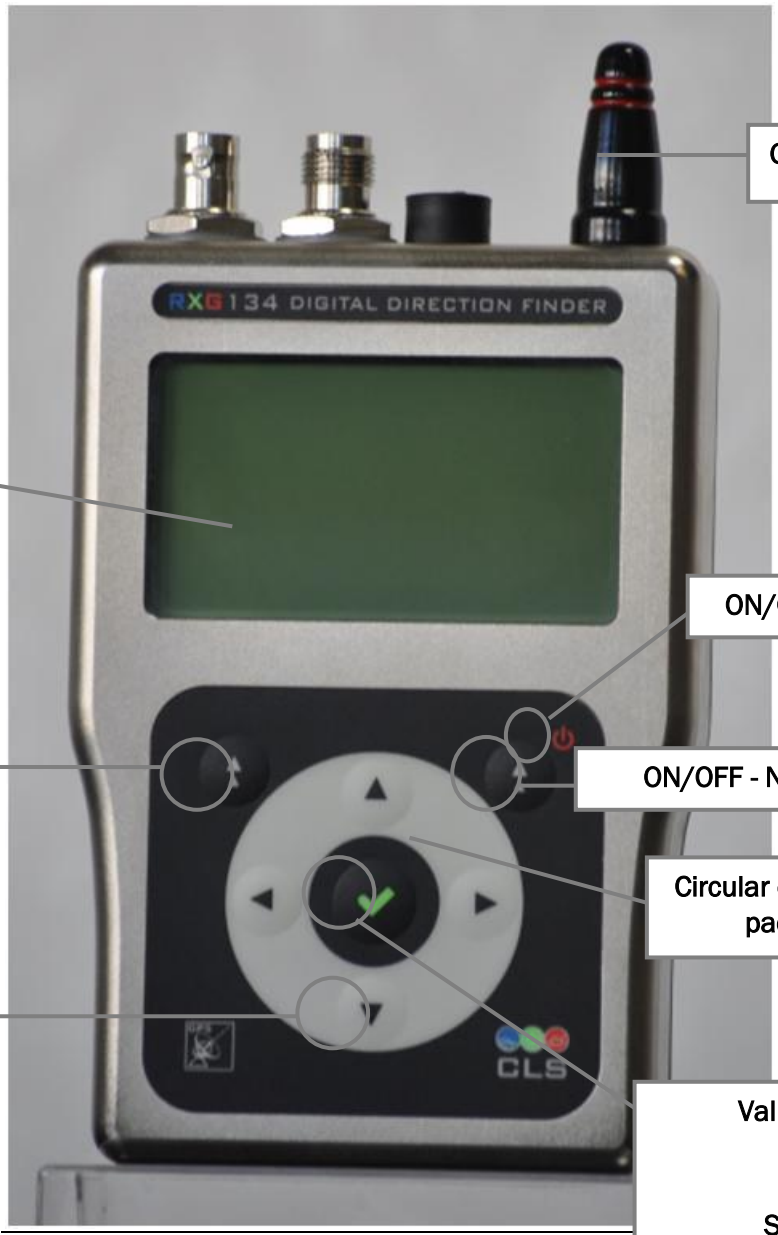
Goniometer hard case

1	**Goniometer antenna with 5 meter cable (AXG-234)**
2	**Gonio receiver (RXG-234)**
3	**Universal main power converter – fast charging**
4	**USB cable for PC connectivity & charging**
5	**Antenna mount/support**
6	**BNC small antenna (for direct reception only)**

In addition, an USB key is also provided with the following documents and software:

- ReadMe.txt
- Recommendations for using the RXG-234 goniometer ENG.pdf
- GONIOMETER-2 RXG-234 Installation and User Manual- ENG vvv.pdf (vvv : version number)
- Argos Gonio Manager xxx.zip (windows) and xxx.tar.gz (Linux) (xxx : version number)

2.2 General view of the receiver



GPS antenna

Display screen

ON/OFF Indicator

Navigation button

ON/OFF - Navigation button

Circular control pad

Arrow buttons

Validation button

Or

Switch mode Goniometry/MSG Decoding

Front view (RXG-134 or RXG-234)

Connector for USB and charger cable

Receiving antenna connectors

GPS antenna

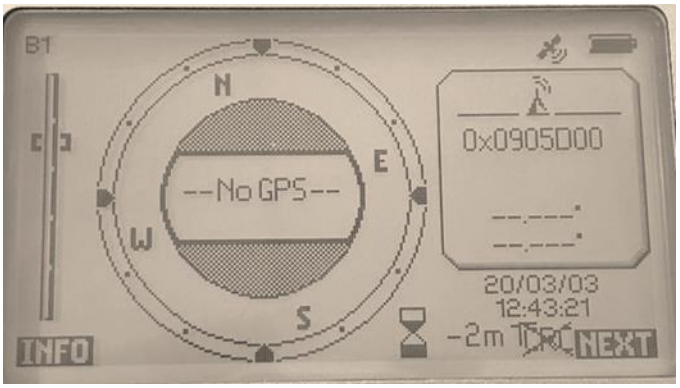
Top view

2.3 Turn on/off and main screens

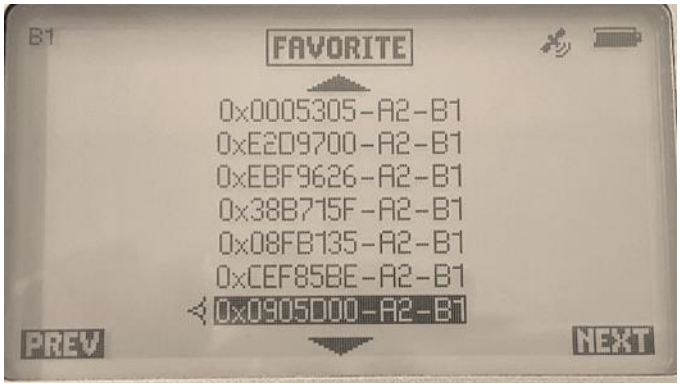
To turn ON/OFF the Goniometer, press the right Navigation button close to the "ON/OFF" indicator until you hear a beep.

There are 4 main screens. They are given below in order of appearance after turning ON:

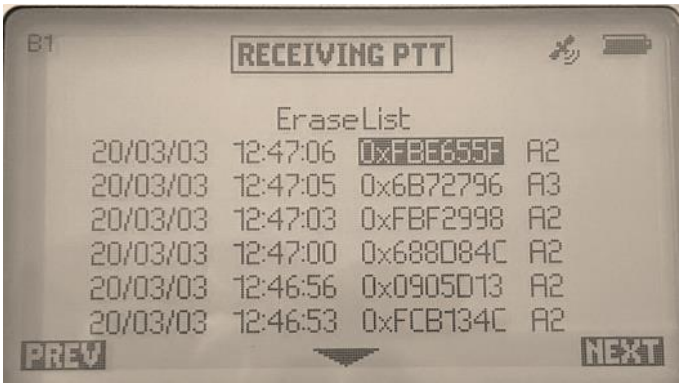
- *RECEPTION screen (default screen at turn ON)*
- *FAVORITES menu*
- *RECEIVING PTT menu*
- *OPTION menu*



RECEPTION screen



FAVORITE menu



RECEIVING PTT menu

OPTIONS menu

To go from one screen to another, press the Navigation button under the "NEXT" or "PREV" labels on the screen. This is the same instruction for the "INFO" label on the RECEPTION screen.

You can navigate through the items in a menu by pressing the Arrow buttons (left, right, up and down).

To select an item in a menu, press the Validation button (green check button) in the middle of the control pad.

Details of the screens are given in Chapter 5.

3 Antenna installation procedures

3.1 Goniometer antenna

1. Insert one of the two cables into the opening in the antenna mount.

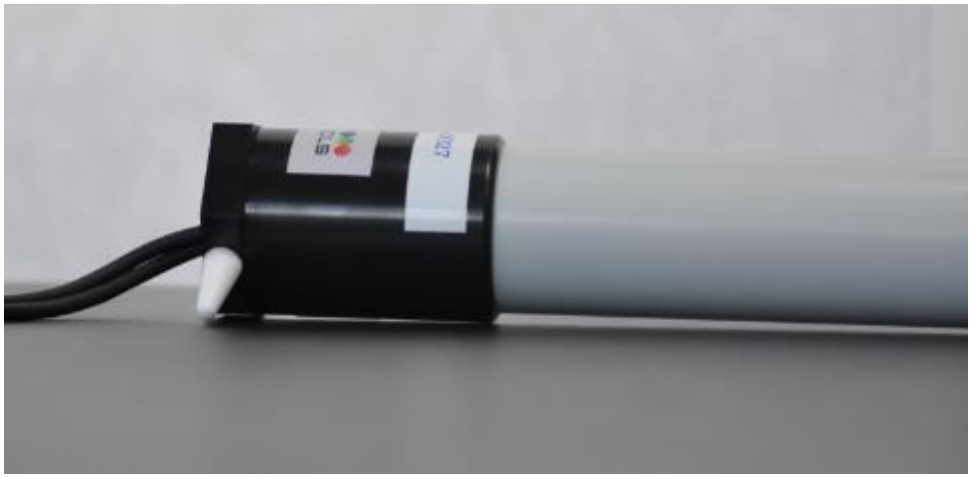
2. Then insert the second cable.

3. Screw the mount into the antenna.

You may also pass the cables through the hole on the side of the antenna mount.

4. Connect both cables to the receiver.

Note: ***The white pointer on the receiving antenna corresponds to the reference azimuth (0°) for the bearings received.***



Important: keep the antenna vertical and avoid touching the white part of the antenna with your hands to prevent interference when the Goniometer is receiving.

3.2 BNC antenna

For direct reception applications, connect your BNC Argos antenna as shown in the figure below.

Goniometer RXG-234 with BNC antenna

4 Quick start guide

Here is a quick start procedure to setup and get signals from an Argos platform through your Argos Goniometer in:

- Goniometer mode
- Direct reception mode

Information on both modes will be given in the procedure below.

The procedure is:

1. mount the antenna
2. power ON the Goniometer
3. setup the configuration
4. add your ARGOS platform as a favorite
5. choose your platform from the favorite platforms list
6. check results displayed in the RECEPTION screen
7. follow the indicated direction to recover the transmitter (using a spiral technique to get closer)

4.1 Mount the antenna

Mount and connect the Goniometer antenna or the BNC antenna according to section 3.1 or 3.2.

4.2 Power ON the equipment

Power ON your Goniometer by pressing the Navigation button close to the ON/OFF indicator (red circle on the picture below) until you hear a beep. After the initialization process, the RECEPTION screen will appear.

***Note**: When the Goniometer is switched on for the first time, no information is displayed on the RECEPTION screen, in the FAVORITES PLATFORMS menu or in the RECEIVING PLATFORMS menu.*

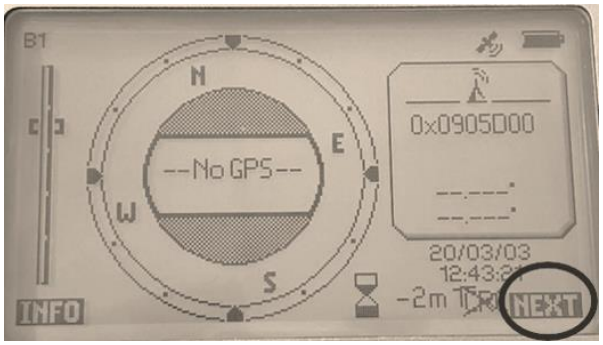
4.3 Setup the configuration

Configure the Goniometer with the parameters given in the table below, according to the application of the Goniometer.

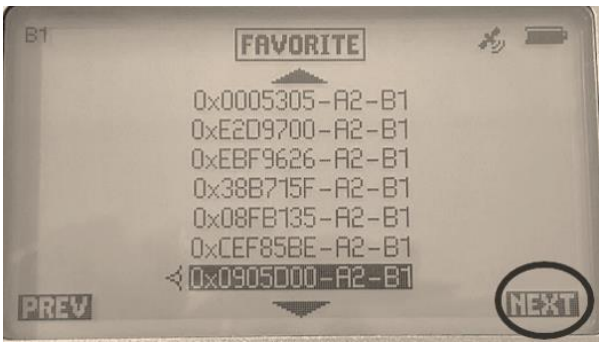
Parameter	**Goniometer (Goniometer antenna)**	**Direct Reception (Goniometer or BNC antenna)**
GPS	ON (can be OFF)	ON
Direction mode	Gonio or Goniometry (last firmware)	GPS or MSG Decoding (last firmware)
Antenna mode/type	Gonio/ AXG234 (last firmware)	Direct reception or Gonio/ AXG234 (last firmware)

Notes:
Goniometer mode is used for tag recovery and actively tracking tags using direction of signal.
Direct Reception mode is used for transmitters where we can decode the GPS data information sent inside Argos message. Please confirm with your tag manufacturer if they have provided you or CLS with the decoding scheme BEFORE using the Direct Reception mode (declaration of MSG Format is necessary using the software).

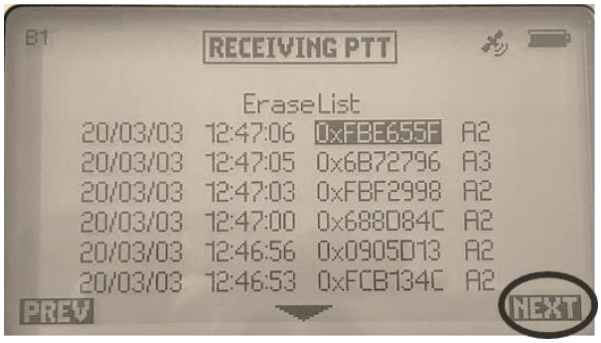
Go to the OPTIONS menu by pressing the Navigation button under the NEXT label on the RECEPTION screen, the FAVORITE PLATFORMS menu and the RECEIVING PLATFORMS menu.



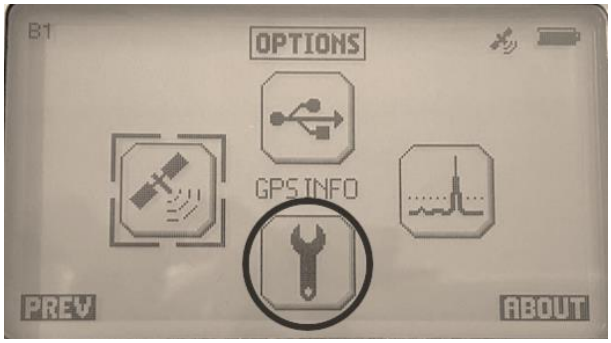
RECEPTION screen



FAVORITE PLATFORMS menu



RECEIVING PLATFORMS menu



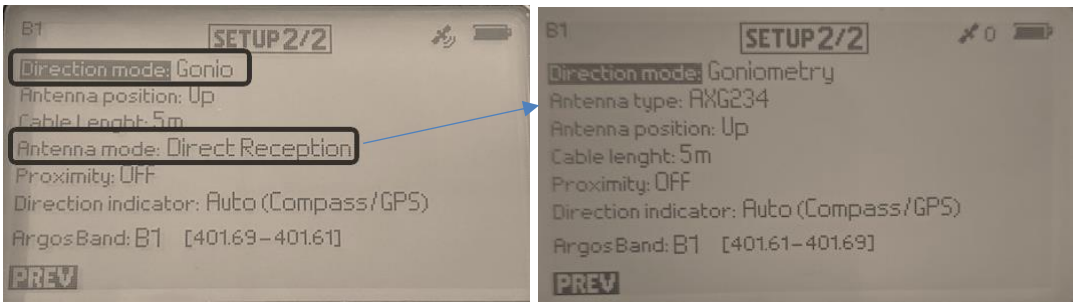
OPTIONS menu

Enter the SETUP screens by selecting the SETUP option, using the Arrow buttons and the Validation button.

On the first screen of the SETUP menu, turn the Goniometer GPS ON by using the ARROW buttons and the Validation button.

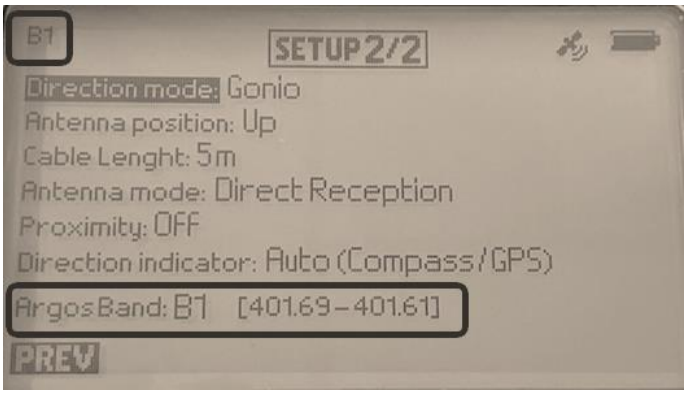
Go to the second screen of the SETUP menu by pressing the Navigation button under the "NEXT" label.

Configure the direction and antenna mode parameters.



Right Image shows renaming of parameters for latest firmware > v2.1.4

Configure the Argos Band where your beacons(s) is/are transmitting. If you have any questions regarding what band your tag is transmitting, you can test the tag prior to deployment or confirm with your tag manufacturer.



The Selected Band is always displayed on the top left corner in all screens.

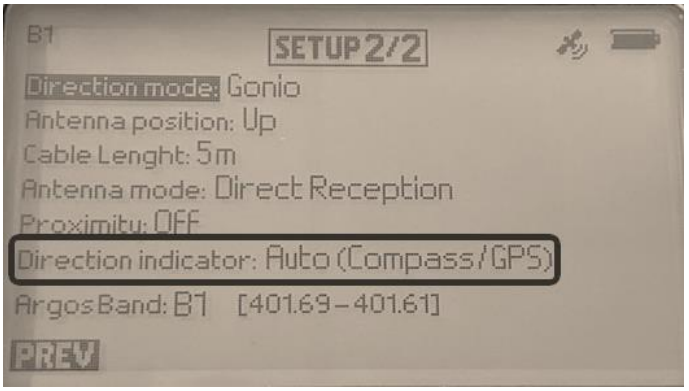
Validate the setting by pressing the PREV button and save the parameters by pressing the Navigation button under the "YES" label. You will be taken back to the Screen 1 of the SETUP menu.

4.4 Compass feature

It is possible to have an internal compass activated and thus to have the magnetic north displayed on the reception screen.

The activation is performed in the page 2 of the setup menu through the "Direction indicator" option by choosing Auto (compass/GPS) or Compass. The option "Fixed" means the Compass will not activated.

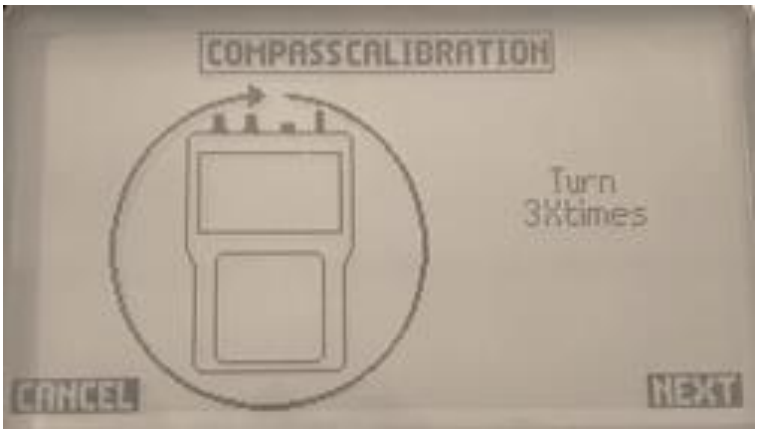
Auto (compass/GPS) mode enable an automatic switch to GPS compass information instead of magnetic compass as soon as RXG234 speed is more than 20km/h (ie: inside car driving the magnetic compass is not working correctly due to speed and metallic environment but GPS compass is correct)

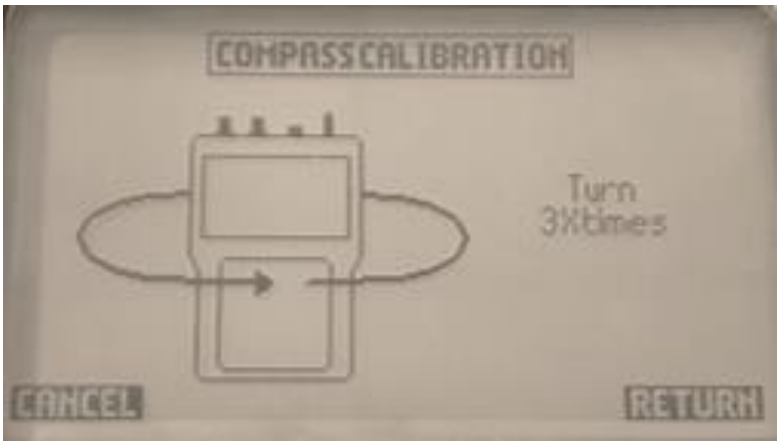


4.5 Compass calibration feature (new feature)

If you are too close to a magnetized surface, you should use the “Compass Calibration” feature on the SETUP ½

Follow the instructions. The procedure to calibrate the Goniometer is intuitive and well described in the screens below.



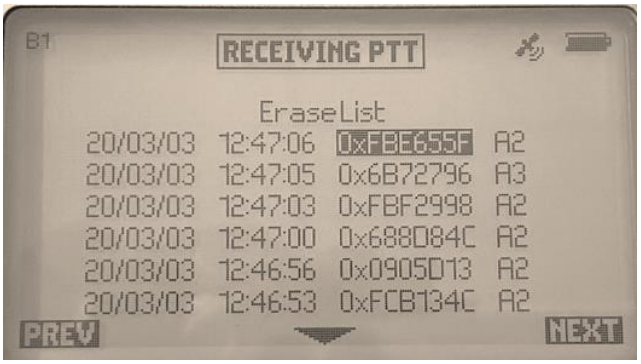


4.6 Select your ARGOS platform as a favorite

The *RECEIVING PTT* screen displays all Argos transmitters whose signals have been received, in real time. Select your Argos platform in the list by using the arrows and the validation button. *(Note: Only hexadecimal Argos IDs are displayed; you may get the hexadecimal ID of your Argos platform from your ArgosWeb account:*  *-> Platforms or ask your User Services Group (useroffice@cls.fr or userservices@clsamerica.com).*

The detected modulation is indicated for each ID: A2 / A3 / ZE

Note: If a beacon is transmitting two modulations, two lines will be displayed and they are considered as two different platforms.



Once your Argos platform is selected you may access the *FAVORITES PLATFORMS* screen setup:

We advise to setup the *Label* as the Argos decimal ID.

Repeat period: this is not mandatory, but the Goniometer will take this information if specified. If not specified, the Gonio will calculate the repetition period of the beacon with the delta time of the received messages.

Frequency Band: The band where was detected the Message/Platform

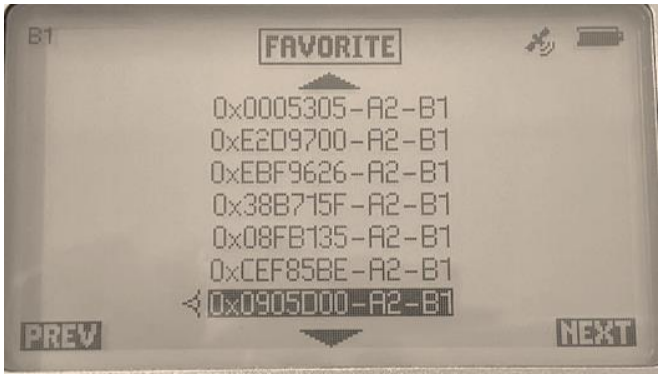
Frequency Mode:

- Wide (default) – all the defined band will be listened by the Goniometer
- Narrow – the Goniometer listens only to the detected frequency (specified bellow when selected). To be used in an environment with noise or many nearby transmitters and focusing on only one specific platform.

Once your favorite Argos platform details are setup, click on **VALID** to save.

4.7 Choose among the favorite platforms

Go to the *FAVORITE* screen, select your Argos platform in the list and click on **PREV** to access the *RECEPTION* screen.



For each Favorite ID, the detected modulation and frequency band is displayed.

Favorite IDs that are not in the currently selected band are “transparent” (meaning that they cannot be received). If you select it, the Goniometer will ask to switch band.

4.8 RECEPTION screen

Platform information can be displayed on the RECEPTION screen in two different ways:

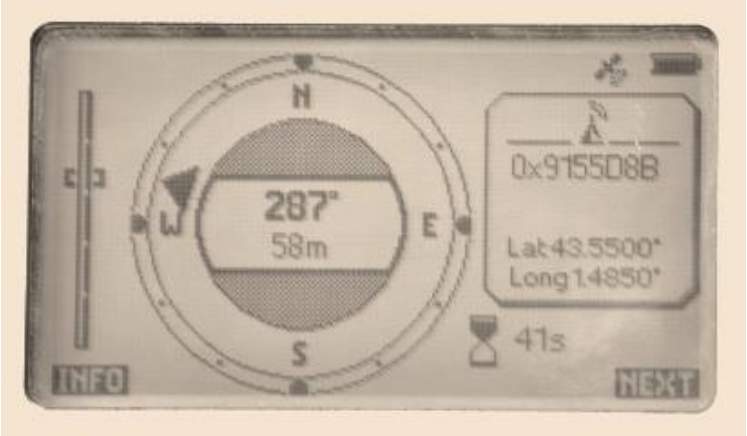
Goniometer mode and Direct Reception mode.

It can be changed:

Into thescreen 2 of SETUP menu: “direction mode “parameter

Using the central green button (instantaneously switch from one mode to other)

Goniometer mode display
Direction is provided relative to the Antenna White pointer



Direct Reception mode display
(Direction is provided relative to the North and based on lat/long received)

4.9 The Argos platform recovery can start

Goniometry Mode

A. Place the white pointer of the receiving antenna toward your reference azimuth (0°). For terrestrial searches we suggest placing the white pointer toward the North, or for recovery at sea, place the white pointer on the bow axis.
B. Wait for at least 3 received signals before you start to move in a direction.
C. After 3 signals, you get an average bearing direction and signal strength.
D. Move forward with an angle from 30° to 60° with the average bearing direction.
E. When the signal strength gets higher, stop moving and wait for at least 3 additional bearings to be received. Then repeat actions from C to E until you recover your Argos platform.

Direct Reception/ MSG Decoding Mode

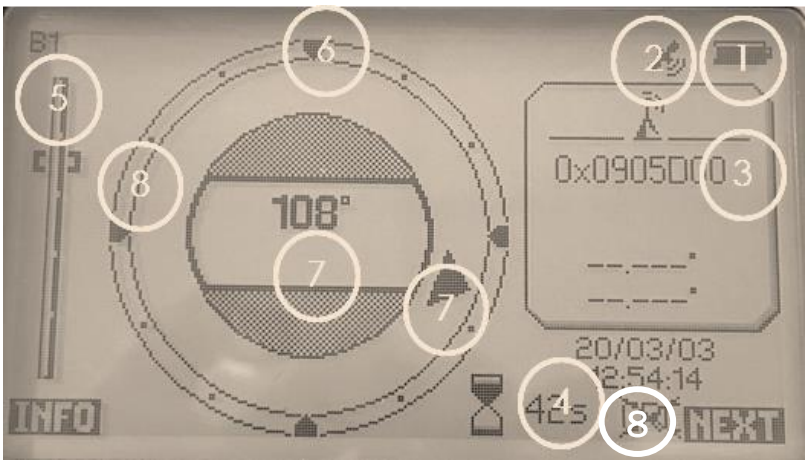
In the case of a GPS decoded platform, the distance and direction to the platform from the Gonio are displayed directly on the screen. Do not forget that the direction is given relative to the North.

5 Details of the screens

The screens are described in the following sections, in the order of appearance after turning it ON.

5.1 RECEPTION screen

To turn ON the Goniometer, press the ON/OFF button until you hear a beep. When initialization is complete, the *RECEPTION screen* is displayed:



Reception screen (direction finder display)

This screen allows you to monitor the selected platform. The information displayed on the screen is as follows:

(1)	Battery level
(2)	Goniometer internal GPS status
(3)	Platform hexadecimal ID
(4)	Estimated time to next reception (negative time means the reception is overdue)
(5)	Received signal strength (an indicator of distance)
(6)	Reference azimuth (white pointer at the bottom of the antenna)
(7)	Direction from the azimuth reference: 37° instantaneous direction, Ø 37° averaged direction (not shown in the above image; however, it will be in smaller size text below the 108° as shown)
(8)	Timestamp of the last received message
(9)	Messages received with a bad CRC (GPS Decoding mode, only displayed if CRC check is defined for the message format)

Press ***INFO*** (left navigation button) to display more details on the last received message.

Argos message information screen

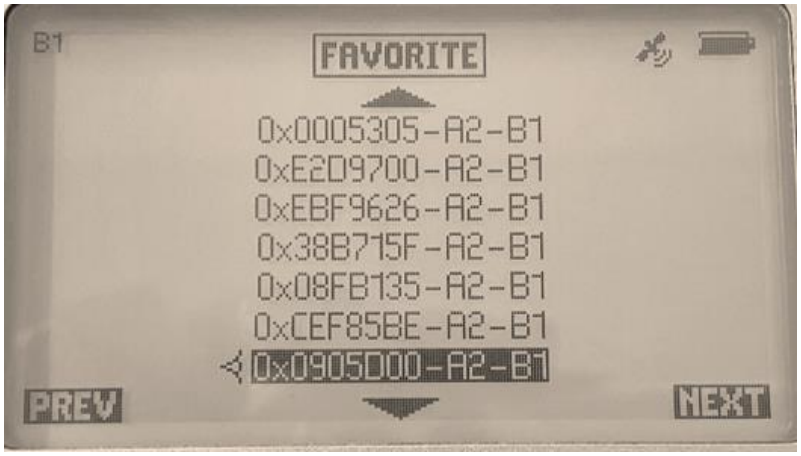
This screen provides details of the most recent message received:

- ***Date:*** Date and time the message was received (year/month/day)
- ***Freq:*** Frequency of the received signal, in Hertz
- ***Length:*** Message length in bits, after Argos preamble (FFFE2F not included)
- ***Level:*** Level of the received power (signal strength)
- ***Data:*** Useful data contained in the Argos message (raw, undecoded message)

Pressing the *RETURN* button (left navigation button) takes you back to the *RECEPTION screen*.

5.2 FAVORITE screen

The screen below shows seven platforms that have been saved as “favorites”. They can be selected using the up and down arrows on the control pad followed by pressing the validation button. Pressing the validation button will open the configuration screen for that particular ID.



Favorite Platforms management screen 1

Press the ***PREV*** navigation button to begin searching for the platform.

The Edit screen of the FAVORITE PLATFORMS is obtained after selecting a platform in the RECEIVING platform screen.

Favorite Platforms management Edit screen

This screen provides the following options:

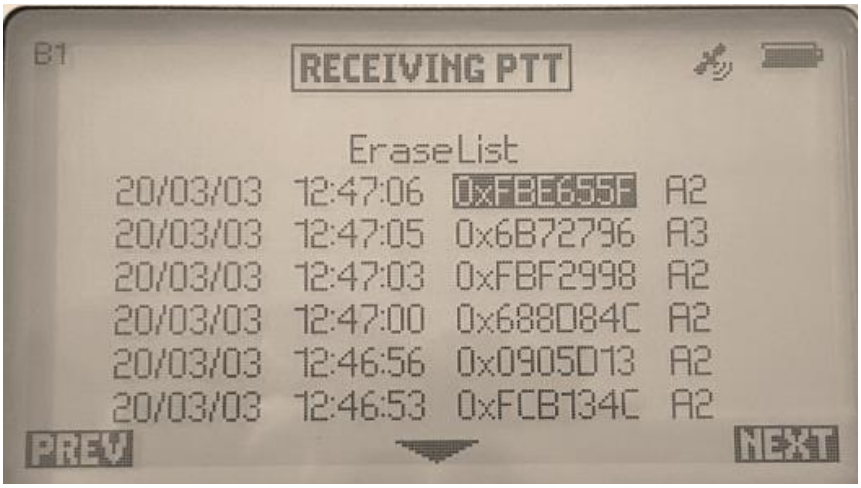
- ***ID Type:*** Choose the ID type: 20 or 28 bits (if you are unsure, confirm with your manufacturer)
- ***ID Hex:*** ID in hexadecimal format
- ***Label:*** Set a name for the Argos platform or use the Decimal Argos ID as the label
- ***GPS Format:*** NO if no template has been set for this platform.
  YES + Format Name if the GPS info has been defined (for Direct Reception mode). The setting of the platform is performed via PC through the USB connection (see section 6.8).
- ***Repeat period:*** Configure the repetition period, if known; otherwise, it will be calculated on reception.

To edit a field, select it using the arrow buttons then press the validation button. Modify the field using the up and down arrows, then press the validation button again to confirm the changes.

Once all the desired changes have been made, press the validation button to return to the Favorites screen.

5.3 RECEIVING PLATFORMS screen

Press the ***PREV*** navigation button from the *OPTIONS* screen to go to the *RECEIVING PLATFORMS* screen, which displays, in real time, all transmitters whose signals have been received.



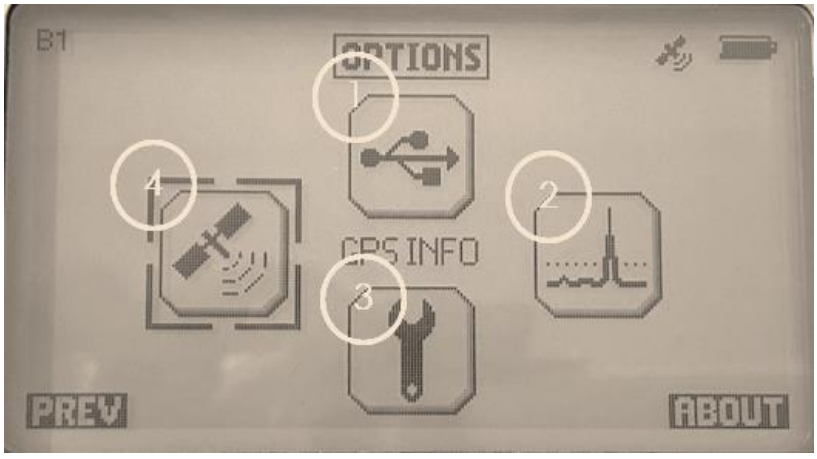
Received Platforms screen

For each transmitter signal received, this menu displays the date and time the message was received (columns 1 and 2) its hexadecimal ID number (column 3) and the Modulation detected (column 4).

Select the desired platform using the arrows, and then press the validation button. This platform is now added to your favorites and can be customized.

5.4 OPTION Menu

In the main menu you will find the OPTION menu.



1. Select a menu using the arrows on the control pad, then press the validation button.
2. To return to the previous screen *(OPTIONS),* press the *PREV* navigation button.

The different menus displayed on the screen are:

OPTIONS menu

(1)	*USB menu:* to activate the USB connection (only available when connected to a PC)
(2)	*FFT menu:* to display the Argos band signals received (spectral analysis mode)
(3)	*Setup menu:* to configure the Goniometer's operating parameters
(4)	*GPS Info menu:* to display information about the Goniometer's GPS

5.4.1 SETUP menu

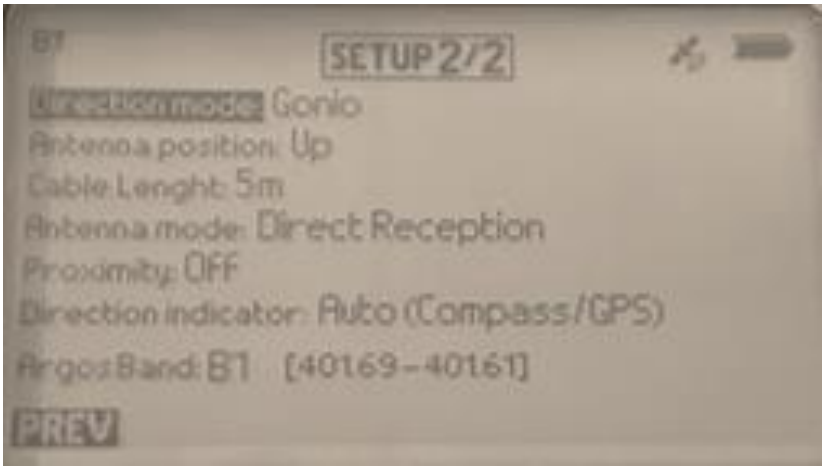
Setup screen page 1

Select the option you wish to change using the arrows on the control pad, then press the validation button. The setup menu is displayed on 2 pages.

On page 1, the options are:

- ***Audio:*** Activate or deactivate the beeps heard when pressing the buttons
- ***Backlight:*** Enable or disable the backlight
- ***Contrast:*** Change the contrast of the screen
- ***Acquisition GPS:*** Activate or deactivate the Goniometer's GPS
- ***GPS:*** Choose the GPS data format (decimal, degrees-minutes-seconds, degrees-minutes-decimal seconds)
- ***Declination:*** Indication of the degree to be set to compensate for the magnetic north. Set to 0° by default.
- ***Compass Calibration:*** This function allows you to calibrate the internal compass. You select the menu and turn the Goniometer several times on these three axes as you will do with your smartphone. The compass calibration is necessary when a magnet has been too close to the Goniometer.

- ***Year, Month, Day, Hour, Minute:*** Set the date and time
  Note: If the Goniometer's GPS is activated, this parameter will be automatically updated and it will be in UTC.
- ***AllTooFavorite:*** *If ON, all receiving platforms IDs will be automatically added as favorites (up to 64 favorites limit). This allow you to record and store all Argos transmissions on a Band for any and all tags within range of the Goniometer.*
- ***Distance:*** Select the unit of distance used (kilometer, nautical mile, mile)
- ***Direction Comp:*** Add an offset to the reference azimuth ⚠ To be left at 0°
- ***Temp.:*** Measured temperature
- ***Vbat:*** Battery voltage level



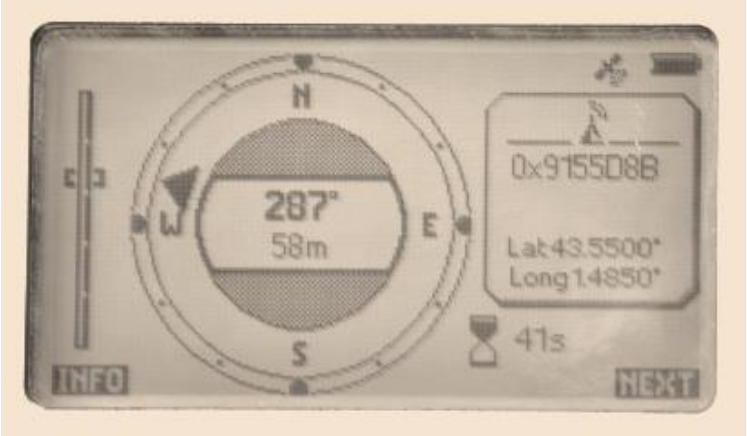
Setup screen page 2

On page 2, the options are:

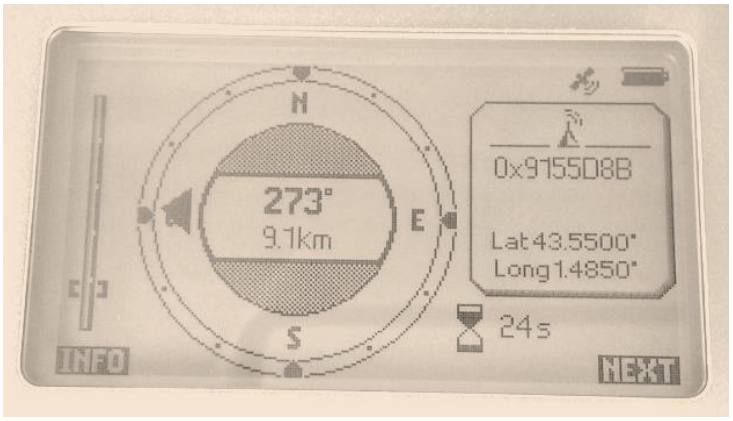
- ***Direction mode:*** Select GPS or Gonio Display mode:
    - ***Gonio:*** This will display the instantaneous direction of the received signal, on the RECEPTION screen. The reference for this direction is the white pointer at the bottom of the Goniometer's antenna. Note: Gonio mode is always used to recover satellite tags unless we have the GPS decoding from a given manufacturer.

    - ***GPS (for decoded GPS platforms only):*** This will display differential direction between the Goniometer's position and the platform position, on the RECEPTION screen. The reference for this direction is North.

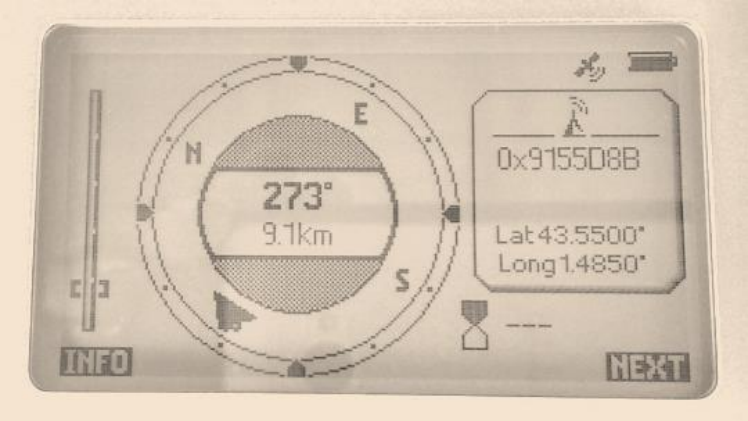
      **Note that if you select direct reception in antenna mode, direction mode is always GPS*



- ***Antenna position:*** Select the position of the antenna (up or down)
- ***Cable length:*** Indicate the length of the antenna cable used. By default, 5m.
- ***Antenna mode (type of computation to be performed):***
    - Gonio: select this mode if you are using the equipment as a direction finder. The Goniometer's AXG antenna with 2 connectors must be connected for the device to function properly.
    - Direct Reception: select this mode if you are using the equipment for direct reception. Either the Goniometer's AXG antenna or the small BNC antenna can be connected.
- ***Proximity:*** Activate/deactivate the proximity mode (when you are very close (<100m) to the platform, this mode attenuates the signal)
- ***Direction indicator (activation of the compass):***
    - Fixed: compass not activated (north is always on the top).



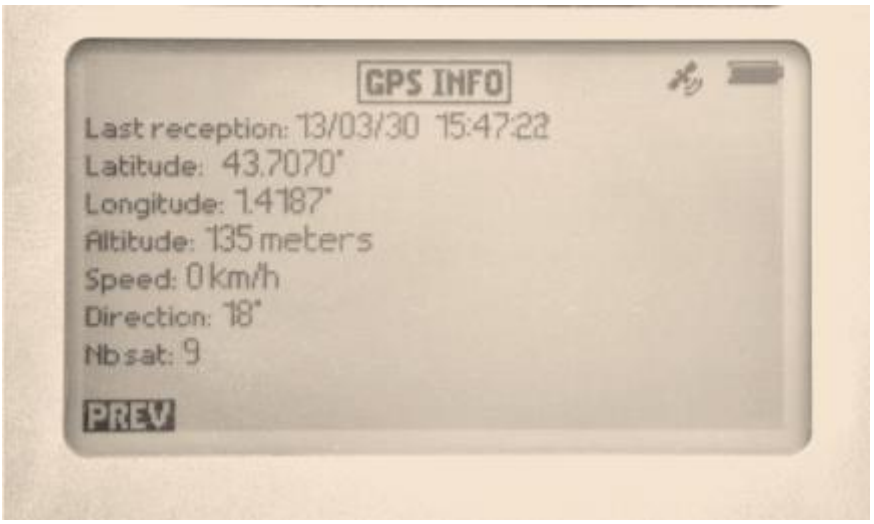
    - Compass or Auto (Compass/GPS): compass activated. The principle of the two options will be described later



- ***Argos Band:*** Select the Band where your platforms are transmitting
  - B1 [401.610-401.690]
  - B2 [401.530-401.610]
  - B3 [401.460-401.540]
  - B4 [401.390-401.470]
  - B5 [401.310-401.390]
  - B6 [401.110-401.190]
  - B7 [401.010-401.090]
  - B8 [399.970-400.050]
  - B9 [399.900-399.980]

5.4.2 GPS INFO menu

This menu displays GPS-related information of the Goniometer when it is locked onto the GPS network.



GPS Info menu screen

This menu displays information given by the GPS:

- ***Last reception:*** Date of the last GPS acquisition in YY/MM/DD HH:MM:SS format

- *Latitude*
- *Longitude*
- *Altitude*
- *Speed*
- ***Direction:*** GPS Heading computed by the Goniometer
- ***Nb sat:*** Number of GPS satellites within view of the Goniometer

GPS icon meanings:

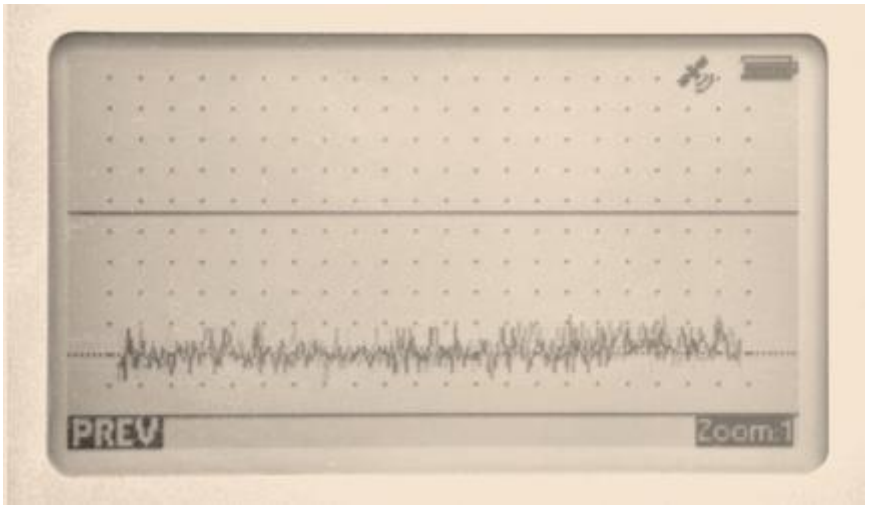
 GPS Activated and **Position is OK**

 GPS Activated but **Unable to acquire a Position**

 GPS is **not Activated** (go to the first Setup page if you want to activate the GPS)

5.4.3 FFT menu

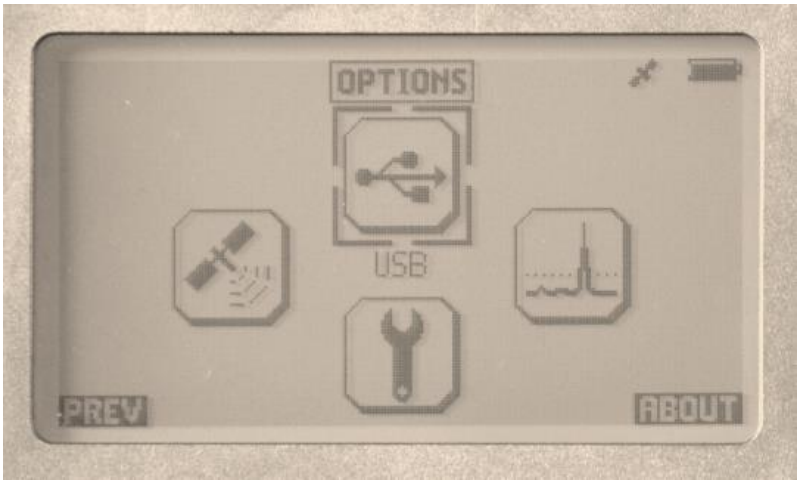
The FFT menu allows you to display a graph of the spectrum once the frequency of the signal has been analyzed.



Example of FFT display

5.4.4 USB menu

Press on USB to connect to a PC. See chapter 6.

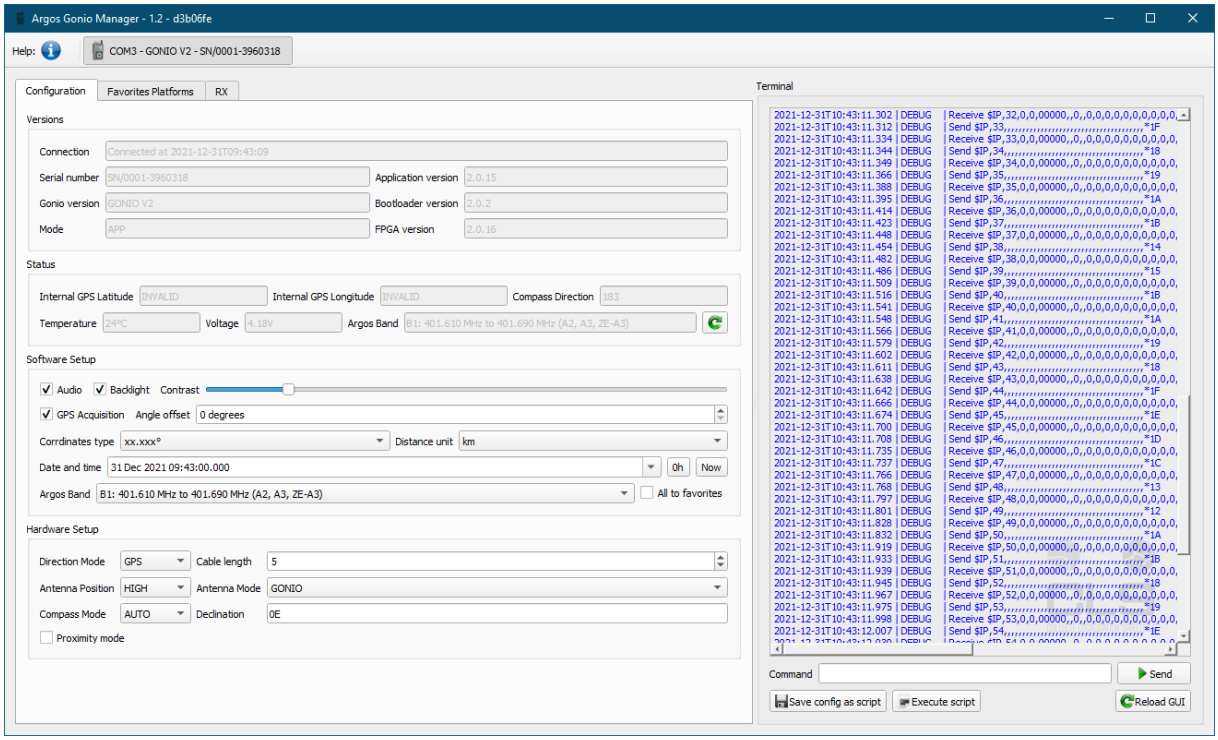


USB menu selection

6 Argos Gonio Manager (USB Serial connection)

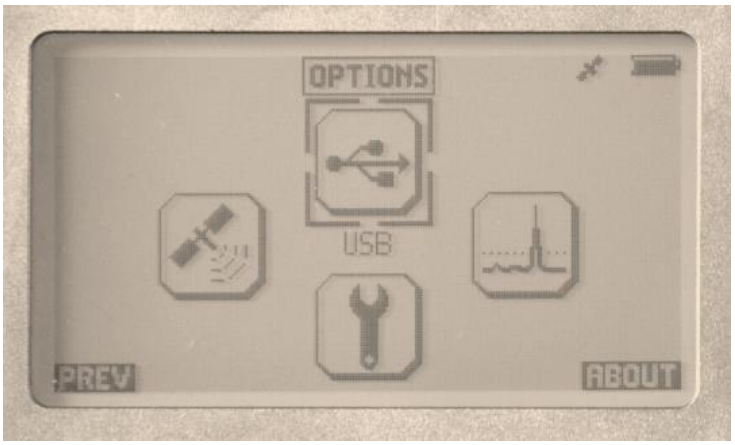
The Argos Gonio Manager software will allow you to:

A. Configure the Goniometer through a user-friendly setup menu
B. Easily setup and manage (export/import) new Argos platforms list in the Goniometer as favorites
C. Download all messages recorded and stored into the Goniometer for your favorite platforms (up to 200,000 messages), in CSV format or exported into the log file as $NPRF frame.
D. Automatically record all received Argos messages from any Argos tag within range in the log file while Goniometer is connected, in the (usually log_S/N.txt in data folder). $NPR and $NPRF format description are accessible upon request to CLS.
E. Send direct AT Command to the Goniometer
F. Choose a format for GPS position decoding (so GPS positions transmitted in the Argos message can be decoded, in real time, by the Goniometer). This field is only applicable to tags where we can decode the GPS from the transmitted data (confirm with your manufacturer if they have provided CLS with the decoding scheme).
G. Add a new known GPS Format and export/import them.



6.1 Software Installation

- Unzip the software file somewhere on your computer.
- Execute the file ArgosGonioManager.bat into the unzipped folder.
- Connect your Goniometer to the PC with the USB cable.
- Turn on the Goniometer.
- Select the « USB » option to activate Serial connection.

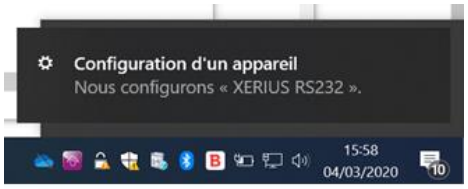


USB menu selection

USB active (Goniometer connected to PC)

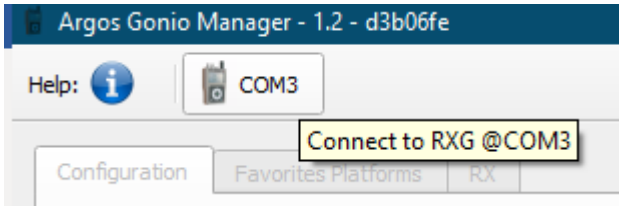
USB not active (Goniometer not physically connected to PC = cable issue)

When you connect Goniometer for the first time to your computer, Windows will automatically install required drivers and recognize the USB connection as “XERIUS RS232”.



First time after turning ON goniometer, you must activate 2 times the USB on the Goniometer before the PC detect it (known issue to be corrected).

Once the Software detect the Serial connection, a “COM X” will appear on the top part of the screen. Click to connect Argos Manager to the Goniometer and retrieve settings.



Note that if you have several Goniometers, you can connect them in different USB port and they will be manage by the Software.

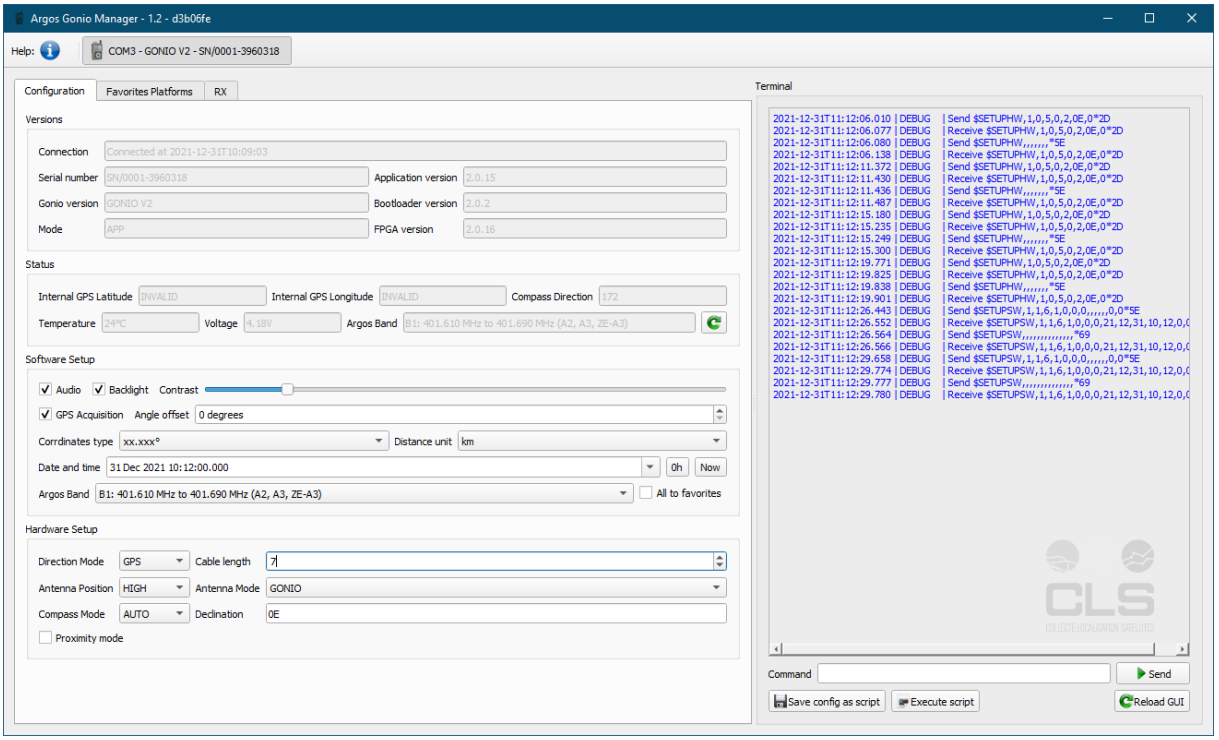
6.2 Configuring the Goniometer

Once connected, the Goniometer configuration will be retrieved and displayed in the first tab.

You can edit parameters

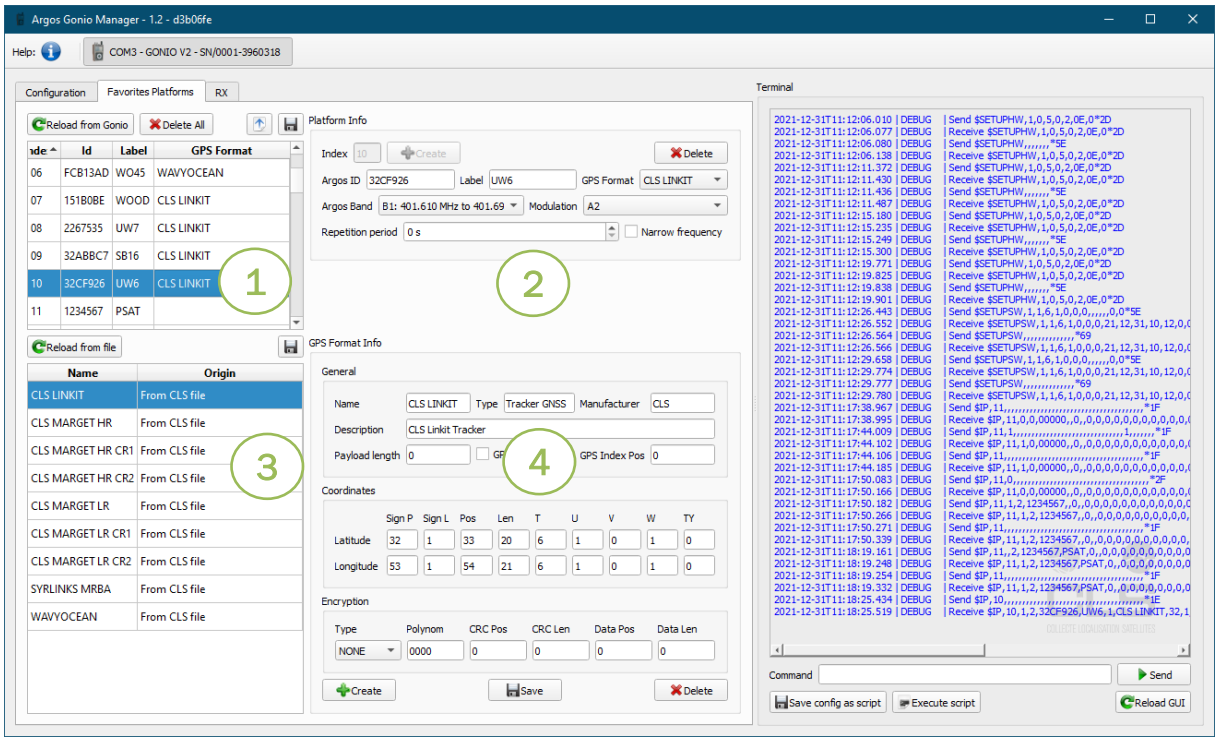
To configure the Goniometer (equivalent to the Setup Menu of the equipment) click on "Edit Configuration".

Settings are instantaneously saved into the gonio when you edit fields (no save button)



6.3 Favorite platforms tab

The second tab in the software will allow you to manage the favorite platforms.

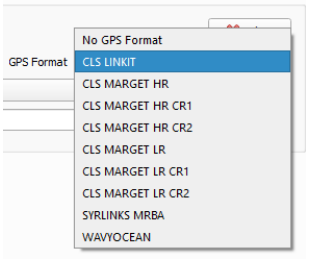


1 Will allow you to

- Add a new favorite into the list or edit existing (clicking on it).
- Export or import a list of Favorites using 

2 Will allow you to

- Define properties of each favorite as described in chapter 4.6
- Define a GPS Format for a favorite using the scroll down list of predefined formats (3)



3 Will allow you to

- See the list Format that is provided by tag Manufacturers and present in the software. (noted From CLS file)
- See the list of Format that were found into the Goniometer favorites but not defined in the software (noted From Gonio favorite platform)
- See the list of Format that you just created (noted From Argos Gonio Manager)
- Save the entire Format list into the Computer file for later usage or sharing (saved into Data/format.cls file)

4 Will allow you to

- Define new Format that is provided by tag Manufacturers (request support to CLS for this action)

Argos Message Format information for Direct Reception mode:

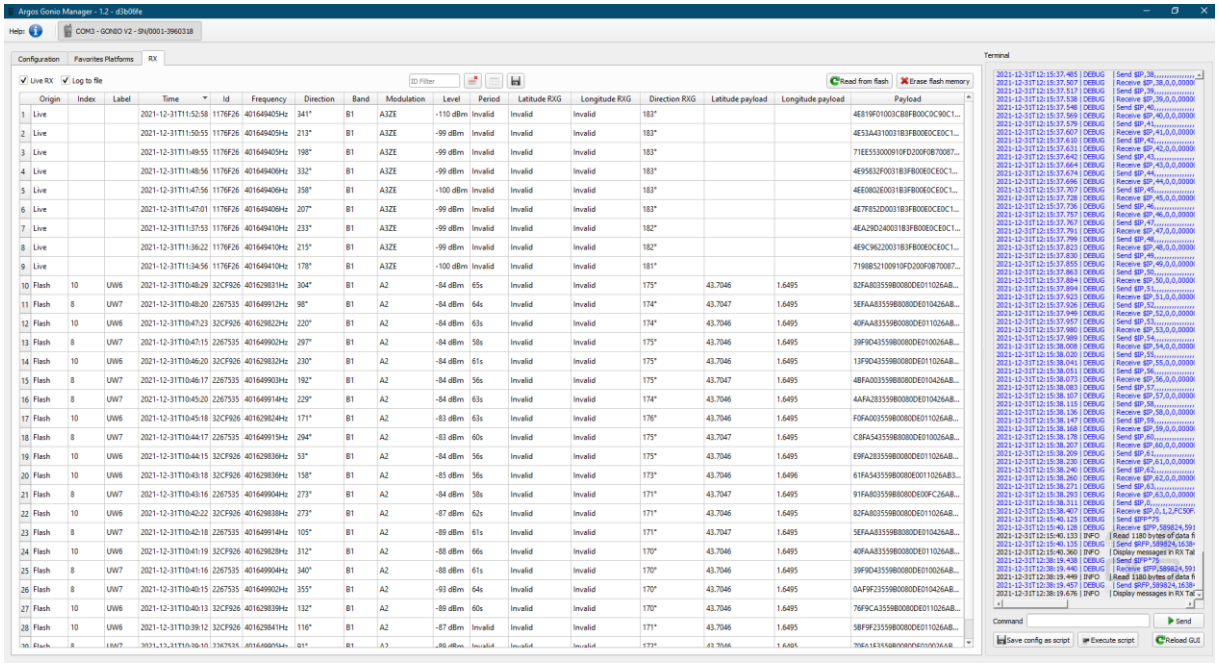
The parameters displayed during the Direct Reception mode (bearing and distance to platform) are calculated using the GPS information from the platform and the Goniometer. The GPS information from the platform is extracted from the user message by the Goniometer, and then it calculates the distance and heading comparing the message to Goniometer's own GPS position.

In order to have the format of your platform declared in the Goniometer software please contact CLS.

NOTE: If you are unsure whether or not CLS has the decoding scheme for your GPS equipped tag, please confirm with your manufacturer.

6.4 RX tab (live and recorded data)

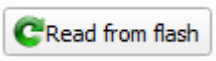
This screen display the **live** feed (if activated) and let you download the data recorded into the Goniometer.



Reminder: Only the data for platforms declared as favorites are saved into the internal memory of the Goniometer.

The **log to file** option will activate/deactivate the write of all $NPR $NPRF received frame into the Logs/Log_xxx.txt file. This file can be used to plug 3rd party Software to the live feed of data.

To retrieve internal data from Flash memory, click on the button:



When you have saved your Data (exported to CSV) and you want to empty the internal flash memory of the Gonio, click the button:

Data Table **Column description:**

Origin: will indicate you if the data is from gonio internal memory (**Flash**) or **Live** feed (data received while the Software is connected)

Index: If the Software detect this is a favorite platform, this field will indicate its favorite List index

Label: If the Software detect this is a favorite platform, this field will indicate Name from favorite List

Time: Date Time of Reception on the Goniometer (dated with internal GPS)

Id: 28bit Hexadecimal Id received

Frequency: Central Frequency of reception (Hz)

Direction: Instantaneous reception direction relative to the Goniometer's antenna reference (deg.)

Band: selected Frequency Band on the Goniometer

Modulation: Argos Modulation of the message received

Level: Signal level received from platform (dBm)

Period: Transmission period (seconds)

Latitude RXG: Latitude of the Goniometer GPS (degrees)

Longitude RXG: Longitude of the Goniometer GPS (degrees)

Direction RXG: Direction of the Goniometer's Compas relative to the north (degrees)

Latitude payload: If the Software detect this is a favorite platform with a GPS Format defined, it will use it to decode and display the latitude contained into the payload.

Longitude payload: If the Software detect this is a favorite platform with a GPS Format defined, it will use it to decode and display the longitude contained into the payload.

Payload: Data content (ARGOS message without 8 first bit of ID extension)

Operations on the data table:

The Filter field allow to enter a Hexadecimal ID in order to display the data concerning only one platform.

If you select some lines (using ctrl or MAJ key), only this selection will be taken into account when exporting data.

You can clear the selection using the first button

You can empty the table using the second button (lines from Live feed will be lost, lines from Flash can be retrieved)

You can export the data to a CSV file using the 3rd button.

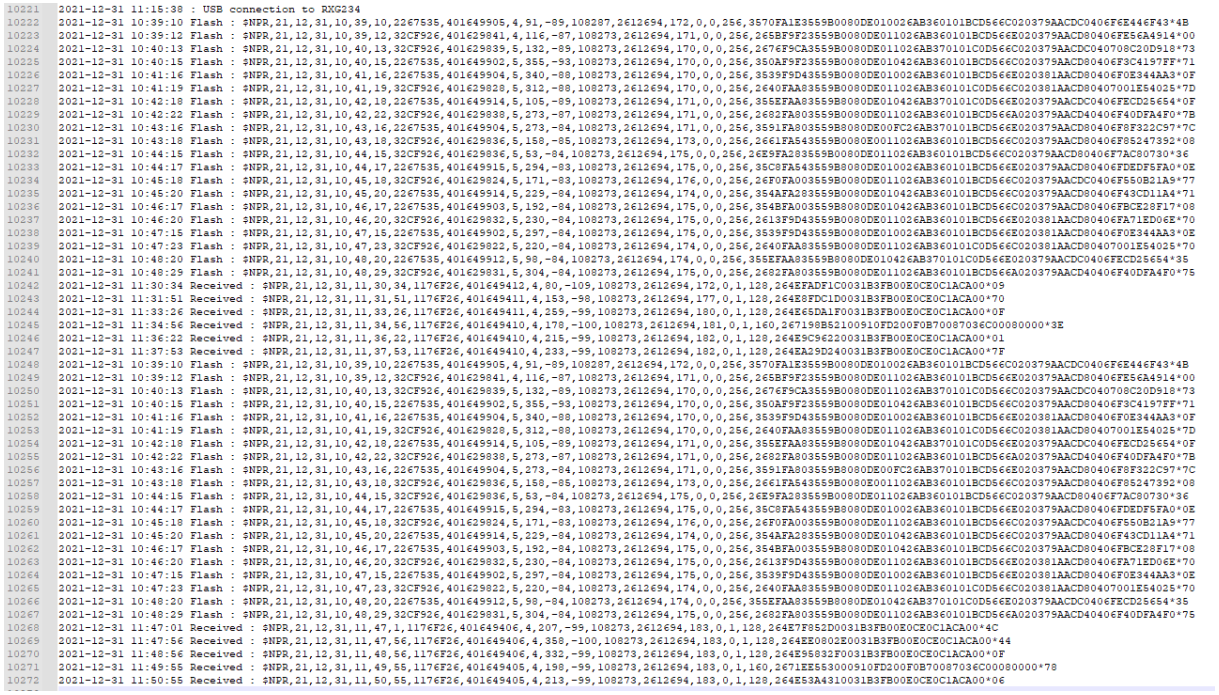
6.5 Live Log File

If "Live RX" option is activated on the RX tab , once the PC is connected to the Goniometer through the USB, all received Argos messages are stored in the log file which is located under ./Logs/ folder. The name of this file is as follows "Log XXXX.txt", where XXXX is the Goniometer number (example: 0027).

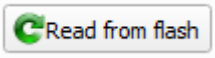
Below is an example of file.

- the first record line will be the date, time at which you start the connection ("USB Connection to RXG234")
- then for each received Argos message you will have one line with:
  - date
  - time
  - type of reception (Reception or Flash)

- the Goniometer command $NPR for a non-favorite platform and $NPRF for a favorite platform, followed by several parameters which are explained below



The label “Received” means the data is coming from the live feed.

The label “Flash” means the data is coming from a user that requested a flash data download in the Software: 

The commands and their parameters are as follows:

- NPR(F),i,y,m,d,h,mi,s,id,fr,f,ai,l,log,lag,dg,le,da

  where:

  - i: index of the platforms in the Favorite platforms screen
  - y, m, d, h, mi, s: year, month, day, hour, minutes, seconds
  - id: hexadecimal ID (28 bits)
  - fr: frequency (Hz)
  - f: 8 bits validity parameter on Goniometer direction, GPS and repetition period. 0,0,0,0,0,validity goniometer direction, GPS-Goniometer validity, period validity (0 = bad 1=OK)
  - ai: instantaneous angle
  - l: level
  - log, lag: latitude and longitude of the Gonio (divide values by 60,000 for Decimal °)
  - dg: Goniometer direction (not implemented yet)
  - le, da: message length and data message (in hexadecimal with the first 8 bit of ID extension)

7 Technical characteristics

RXG-234 receiver & AXG-234 antenna	
Frequency range (MHz) (to be selected)	B1 [401.610-401.690] B2 [401.530-401.610] B3 [401.460-401.540] B4 [401.390-401.470] B5 [401.310-401.390] B6 [401.110-401.190] B7 [401.010-401.090] B8 [399.970-400.050] B9 [399.900-399.980]
Frequency stability	±3.5ppm over the temperature range
Minimum detection sensitivity	-131dbm (63nVrms @50Ω)
Accuracy of angle measurement	±5°
Resolution of the measurement of the angle	±1°
Standard length of AXG-234 antenna cables	5m
Maximum length of AXG-234 antenna cable with extension	25m
Battery charging time (External Charger)	7h
Battery charging time via USB connected to a PC	15h
Internal battery capacity	6800mAh
Autonomy *(GPS OFF – Backlight OFF – contrast-0 – Audio OFF)* *(GPS ON – Backlight ON – contrast-5 – Audio ON)*	 46h @ 25°C 21h @ 25°C
Temperature range	0°C to +45°C for battery charging -20°C to +50°C in use
Waterproof rating	IP 66
Goniometer RXG-234 dimensions	135mm x 92.5mm x 34mm
Goniometer RXG-234 weight	565g
Dimension of AXG-234 antenna	400mm x 65mm
AXG-234 Antenna Weight (without cable)	650g