

G10 ULTRALITE GPS LOGGER

USER MANUAL

Version: 8.0

July, 2014

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Table of Contents

OVERVIEW	4
1 PREFACE	5
1.1 INTRODUCING G10	5
1.2 WHAT'S IN THE BOX?	5
2 STEP ONE – CONFIGURING THE UNIT	6
2.1 CONNECTING THE CRADLE	6
2.2 STARTING THE PC CONSOLE APPLICATION	6
• EXECUTE THE FILE C:\ROBIN\ROBIN.LNK	6
2.3 PREPARE THE DEVICE	6
3 STEP TWO – STARTING THE TEST	7
3.1 PLUG IN THE DEVICE	7
3.2 CONNECTING TO THE CONSOLE	7
3.3 SET THE DEVICE SCHEDULE	8
3.4 START CAPTURING SNAPS (TASK START DATE)	9
3.5 START CAPTURING SNAPS (MAGNETIC SWITCH)	9
3.6 TROUBLESHOOTING	10
4 STEP THREE – DOWNLOADING AND PROCESSING THE DATA	11
4.1 PLUG IN THE DEVICE	11
4.2 GETTING AND PROCESSING THE DATA	11
4.3 RESUME DOWNLOAD	14
4.4 HIDE	14
4.5 VIEW THE RESULTS	15
5 STEP FIVE – PREPARE FOR A NEW TEST	16
5.1 ERASE THE DATA	16
5.2 TROUBLESHOOTING	16
6 STEP SIX – CHARGING THE BATTERY	17
6.1 PLUG IN THE DEVICE	17
6.2 CHARGER SWITCH	17
6.3 CHARGING INDICATION	17
7 STEP SEVEN – RESET THE G10 UNIT	17
7.1 PLUG IN THE DEVICE	17
7.2 PERFORM RESET	17

Overview

The purpose of this document is to guide you on how to use the G10 GPS logger system. Before you start please make sure you have completed successfully the installation on the PC according to the "G10 - Installation Guide".

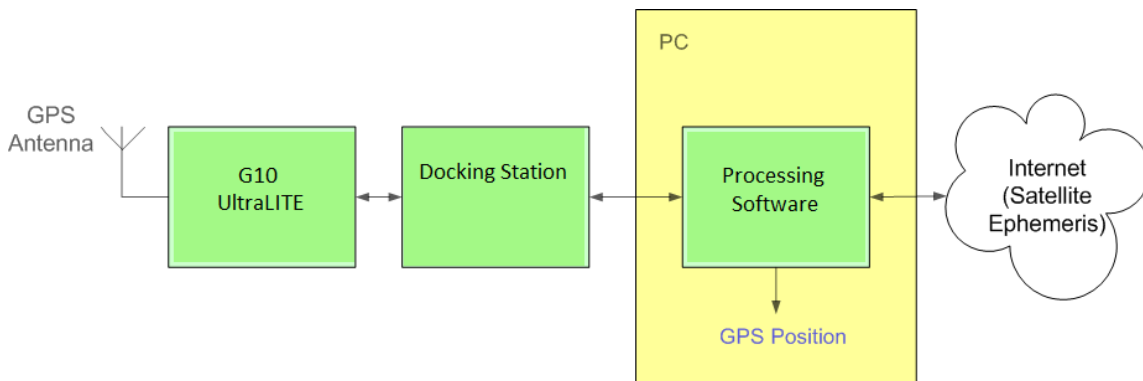
1 Preface

1.1 Introducing G10

G10 is a GPS logger system. G10 uses ATS' unique GPS snapshot technology and offers unparalleled low-power consumption, enabling prolonged logging times when compared to traditional GPS loggers based on other GPS receiver technologies.

The G10 solution comprises of a mobile logger unit, PC connection docking station and a PC software suite. G10 also relies on GPS satellite orbit information, called ephemeris that is received from an external source such as an Internet connection or email.

The following block diagram shows the different components of the G10 system:



1.2 What's In The Box?

- G10 Mobile Unit
- Docking Station (PN 18045)
- USB Cable

2 Step One – Configuring the Unit

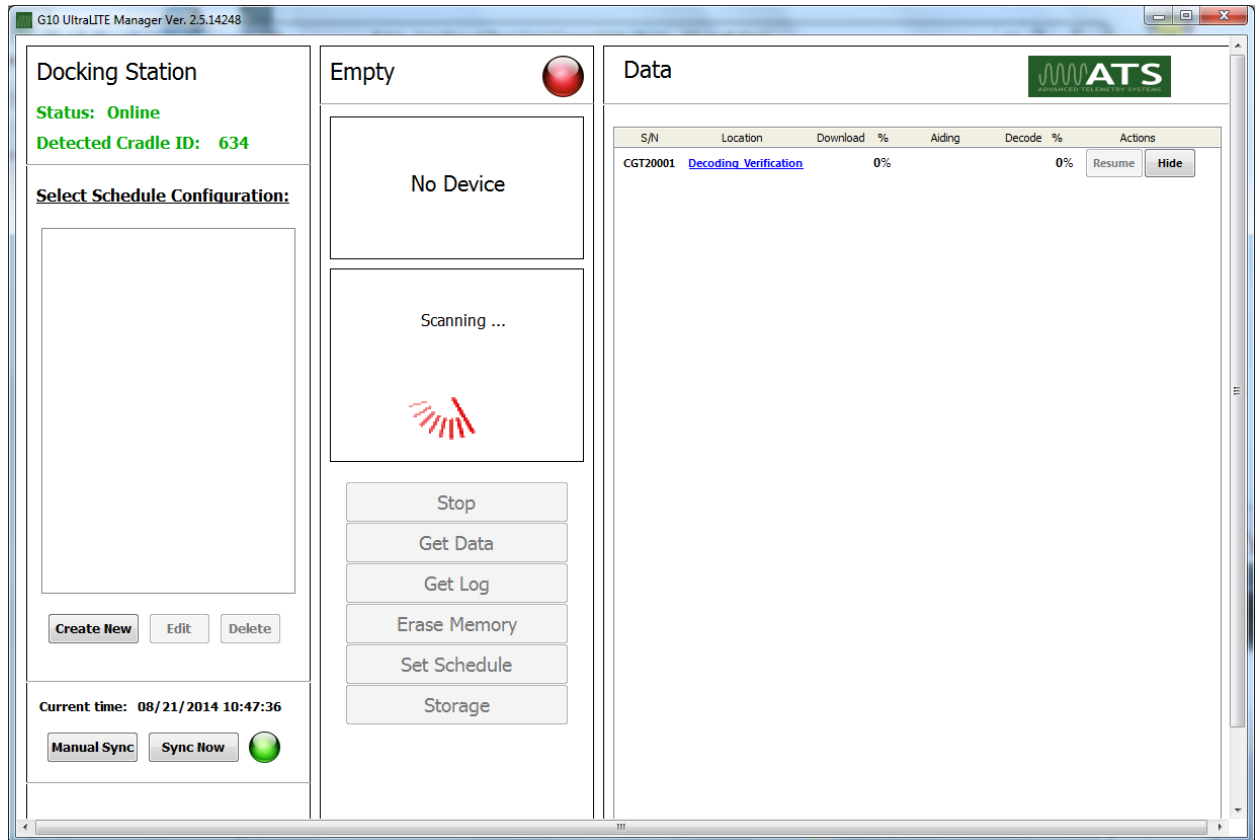
Prior to your first experiment, you will need to configure the G10 mobile unit using the supplied Docking Station.

2.1 Connecting the docking station

- In order to connect the docking station to the PC, please perform the following steps:
- Connect the provided USB cable to the docking station.
- Connect the USB cable to the PC and wait for 20 seconds until you will receive a notification that the device is ready to use.

2.2 Starting the PC console application

- Execute the file **C:\Robin\Robin.lnk**
- The following page should be displayed:



2.3 Prepare the Device

Note: It is mandatory that the G10 unit power supply will be connected prior to disconnecting the G10 unit from the docking station.

3 Step Two – Starting the Test

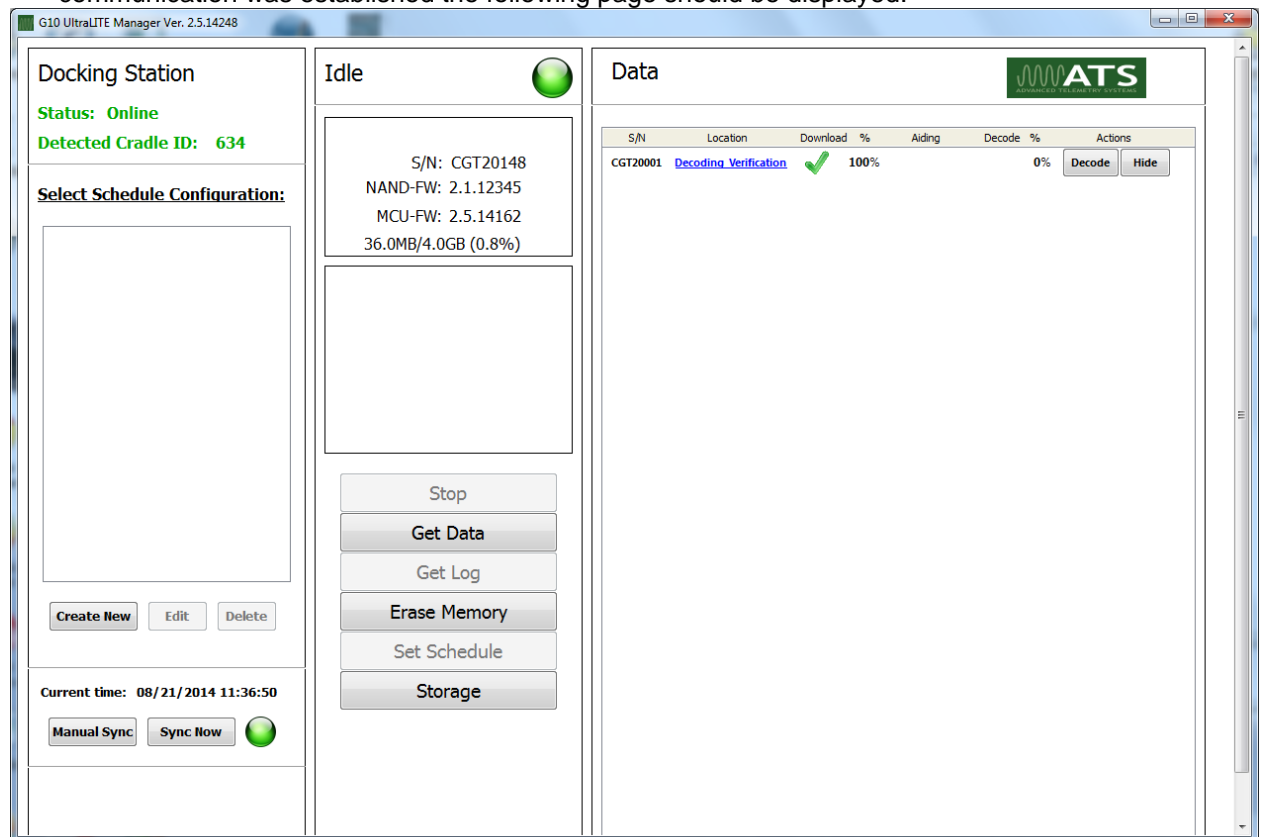
3.1 Plug in the device

- Connect the mobile unit 18 pins connector to the docking station's connector.





3.2 Connecting to the console


- Once you have plugged in the device to the docking station and the communication was established the following page should be displayed:




Docking Station
Status: Online
Detected Cradle ID: 634
Select Schedule Configuration:

 Current time: 08/21/2014 11:36:50
 

Idle 
 S/N: CGT20148
 NAND-FW: 2.1.12345
 MCU-FW: 2.5.14162
 36.0MB/4.0GB (0.8%)

Data 

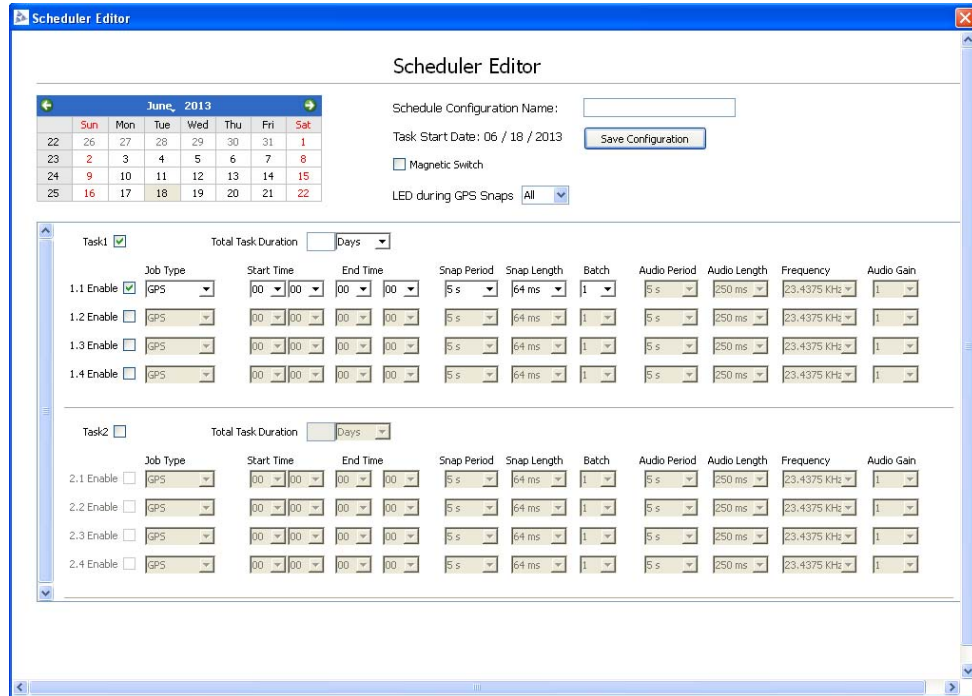
S/N	Location	Download %	Aiding	Decode %	Actions
CGT20001	Decoding_Verification	 100%		0%	<input type="button" value="Decode"/> <input type="button" value="Hide"/>

As long as the device is connected to the docking station it should continually blink every second.

3.3 Set the Device Schedule

1. Schedule Configuration

- In order to configure a new schedule press the “Create New” button.
- The following window will be opened.



- Fill it according to the required schedule.

2. Schedule Configuration Name:

- Define the name of the schedule you wish to configure.

3. Task Start Date:

- Define the date you wish the schedule will begin. Note that the date could not be set in the past.

4. Magnetic Switch:

- Define whether the magnetic switch will be enabled or not.
- If it's enabled, the start date will not be enable and the schedule will begin once you'll attach a magnet on the Robin and move it away.

5. Job Type

- Select GPS.

6. Start Time:

- Defines Sub Task start time.

7. End Time:

- Defines Sub Task end time.

8. Length

- a. Select one of the following SNAP durations:
 - i. 64 – Recommended for open area only
 - ii. 128 - Recommended for semi open area conditions
 - iii. 256 - Recommended for semi difficult conditions
 - iv. 512 - Recommended for difficult conditions

9. Period

- a. Defines the delay between each SNAP or batch of SNAPS

10. Batch:

- a. Defines the number of SNAPS the system will perform each period. For example, in case the period is 10 seconds and the “batch” sets to 3, every 10 seconds the unit will generate 3 SNAPS in the same length (as defined under the length field).
- b. The “batch” number will affect directly on the battery life. The SNAP power consumption each period will be multiplied by the number of SNAPS defined in the “batch” field.
- c. The interval between all the SNAPS in the same “batch” is one second and it is possible to choose up to 10 SNAPS each batch.

11. Total Task Duration:

- a. Defines the number of repetitions of each Task in days or weeks.

12. LED on Snap count:

- a. Defines the number of SNAPS in which the LED will blink.

13. Save Configuration

- a. In order to save the new schedule press on the “Save Configuration” button.

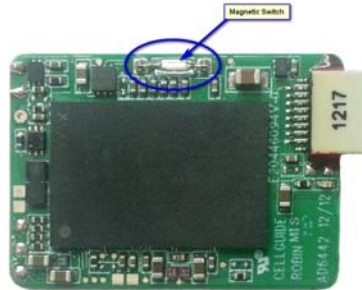
3.4 Start Capturing Snaps (Task Start Date)

- In order to start capturing snaps you will need to do the following steps:
 - Choose a schedule.
 - Press the “set Schedule” button.
 - Unplug the device from the docking station.
 - Around 3 seconds after the device was unplugged from the docking station you should see 3 fast red blinks that indicate that the device was unplugged successfully.

3.5 Start Capturing Snaps (Magnetic Switch)

- In order to start capturing snaps using the magnetic switch you will need to do the following steps:
 - Repeat the steps listed under section **3.4**.

- Make sure that you select the magnetic switch option on your schedule.
- Hold the magnet on the G10 UltraLITE for ~3Sec. (See in the picture below the place where you should attach the magnet.). In some cases the magnet's location will be indicated with two small dots.



- You should see 3 fast red blinks that indicate that the schedule had started.
- Remove the magnet from the unit.

Note: You should not attach a magnet to the unit for the second time (after the schedule started). It may cause the schedule to stop.

3.6 Troubleshooting

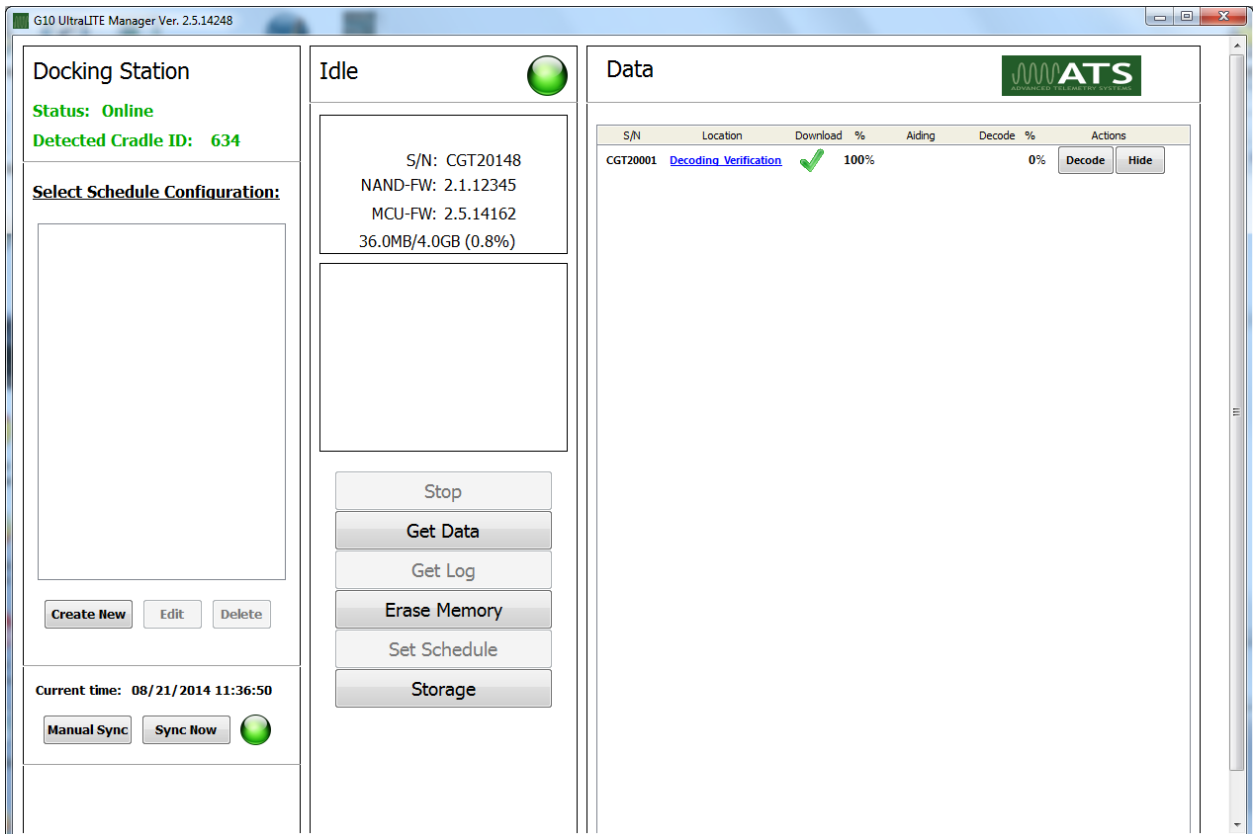
Q: What should I do if I have plugged in the device and I don't see an indication in the console?

- A: 1. You should reset the G10 *UltraLITE* using the docking station reset button.
2. You should close the console and start it again. If that doesn't help unplug the docking station and the device and start again from step one.

4 Step Three – Downloading and Processing the Data

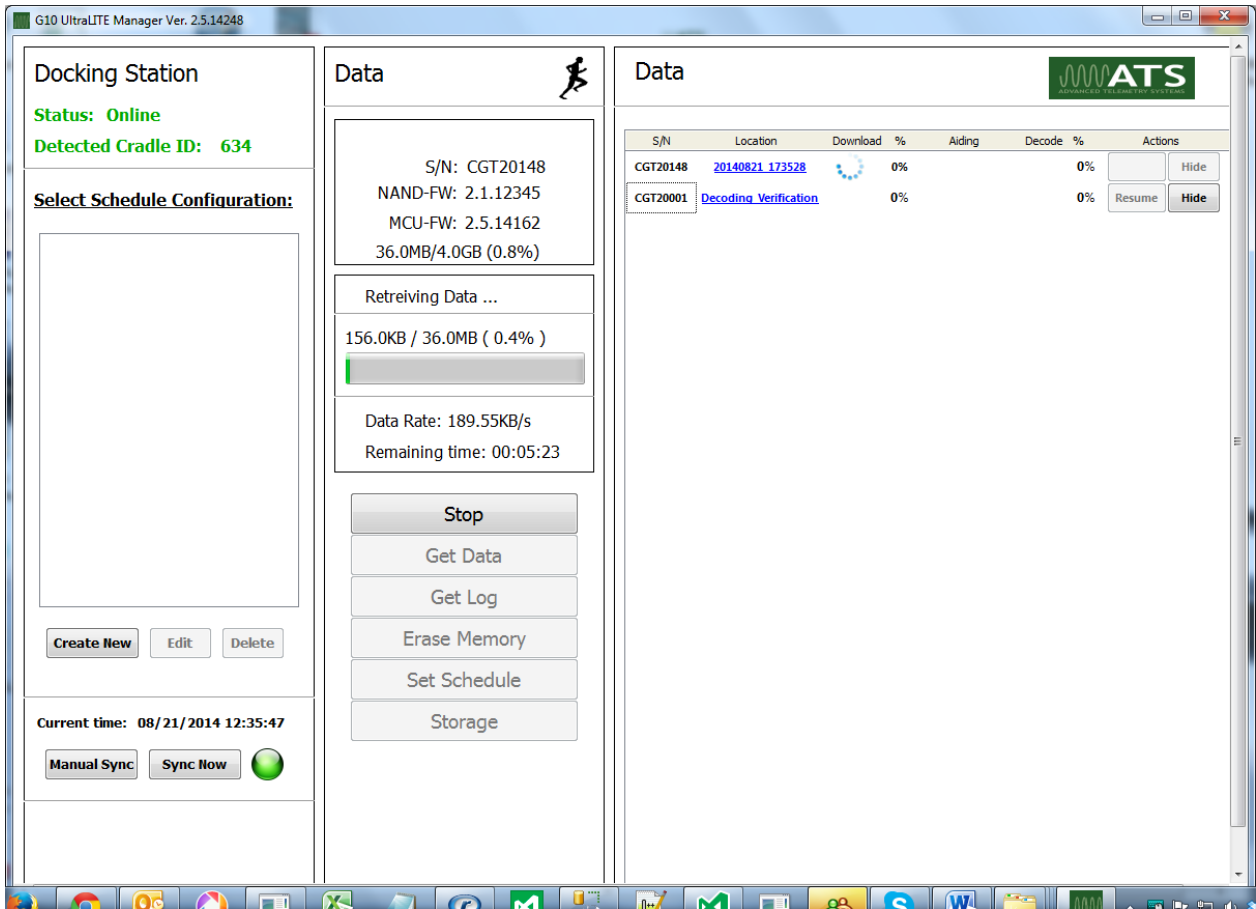
4.1 Plug in the device

- Repeat the steps listed under sections 3.1 – 3.2
- The internal flash memory of the mobile unit now contains GPS snapshot.
You should see an indication of the size of the stored data, as seen below:



4.2 Getting and Processing the Data

- In order to download the data to your PC you need to press on the “Get Data” button.
- The console will indicate the expected duration for the data download. See below:



- Once all the data is downloaded successfully you should see an indication on the right side of the console under the “Data” section. See below:

G10 UltraLITE Manager Ver. 2.5.14248

Docking Station

Status: Online
Detected Cradle ID: 634

Select Schedule Configuration:

Current time: 08/21/2014 11:42:02

Idle

S/N: CGT20148
NAND-FW: 2.1.12345
MCU-FW: 2.5.14162
36.0MB/4.0GB (0.8%)

Data

S/N	Location	Download %	Aiding	Decode %	Actions
CGT20001	Decoding_Verification	✓ 100%	OK	✓ 100%	<input type="button" value="Track"/> <input type="button" value="Hide"/>

- During the Data Download process the system will proceed automatically with the decode process. (The PC should be connected to the Internet during the decode process)
- The expected duration is 2 minutes of processing for every hour of GPS data.
- During the Decode process the PC Console application approaches to a server in order to download Ephemeris. There are 4 possible messages, you should see those messages under the Data section under the Aiding column.
 1. **OK** → Success to download Ephemeris data from the FTP server.
 2. **Missing Aiding** → The Ephemeris data is not available at the FTP server.
 3. **Connection Error** → The application failed to communicate with the FTP server. (Check the Internet connection of your computer)
 4. **Invalid Data** → Success to download Ephemeris data from the FTP server but the data is not valid.
- Once the decode process is successful you should see an indication on the right side of the console under the “Data” section under the decode column.

4.3 Resume Download

- The Resume download option allows the user to continue the download process in case it was stopped. In such case the “Resume” button will appear under the “Action” column.
- Follow the steps below in order to proceed with the download of a specific recording:
 - Connect the G10 *UltraLITE* unit to the docking station.
 - Press the “Resume” button.
 - The download process will be resumed

4.4 NTP

- Sync Now: Force immediate time synchronization. It is recommended to use before disconnecting the computer from the Internet. Please note, that by default the time is been synchronized automatically.
- Manual Sync: Manual synchronization. Must be set in cases the time indication is turned red. It is highly important to use a reliable time source when setting the time manually.
- NTP Green Indicator: Time synchronization is valid.
- NTP Yellow Indicator: Time synchronization is valid. Synced manually.
- NTP Red Indicator: Time synchronization is invalid. Time must be synchronized. Please use a reliable time source.

4.5 Hide

- The Hide feature allows the user to hide the information of a specific experiment.
- In order to hide the information, press the “Hide” button that is located under the “Hide” column.

4.6 Preview



- The Preview feature allows the user to see a preview of the results.
- In order to get a preview press the Preview button that is located under the Actions column during the download process.

4.7 View the Results

- In order to view the results on the Google Earth application simply press on the “Track” button.
- A direct link to the test folder is available in each row under the location folder.
- Available output files:
 - The Google Earth kmz file - Track.kmz
 - The NMEA files:
 - Nmea-Geotag.txt
 - Nmea-GeoCollecting.txt
 - Nmea-GeoFiltering.txt
 - The CSV files:
 - Track-geoTag.txt
 - Track -geoCollecting.txt
 - Track -geoFiltering.txt

The CSV files are automatically generated during the decoding process. The NMEA data is displayed in the CSV files.

- **Geotag:**

Independent solution per SNAP. The position of each SNAP is been calculated separately for each SNAP.

- **GeoCollecting:**

Smart averaging of “batch” of SNAPS. This feature was designed to improve the position accuracy. The “batch” configuration defines the number of SNAPS to average each period. The PC post-processing engine detects it automatically and generates a smart averaging result.

- **GeoFiltering:**

Smart filtering. This feature is based on Kalman filter and it’s automatically enabled when the user configures the G10 to generate SNAPS every 1 to 10 seconds. The PC post-processing engine continuously generates positions based on the historic data.

5 Step Five – Prepare for a New Test

5.1 Erase the data

- Click the “Erase Memory” button.
- Confirm the following message box:



- This process should take several seconds.
- Once the erase operation is completed, please proceed according to the instructions in section 3.3.

5.2 Troubleshooting

Q: What should I do if nothing happens after I have confirmed the erase operation?

A: You need to wait for ~10 seconds and then press F5 in order to refresh the console web page. After that you can continue normally.

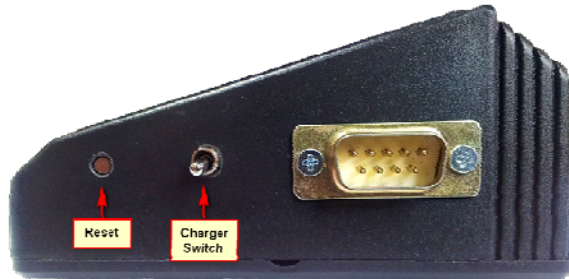
6 Step Six – Charging the battery

6.1 Plug in the device

- Repeat the steps listed under sections 3.1 – 3.2

6.2 Charger Switch

- The charger switch is placed on the docking station (See the picture below).



- The switch has two possible states.
 - Upward → Charging Enable
 - Downward → Charging Disable

6.3 Charging Indication

- There is a Red Led on the docking station's top side.
- When charging is enable the LED has three possible states:
 - Led is turned ON → Charging the battery.
 - Led is turned OFF (or weak illumination)→ Battery is full.

Step Seven – Reset the Mobile Unit

6.4 Plug in the device

- Repeat the steps listed under sections 3.1 – 3.2

6.5 Perform Reset

- Press the reset button that is located on the docking station. (See Picture above)
- You should see a red blinks on the G10 *UltraLITE* that indicates that the device was reset.
- The communication with the docking station will be established within 3 seconds.