

DUALEM LOG Software



User manual – v.1.1

July 2015

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1.0 INTRODUCTION

DUALEM Log is a software dedicated to data acquisition and configuration with DUALEM equipment.

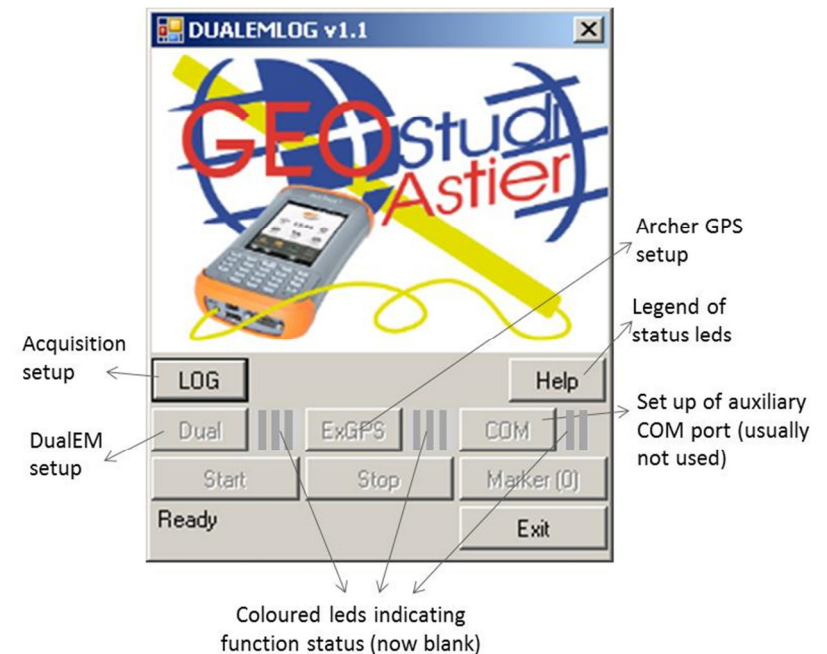
In particular, this software allows to:

1. Collect full data coming from DualEM (sensors, internal GPS, pitch, roll, temperature, battery voltage,);
2. Collect data coming from a second GPS embedded inside handheld PC (if available) like Juniper Archer 2, DAS-70 and similar;
3. Real time plot of the acquisition data (sensors values and graphs, GPS path, GPS quality signal, pitch-roll-temperature-battery tension);
4. Communicate with the DualEM for proper setup (survey and instruments parameters, etc...) through its own internal menu;
5. Communicate with the instrument for internal memory data downloading.

2.0 INSTALLATION

To install DUALEM Log simply double click on the DUALEMLog.cab file from a pen drive connected to Field PC (DAS-70, Archer 2 and similar with Microsoft Windows Embedded O.S.); the installation process will start and a shortcut will be added to the program list.

After launching DUALEM_Log the following main screen will appear(only LOG button is active):



The other buttons will be enabled (ON) only after the acquisition setup is performed by pressing the LOG button (see chapter 3.0).

3.0 ACQUISITION SETUP

Tap on **LOG** button to select file name, destination folder, output format and location:



In the case the user wants to download the DualEM's internal memory, the related .raw file will be automatically saved into the same selected folder (see chapter 6.0).

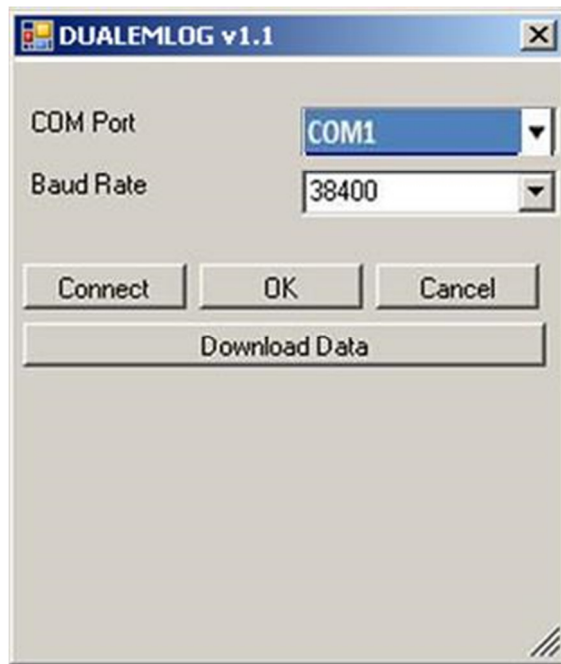
Then press Save to exit to main menu:



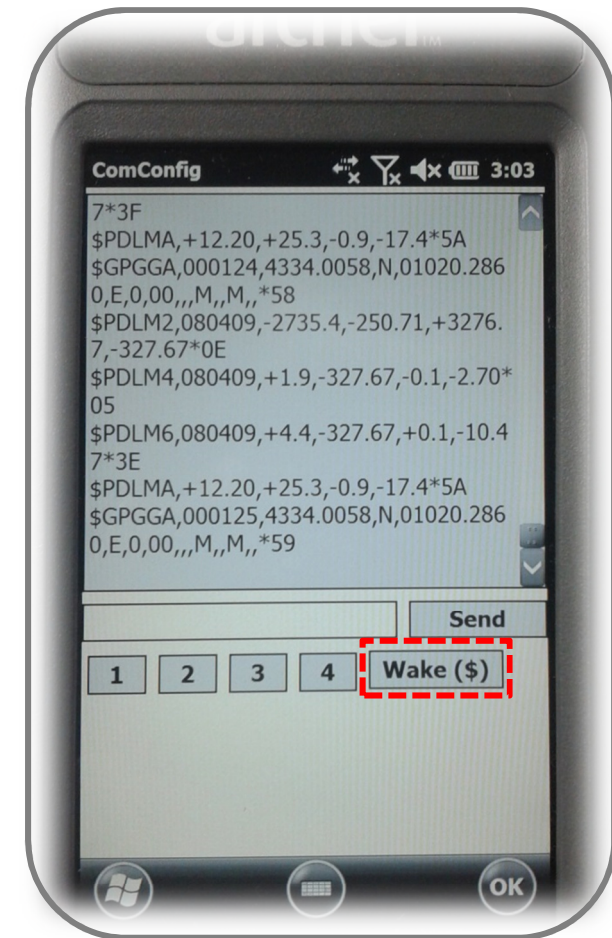
Note that all buttons (Dual, ExGPS and COM) are active (enabled) now.

4.0 DUALEM SETUP

Tap on **Dual** button to enter the setup for DUALEM and adjust the communication parameters (COM port and Baud rate) as below:

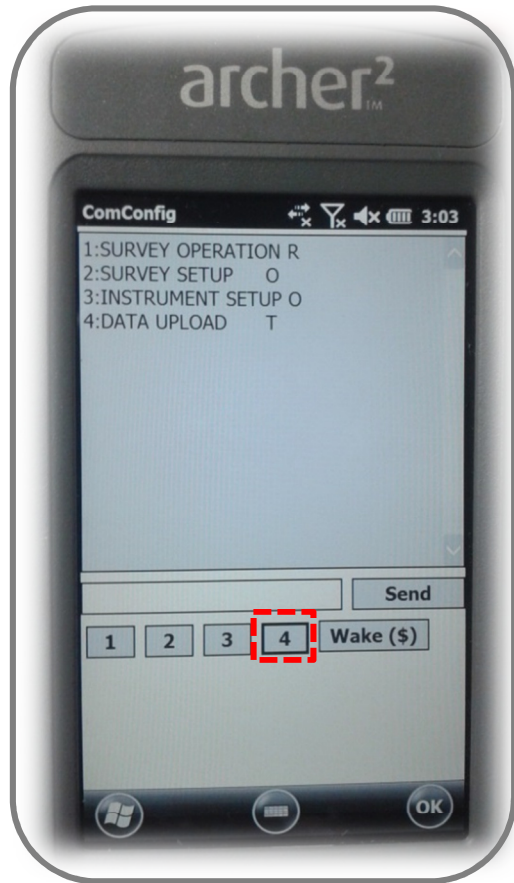


Press the **Connect** button to connect to the equipment; the data flow should start:

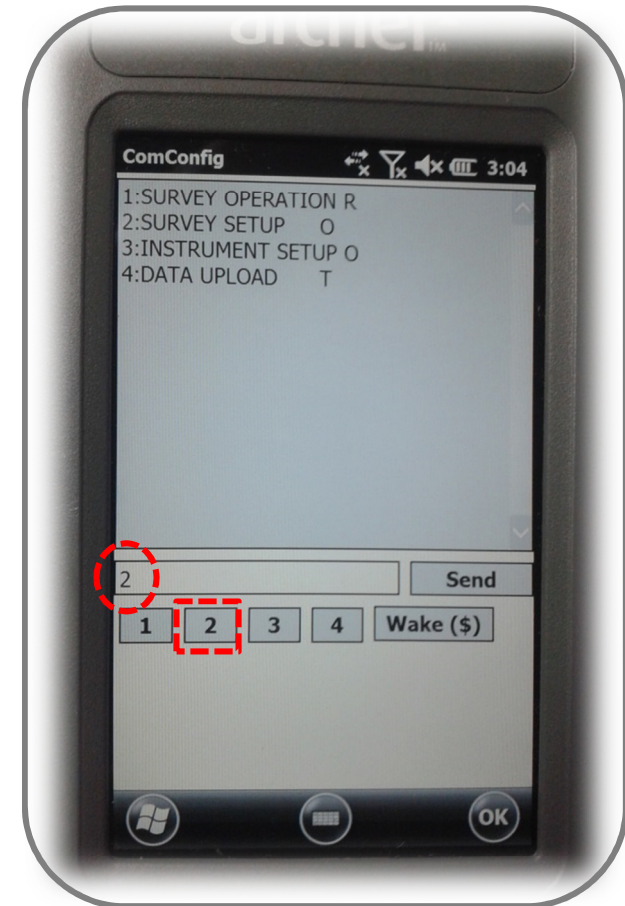


In the case the data flow doesn't start, it is requested to type a "\$" into the text bar and press **Send** button or press the **Wake (\$)** button.

To access the DUALEM internal menu (look at the DUALEM manual for proper commands to navigate the menu) type in or press “4” button to get the following main menu:



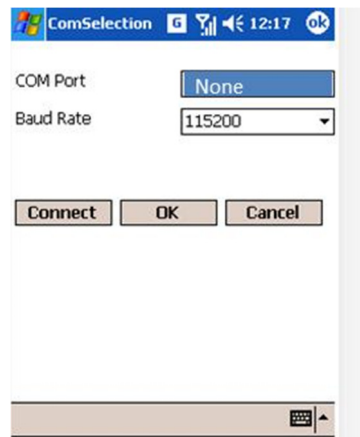
From this window it is possible type in the requested commands into the text bar using the Archer's virtual keyboard followed by **Send** button or just press the 1, 2, 3, 4 for an immediate response:



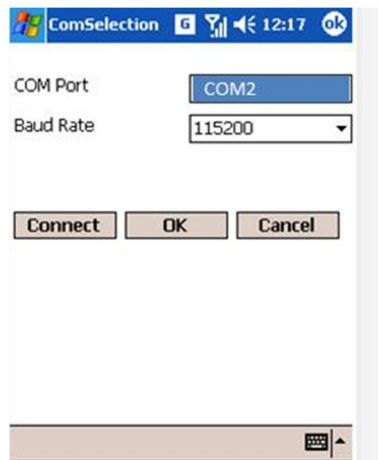
After DUALEM's setup is completed, press OK button to exit and return to main menu screen.

5.0 ARCHER GPS SETUP:

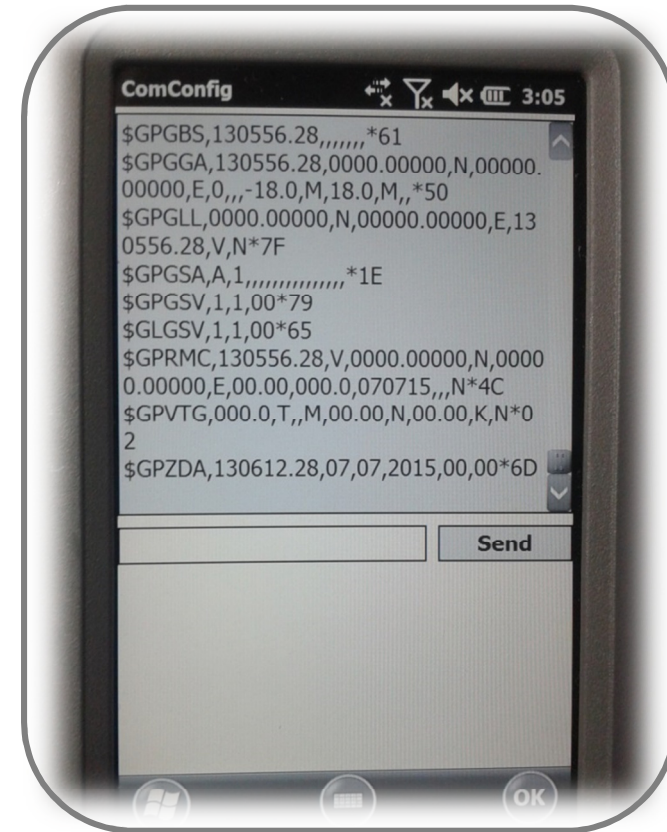
To use the Archer 2 without its integrated GPS, press the **Ex GPS** (external GPS) button and set up the page as follow:



To use the Archer 2 with its integrated GPS, press the **Ex GPS** (external GPS) button and set up the page as follow:



Press "Connect" button to verify that the GPS data are correctly flowing:



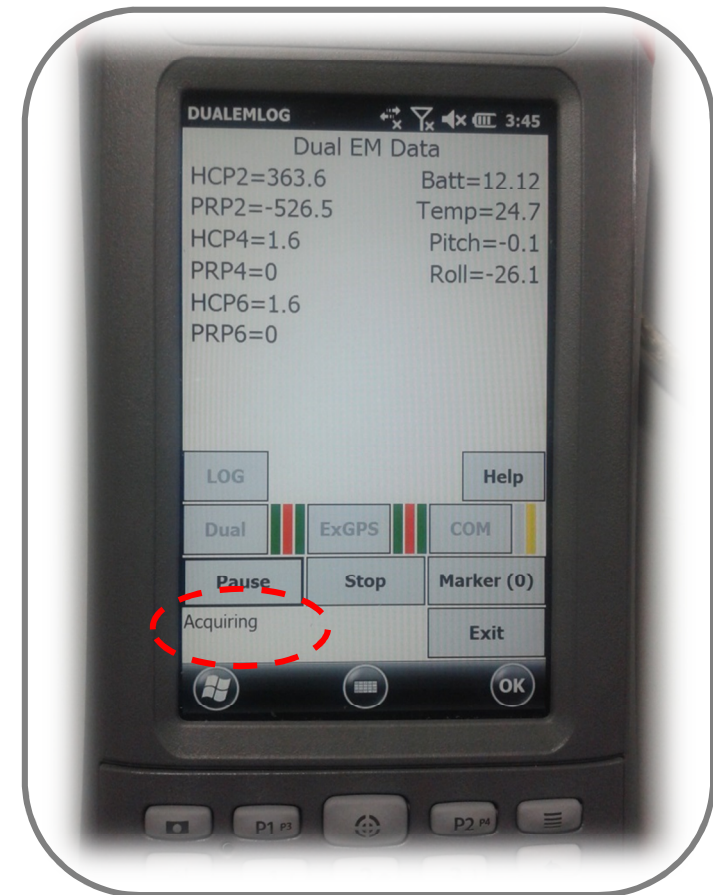
Then press OK to return to main menu.



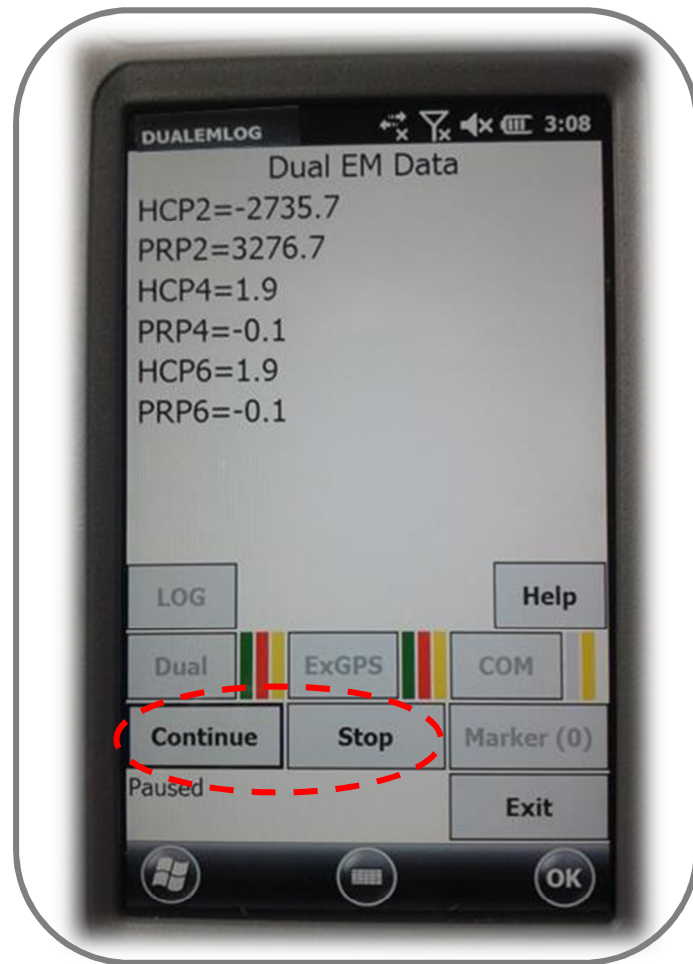
The system is now ready to start the data acquisition.

Regarding the meaning of colored led, please refers to chapter 7.0.

Press **Start** button to launch the acquisition: the bottom left message toggle repeatedly from “Acquiring” and the name of file in use for data logging:



It is allowed to pause the acquisition anytime pressing **Pause** button and answering “yes” at the confirming message:



Press **Continue** button to continue the acquisition or "Stop" button when finished.

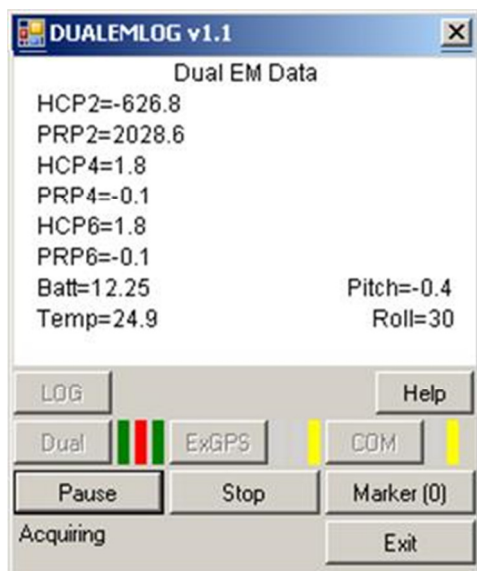
Regarding the meaning of colors of led, please refer to chapter 7.0.



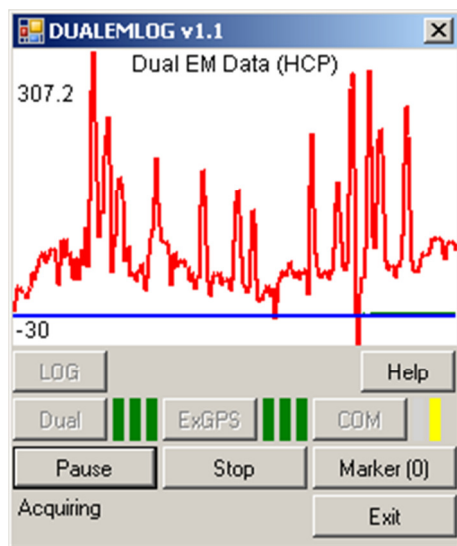
During the acquisition it is possible to visualize different information coming from the equipment simply tapping on the screen; this allows to visualize information in the following order:

1. EM full HCP and PRP data (mS/m) + battery tension + Internal Temperature + Pitch and roll,;
2. Graphical display of HCP EM data;
3. Graphical display of PRP EM data;
4. Internal (DUALEM) GPS condition (position and number of satellites);
5. Internal GPS track (two lines are represented: the red one is related to saved file while the blue one is related to points captured before saving data);
6. External (Archer 2) GPS condition (position and number of satellites);
7. External GPS track (two lines are represented: the red one is related to saved file while the blue one is related to points captured before saving data);
8.Again from point 1.

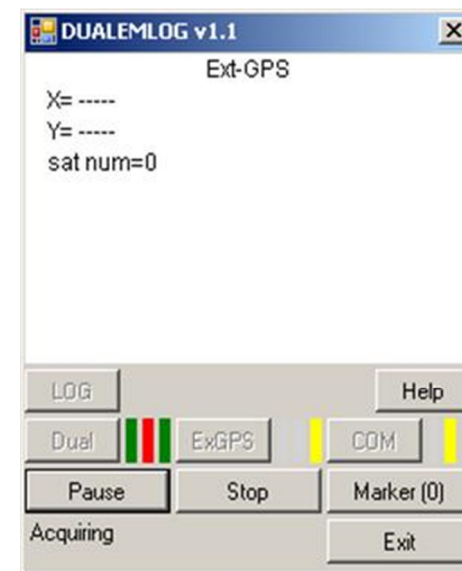
The **Marker** button allows to insert several markers labeled as "\$MARKER 1, \$MARKER 2" etc... string on the saved file.



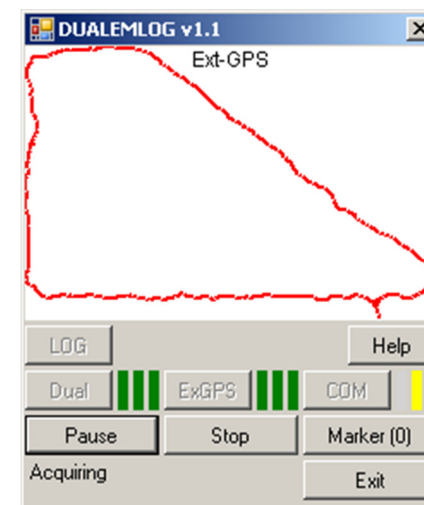
Dual EM data



HCP graphical view



External GPS condition



External GPS track

6.0 DATA DOWNLOAD

The collected data can be easily transferred to data processing PC by means of a common USB pen drive to connect to USB port of Archer 2.

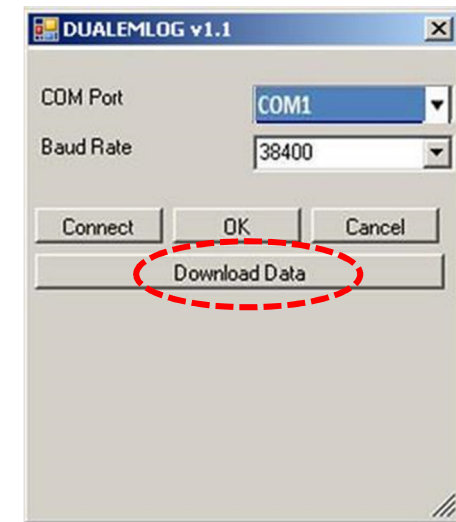
Data conversion and matching with external GPS are carried out using ConvertResampleNMEA external software (Geostudi Astier).

In the case it is requested to download the internal memory of DualEM (.raw file), this can be easily done following the next steps:

1. From main window tap on **LOG** button:



2. From the Log window, tap on **Download Data** button: the systems will connect to DualEM internal memory and automatically will start to download the data (the following messages will appear in sequence: Log....Downloading.....):



3. The downloading process could take a while and it will terminate at stop of data flow.

The system automatically saves the downloaded .raw file in the same folder previously specified on chapter 3.0.

7.0 HELP BUTTON

The colored leds provide important real time information regarding the status of the system during setup and acquisition.

Pressing **Help** button the legend of led status will be showed; as general rule, the first led (from the left) refers to communication status, second led (central) refers to GPS status, third led (on the right) refers to data logging status:

LED Legend

First LED (Communication):

- Green: The serial port was correctly opened and communication is flowing
- Yellow: The serial port was correctly opened but there is no communication
- Red: Error, the serial port can not be opened
- Grey: This serial port is unused

Second LED (Int and Ext GPS):

- Green: The GPS signal is OK and 7 satellities (or more) are received
- Yellow: The GPS signal is OK but less then 7 satellities are received
- Red: Error, the GPS seems to receive a bad signal
- Grey: This serial port is unused, or no GPS signal is coming

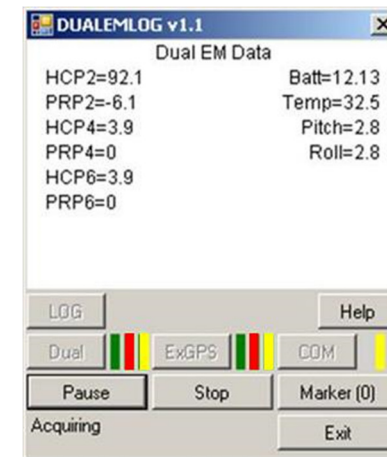
Third LED (Data logging):

- Green: The logging data is being correctly flowing and storing to disk
- Yellow: Waiting for some data to be saved on disk
- Red: Error, cannot save data to disk
- Grey: The LOG path is not yet specified

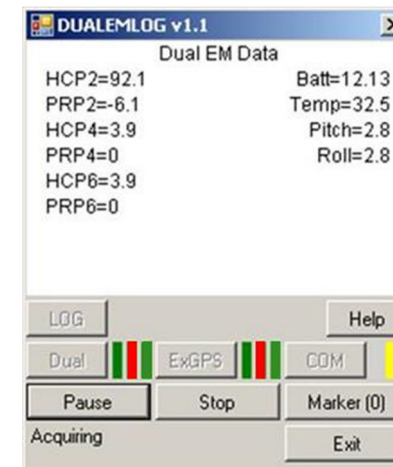
(The COM button has not provided with GPS led at it is intended as auxiliary channel usually not used).



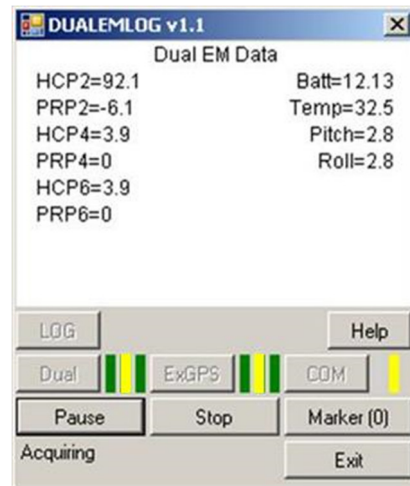
See following examples of led communication:



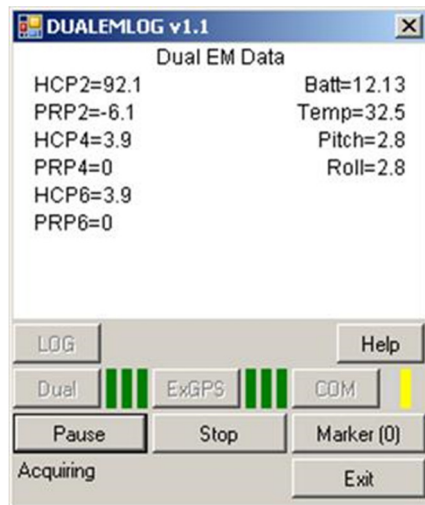
Dual and ExtGPS serial ports are open; GPS signals are absent; the software is waiting for acquisition



Dual and ExtGPS serial ports are open; GPS signals are absent; the software is writing data to Archer 2



The data have been flowing and storing correctly but both GPS are receiving less than 7 satellites



All led are green: best survey conditions (GPS are receiving more than 7 satellites).