

Altis Flight Manager

PC application for AerobTec devices

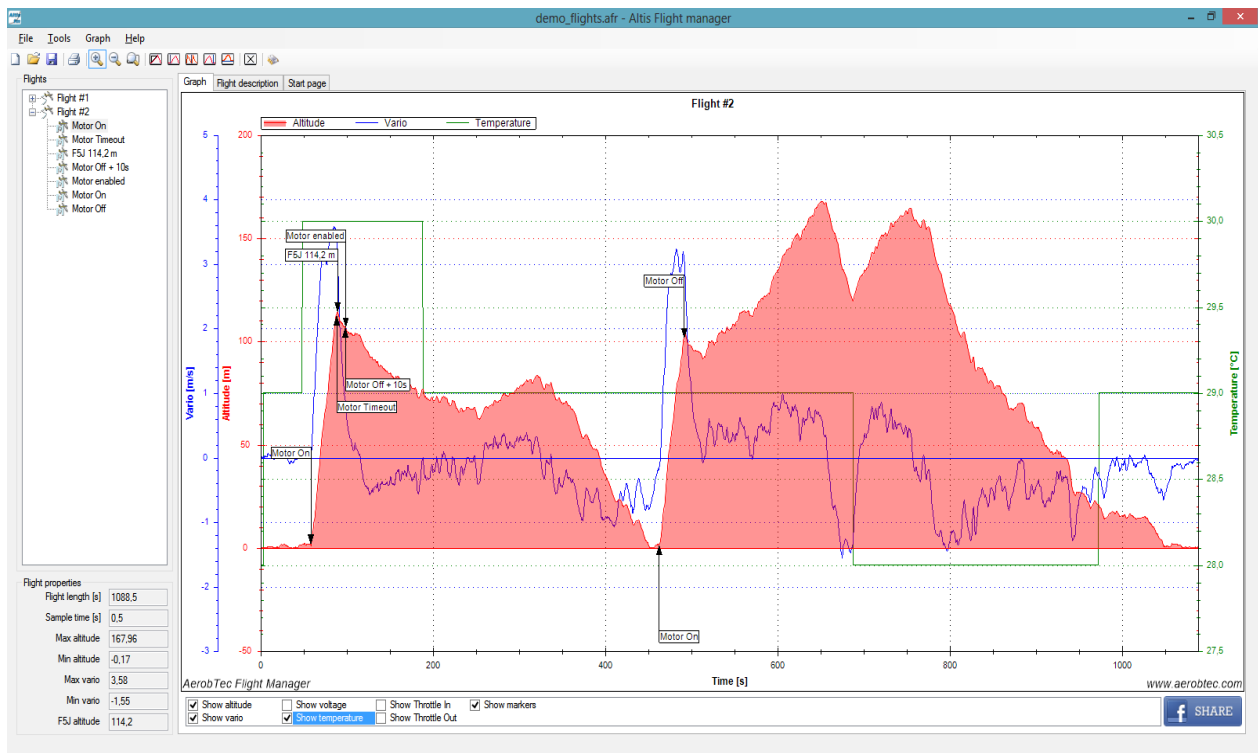


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1. Introduction

The AerobTec Altis Flight manager is a PC application which serves to communicate with the AerobTec Altis devices and to display and process the flight data recorded by it.

Requirements

- Windows XP or higher
- 256MB RAM or more
- min 20MB of free disk space
- free USB port
- .NET Framework 3.5 or higher
- 1GHz Pentium III or Athlon, or better
- 1024x768 pixels screen resolution

2. Installation

Application

The latest version of the AerobTec Altis Flight manager installation program is available on our website on the following link:

<http://www.aerobtec.com/products/rc-electronics/altis-flight-manager/#tab-3>

Before you start installation of the program, please make sure that an older version of the application is correctly uninstalled. For AerobTec Altis Flight Manager installation execute installation program and follow the installation instructions on the screen.

USB Driver for Altis v3 interface ALink

In case you are using Altis Flight manager with **Altis v3** device the provided USB adapter ALink serves as a virtual serial port and requires a USB driver. An installation program for USB driver for Windows (XP or higher) is available on the following web link:

http://www.aerobtec.com/download/CDM20814_Setup.zip

For proper installation on your PC please execute this program and follow the installation instructions on the screen.

.NET Framework

The AerobTec Altis Flight manager application also requires **.NET Framework 3.5** or higher to be installed on the computer. It can be installed from the following link:

<http://www.microsoft.com/en-us/download/details.aspx?id=21>

Please follow the installation instructions on the screen.

3. User interface

Main window

The main window contains several parts. There are these main sections: main menu, toolbar, flight list, graph tab, flight description tab, start page tab, flight properties frame.

The following part of the manual explains how to use the program.



Fig. 2. AerobTec Altis Flight manager PC application main window

Obtaining data

Altis Flight manager is used to work with data from AerobTec devices.

There are several ways how to get the data:

Open file – you can load a file that was saved by Altis Flight manager before. This options is available in *File->Open*

Altis v3 – You can download the data from Altis v3. For this, connect the USB adapter to PC, connect Altis v3 to the adapter and run *Tools->Device* and choose Altis v3. Press *Read data* button on the Altis v3 window. After the data is downloaded, you can close the window and start to work with it.

Altis v4 - You can download the data from Altis v4. Connect Altis v3 to PC and run *Tools->Device* and choose Altis v4. Press *Download data* button on the Altis v4 window. After the data is downloaded, you can close the window and start to work with it. Note that all (also historical) downloaded data from your is available in the application data folder. The exact location in your filesystem depends on your operating system.

Flight list

Once you loaded the data you can start examine the individual flights. There is a flight list on the left side

of the screen. User can use this to select the downloaded flights, rename or remove them. This list allows you to change flight and marker name and removed selected item from the list.

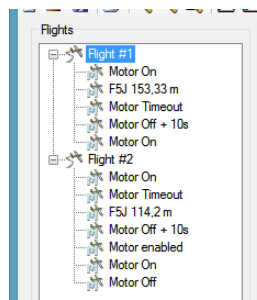


Fig. 3. Flight list

About the flight

Each flight can be characterized by some statistical information. Information such as

- Flight length in seconds
- Sample time in seconds
- Max and min altitude in selected altitude units
- Max and min calculated vertical speed in selected altitude units
- F5J start altitude for current flight

are available in Flight properties (bottom left part of the window).

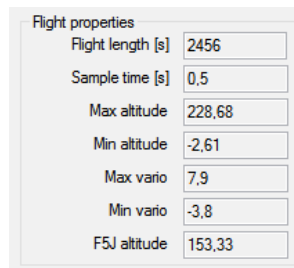


Fig. 4. Flight properties frame

Flight description tab

Flight description tab serves to insert comments to the selected flight or marker, set pilot name, airport name and time when and where the flight was recorded.

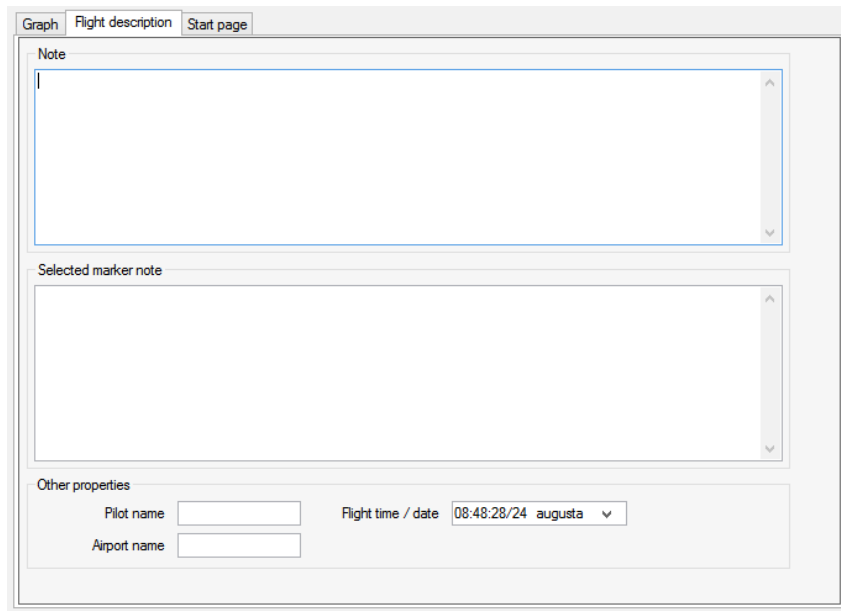


Fig. 5. Flight description tab

Graph tab

The most important feature of the Altis Flight manager is the possibility to view the flights in a graphical form.

The chosen flight is displayed in the Graph tab (Fig. 6). The graph displays how the parameters changed over time. Several measured parameters can be showed in this graph by selecting them from Graph menu or also from graph tab itself. Each variable has its own ax and color.

The following parameters can be displayed on the graph:

- **Altitude** - altitude measured by Altis device
- **Vario** - vertical speed calculated from altitude data
- **Voltage** - Altis device supply voltage
- **Temperature** - temperature measured by Altis device
- **Throttle In** - throttle in channel level measured by Altis device
- **Throttle Out** - throttle out generated by Altis device (only on Altis v4 model)
- **Markers** - markers for specific event occurred during flight

The graph can be zoomed in and out or set to basic scale by buttons in toolbar or tool menu.

When the Zoom in function is on, user can also use the middle mouse button for advanced graph zooming and moving. When the middle button is pressed and user moves the mouse, the graph moves while the mouse wheel zooms in and out.

The program also offers a graph measuring function available in the Tools menu or in the toolbar. When the function is activated, user clicks on the graph at the chosen time and moves the cursor. There is a triangle connecting the graph point at the start time and a graph point at the cursor time. Time difference, altitude difference and average climbing are shown on the graph. This is shown in Fig. 7.



Fig. 6 Graph tab

When a flight is recorded, there may be some parts in the beginning and in the end of the flight which are not interesting for the user or user wants to split the flight into two or more flights. User can discard these parts by using **Trim Graph Start** tool and **Trim Graph End** tool and split flight using **Split Graph** tool available in the toolbar and Tools menu.

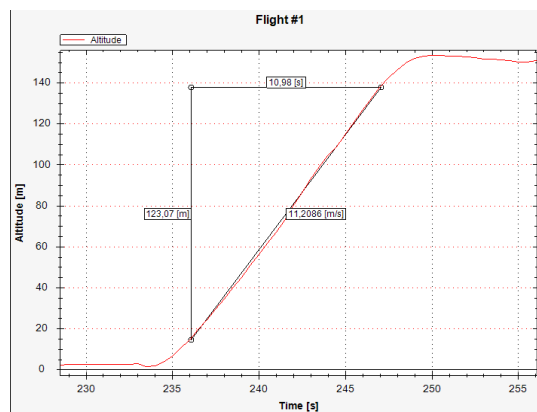


Fig 7. Measuring function

Each flight recording begins in the reference altitude, which is always 0m. However, user might know the altitude the aircraft starts in. This altitude can be set in the graph by the **Set Zero Altitude** tool, which is also available in Tools menu and the toolbar.

Vario filter

Since the vario data is very noisy, there is a filtering feature available in *Graph* → *Vario Settings...* Filter value can be selected manually. The filtered graph is shown online. The difference of the same flight with a different filter values is shown in *Fig. 9*.

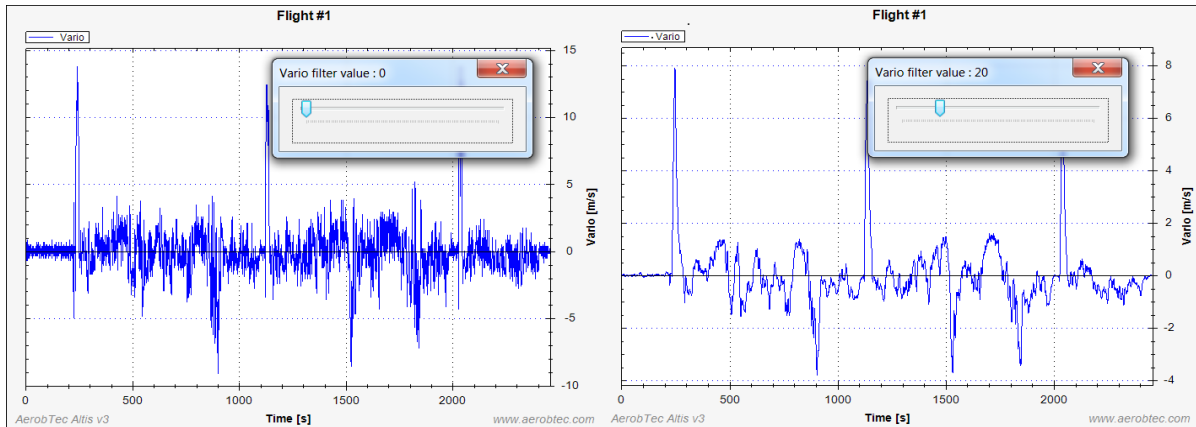


Fig. 8. Comparison of vario signal filtered with different filter settings

How to use vario filter

Set the graph to show altitude and vario. Choose an area where you can measure the climbing rate precisely enough. Read the value. In our case, the average climbing rate in the selected area is 7,85m/s. Use vario filter to set approximately 7,5m/s vario values in the same area.

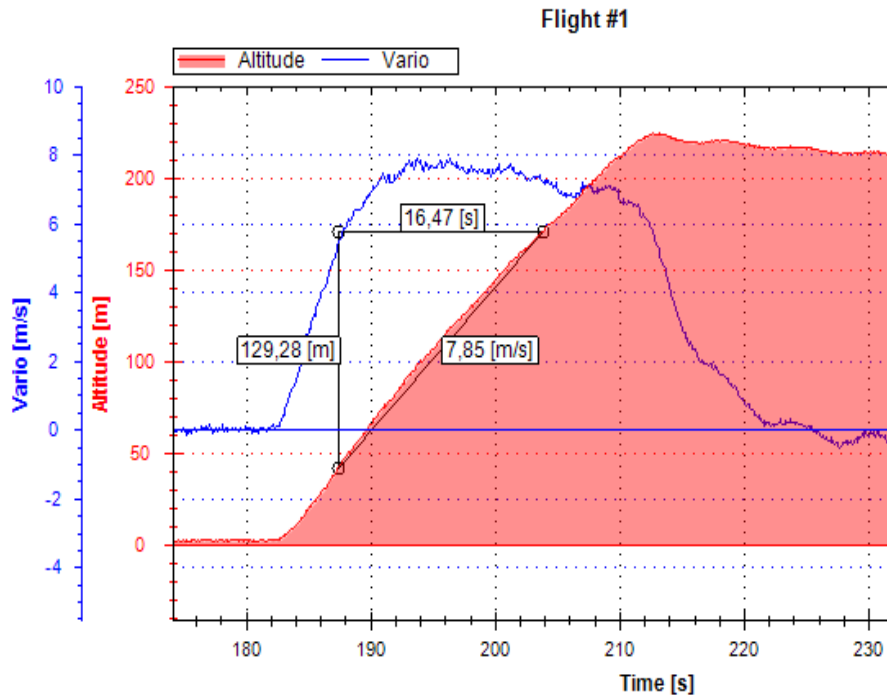


Fig. 9 Setting the appropriate vario filter value.

Flights Comparer

Sometimes user might wish to compare several different flights. It is possible via Flight Comparer function available in *Tools* → *Flights Comparer...* User opens the file with saved flights and checks the checkboxes of the files to be compared. An example of such a comparison is shown in *Fig. 10*. The graph can be

zoomed in and out and moved using the middle mouse button. The displayed graph can be exported to an image or printed.

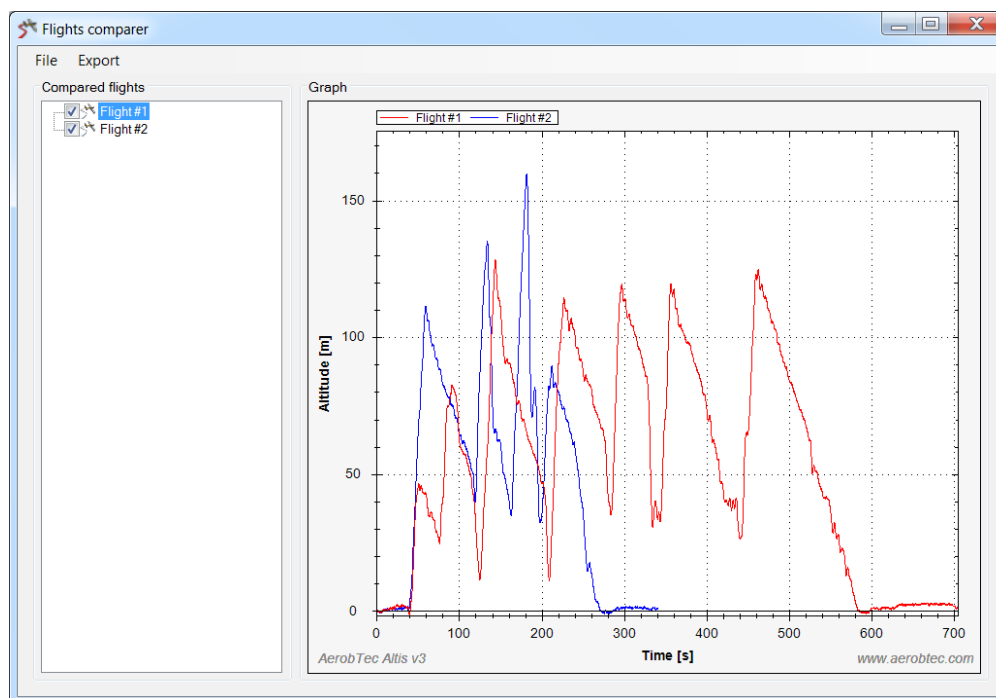


Fig. 10. Flight comparer

Further work with data

Altis Flight manager offers several ways of data export, so you can use the displayed graph in your preferred way.

Save file – Altis Flight manager saves the data in its native format (.afr). It is available in *File->Save*

Export data: available in *File->Export*

- **HTML** – stores the graph as a html web page
- **Image** – exports the image to file. Various formats (png, jpg, gif, tif, png) are supported.
- **CSV file** – export in Coma separated value for further processing in Microsoft Excel, Open office Calc or other spreadsheet processors.
- **Vector image** – exports the image in a vector file svg

Facebook -sends the graph directly to your facebook account. Internet connection and facebook account details must be provided.

This function is available by a facebook button in the bottom right corner of the Graph tab. (Fig. 6)

Program settings

Basic settings of the program are available in the Settings window which can be found in *File* → *Program Settings*.... User can choose preferred language, length units (meters, feet and yards) and the communication port where the Altis v3 device is connected. The button Search Device checks all available Com ports and recommends user port with active AerobTec Altis v3 device.

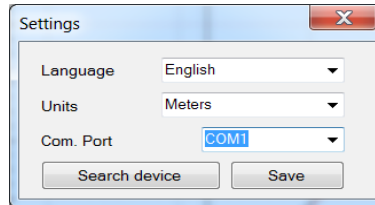


Fig. 11. Settings window

Altis v3 window

This window communicates directly with connected AerobTec Altis v3 device. User can choose this window in *Tools* → *Device* or in the toolbar. When opening the window, the device should be connected; otherwise it will not be opened. During the launch, the settings of the device are loaded and shown in the window. User can change the sampling time in the range from 0.1 to 25.5s with step of 0.1s. The serial number of the device as well as firmware version and actual memory usage are also shown here.

There are some settings regarding competition rules. User can select altitude switch function, time switch function or F5J FAI competition settings. In some competitions it is not allowed to switch the motor on again during the flight. However, it is desirable to have the possibility to switch the motor on again in an emergency. User can choose to enable this or not. If enabled, the emergency switch on is recorded and can be shown on the flight graph.

User has three possibilities to trigger the recording of data. It can be triggered from certain altitude, by RC signal or the recording can be always on.

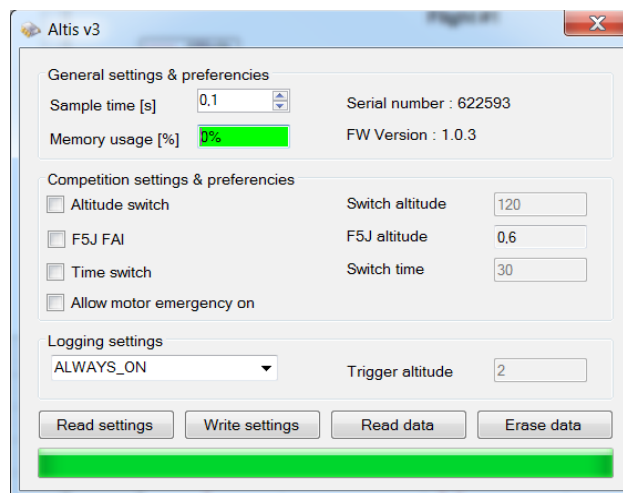


Fig.12. Altis v3 window

User can read the settings from Altis v3 device again and write the new settings to it. The recorded flight data can be read by button Read Data. After reading, the memory of the device can be erased to obtain more space for new flights. However, user can continue using the free memory for new flights.

4. Revision History

Rev. 1.0. (July 2013)

- Initial release