

Jeti Applications for Speed Freaks and Geeks.

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Revisions:

Rev 0 – Initial Release

Rev 1 – Corrected Headspeed sensor display item to select in TX

Rev 2– Added notes about not starting logging of both jeti data and headspeed at the same time

Introduction

The following applications are provided to use at your own risk. Any suggestions/issues will be gratefully received.

First you must make sure you have the Jeti firmware with LUA installed on your transmitter. At the time of publication this is 4.22 and is available from (the LUA firmware are marked with '– lua' after the transmitter model name):

<http://www.jetimodel.com/en/Downloads/DC-DS-Firmware-Update-Version-4-22/>

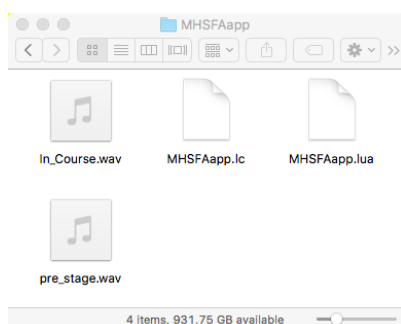
MHSFA Course Application

Some speed pilots have been setting alarms on their Jeti Tx's to use the GPS Distance measure provided by a GPS such as the PowerBox GPS Sensor II as a way of telling when you go into the course and out and looking at the data after the flight to get a rough idea of the average speed. With the advent of Jeti's latest transmitter firmware they have added the capability to make applications that can use the telemetry going to the transmitter and do cool things with it! Enter the MHSFA Course alarm application for Jeti. The application allows you to enter course details, either the MHSFA ones or ones of your own choosing and then it warns you when you enter the course, go in and out of the pre-stage and reads out the average speed when you have left the course on each pass. It will also store the fastest of each pass in each direction.

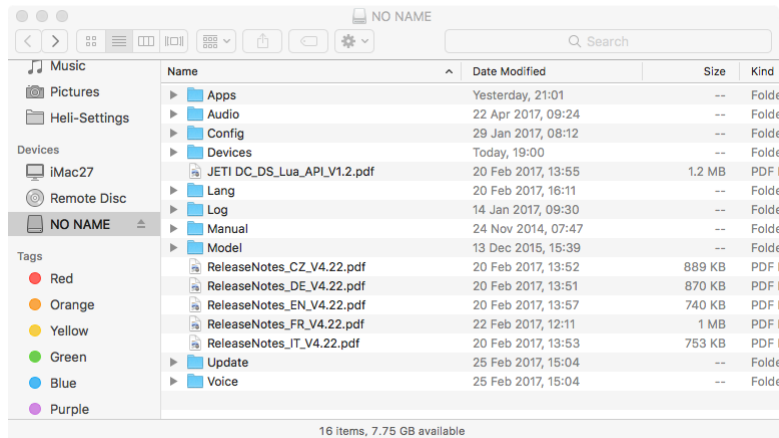
The application relies upon you to start up the GPS (ie the helicopter) at a 'Take Off Point' TOP in the middle of the course. Also if the GPS does not have a distance that is close to 0 at start up then there will be an inaccuracy of measurement. This application is dependent on the updates from the GPS. So if the GPS has poor satellite coverage or does not provide multiple updates per second, the accuracy will be reduced.

Installation

Unzip the app to reveal its contents as below:



Plug in you transmitter to your computer as you would do to update the firmware and you will see a folder structure as below:

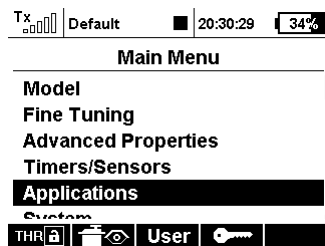


Copy the two .wav files (**in_course** and **pre_stage**) to the Audio folder

Copy the **MHSFAapp.lc** file to the Apps folder. This is the compiled version that uses less memory. The .lua file is the source code and can also be used but will take more memory in the transmitter.

Eject (or unmount) the Transmitter drive from your PC.

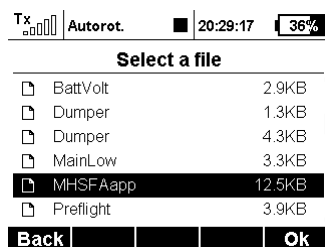
Go to the Applications menu:



Click on the '+' button:



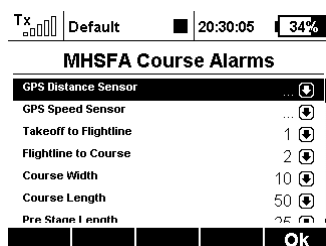
Select the MHSFAapp:



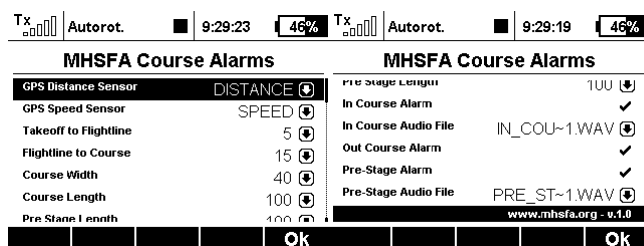
The Application should now appear in the applications list:



Click on the scroll wheel button to enter the setup mode of the application. The following screen should appear:

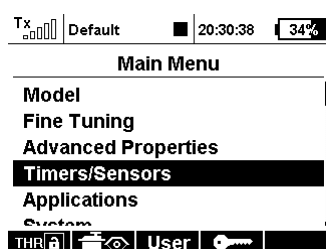


Go through each of the menu items entering the values that you wish to use. An exemplar using the PowerBox GPS II sensor and the wav files that were provided with this application are shown below:

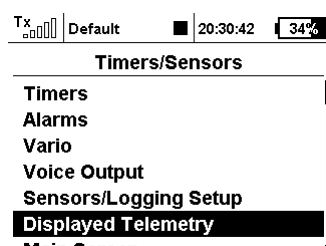


To add the telemetry sensor to show the best pass speed in each direction, please follow these steps.

Select Timers/Sensors from the Main Menu:



Select Displayed Telemetry from the Timers/Sensors menu:



Click on the Add button:

↓ ↑ Add Del. Ok

Select the MHSFA Passes (kp/h) option:

Tx Default 20:31:04 34%

Select Option

- User Name
- Jetibox
- Model Time
- Trim
- MHSFA Passes (kp/h)**
- GPSLog2: Zeit

Esc Ok

If asked to use double size. Select No:

Tx Default 20:31:09 34%

Use double size?

No Yes

You can move the telemetry display where you want it by using the up and down arrows. Hint: Try to get it near the bottom of the page as if you have an alarm on landing you will not be able to read the app display.

Tx Default 20:31:14 34%

Displayed Telemetry

	Telemetry	Double
1	GPSLog2: Entfernung [m]	No
2	GPSLog2: Satelliten [SAT]	No
3	GPSLog2: Strecke [m]	No
4	GPSLog2: Speed [kmh]	No
5	MHSFA Passes (kp/h)	No

↓ ↑ Add Del. Ok

Note that the left pass number is the pass in the direction where you first exited the course. Ie. If you take off and turn left along the course, then this number will be the best average speed on the left pass.

Tx Autorot. 9:30:16 46%

T: Time Left	MHSFA Passes (kp/h)
0:03:00.0	0 0
Voltage Rx	Scorpion ESC: Voltage
-	-
Gaui R5 14s	Scorpion ESC: Bat Cap
Off	-
Page 1/3	Scorpion ESC: Temp
-	-

X ← → Start Clr

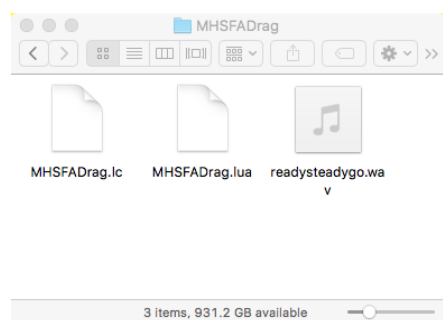
MHSFA Drag Racing Application

To continue with the applications using the GPS with the Jetti and the release of the drag racing rules, here is an application that lets you set a switch to start a audio file ('ready steady go' is included). As soon as the helicopter reaches a set distance from the start up point the elapsed time and the end of run speed is read out. Also as long as the switch remains in the 'go' position, there is a readout on the screen of the time and end speed.

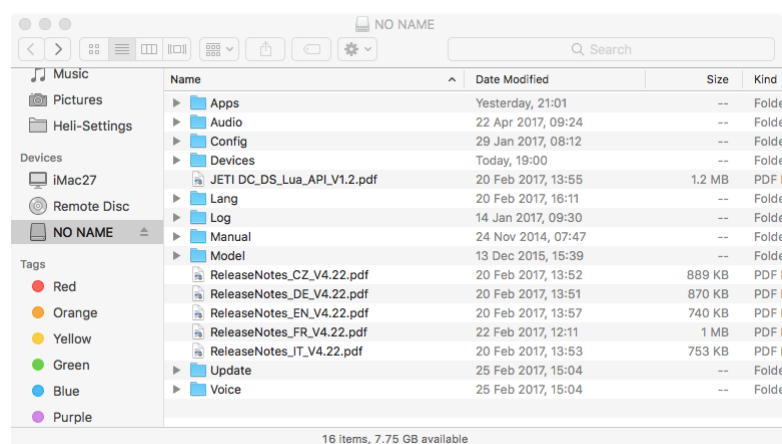
The application relies upon you to start up the GPS (ie the helicopter) at the point. Also if the GPS does not have a distance that is close to 0 at start up then there will be an inaccuracy of measurement. This application is dependent on the updates from the GPS. So if the GPS has poor satellite coverage or does not provide multiple updates per second, the accuracy will be reduced.

Installation

Unzip the app to reveal its contents as below:



Plug in your transmitter to your computer as you would do to update the firmware and you will see a folder structure as below:

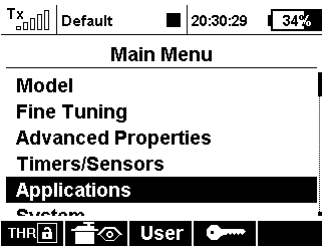


Copy the .wav file **readsteadygo** to the Audio folder

Copy the **MHSFADrag.lc** file to the Apps folder. This is the compiled version that uses less memory. The .lua file is the source code and can also be used but will take more memory in the transmitter.

Eject (or unmount) the Transmitter drive from your PC.

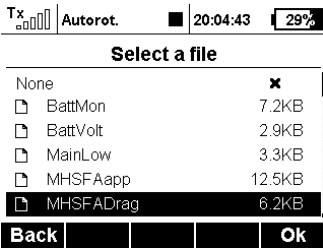
Go to the Applications menu:



Click on the '+' button:



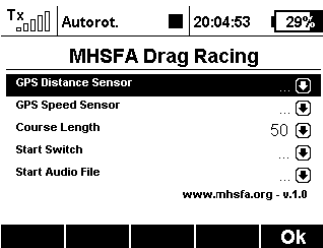
Select the MHSFADrag:



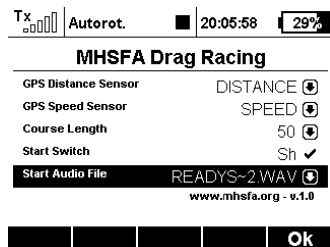
The Application should now appear in the applications list:



Click on the scroll wheel button to enter the setup mode of the application. The following screen should appear:

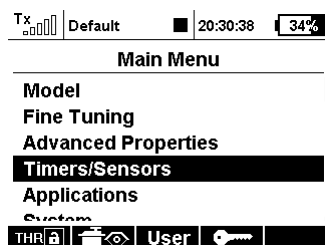


Go through each of the menu items entering the values that you wish to use. An exemplar using the PowerBox GPS II sensor and the wav file that was provided with this application are shown below. A two position standard switch is recommended for the start switch as it has to remain latched throughout the run and for as long as you wish the final reading to remain on the screen:

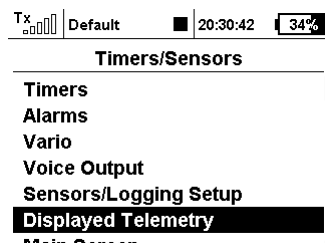


To add the telemetry sensor to show the time and the end speed:

Select Timers/Sensors from the Main Menu:



Select Displayed Telemetry from the Timers/Sensors menu:



Click on the Add button:



Select the MHSFA Drag Racing option:






If asked to use double size. Select No:

Tx  Default  20:31:09  34%













Use double size?



No Yes

You can move the telemetry display where you want it by using the up and down arrows. Hint: Try to get it near the bottom of the page as if you have an alarm on landing you will not be able to read the app display.




Tx  Autorot.  20:06:24  29%


Displayed Telemetry




1	Timer: Time Left		No 
2	JLog2.6: RPM uni [rpm]		No 
3	Voltage Rx		No 
4	MUI-75: Capacity [mAh]		No 
5	MUI-75: Voltage [V]		Yes 
6	MHSFA Drag Racing		No 

  Add Del. Ok

Note that the time and speed of the telemetry display reset to 0's when the switch is placed back to its unset position.

Tx  Autorot.  20:06:38  29%

T: Time Left	MHSFA Drag Racing	
0:04:00.0	0.00s	0kp/h
JLog2.6: RPM uni	Voltage Rx	
-	-	
Gau1 X3L	MUI-75: Capacity	
	-	
Off	Page 1/2	

   Start Clr

RPM to Head Speed

Some ESC's don't output head speed and only output motor RPM. This app lets you enter the motor poles and gear ratio. The main gear has a decimal input to allow calculation for two-stage drive like the Gauji R5. The application will also optionally speak out the head speed continually when a user-defined switch is active.

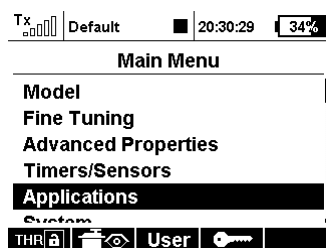
The final new feature is to write a log file in the same format as the jeti logs. This enables review of the head speed in the Data Analyser application.

Installation

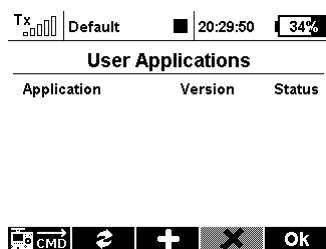
Copy the **RPMHead.lc** file to the Apps folder. This is the compiled version that uses less memory. The .lua file is the source code and can also be used but will take more memory in the transmitter.

Eject (or unmount) the Transmitter drive from your PC.

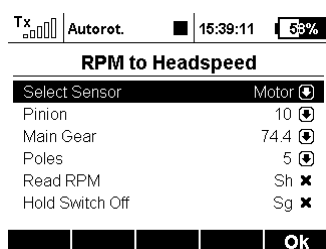
Go to the Applications menu:



Click on the '+' button:



Select the RPMHead application. The Application should now appear in the applications list. Click on the scroll wheel button to enter the setup mode of the application. The following screen should appear:



Go through each of the menu items entering the values that you wish to use. The Main Gear is a decimal to allow two stage transmissions to be entered. The example above is from a Gaui R5. The motor poles are pole pairs. So for a 10 pole motor use the value of 5.

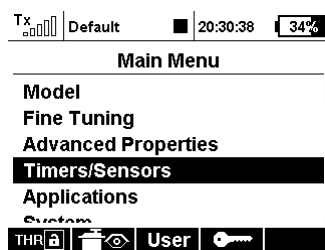
If you want Ms Jeti to read the RPM assign a switch to “Read RPM”

The logging works by creating a Jeti compatible log file in the Logs folder. For the application to know when to start logging assign your hold switch off position (i.e. the switch position that allows the rotor to start to spool). This will create a new log file each time you go in and out of hold. Unfortunately Jeti does not allow logging of information from a lua application so this is a work around that seems to function well.

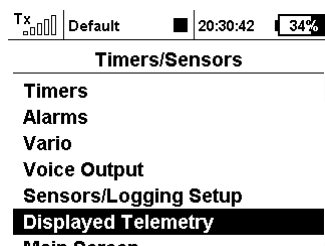
Note: If you do not assign a switch, then no logs will be created. Also this switch should not be the same that starts the Jeti logging as it is likely that this application wont be able to start logging. Suggest assigning Start Logging Switch in the Advanced Properties->Other Model Options menu to be your Throttle cut switch (or switch you use for ensuring electric motor is off) and Mode to be ‘Start/Stop’ rather than ‘Auto’.

To add the telemetry sensor to show the head speed:

Select Timers/Sensors from the Main Menu:



Select Displayed Telemetry from the Timers/Sensors menu:



Click on the Add button:



Select the “**Headspeed**” option. If asked to use double size. Select No:

Tx Default 20:31:09 34%

Use double size?

No Yes

You can move the telemetry display where you want it by using the up and down arrows.

Tx Normal 15:30:16 55%

T: Time Left	0:02:46.s	Scorpion ESC: Voltage	52.8V
Voltage Rx	8.19V	Scorpion ESC: Bat Cap	7mAh
Gau1 R5 14s		Headspeed	2021RPM
Page 1/3		MHSFA Passes (kph)	0

Stop Clr

Analysis

You can view head speed graphs by using the built in Data Analyser application on the Jeti. Start the Data Analyser and select the log file. In the folder with the flights date there will be the flight log from your flight and along side that that log there will be a Headspeed log (note there may be multiple if you have repeatedly gone in and out of hold:

Tx Autorot. 15:38:17 60%

Select a file

<input checked="" type="checkbox"/>	15:29:59 Headspeed	1.9KB
<input checked="" type="checkbox"/>	15:27:22 Headspeed	14.6KB
<input checked="" type="checkbox"/>	15:26:48 Gau1 R5 14s	165.5KB
<input checked="" type="checkbox"/>	15:26:47 Headspeed	23.2KB
<input checked="" type="checkbox"/>	15:24:43 Headspeed	18.2KB
<input checked="" type="checkbox"/>	15:24:42 Gau1 R5 14s	83.9KB

Esc Del. Ok

Select the Headspeed variable to plot:

Tx Autorot. 15:38:25 60%

Data Analyzer

Select LOG file

☒ /Log/20171020/15-24-43.log

Select variable

1) Headspeed: Headspeed [RPM]

2) ...»

3) ...»

Ok

Then select the graph button and the display will show a plot of the head speed as below:

