Eagle 2

Onboard air-data measuring system for R/C aircraft.

Manual version: 1.2

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Introduction

The “Eagle 2” is one component of RC Electronics model aircraft telemetry system. The unit is designed to measure many parameters of an R/C model aircraft and transmit them to the ground via the primary system telemetry back link. The unit is capable of measuring sink/climb rate (Vario), altitude, acceleration of the plane in all axes, noise level, servo pulse on servo input, GPS data with 18Hz refresh rate and supply voltage. For storage it has internal fast solid-state storage which will record up to last 20h of flying. Unit can be used as position logger for online events like Soaring League and Free Glide League which can be found on www.rcmodelspot.com platform.

Key features of the Eagle 2

- Integrated fast solid-state memory for up to 20h of logging
- Latest pressure sensor for ultra-fast detection of climb / sink
- Two pressure sensors for altitude and Vario measuring
- 3 axes accelerometer
- **EnI - E**nvironment **n**oise **l**evel detection to detect working electric, impeller or jet motor.
- 18 Hz GPS working with GNSS, Glonass and prepared for Galileo global positioning satellites.
- Various telemetry protocol supported over one of servo input (JetiEx, PowerBox System, Hott ...)

Specifications

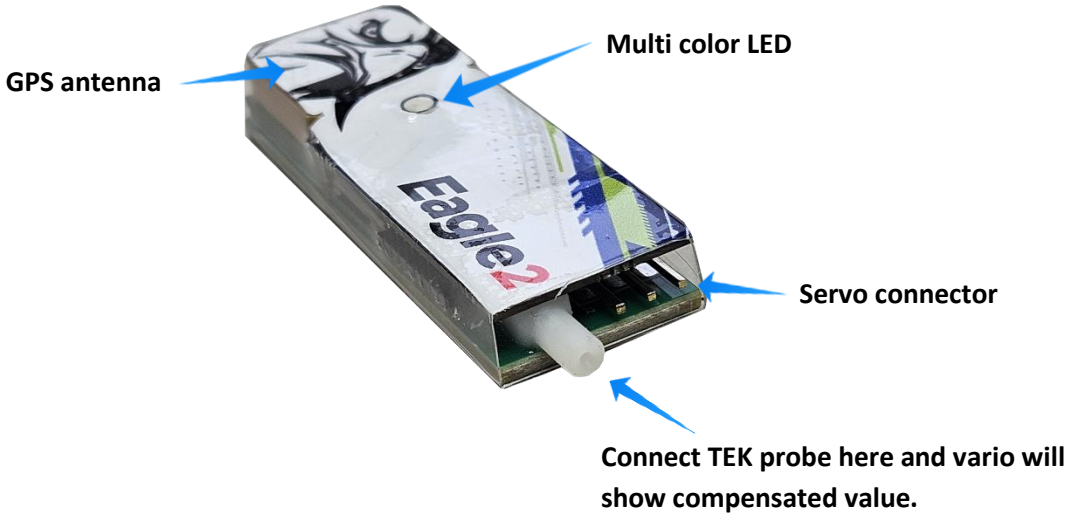
Unit Dimensions	52 mm x 17 mm x 9 mm
Weight	15 grams
Temperature Range[1]	-10°C ~ +60°C
Input Voltage Range	4.0 – 12.0 volts DC
Input Current	30 milliamps @ 5V DC
Measured Voltage	4.0 – 12.0 volts DC
Memory capacity	Up to 20h of flying

[1] Specifications are taken from component ratings and system limits and may not have been tested to the full extent of the specified ranges.

Physical overview

Pictures bellow is showing the Eagle 2 unit. It has built in GPS antenna, one pressure port (Pte – total energy compensated pressure from TEK probe) and a multi-color LED to show the status of the unit. JR 3-pin servo input is used to measure normal PWM servo pulse or to transmit data via 3rd party telemetry (depends on unit setting). The unit gets power from JR connector and has built in BLE transmitter with antenna for communication with mobile application.

Important: Be careful on polarity when connecting power to the unit. Improper connection can damage unit! Correct polarization is marked on the bottom of the unit by the servo connector!



Using the Eagle 2 module

Powering the module

To power the module, plug the 3-pin female connector cable into servo connector and the other end to the R/C aircraft receiver. **Be sure to observe proper polarity when plugging the connector into the module and receiver**. You can also power it directly from a battery. Please respect max voltage input of 12V and correct polarity.

During operation LED will flash different status is:

Red flashing – module is waiting for GPS signal

green flashing – module is ready for flight, GPS reception is good

blue flashing – onboard logger is running – in flight mode

Mounting the module

The module can be mounted using double-sided tape, cable ties or Velcro. Velcro is recommended, so that the module can be easily removed.

Mount it under no carbon surface as it has built in GPS antenna. If there is any carbon or metal part above it, GPS reception will be compromised.

Be sure that the module is not touching any metal surfaces. Although unlikely, there is a possibility of shorting the metal contacts on the module, which could result in a radio system failure.

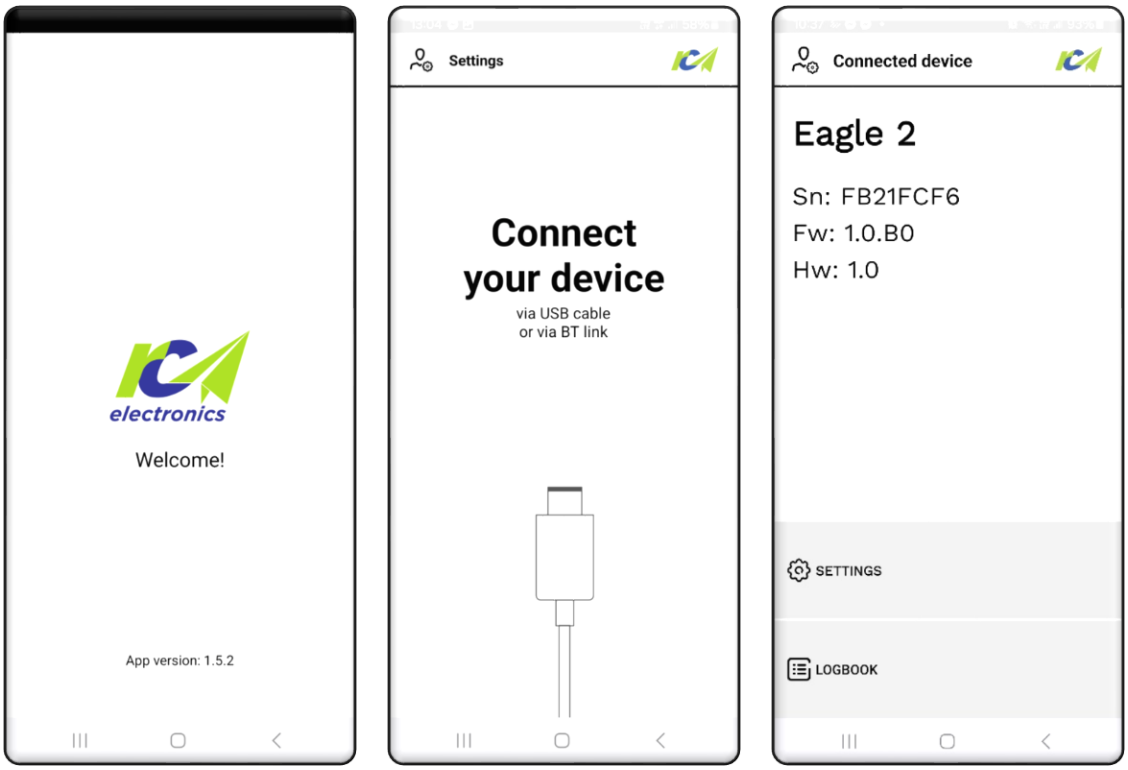
Do not mount the module on top of power batteries when using electric motors, because they get hot and this can affect the altitude readings by up to 30m.

Be sure to keep the module away from water, fuel and other liquids. Always range check and test the aircraft's radio systems before flying with the Eagle 2 module installed, to verify that all connections have been made correctly and there is no system interference.

Connecting module to Android RC electronics app

Connect the module to any Android / iOS mobile device where RC electronics app was installed from Google Play / Apple store. Unit connects automatically when powered on and app is running! There is no BT pairing needed!

Run RC electronics App and power on Eagle 2 unit. How to set up Application, please refer to the application manual!



You will be able to see basic info, set the settings and download the IGC flight from device when connected.

Unit settings:

Vario filter:
Vario response time in seconds.

3rd party telemetry:
Select which 3rd party telemetry protocol will be used on Servo connector.

Settings are set only after "SAVE SETTINGS" button is pressed. If user uses back function, new settings are ignored!

Unit logbook:

Select flight from dropdown list and press "DOWNLAOD FLIGHT" button. After flight is downloaded, user will be asked if he wishes it to upload it to his www.rcmodelspot.com account.

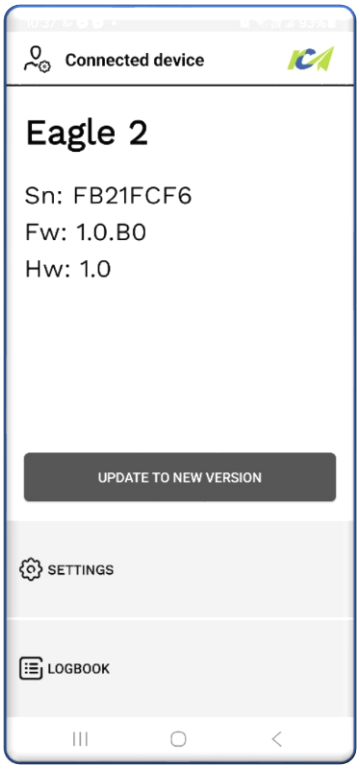
Before upload user must set his www.rcmodelspot.com login data into RC electronics application settings

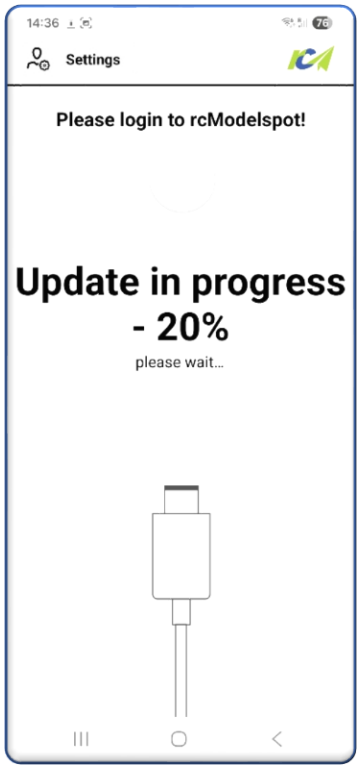
Pressing "CLEAR LOGBOOK" button, will clear the log files from internal memory

Firmware update

RC electronics app needs internet access to check if there is newer version available on server (Wi-Fi or mobile data). If the app finds newer version it will offer “UPDATE TO NEW VERSION” button to the user once he connects device to the app.

Once user presses “UPDATE TO NEW VERSION” button, app will perform update and after update is done, unit needs up to 15s to finishes update so do not disconnect power once update is finished, just wait that app shows device data again on the screen.





Revision history

18.03.2026	v1.2	- iOS RC electronics app is now available as well
04.03.2026	v1.1	- Firmware update chapter is updated
14.09.2024	v1.0	- initial version