Introduction

The FrSky VANTAC RF007 is a cutting-edge flybarless (FBL) helicopter flight controller, designed to leverage Rotorflight's latest 2.x flight control technology. With its built-in FrSky receiver with ACCESS or TW protocol, RF007 delivers a comprehensive range of features while providing intuitive configuration, seamless adjustments, and real-time tuning via the ETHOS radio interface.
Special thanks are due to the Rotorflight technical team and volunteers for their support and extensive flight testing, which has made this product possible.

Rotorflight Technology & Comprehensive Capabilities
At the core of RF007 is an STM32F722 MCU processor, supported by a 3-axis gyroscope, a 3-axis accelerometer, and a barometer sensor. Together, these components provide the precision and stability needed for pilots to feel confident in their machine. Additionally, the flight controller supports flight data logging with a large 128MB blackbox, allowing users to tune and troubleshoot issues with plenty of data at their disposal.

Internal FrSky Receiver & External Receiver Support
The RF007 features a built-in FrSky receiver that can directly bind with FrSky transmitters, eliminating the need for an external receiver. The RF007 Archer+ version comes with a built-in 2.4GHz receiver operating in ACCESS mode, while the RF007 TWIN features a built-in dual 2.4GHz receiver operating in TW mode. The internal receiver is interfaced over UART with FBUS operation.
For users with other requirements, a receiver can also be connected via the main header or one of the expansion ports. Rotorflight supports a wide range of receiver signal protocols. For a complete list of supported protocols, users can refer to the Rotorflight Configurator tool or visit https://rotorflight.org

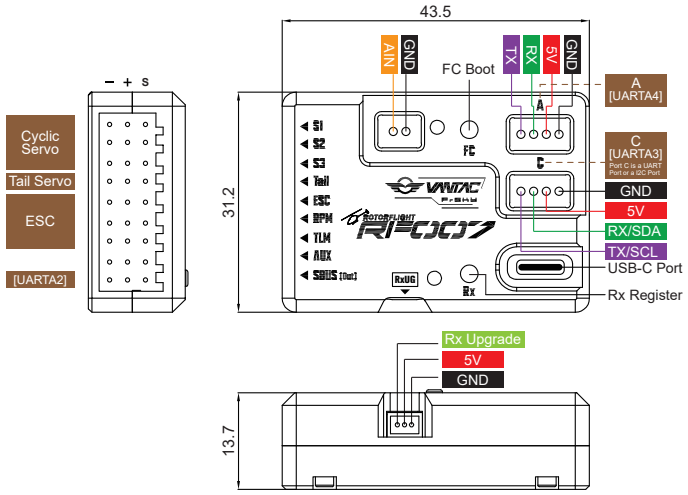
Field Programming/Tuning with ETHOS Lua
Thanks to the telemetry connectivity, Rotorflight offers highly intuitive and integrated Lua-based configuration tools to run on ETHOS transmitters. Users can use these tools to tune and change PID settings, servo trims, rates, mixing/geometry, filter settings, and most other Rotorflight settings quickly and easily right from the radio screen. On supported ESCs, configuration of ESC settings can also be performed with the configuration tool.

To download the configuration tool(s), visit:

Rotorflight Lua Script (Text-based, non-touchscreen)
https://github.com/rotorflight/rotorflight-lua-ethos/releases

Rotorflight Lua Suite (Forms based, touchscreen support)
https://github.com/rotorflight/rotorflight-lua-ethos-suite/releases

Overview



Specifications

- Flight Controller Firmware: Rotorflight 2.x
- Dimension: 43.5×31.2×13.7mm
- Weight: 25.2g
- Receiver Options:
  - RF007 ARCHER+: Built-In 2.4G Archer Plus RS Receiver
  - RF007 TWIN: Built-In Dual 2.4G TW R6 Receiver
- Operating Voltage Range: 5-16V
- Operating Current (FC Only): 125mA@5V
- Voltage Measurement Range via AIN (External device): 0-80V
- RxUG Port: For Upgrading Internal RX Firmware (In case of OTA upgrade failure)
  - Note: When powering this RxUG port, do not introduce additional power input from other ports to ensure the safe operation of the connected devices.

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- MCU: STM32F722RET6
- Gyroscope (IMU): ICM-42688P
- Barometer: SPL06-001
- Blackbox Flash: 128MB
- Servo Ports: Servo 1, Servo 2, Servo 3, Tail
- ESC Ports: ESC (Throttle), RPM (Sensor), TLM (ESC Telemetry or other functions)
- Other Ports: AUX and SBUS Out/In
- Expansion Ports: Port A, C, and RxUG

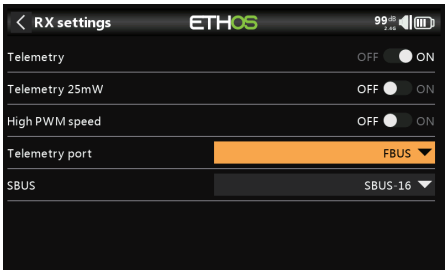
Features

- Runs Rotorflight 2.x Helicopter Control Software
- Built-In FrSky FBUS-Capable Receiver (TW or AP Protocol)
- Robust CNC Aluminum Case, Functional Heatsink for MCU
- STM32F722 Microcontroller for Power and Flexibility
- Precision Barometer, 3-Axis Gyroscope and 3-Axis Accelerometer
- 128MB Blackbox Function for Tuning/Troubleshooting
- 9 Primary Main Header Pins for Flexibility and Power Distribution

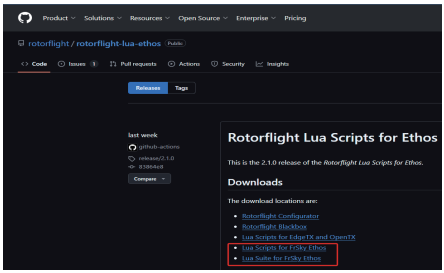
- Multiple JST-GH Expansion Ports for UART/I2C Devices
- JST-GH Port for VBAT Sensing Input Up to 80V
- Capable of Multiple ESC Protocols (PWM, Dshot, Oneshot, Multishot)
- Capable of Multiple Receiver Protocols and Telemetry
- Supports Tail Motor or Tail ESC
- Supports Integrated Configuration and Setup with ETHOS Lua Scripts

How to access RF007 configuration by Rotorflight Lua on ETHOS radios

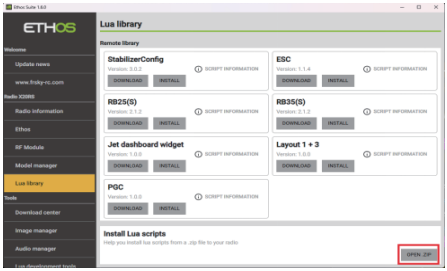
Preparation: Ensure that the ETHOS system and Rotorflight Lua tools are always updated to the latest version.



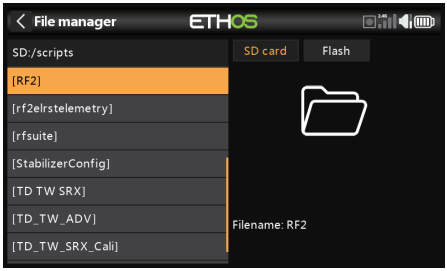
Bind the built-in receiver of the RF007 to your transmitter and ensure the Telemetry port is set to FBUS mode.



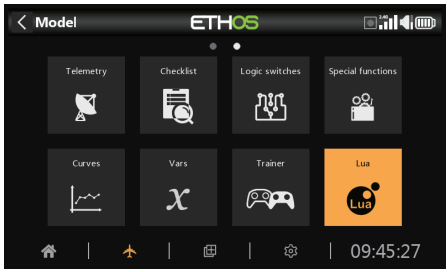
Download the latest Release version .zip file of the Rotorflight Lua scripts. There are two versions available. The text-based version is a simplified system similar to other integration tools with more dense information, whereas the touchscreen version “Suite”is a more user friendly tool based on the Lua Forms system and offers some additional features.
Rotorflight Lua Script (Text-Based, Non-Touchscreen)
https://github.com/rotorflight/rotorflight-lua-ethos/releases
Rotorflight Lua Suite (Touchscreen Supported)
https://github.com/rotorflight/rotorflight-lua-ethos-suite/releases



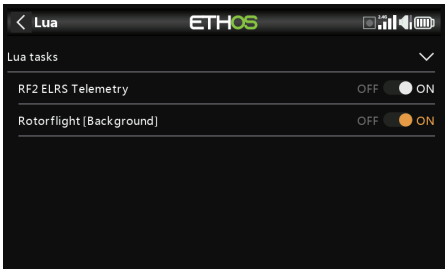
Use Ethos Suite to Install the downloaded .zip file.



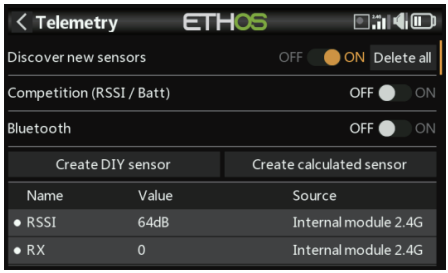
Or extract the downloaded Lua files, and place the extracted folder into the Scripts folder of the ETHOS transmitter.



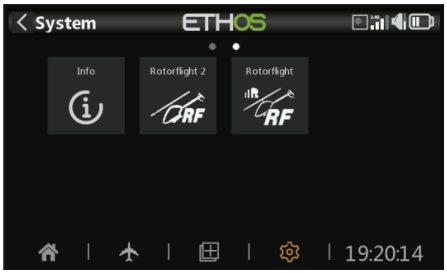
Go to the Lua Tasks menu on the ETHOS transmitter.



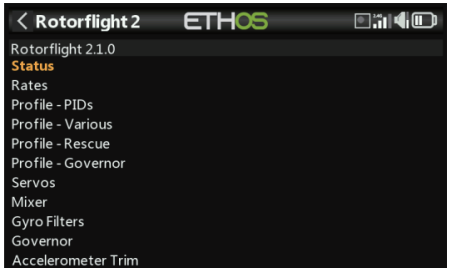
Set the installed functions to On under Lua Tasks bar.



Before opening the configuration tools, ensure you have powered the system and Discovered telemetry sensors.



Go to the System menu and access the Rotorflight Lua scripts.



Text-Based Tool.

Touchscreen Tool (RF Suite).

FrSky is continuously adding features and improvements to our products. To get the most from your product, please check the download section of the FrSky website www.frsky-rc.com for the latest update firmware and manuals