FPV RACING RUSH BLADE F7 FLIGHT CONTROLLER USER MANUAL ANALOG Ver.2

⚠ WARNINGS Read this user manual before use.

- Thank you for purchasing this RUSH product! We strongly recommend reading through this user manual before use. Because we have no control over the use, installation, or maintenance of this product, no liability may be assumed for any damage or losses resulting from the use of the product.
- When you need to perform welding operations, please ensure that you have the relevant skills to ensure reliable welding. If there is a short circuit or damage to the original electronic components during the installation and welding process, we will not bear the warranty and compensation responsibility.
- The open source flight Controller can only be flashed with the RUSH BLADE corresponding firmware when flashing or upgrading firmware, otherwise it may cause the FC to stop working or even damage the chip inside.
- This user manual is based on the operation manual for Betaflight and only for reference. For more detailed information, please refer to the original Betaflight website. Due to firmware update or other reasons, the descriptions for functions may differ, so please always take the official Betaflight manual as standard.

Features

- High-performance STM32 F722 MCU with speeds up to 216MHz.
- ICM42688P gyroscope, independent low-noise power supply.
- Built-in analog video OSD, 16M black box,5UART ports, 8PWM output ports, 2ADC ports, 1 I2C port, 1 camera control port.
- High power synchronous rectifier BEC, supports up to 36V input and provides stable 5V 3A output.
- Modular cable design, with reliable locking structure, can be installed quickly, while retaining full-featured pads on the back, providing more expansion support.
- Single-side layout, lower mounting height, 6-layer PCB, isolated ESC interference.
- PC case is impact resistant and easy to disassemble, isolated from dust and grass clippings.

Specification

MCU	STM32F722RET6	PORT	8×PWM 5×UART 1×I2C
GYRO	ICM42688P	ADC	V-BATT / CURR-ESC
BEC	INPUT 7-36V / 3-6S LIPO	BARO	BMP280
	OUTPUT 5V 3A	LED	WS2812 LED STRIP
OSD	AT7456E CVBS OSD	MOUNTING HOLES	30.5*30.5mm
BLACKBOX	16MB FLASH	SIZE	36.5mm*37mm*5.2mm
TARGET	RUSH_BLADE_F7	WEIGHT	11g(without cable)

Configure flight control

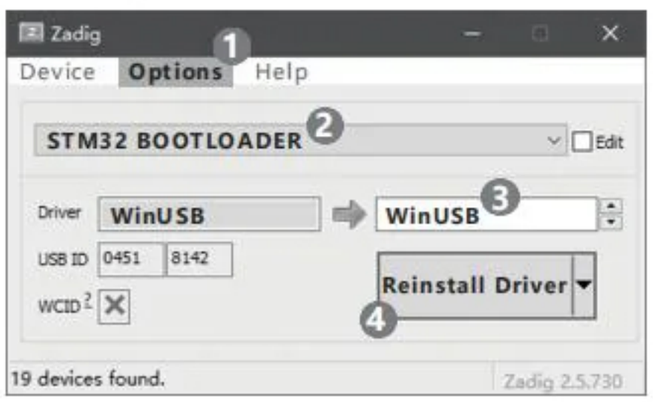
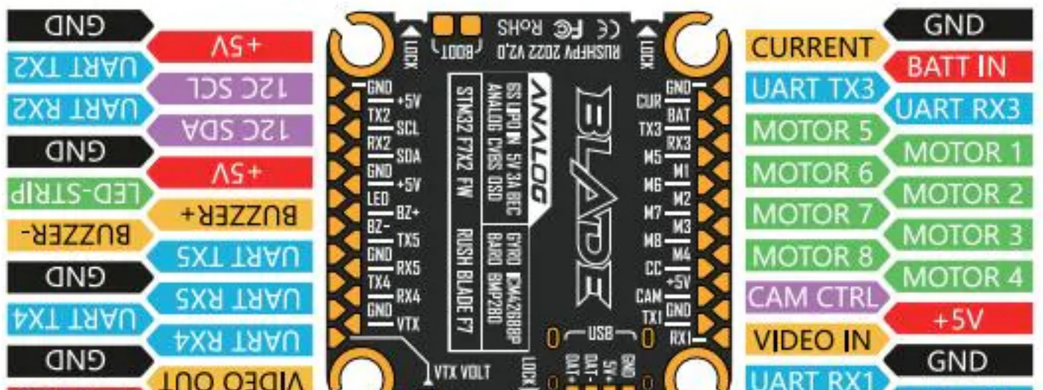
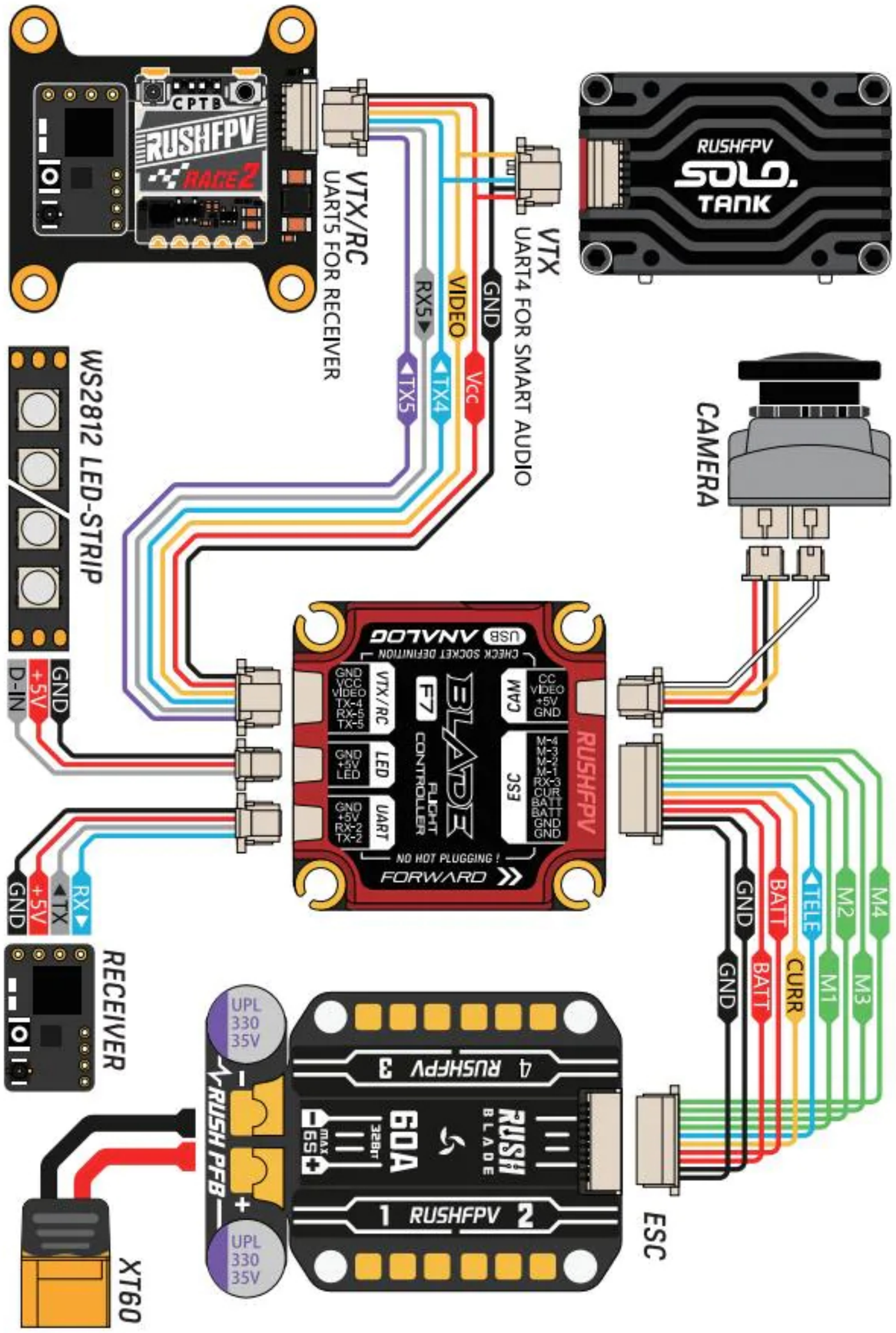
- Please select the betaflight configurator that suits your operating system, download and install it. https://github.com/betaflight/betaflight-configurator
- If your PC is connected to the FC for the first time, please install the STM32 VCP driver first.
- After connecting the flight controller via USB, the port configuration and parameter adjustment of the flight controller can be performed. Please refer to https://github.com/betaflight/betaflight/wiki
- RUSH BLADE FC supports PPM, S-BUS, CRSF, F-PORT and other mainstream receiver protocols. Please connect the module cable according to the receiver manual.

Firmware upgrade

- For a better flight experience, please check whether the flight controller is the latest version before use.
- The flight controller needs to work in DFU mode for firmware upgrade. Use the Zadig tool to switch the working mode. (Download at http://zadig.akeo.ie)
- Please short the BOOT pad of FC for first time use and connect FC to PC.

Open zadig, click <options>, select <list all devives>.

Select <STM32 BOOTLOADER> from the device list, select <winUSB> in the <DRIVER> option, and click <REINSTALL DRIVER>.



- Open the betaflight configurator, the connection option has changed to DFU mode at this time, and the firmware upgrade operation can be carried out after connection.
- To upgrade the firmware again, connect the betaflight configurator and in the <setup> menu, select the <activate boot loader / DUF >option and the FC reboots into DFU mode.
- The Betaflight firmware target is RUSH_BLADE_F7 , and the unified target is STM32F7X2. Please visit http://github.com/betaflight/betaflight/releases for the latest firmware.