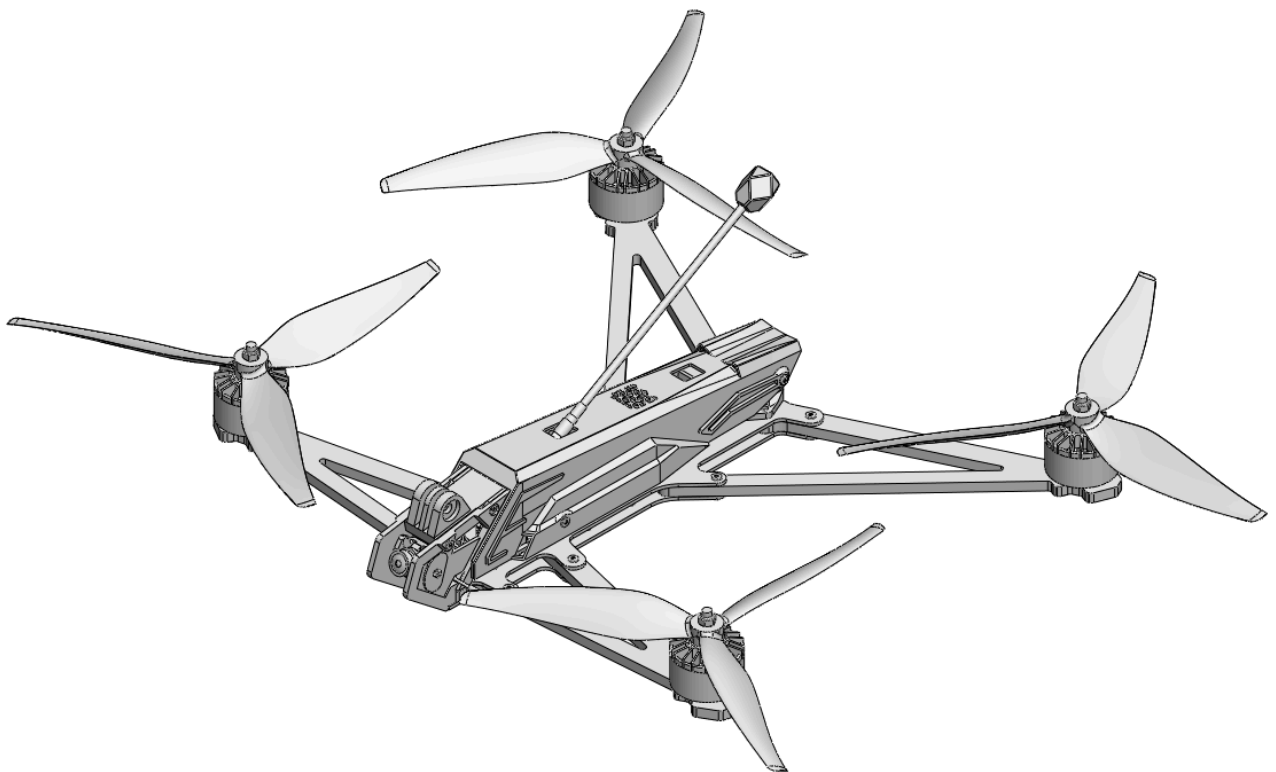




Vulture10

User manual



1. INTRODUCTION

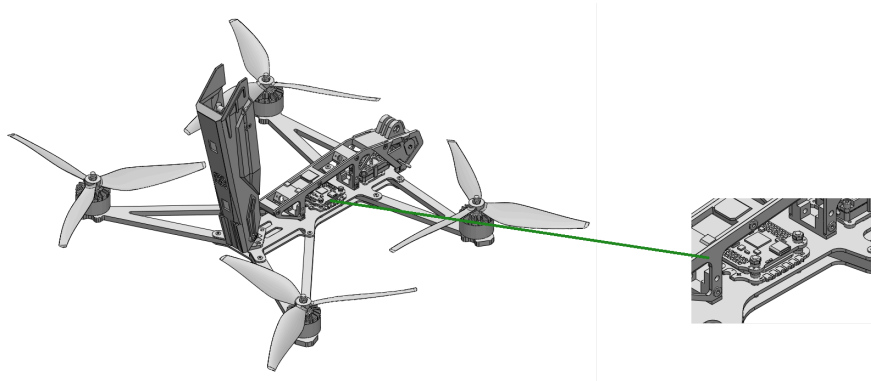
The Vulture10 - 10 inch FPV Drone is engineered for powerful performance and exceptional payload capabilities. With its robust motors, this drone can lift up to a 3kg payload, making it ideal for various applications requiring heavy lifting. Equipped with the advanced flight controller and the powerful VTx for very long-range video transmission, the Vulture10 ensures reliable communication over vast distances. Additionally, its efficient design allows for extended flight times, combining high performance with reliability, making it a top choice for demanding FPV enthusiasts and professional operators alike.

Package content:

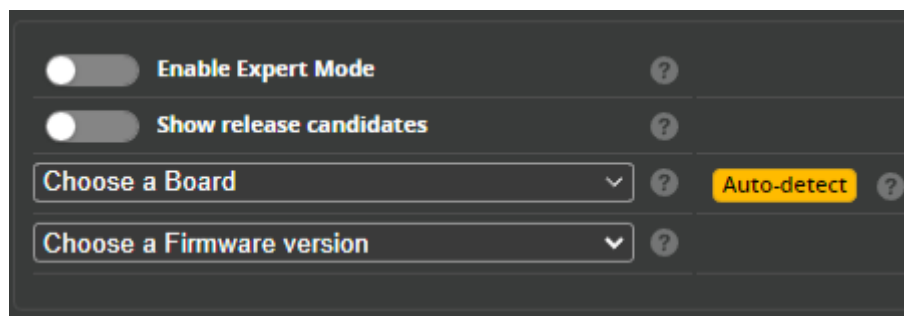
- 1x Vulture10 FPV drone
- 1x Propellers (2 CW + 2 CCW)
- 1x Spare screw set
- 1x USB-C cable

2. UPDATES

Vulture10 is sold with components updated at the time of assembly. We recommend checking for firmware updates. To do this, connect the drone to your computer using a USB-C cable. Enter “Bootloader” mode by holding the “Boot” button on the left side of the flight controller while plugging in the USB cable.



Open Betaflight Configurator. If it does not automatically detect the flight controller, select the correct device manually and click “Update Firmware.”



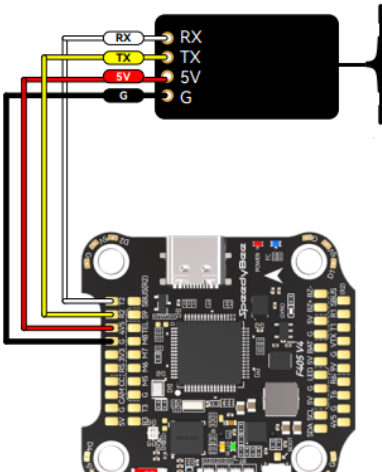
Once connected to the Flight Controller, select the correct board and desired firmware version. Then click the “Load Firmware (Online)” button located at the bottom right corner of the screen. When the yellow “Flash Firmware” button appears, click it to begin updating the Flight Controller.

⚠ Make sure to create a backup of your current firmware before performing any updates!

3. RECEIVER

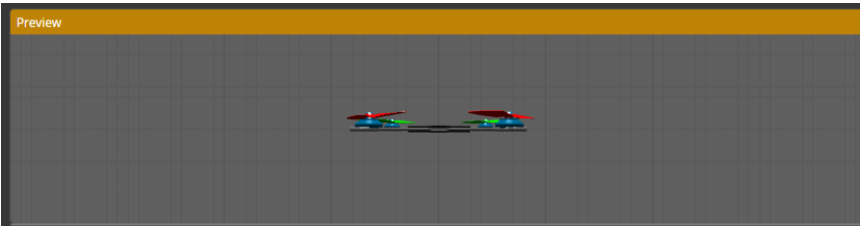
Vulture10 includes a pre-installed ELRS 2.4GHz receiver mounted to the flight controller. Ensure the receiver is connected to the flight controller as shown in the diagram. Connect the drone to your computer via USB-C cable and open the Betaflight Configurator. If Betaflight does not automatically detect the drone, manually select the correct device and click "Connect."

Go to the "Ports" tab, where you'll find a table to assign ports to specific components. Typically, UART2 is used for the receiver—enable the Serial Rx column for that port. UART4 is used for the ESC, so do not disable it, or you will lose motor control.



Identifier	Configuration/MSP	Serial Rx
USB VCP	☐ 115200	☐
UART1	☐ 115200	☐
UART2	☐ 115200	☒
UART3	☐ 115200	☐
UART4	☒ 115200	☐
UART5	☐ 115200	☐
UART6	☐ 115200	☐

Then go to the Receiver tab, where you will find tables and settings that define your controller input. Make sure that "Receiver Mode" is set to Serial (via UART), "Serial Receiver Provider" is set to CRSF. After applying these settings, you can proceed to bind your transmitter to the drone.



Roll [A] 1500

Pitch [E] 1500

Yaw [R] 1500

Throttle [T] 885

AUX 1 1500

AUX 2 1500

AUX 3 1500

AUX 4 1500

AUX 5 1500

AUX 6 1500

AUX 7 1500

AUX 8 1500

AUX 9 1500

AUX 10 1500

AUX 11 1500

AUX 12 1500

Receiver

Serial (via UART) Receiver Mode

• The UART for the receiver must be set to 'Serial Rx' (in the Ports tab)
• Select the correct data format from the drop-down, below.

CRSF Serial Receiver Provider

Telemetry

☒ TELEMETRY

RSSI (Signal Strength)

☐ RSSI_ADC

Channel Map

AETR1234

'Stick Low' Threshold 1050 Stick Center

RC Deadband 0 Yaw Deadband

RC Smoothing

3. RECEIVER

After applying these settings, make sure that both the receiver and transmitter are using

the same ELRS firmware version. You can update the receiver's ELRS firmware by downloading and using the ExpressLRS Configurator.

The screenshot shows the 'Firmware version' section with a 'Show pre-releases' checkbox and a 'Releases' dropdown menu set to '3.5.4'. Below this is the 'Target' section with 'Device category' and 'Device' dropdown menus. At the bottom is the 'Flashing Method' section with three radio buttons: 'Betaflight Passthrough' (selected), 'UART (Serial)', and 'Wi-Fi'.

You can update the receiver's ELRS firmware by downloading and using the ExpressLRS Configurator. Select the appropriate firmware version (latest is recommended). Under "Device Category", choose your hardware type, and under "Device", select your receiver model. Connect the drone to your computer, but do not launch Betaflight. For the "Flashing Method", select "Betaflight Passthrough". Below that, under "Manual serial device selection", choose the USB device and click the "Flash" button to begin updating your receiver.

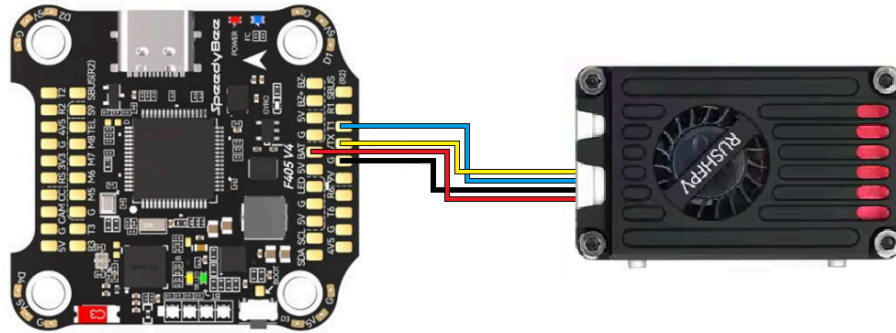
The screenshot shows the 'Actions' section with a 'Manual serial device selection' dropdown menu. Below this are 'Flashing Options' with two checkboxes: 'Erase before flash' and 'Force Flash'. At the bottom is a blue 'FLASH' button.

After the update, the receiver's red LED should blink twice repeatedly. This indicates that it is in binding mode and ready to pair with your transmitter. To update the transmitter's ELRS firmware and complete the binding process, refer to your transmitter's user manual.

4. VIDEO TRANSMITTER

Vulture10 comes with a built-in video transmitter operating in the 5.8 GHz frequency band. Ensure the video transmitter is connected to the Flight Controller as shown in the diagram.

Go to the “Ports” tab and make sure that UART1 is assigned to VTX (IRC TRAMP). IRC TRAMP is the protocol used in the video transmitter. In analog systems, the most commonly used protocols are IRC Tramp and SmartAudio.



Identifier	Configuration/MSP	Serial Rx	Telemetry Output		Sensor Input		Peripherals	
USB VCP	☒ 115200 ▾	☐	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾
UART1	☐ 115200 ▾	☐	Disabled ▾	AUTO ▾	Disabled ▾	AUTO ▾	VTX (TBS Smi ▾	AUTO ▾

Connect the battery to the drone, making sure the propellers are removed. Go to the “Video Transmitter” tab, where you will find tables and parameters related to the video transmitter. Make sure that “Device Ready” displays a green “True” status, indicating that the video transmitter is ready for use. If a red “False” appears, check the following:

- The battery is properly connected to the drone
- The wire connector is fully inserted into the video transmitter
- The wires are properly soldered to the Flight Controller

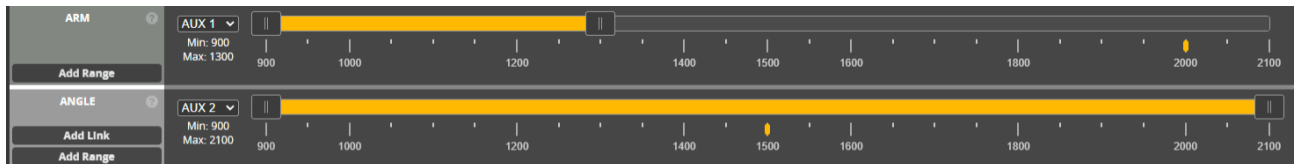
To connect your goggles to the drone, refer to your goggles’s user manual.

Selected Mode		Current Values	
☐	Enter frequency directly	Device ready	True
☐	Band	VTX Type	SmartAudio 2.1 unlocked
☐	Channel	Band	None
☐	Power	Channel	0
☐	Pit Mode	Frequency	0
☐	Pit Mode frequency	Power	None
☐	Low Power Disarm	Pit Mode	No
☐		Pit Mode frequency	0
☐		Low Power Disarm	Off
VTX Table			
☐	Number of bands	☐	Number of channels by band
☐	Name Letter Factory		
☐	Number of power levels		
☐	Value		
☐	Label		

5. BETAFLIGHT

To begin configuring the drone, remove the propellers from the motors. Launch the Betaflight Configurator and connect the drone to your computer using a USB-C cable. In the “Ports” tab, check whether the ports for different components are correctly assigned. In the “Receiver” tab, verify that the transmitter is functioning properly.

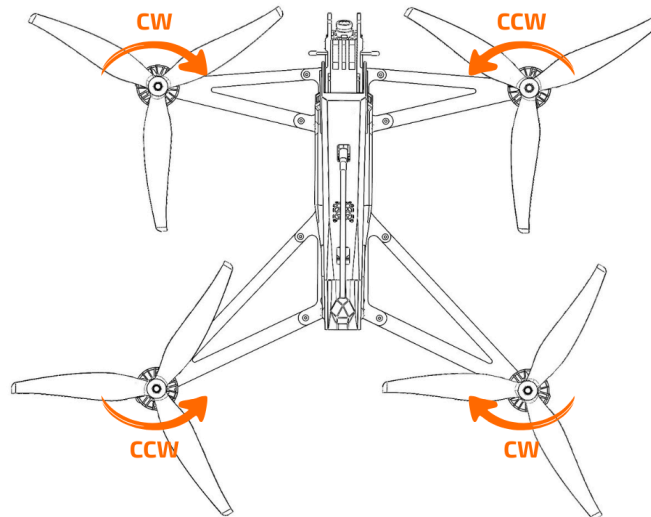
In the “Modes” tab, you will find various function settings that can be activated using the transmitter switches. Typically, the “AUX1” switch is set to arm the drone, while “AUX2” is set to keep the “Angle” flight mode always enabled.



Betaflight is the flight controller software used to configure your drone. It can be downloaded here: <https://betaflight.com/download>

6. PROPELLERS

In the diagram below, you will see the directions in which the drone propellers should be mounted. CW – clockwise, CCW – counterclockwise.



WARNING

- ⚠ Disconnect the battery and remove the propellers before working on the drone!
- ⚠ Handle propellers carefully to avoid injuries!
- ⚠ Avoid contact with spinning propellers!
- ⚠ Before each flight, ensure that the propellers are properly and securely attached to the motors!
- ⚠ Propellers wear out quickly — inspect them frequently for signs of wear, deformation, or broken parts.
- ⚠ This product is not intended for children.

7. PRE-FLIGHT CHECKLIST

- ☐ Make sure that the video and receiver antennas are properly connected before powering on the drone.
- ☐ Ensure that the drone's battery is fully charged and has no visible damage, deformation, or other signs indicating unsafe operation.
- ☐ Ensure that the battery model is compatible with the drone and that the voltage matches the specifications (e.g., for a 6S battery – around 22.2V).
- ☐ Make sure the battery is properly and securely connected, with no visible damage to electronic components.
- ☐ Ensure that the transmitter is turned on and bound to the drone, and that the receiver's indicator light is flashing normally or shows a connected status.
- ☐ Verify that the motors rotate in the correct direction – remove the propellers, connect the drone to the Betaflight Configurator, then move the throttle and check motor rotation in the motor tab.
- ☐ Ensure that the propellers are in good condition and properly mounted onto the motors.

⚠ Fly only in open areas, away from tall buildings or large metal structures. Buildings with heavy reinforcement can interfere with the signal and affect flight performance. It is recommended to fly at least 10 meters away from buildings, poles, obstacles, and similar structures.

⚠ If this is your first flight or a major update has been performed, it is recommended to start with a ground test to ensure that all functions are working properly. These preventive checks help reduce the risk of accidents and ensure safe operation of FPV drones.

8. TAKEOFF/LANDING

TAKEOFF PROCEDURE

Start by setting the throttle stick to the lowest position, then gradually increase it to lift the drone about 10–20 cm off the ground. Once the drone is hovering steadily, reduce the throttle and, as the drone approaches the ground (5–10 cm), power off the drone and the transmitter. Put on your FPV goggles or look at the monitor (e.g., a handheld screen), turn on the transmitter, and slowly increase the throttle so the drone lifts off smoothly.

LANDING PROCEDURE

1. Gradually decrease altitude – before landing, slowly bring the drone down to a safe height, maintaining stable speed and position.
2. Approach the landing zone by carefully maneuvering the drone toward a preselected area – ideally, use a gliding method to better control the descent.
3. Reduce throttle – slowly decrease the throttle so the drone can land gently on the ground.
4. Turn off the drone once it touches the ground or is within 5–10 cm from it. Avoid hard landings, as they may damage the frame or components.
5. Immediately disconnect the battery after landing to prevent injuries.

SAFETY PRECAUTIONS

- Monitor battery charge level: You can check battery status via the OSD information in your FPV goggles or on the monitor. Estimate remaining flight time and ensure sufficient reserve for a safe landing. When a single cell's voltage approaches 3.7 V, it's time to return and land. Over-discharging can permanently damage the battery.
- Be aware of your surroundings: Before landing, make sure the landing area is safe – free of people, animals, or other obstacles.
- Disconnect the battery: After the flight, always disconnect the battery to prevent accidental transmitter signals or unintended power-up, which may cause injuries.

9. GPS RESCUE MODE

The Vulture10 is equipped with a GPS module, which can be used to display information such as speed, distance, and coordinates on the Betaflight OSD screen. However, this drone does not have an active GPS Rescue (Return to Home) or automatic return function.

Flight control remains entirely the responsibility of the pilot, so it is recommended not to fly too far or too high unless you are confident in your signal strength and battery condition. The drone will not return automatically in case of signal loss or other failure.

10. DISCLAIMER

This product is not a toy and requires at least basic knowledge to operate. Begin using it gradually. Before flying the drone, carefully read this manual, as well as the disclaimer and safety guidelines containing important warnings and notes.

⚠ When using the drone in public areas, be cautious and ensure that no people or animals are nearby who could be injured by accidental contact.

⚠ The manufacturer is not responsible for any damage or accidents caused by improper use or modifications that do not comply with the manufacturer's instructions.

⚠ Before flying, check your local laws and restrictions regarding drone usage in your country or region.

⚠ Flying in strong winds, rain, or poor visibility may pose risks and damage the drone's components. The manufacturer is not liable for damage resulting from such conditions.

⚠ The user must ensure that video recording and data collection do not violate privacy laws or the rights of third parties.

⚠ Recommended for users aged 14 and older, with adult supervision by someone knowledgeable in FPV systems.

This device complies with the European Union CE requirements. It is used in accordance with safety standards EN ISO 12100 and EN 61000-6-1.

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