Fictory A3 V2

Fictory A3 V2 3-Axis Gyro RC Flight Controller Stabilizer User Manual

For Fixed-Wing Aircraft

1. Introduction

Thank you for choosing the Fictory A3 V2 3-Axis Gyro RC Flight Controller Stabilizer. This device is designed to enhance the stability and control of your fixed-wing RC aircraft, offering multiple flight modes and easy setup. This manual provides essential information for proper installation, configuration, and operation to ensure a safe and enjoyable flying experience.

2. Product Features

- **One-Key Auto-Hover:** Achieve stable hovering with a single button press, simplifying flight control.
- **Four Flight Modes:** Includes Normal Mode, Auto-Balance Mode, Auto-Hover Mode, and Gyro Off Mode, providing versatility for various flying styles and skill levels.
- **Three Wing Types Supported:** Compatible with Standard, Delta Wing (Flying Wing), and V-Tail aircraft configurations.
- **Three Servo Operating Frequencies:** Supports 50Hz, 125Hz, and 250Hz servo frequencies for precise control.
- **Separate Gain Adjustment:** Individual gain settings for each flight mode allow fine-tuning of stabilization performance.
- **Automatic Stick Centering:** Simplifies initial setup and ensures accurate control input.
- **HV Operating Voltage Support:** Compatible with 7.4V high-voltage systems.
- **Futaba S.Bus/S.Bus 2 Support:** Offers advanced connectivity options for compatible receivers.
- **User-Friendly Design:** Engineered for ease of use, making it suitable for beginners.

3. Package Contents

Please verify that all items are present in your package:

- 1 x Fictory A3 V2 Flight Controller Stabilizer

- 1 x Set of Connection Cables
- 1 x Capacitor (3300uF/16V)
- 1 x User Manual (this document)

Figure 3.1: Overview of the Fictory A3 V2 flight controller stabilizer, including connection cables and capacitor.

4. Specifications

Specification	Value
Item Name	A3 V2 Flight Controller
Material	Metal

Specification	Value
Input Voltage	5 - 7.4 V
Servo Travel	1520 ± 500µs
Gyroscope Range	± 2000dps
Accelerometer Range	± 4g
Operating Temperature	-40 to 85 °C
Dimensions	43 x 27 x 13 mm (1.7 x 1.1 x 0.5 inches)
Weight	30 g
Assembly Required	Yes
Batteries Required	No

5. Setup and Installation

5.1 Mounting the Stabilizer

Mount the A3 V2 stabilizer securely in your aircraft using the provided adhesive pads. Ensure the unit is level and oriented correctly according to the markings on the device. The unit can be mounted flat, or on its side (right or left). If mounted on its side, you may need to reverse the rudder and elevator outputs in your radio settings to compensate for the 90-degree rotation of the sensors.

Figure 5.1: Detailed view of the Fictory A3 V2 flight controller stabilizer, illustrating its compact dimensions of 43mm by 27mm.

5.2 Wiring Connections

Connect the stabilizer to your receiver and servos as follows:

- **Input Ports:** Connect your receiver's Aileron (AIL), Elevator (ELE), and Rudder (RUD) channels to the corresponding input ports on the A3 V2.
- **Output Ports:** Connect your aircraft's aileron, elevator, and rudder servos to the OUT1, OUT2, and OUT3 ports respectively.
- **S.Bus/S.Bus 2:** If using a Futaba S.Bus or S.Bus 2 receiver, connect it to the dedicated S.Bus/GAIN port.
- **Power Supply:** Ensure a reliable power supply for your servos. It is recommended to use a dedicated UBEC or ESC with a strong BEC. The included 3300uF/16V capacitor can be plugged into any unused receiver channel to help stabilize voltage and prevent instability due to voltage drops.

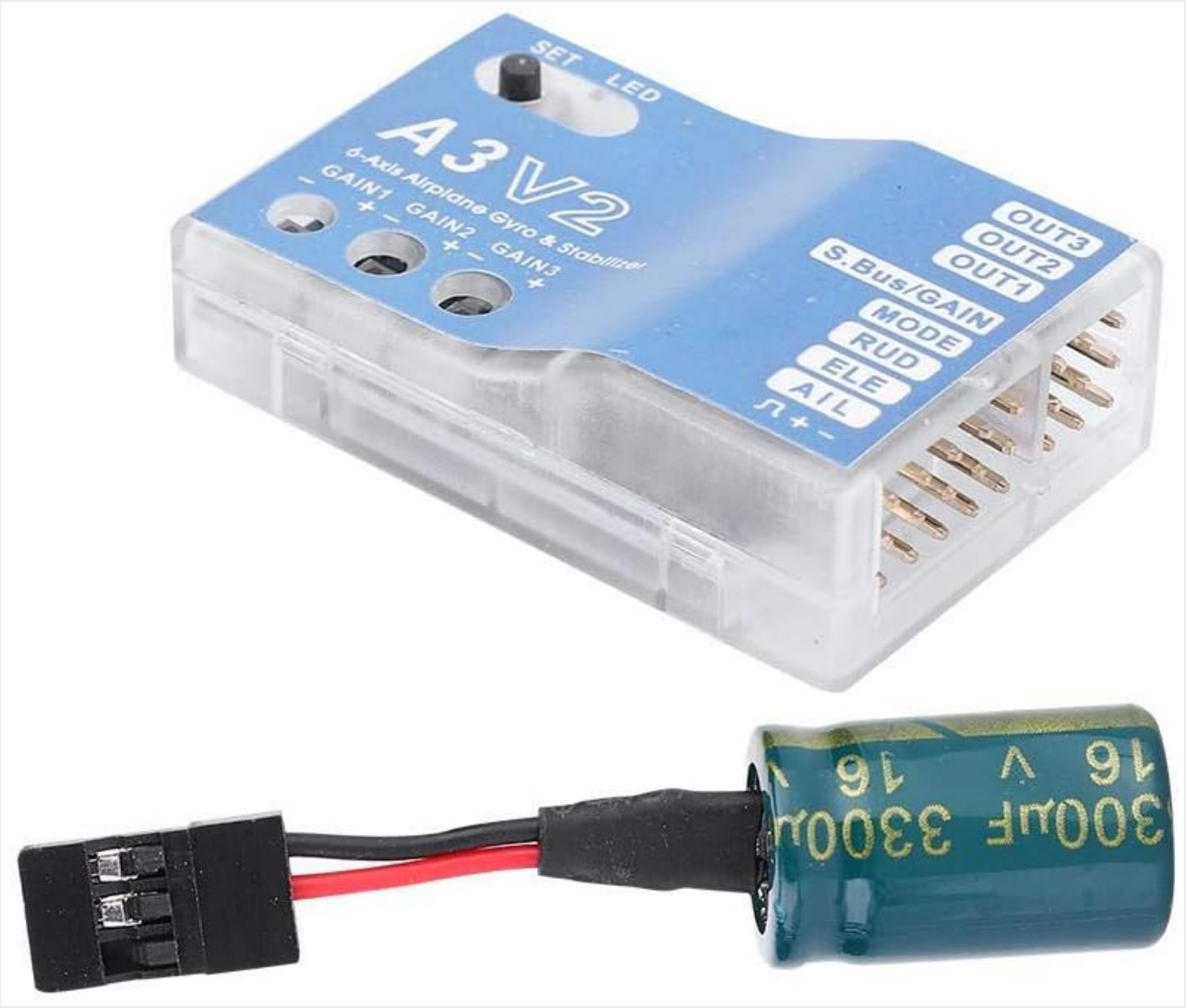

Figure 5.2: Detailed view of the Fictory A3 V2 flight controller stabilizer, showing its various input/output ports and gain adjustment potentiometers.

5.3 Initial Calibration and Gain Adjustment

After wiring, perform the following steps:

1. **Stick Centering:** Power on the aircraft and transmitter. The A3 V2 features automatic stick centering. Ensure your transmitter sticks are centered before powering on the stabilizer.
2. **Gain Adjustment:** The A3 V2 has separate gain adjustment potentiometers (GAIN1, GAIN2, GAIN3) for each flight mode. Start with conservative gain settings and adjust incrementally during flight testing to achieve optimal stability without oscillation.
3. **Wing Type Selection:** Refer to the detailed manual (if provided separately) for instructions on how to select the correct wing type (Standard, Delta Wing, V-Tail) for your aircraft.
4. **Servo Frequency Setting:** The stabilizer supports 50Hz, 125Hz, and 250Hz servo frequencies. Ensure this setting matches your servos' capabilities.

Figure 5.3: The Fictory A3 V2 flight controller stabilizer positioned next to an RC fixed-wing aircraft, emphasizing its feature of separate gain adjustment for different flight modes.

5.4 Device Reset

To reset all settings to factory defaults:

- Press and hold the SET button while powering on the gyro.
- You will hear a short beep. Continue holding the button for more than 4 seconds.
- Release the button only after you hear a long beep. This indicates that all settings have been restored to factory defaults.

6. Operating Modes

The A3 V2 offers four distinct flight modes, selectable via your transmitter:

- **Normal Mode:** Provides basic stabilization, assisting with minor corrections to maintain level flight.
- **Auto-Balance Mode:** Automatically levels the aircraft when control sticks are released, ideal for beginners or relaxed flying.

- **Auto-Hover Mode:** Engages an automatic hover function, maintaining altitude and position with minimal pilot input. This can be activated with a single key.
- **Gyro Off Mode:** Disables all stabilization functions, allowing for unassisted flight control.

Figure 6.1: The Fictory A3 V2 flight controller stabilizer shown with a remote control and an RC fixed-wing aircraft, highlighting its one-key auto-hover capability.

7. Maintenance

To ensure the longevity and reliable performance of your Fictory A3 V2 flight controller, follow these maintenance guidelines:

- **Regular Inspection:** Periodically check all wiring connections for looseness or damage. Ensure the stabilizer is securely mounted and free from vibrations.
- **Cleaning:** Keep the unit clean and free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning. Avoid using solvents or harsh chemicals.
- **Storage:** When not in use, store the stabilizer in a dry, cool environment, away from direct sunlight and extreme temperatures.

- **Avoid Physical Shock:** Protect the unit from impacts or drops, as this can damage internal components.

8. Troubleshooting

If you encounter issues with your A3 V2 flight controller, consider the following:

- **Aircraft Instability/Oscillation:** This often indicates that the gain settings are too high. Reduce the gain incrementally for the affected flight mode. Ensure the unit is securely mounted and free from excessive vibration.
- **Incorrect Servo Response:** Verify all servo connections are correct (AIL, ELE, RUD). Check your transmitter's servo reversing settings. If the unit was mounted on its side, ensure you have compensated for the sensor orientation in your radio settings.
- **Loss of Stabilization:** Check power connections to the stabilizer and receiver. Ensure the capacitor is properly connected to help maintain stable voltage. Verify that the flight mode is not set to 'Gyro Off'.
- **No Response from Stabilizer:** Confirm that the receiver is powered and bound to the transmitter. Check all wiring for continuity and correct polarity. Perform a device reset if necessary (refer to Section 5.4).

9. Safety Information

Operating RC aircraft requires caution. Always adhere to the following safety guidelines:

- **Pre-Flight Checks:** Always perform thorough pre-flight checks, including battery levels, control surface movement, and stabilizer functionality.
- **Safe Flying Environment:** Fly in open areas, away from people, animals, buildings, and power lines. Avoid flying in strong winds or adverse weather conditions.
- **Understand Your Aircraft:** Familiarize yourself with the flight characteristics of your RC aircraft and the functions of your flight controller.
- **Battery Safety:** Handle LiPo batteries with care. Follow manufacturer guidelines for charging, discharging, and storage.
- **Respect Local Regulations:** Be aware of and comply with all local laws and regulations regarding RC aircraft operation.

10. Warranty and Support

Specific warranty details for the Fictory A3 V2 Flight Controller Stabilizer are not provided in this manual. For warranty claims, technical support, or further assistance, please contact the retailer or manufacturer directly. Keep your proof of purchase for any warranty-related inquiries.