HOBBYWING XRotor FPV G2 45A 4in1 ESC

HOBBYWING XRotor FPV 45A G2 ESC (4in1) 20x20 ESC Instruction Manual

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your HOBBYWING XRotor FPV 45A G2 ESC (4in1) 20x20. Please read this manual thoroughly before using the product to ensure optimal performance and safety.
The XRotor Micro 45A G2 4IN1 ESC is an advanced electronic speed controller designed for FPV racing applications. It integrates four 45A BLHeli 32-DShot1200 ESCs, offering real-time voltage and current monitoring. This new generation ESC features a 120MHz operating frequency, enhancing aircraft control, and utilizes large MOSFETs for extended durability. Its 32-bit microprocessors and BLHeli-32 firmware ensure high efficiency, reduced heat, quick response times, and extensive functionalities.

2. Safety Precautions

- Always disconnect the battery before performing any maintenance or installation.
- Ensure correct polarity when connecting the battery to avoid damage to the ESC and other components.
- Avoid short circuits. Double-check all connections before powering on.
- Keep the ESC away from water, moisture, and extreme temperatures.
- Ensure adequate ventilation around the ESC during operation to prevent overheating.
- This product is intended for experienced users. Improper use can lead to serious injury or damage.

3. Package Contents

Verify that all items are present in your package:

- 1x HOBBYWING XRotor FPV 45A G2 ESC (4in1)
- 1x XT60 Plug
- Instruction Manual (this document)

4. Product Features

- **Integrated Design:** Four 45A BLHeli 32-DShot1200 ESCs in a compact 4-in-1 unit.
- **High Performance:** 32-bit microprocessor with up to 120MHz operating frequency.
- **Durability:** Large MOSFETs manufactured in Japan for extended lifespan.
- **Efficiency:** 3-in-1 driver ICs and high-quality ceramic capacitors for reduced heat and quicker response.
- **Advanced Firmware:** Third-generation BLHeli-32 firmware supporting DShot1200.
- **Real-time Monitoring:** Built-in voltage and current monitoring.
- **Smooth Operation:** Hardware-generated motor PWM for smooth throttle and quiet performance.
- **Active Braking:** Damped Light Mode for rapid motor deceleration and active freewheeling.
- **Compact Size:** Ideal for FPVs with 130-280mm diagonal wheelbase.

5. Specifications

Brand	HOBBYWING
Model Name	XRotor FPV G2 45A 4in1 ESC
Item Model Number	30902065
Material	Silicone
Item Weight	12 Grams (0.423 ounces)
Product Dimensions	40 x 33 x 5 mm (1.57 x 1.3 x 0.2 inches)
Input Wires	Red-14AWG-100mm / Black-14AWG-100mm
Output Wires	No wires, solder tabs
Connectors	XT60 plug (enclosed)
Applications	FPVs with 130-280mm Diagonal Wheelbase

6. Setup and Installation

6.1 Physical Installation

The XRotor FPV 45A G2 ESC is designed for a 20x20mm mounting pattern, suitable for compact FPV frames. Ensure proper insulation between the ESC and the carbon fiber frame to prevent short circuits.

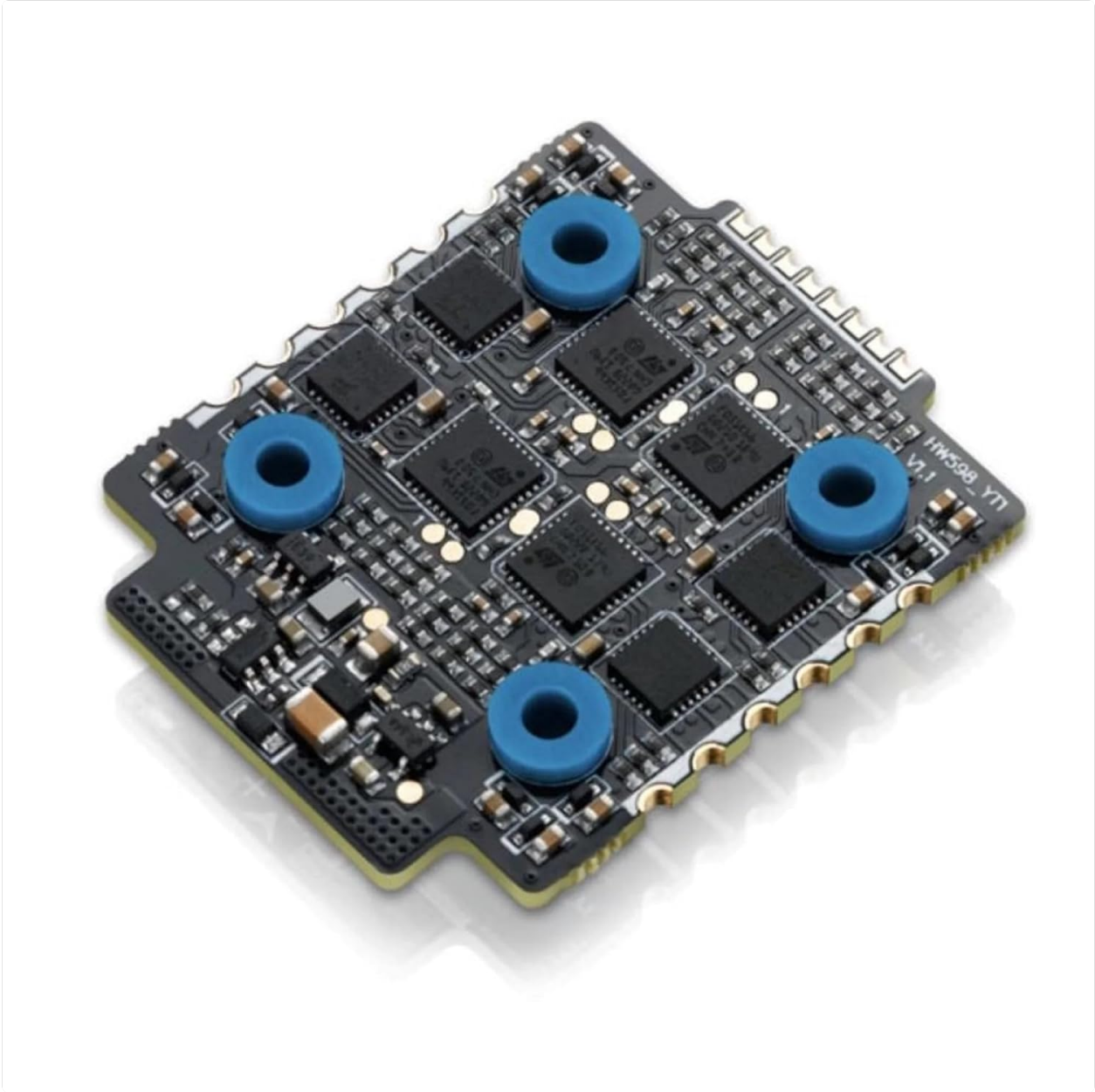

Figure 1: Top view of the HOBBYWING XRotor FPV 45A G2 ESC (4in1). This image displays the main components, including the microprocessors and capacitors, along with the four blue damping rings for mounting.

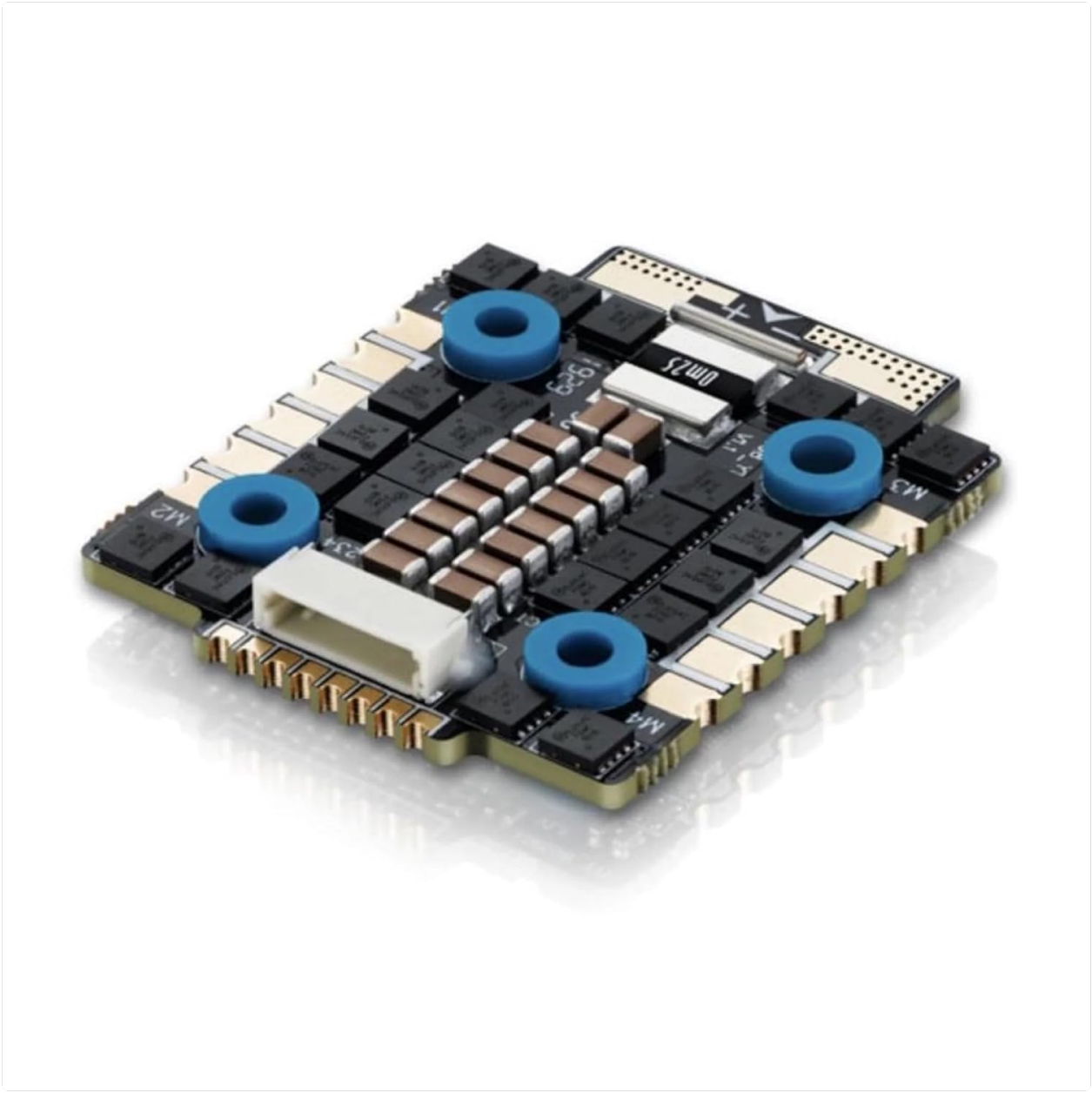

Figure 2: Bottom view of the HOBBYWING XRotor FPV 45A G2 ESC (4in1). This image highlights the solder pads for connecting the motors (M1-M4) and the main power input, as well as the signal pads.

6.2 Wiring Connections

Carefully follow the wiring diagram provided with your flight controller. The ESC features solder tabs for motor output and designated pads for power input and signal connections.

- **Power Input:** Connect the Red 14AWG wire to the positive (+) terminal and the Black 14AWG wire to the negative (-) terminal. An XT60 plug is included for battery connection.
- **Motor Output:** Solder your motor wires directly to the designated M1, M2, M3, M4 solder tabs on the ESC. Ensure correct motor rotation direction, which can be adjusted in the BLHeliSuite32 software.
- **Signal Connection:** Connect the signal wires from your flight controller to the corresponding signal pads on the ESC. Refer to your flight controller's manual for specific pinouts.
- **Telemetry:** The ESC supports real-time voltage and current monitoring. Connect the telemetry output to your flight controller if desired.

7. Operating Instructions

7.1 Firmware and Configuration

The XRotor FPV 45A G2 ESC comes pre-installed with BLHeli-32 firmware. This firmware offers extensive customization options and supports various digital protocols, including DShot1200.

- **BLHeliSuite32 Software:** Use the official BLHeliSuite32 software to configure ESC parameters, update firmware, and reverse motor direction. This software can be downloaded from the official BLHeli website.
- **DShot Protocol:** Ensure your flight controller is configured to use DShot1200 or a lower DShot protocol for optimal performance and reliability.
- **Damped Light Mode:** This feature is enabled by default and provides active braking, allowing for quicker motor deceleration and improved flight characteristics.

7.2 Calibration

Typically, DShot ESCs do not require throttle calibration. However, if you are using an analog protocol (e.g., PWM, OneShot), refer to your flight controller's manual for the throttle calibration procedure.

8. Maintenance

- Regularly inspect all solder joints and wire connections for signs of wear or damage.
- Keep the ESC clean and free from dust, dirt, and debris. Use a soft brush or compressed air for cleaning.
- Check for any physical damage to the ESC board or components.
- Ensure the ESC is adequately cooled during operation. Avoid obstructing airflow.

9. Troubleshooting

- **Motor Not Spinning:**
  - Check all motor and signal connections.
  - Verify motor direction and settings in BLHeliSuite32.
  - Ensure the flight controller is sending correct signals.
- **ESC Overheating:**
  - Ensure proper airflow and ventilation.
  - Check for short circuits or excessive current draw from motors.
  - Verify motor KV and propeller size are appropriate for the ESC's rating.
- **Erratic Motor Behavior:**
  - Check for loose connections or damaged wires.
  - Ensure the latest BLHeli-32 firmware is installed.
  - Verify DShot protocol settings on the flight controller.

For further assistance, refer to the HOBBYWING official website or contact their technical support.

10. Warranty and Support

HOBBYWING products are manufactured to high-quality standards. This product is covered by a limited warranty against manufacturing defects. Please retain your proof of purchase for warranty claims.
For technical support, firmware updates, or additional resources, please visit the official HOBBYWING website or contact your local distributor.
Note: Warranty may be voided by improper installation, unauthorized modifications, or misuse of the product.