CUIPPWRJ Blitz F7 Stack (F7 Mini 55A 32bit)

CUIPPWRJ Blitz F7 Stack V1.1 Flight Controller and E55 4-in-1 ESC User Manual

Model: Blitz F7 Stack (F7 Mini 55A 32bit)

1. Introduction

This manual provides detailed instructions for the CUIPPWRJ Blitz F7 Stack, which includes the Blitz F7 V1.1 Flight Controller and the Blitz E55 4-in-1 2-6S 32bit ESC. This integrated system is designed for drone applications, offering advanced flight control and power distribution capabilities. Please read this manual thoroughly before installation and operation to ensure proper functionality and safety.

2. Features

- Improved design with better components and lower electrical noise.
- HD VTX Connector for plug-and-play functionality (no soldering required).
- FC indicator LEDs for visual debugging.
- Powerful 32-bit processor for enhanced flight control capabilities.
- Designed for low latency and fast response, ensuring smooth flying experiences.
- Suitable for a wide range of setups, catering to enthusiasts and professionals.

3. Specifications

3.1. Blitz F7 V1.1 Flight Controller

- **MCU:** STM32 F722
- **Gyro:** BMI270
- **Barometer:** DPS310
- **OSD Chip:** AT7456
- **Flash:** 16MB (Blackbox flash)
- **UARTS:** 6
- **Motor outputs:** 4x (SH1.0 connector)

- **I2C serial:** SDA / SLA pads
- Smartaudio / IRC Tramp VTX protocol supported
- Beeper pad: Yes
- **Firmware target:** IFRC-IFLIGHT_BLITZ_F722
- **Mount pattern:** 20x20 mm / 4mm PCB hole diameter, silicon grommets for M3 screws
- **Dimensions:** 30.5x27 mm
- **Weight:** 5g

3.2. Blitz E55 4-in-1 2-6S ESC

- **Dimension:** 35*42mm
- **Mounting holes:** 20*20mm / Φ4mm
- **Weight:** 11.3g
- Supports 2-6S LIPO input
- **MCU:** G071
- **Constant Current:** 55 Amps
- **Burst Current:** 60 Amps
- Current sensor: Yes
- BEC: No
- **Current rate:** 100
- Supports: DSHOT DSHOT150/300/600/MULTISHOT/ONESHOT
- **Firmware:** BLHELI 32
- **Target:** IFLIGHT_BLITZ_G1

4. Package Contents

The package includes the following items:

- 1x BLITZ F7 V1.1 Flight Controller
- 1x BLITZ E55 4-in-1 2-6S ESC
- 1 set x silicon grommets
- 1 set x wire harness for F7 Flight controller

5. Setup and Wiring

Careful wiring is essential for the correct operation of your Blitz F7 Stack. Refer to the image below for a visual guide to the components.

Figure 1: Blitz F7 Flight Controller and E55 4-in-1 ESC Stack. This image displays the assembled Blitz F7 Flight Controller and E55 4-in-1 ESC stack. Key components visible include the STM32 F722 microcontroller, various white connectors for peripherals, a USB-C port, and mounting holes with standoffs. The green PCB features clearly marked pads and components essential for drone operation.

5.1. Wiring Suggestions

- **UART 1:** For VTX HD / Analog (Video Transmitter)
- **UART 2:** For a Receiver (e.g., SBUS, Crossfire, ELRS)
- **UART 3/4/5:** For GPS or other sensors that require a serial port
- **UART 6:** For ESC Telemetry (to monitor ESC data)

Ensure all connections are secure and correctly oriented before applying power. Incorrect wiring can damage the components.

6. Operating Instructions

Once the Blitz F7 Stack is correctly installed and wired into your drone, follow these general steps for operation:

1. **Firmware Flashing:** Connect the flight controller to your computer via the USB-C port. Use Betaflight Configurator or a similar tool to flash the appropriate firmware (IFRC-IFLIGHT_BLITZ_F722) and configure settings.
2. **ESC Configuration:** Configure the ESCs using BLHeliSuite32. Ensure motor direction and protocols (DSHOT600 recommended) are set correctly.
3. **Sensor Calibration:** Calibrate the accelerometer and gyroscope within the flight controller software.
4. **Radio Setup:** Bind your receiver to your radio transmitter and configure channels in the flight controller software.
5. **Pre-Flight Checks:** Always perform thorough pre-flight checks, including motor spin direction, propeller attachment, and battery voltage, before arming the drone.

7. Maintenance

Regular maintenance helps ensure the longevity and reliable performance of your Blitz F7 Stack:

- Keep the stack clean and free from dust, dirt, and moisture.
- Periodically inspect solder joints and wire connections for any signs of wear or damage.
- Ensure proper airflow around the ESC to prevent overheating, especially during demanding flights.
- Check for firmware updates for both the flight controller and ESC to benefit from performance improvements and bug fixes.

8. Troubleshooting

If you encounter issues with your Blitz F7 Stack, consider the following troubleshooting steps:

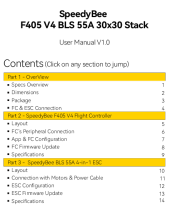
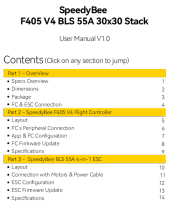
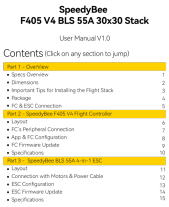
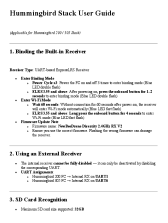
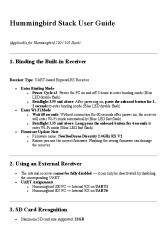
- **No Power:** Check battery connection, main power leads, and ensure no short circuits.
- **Motors Not Spinning:** Verify ESC connections, motor wiring, and ESC configuration in BLHeliSuite32. Check for correct DSHOT protocol and motor direction.
- **Flight Controller Not Connecting to PC:** Try a different USB cable or port. Ensure necessary drivers are installed.
- **Unstable Flight:** Re-calibrate sensors. Check for loose components or vibrations. Review PID tuning settings.
- **VTX/Receiver Issues:** Confirm correct UART connections and configuration in the flight controller software.

For more advanced troubleshooting, consult online communities or the manufacturer's support resources.

9. Warranty and Support

This product is covered by a limited warranty against manufacturing defects. For specific warranty terms, please refer to the product packaging or contact your retailer. For technical support, please reach out to the manufacturer or your point of purchase. Keep your proof of purchase for warranty claims.

Related Documents - Blitz F7 Stack (F7 Mini 55A 32bit)

	[SpeedyBee F405 V4 BLS 55A 30x30 Stack User Manual] User manual for the SpeedyBee F405 V4 BLS 55A 30x30 Stack, covering overview, flight controller, ESC, connections, configuration, and firmware updates.
	[SpeedyBee F405 V4 BLS 55A 30x30 Stack User Manual] User manual for the SpeedyBee F405 V4 Flight Controller and BLS 55A 4-in-1 ESC stack. Covers overview, specifications, package contents, connection methods, FC and ESC configuration, and firmware updates.
	[SpeedyBee F405 V4 BLS 55A 30x30 Stack User Manual] Comprehensive user manual for the SpeedyBee F405 V4 BLS 55A 30x30 Stack, detailing its specifications, installation, connections, configuration, and firmware updates for drone enthusiasts.
	[HGLRC FD765 STACK Manual: Setup, Configuration, and Troubleshooting Guide] Comprehensive manual for the HGLRC FD765 STACK flight controller. Learn about product specifications, interface setup, driver installation, receiver and VTX configuration, GPS settings, OSD adjustments, LED control, gyro switching, and troubleshooting common issues for your FPV drone.
	[Hummingbird Stack User Guide: Setup, Settings, and Maintenance for FPV Drones] Comprehensive user guide for the Hummingbird Stack, covering receiver binding, ESC settings, soldering, installation precautions, and maintenance for Hummingbird 200 and 305 models. Includes details on AM32 ESC configuration and Betaflight.
	[Hummingbird Stack User Guide for 200/305 Models | NewBeeDrone] Comprehensive user guide for the NewBeeDrone Hummingbird Stack (200/305 models), detailing built-in receiver binding, external receiver setup, SD card recognition, AM32 ESC configuration, Betaflight settings, soldering instructions, installation precautions, and maintenance tips.