

FlyUp ESC-60A 4in1 8S

// TECHNICAL SPECIFICATIONS

Topology	4-in-1 ESC, 4 independent channels
Processor (per channel)	ARM Cortex-M0 @ 48 MHz (STSPIN32F0A)
Motor Type	Brushless 3-phase (BLDC), sensorless
Continuous Current	60 A per channel
Burst Current (10 s)	80 A per channel
Input Voltage On-board 3.3 V Rail 5 V	3S - 8S LiPo (11.1 - 33.6 V) 600 mA (TPS560430X3F) — internal use only
Output	None — FC must provide its own logic supply
Current Telemetry	Analog 0-3.3 V (INA139, total battery current)
Max. Electrical RPM	240,000 RPM
PWM Frequency	8 kHz - 96 kHz (configurable)
Power Stage IC	STSPIN32F0A — integrated gate driver + MCU (×4)
MOSFETs	24 × HYG009N06NS1C2 (60 V, ≤ 0.9 mΩ, PDFN5×6)
MOS On-resistance	≤ 0.9 mΩ per MOSFET (typ. 0.7 mΩ @ VGS = 10 V)
Idle Current	< 80 mA @ 12 V (board total, 4 channels active)
Protocols	PWM / OneShot / DSHOT150 / DSHOT300 / DSHOT600
Telemetry	UART bidirectional (ESC telemetry) — single shared line
Firmware	AM32 (default) · ESCape32 compatible
Config Interface	ESC Configurator (USB Type-C passthrough or FC passthrough)
Mount	30.5 × 30.5 mm (M3)
Dimensions	≈ 49 × 47 mm
PCB	8-layer, 1 oz outer / 2 oz inner copper, 1.6 mm thickness

Weight	≈ 25 g (without wires)
Op. Temperature	−20 °C to +85 °C
Coating	Polyurethane conformal (IPC-CC-830)

// POWER & PROTECTION

- Over-current: Hardware current limit (RDS(on) sense) + software power cutback
- Over-temperature: Power reduction at 95 °C · Shutdown at 110 °C (auto-recovery)
- Low Voltage Cutoff: Configurable per cell, 2.8 V – 3.5 V / cell
- Signal Loss: Configurable — motor off / active brake / hold last throttle
- Startup Lock: Arm sequence required — throttle > 5% blocked on boot
- Reverse Voltage: Protected (TVS diode on VBAT)
- Desync Protection: Active (DSHOT protocol)
- Inter-channel Isolation: Each STSPIN32F0A operates independently

// FIRMWARE

Default Firmware	AM32 v2.18 (open-source)
Alternate	ESCape32 (open-source)
Update Method	USB direct · FC passthrough (DSHOT)
Motor Direction	Normal / Reversed (per-channel configurable)
Active Braking	Yes (configurable)
RPM Filter	Yes — bidirectional DSHOT RPM telemetry to FC
Per-channel Tuning	Independent settings per ESC

// COMPATIBLE DEVICES

1. Flight controllers (PWM / DSHOT) — ArduPilot / Betaflight / INAV 2. FlyUp H743 Max FC (recommended)
3. Brushless motors 3 – 8S
4. 5", 6", 7", 8", 10" propeller systems
5. FPV racing & freestyle quads (heavy / X-Class)
6. Long-range UAV platforms
7. Cinematic / cargo / industrial multirotors

- Motors
- Battery
- FC interface
- Specs

Specifications

Processor ARM Cortex-M) x 4
 STSPIN32FOA
 Continuous 60A per channel
 Burst 10s 80A per channel
 Input 3S-8S LiPo
 Protocols DSHON600 / PWM
 firmware AM32 • ESCape32
 Mount 30.5 x 30.5 mm

Battery (pads)

+ BATT+ 2-8S LiPo (6-36V)
 -BATT - Ground
 Max 36V 12 AWG wire
 XT60 / XT30 compatible

Motor 3 (M3)

A - Phase A
 B - Phase B
 C - Phase C

Motor 3 (M3)

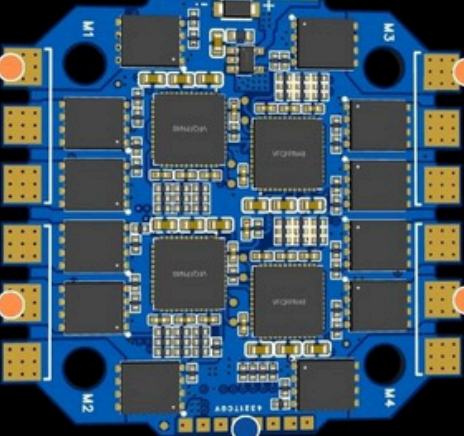
A - Phase A
 B - Phase B
 C - Phase C

Motor 1 (M1)

A - Phase A
 B - Phase B
 C - Phase C

Motor 2 (M2)

A - Phase A
 B - Phase B
 C - Phase C



FC Interface (JST-SH8-pin)

1. VBAT - Battery voltage
 2. CND - Ground
 3. CURR - Current sense
 4. TEL - ESC telemetry
 5. S1 - DSHOT/PWM M1
 6. S2 - DSHOT/PWM M2
 7. S3 - DSHOT/PWM M3
 8. S4 - DSHOT/PWM M4