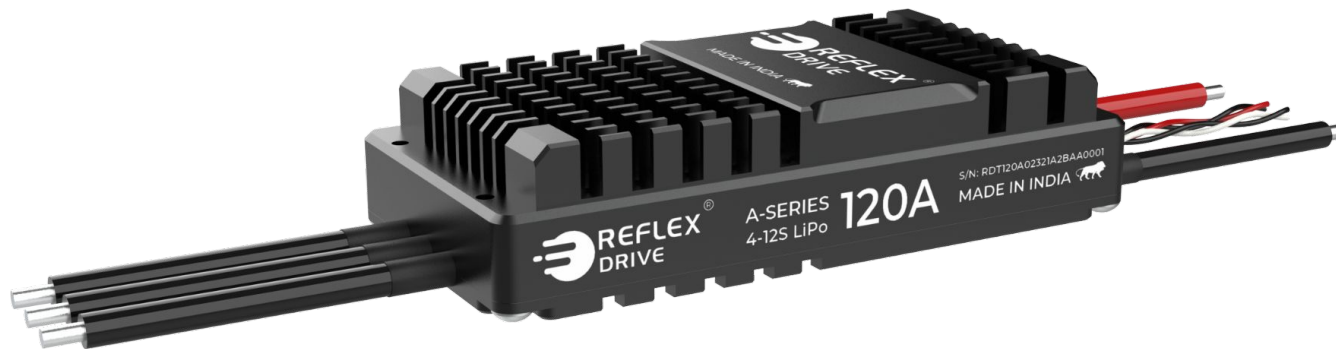
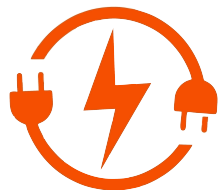


Reflex Drive

RD A series 120A ESC - Product Specification



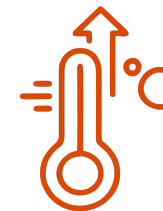
**Field Oriented
Control**



**Over Current
Protection**



**Startup
Protection**



**Over Temperature
Protection**



**Stuck Rotor
Protection**

Product Description:

The **RD A-Series ESCs** are next-generation Electronic Speed Controller (ESC) engineered for ultra-smooth, highly efficient, and whisper-quiet motor control. Powered by advanced Field Oriented Control (FOC) technology to deliver unparalleled precision, maximizing torque even at exceptionally low speeds. Housed in a premium, CNC-machined aluminum enclosure, it offers superior heat dissipation and rugged protection against harsh environmental conditions, making it the ultimate choice for high-performance applications.

Key Features & Benefits

- **True FOC Technology:** Continuously monitors and adjusts the motor's magnetic field for buttery-smooth acceleration, zero-jitter startups, and significantly reduced operating noise.
- **Enhanced Thermal Management:** The sleek aluminum casing acts as a highly efficient heatsink, allowing the ESC to sustain high continuous currents without thermal throttling.
- **Regenerative Braking:** Captures kinetic energy during deceleration and feeds it back into the battery, extending your runtime and overall system efficiency.
- **Real-Time Telemetry & Data Output:** Continuously monitors and outputs critical system data including RPM, voltage, current, and ESC temperature allowing for smart system integration and real-time performance tracking.
- **Intelligent Protections/Warnings:** Equipped with a smart onboard management system that proactively defends against over-current, over-voltage, under-voltage, short circuits, motor stalls, ensuring maximum reliability under heavy loads.

ESC Specifications

S. No.	Parameter	Requirement	Remark
1	Input Voltage(S)	4S~12S LiPo	
2	Recommended Continuous current(A)	75A	Tested at ambient temperature 30.2 °C at air speed of 12.5 m/sec
3	Peak current(<120s)	120A	Tested at ambient temperature 29.7 °C at air speed of 12.5 m/sec
4	BEC	No	-
5	Operating ambient temperature(°C)	(-20°C) ~(+ 65°C)	±5°C
6	Operating humidity(%)	15% ~ 85%RH	±5%RH
7	Standby current (at 48V)	≤ 80mA	-
8	PWM range	1050us ~ 1900us	-
9	Recommended PWM frequency	50 ~ 450Hz	-
10	Driving method	PWM & CAN	-
11	ESC Telemetry	Over CAN only	Voltage, Current, Motor RPM, PCB Temperature, Fault status
12	Input Signal Isolation	Yes (PWM only)	
13	Braking Feature	Yes	
14	Invert Motor spin	Yes	Using CAN

** The above mentioned data is measured in Lucknow, India above 123 meter of sea level.

Protection / Warnings

S No.	List of Protection / Warning	Protection / Warning Scenario
1	Over Temperature warning (OTP)	PCB temperature above 110°C
2	Stuck Rotor protection at start-up	Motor stuck or can't rotate
3	Bad Motor Phase protection at startup	Motor phase not connected properly
4	Over Voltage Protection (OVP)	Voltage above 67V
5	Under Voltage Protection (UVP)	Voltage below 20V
6	Over Current warning(OCP)	Peak current above 120A
7	Motor phase short circuit protection	Two phase of ESC output are electrically short
8	Signal Loss Protection & Warning	ESC is not receiving the PWM or CAN throttle

** All protections and warnings will be visible over CAN telemetry.

Note: Please refer to the **Reflex Drive A series FOC ESC User Manual** for full specifications, protections and warning.

Wire and Enclosure specification

S. No.	Item	Wire colors / Size	Length	Remarks
1	Input cables	Silicone wires-red/black- 10AWG	10cm	±1cm
2	Output cables	Silicone wires-black - 12AWG	12cm	±1cm
3	Signal wires	Silicone wires - black , white(2P)	19cm	±1cm
4	CAN Wires	Silicone wires - black, white, red(3P)	19cm	±1cm
5	Enclosure	Aerospace grade Aluminium-black		

Dimensions and Weight

S. No.	Details	Dimension	Remarks
1	Length	103mm	±0.4mm
2	Width	50mm	±1.2mm
3	Height	24mm	±0.1mm
4	Weight (Inc. wires)	222g	±2g

Technical Drawing

