Reflex Drive

RD A-Series ESC 150A (FOC)



- **Field Oriented Control**
- **Over Current Protection**
- **Startup Protection**
- **Over Temperature Indication**
- **Stuck Rotor Protection**

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Product Description:

The **RD A-Series ESC 150A (FOC) is a 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.

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RD A-Series ESC 150A (FOC)

High Performance Industrial ESC

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ESC Specifications

S. No.	Parameter	Requirement	Remark
1	Product name	RD A-Series ESC 150A (FOC)	
2	Voltage range	6S (22.2V) - 12S (52.2V)	
3	Commutation	FOC	
4	Maximum Peak Current	150A (30 Sec)	Tested at ambient temperature 29.7 ℃ at air speed of 12.5 m/sec
5	Maximum Peak Power	7500 W (30 Sec)	Tested at ambient temperature 29.7 ℃ at air speed of 12.5 m/sec
6	Maximum Continuous Current	75A	Tested at ambient temperature 29.7 ℃ at air speed of 12.5 m/sec
7	Maximum Continuous Power	3750 W	Tested at ambient temperature 29.7 ℃ at air speed of 12.5 m/sec
8	Weight	400 gm	
9	Dimension	137x56x33	
10	Recommended Continuous current(A)	75A	Tested at ambient temperature 30.2 ℃ at air speed of 12.5 m/sec
11	Peak current (<30 s)	150A	Tested at ambient temperature 29.7 ℃ at air speed of 12.5 m/sec
12	BEC	No	-
13	Operating ambient temperature(℃)	(-20℃) ~(+ 65℃)	±5℃
14	Operating humidity(%)	15% ~ 85%RH	±5%RH
15	Standby current (at 48V)	≤ 80mA	-
16	PWM range	1050us ~ 1950us	-
17	Recommended PWM frequency	50 ~ 450Hz	-
18	Driving method	PWM & CAN	-
19	ESC Telemetry	Over CAN only	Voltage, Current, Motor RPM, PCB Temperature, Fault status
20	Input Signal Isolation	Yes (PWM only)	
21	Braking Feature	Yes	
22	Invert Motor spin	Yes	Using CAN

Protection / Warnings

S No.	List of Protection / Warning	Protection / Warning Scenario
1	Over-temperature warning (OTW)	PCB temperature above 110℃
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	Overcurrent protection (OCP)	Peak current above 250A
7	Motor phase short circuit protection	Two phases of the ESC output are electrically shorted
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.

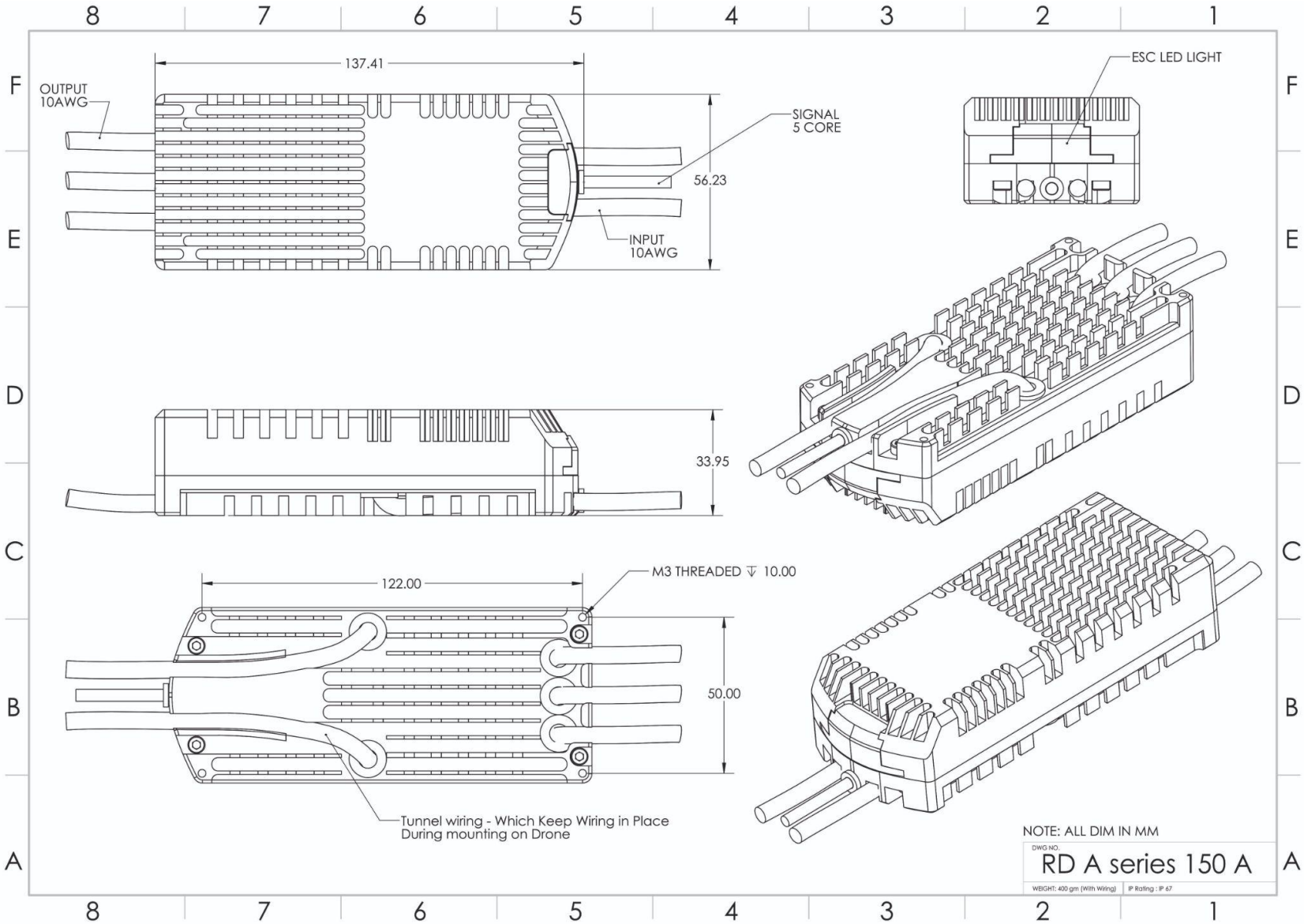
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Wire and Enclosure specification

S. No.	Item	Wire colors / Size	Length	Remarks
1	Input cables	Silicone wires-red/black-**10AWG**	10cm	±1cm
2	Output cables	Silicone wires-black -**10AWG**	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		

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Technical Drawing



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ESC : RD A-Series 150A 12S ESC (FOC)
Motor : 10025 Drone motor
Propeller : 30-inch propeller
Power source : 54.88V SMPS

Performance Test						
PWM	**Current (A)**	**RPM**	**Thrust (g)**	**Voltage (V)**	**Power**	**ESC Temp**
1200	0.5	510	253	54.83	27.4	32.1
1300	1.51	1231	1448.7	54.77	83.1	32.1
1400	5.23	1943	3640	54.72	283.8	32
1500	11.86	2697	6701.8	54.52	647	32
1600	23.33	3397	9674	54.24	1265.7	33
1700	39.78	4115	14963	53.85	2142.5	37.4
1800	67.48	4859	21059	53.27	3595.2	39.7
1900	154	5592	27523	51.4	7910	42.5
Final Temperature						**44.6°C**

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