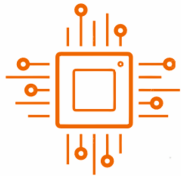


Reflex Drive

RD T-Series V2 ESC 60A - Product Specification



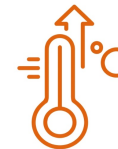
TRAPEZOIDAL TECHNOLOGY



Over current
Protection



Startup
Protection



Over Temperature
Protection



Stuck Rotor
Protection

Product Description:

RD T-Series V2 ESC 60A is an advanced Electronic Speed Controller (ESC) designed for high-performance applications. **Made in India**, this model significantly enhances thermal and current handling capabilities. Housed in a sleek and durable Aluminum enclosure, the ESC offers excellent heat dissipation and protection against harsh environmental conditions.

Technical Specification

S. No.	Parameter	Value	Remarks
1.	Input Voltage	4 - 12S LiPo	-
2.	Continuous Current	60A (60min , With Active Cooling)	Tested in 12.5 m/s continuous airflow and 28°C ambient Temperature
3.	BEC Output Voltage	No	-
4.	Operating Ambient Temperature	(-20°C) ~(+ 65°C)	-
5.	Standby current (48V)	≤ 30mA	-
6.	PWM Range (Can be calibrated)	1050us ~ 1950us	Calibration Enable
7.	Recommended Throttle refresh frequency	50Hz	-
8.	Throttle I/P mode	PWM & Dshot300	-
9.	Over Temperature Protection	Yes	-
10.	Overcurrent Protection	Yes	-
11.	Stuck Rotor Protection	Yes	-
12.	Waterproof Rating	IP54	-
13.	Startup Protection	Yes	-
14.	Invert Motor Spin	Yes	Configured using RD GUI
15.	Telemetry	Yes	Voltage, Current, PCB Temperature, Motor eRPM
16.	Braking Feature	No	-

Wire and Enclosure Specification

S No.	Item	Wire colors / Size	Length	Remarks
1	Input cables	Silicone wires-red/black- 14AWG	10cm	±1cm
2	Output cables	Silicone wires-black(x3) - 14AWG	12cm	±1cm
3	Signal & Telemetry wires	Silicone wires - Black , White(2P),Red(1P) 3P-JR Connector	22cm	±1cm
4	Enclosure	Aerospace grade anodized aluminum		Black

Dimensions & Weight

S No.	Item	Requirement	Remarks
1	Length	55mm	±0.4mm
2	Width	38.52mm	±1.2mm
3	Height	19.51mm	±0.1mm
4	Weight(Incl. ESC with wire)	80g	±1g

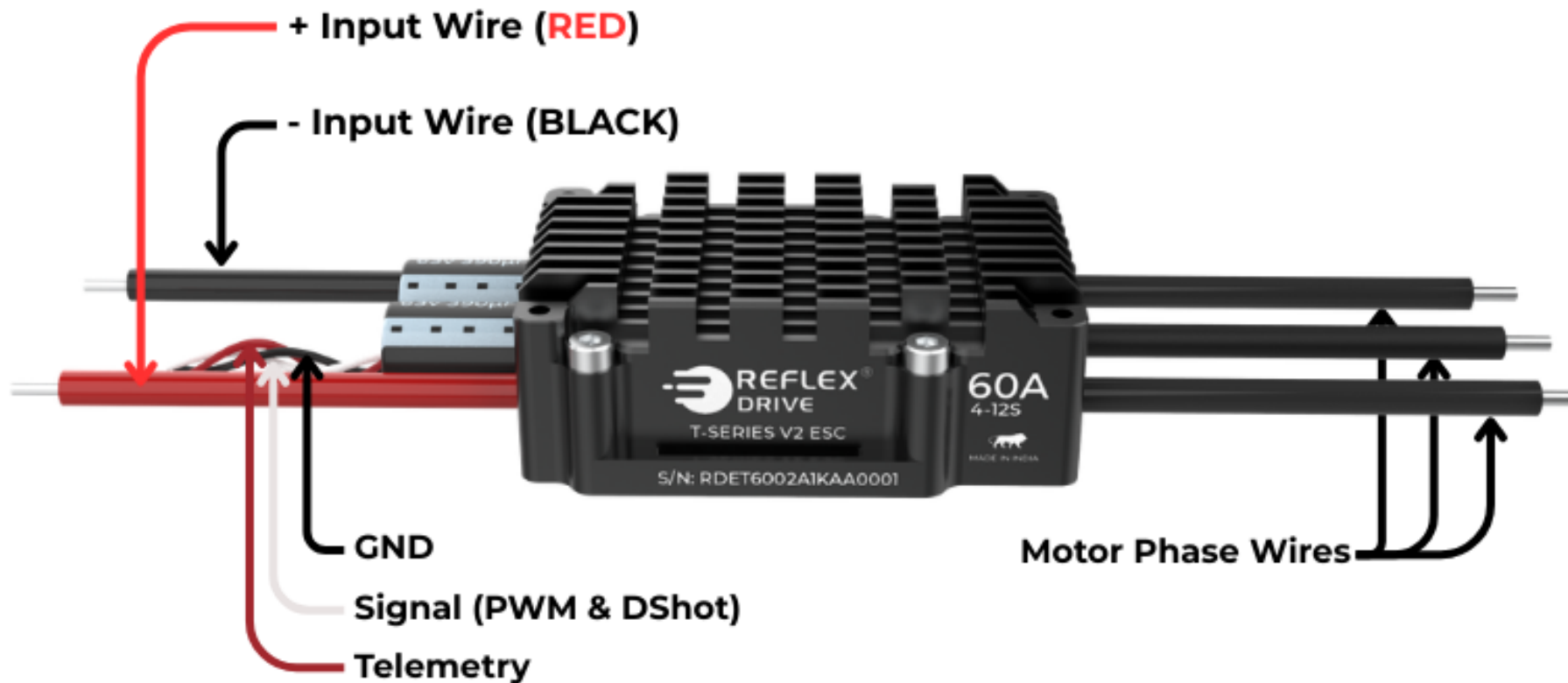
Precautions

- Do not exceed the recommended operating voltage range of the ESC, otherwise it may cause irreversible damage to the ESC.
- This ESC throttle has been solidified and does not require throttle calibration. The throttle stroke is 1050-1950us.
- Ensure adequate cooling for the ESC. Avoid enclosing it in airtight spaces. Overheating can reduce performance and may permanently damage components.
- Do not expose the ESC to water, oil, dust, or conductive particles unless it is properly sealed or coated. This can cause short circuits or corrosion.
- Always double-check battery connections. Reverse polarity can instantly damage the ESC.
- Only use batteries within the specified voltage and current ratings (e.g., LiPo with proper cell count). Over-voltage or unstable supply can damage the ESC.
- Loose connectors or poor soldering may cause arcing, noise, or intermittent failure. Ensure all connections are firm and reliable.

Protection Function Description

- **Stuck Rotor protection**
 - The ESC performs a single startup attempt and terminates operation if no rotor movement is detected. Restart is permitted only after the throttle is reset to minimum. Persistent failure indicates a possible motor or mechanical fault.
- **Over Current Protection:**
 - When the ESC output current exceeds the rated current limit of 60A, The ESC gradually reduces the output current to the rated limit of 60 A immediately.
- **Over Temperature Protection**
 - When the ESC PCB temperature exceeds 110°C, The ESC gradually reduces the max output current to $\frac{2}{3}$ of max rated current of ESC (37A) and ESC current will not exceed 37A. This reduction helps lower the temperature and prevent damage to the ESC components. Power cycle the ESC to continue the normal operation.
- **Low voltage and High voltage protection**
 - This ESC does not provide under-voltage or over-voltage protection. Operation below 18V or above 53V may cause abnormal behavior or malfunction. Ensure operation within specified limits. Immediate landing is recommended in UAV applications if voltage deviates from this range.
- **Throttle signal loss protection**
 - Motor output is disabled immediately upon loss of the throttle input signal.

Wiring Diagram:

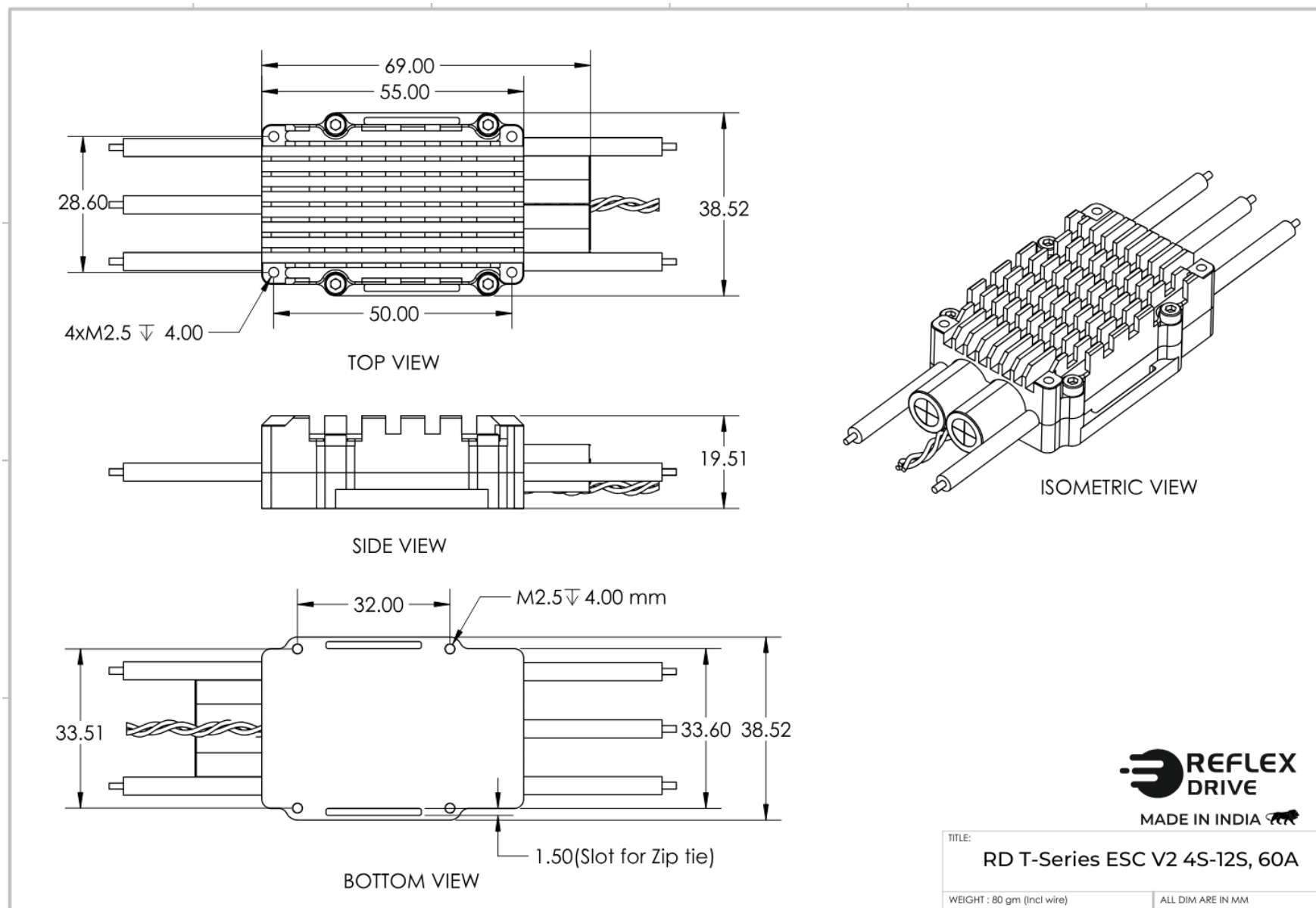


Wire Gauge (AWG)

- 1) **Input Wire: 14 AWG**
- 2) **Motor Phase Wires: 14 AWG**

Note: The ESC uses a single Dupont 2.54mm 3-pin female connector to carry all control and telemetry output signals. In this configuration, the Signal input (white) wire is on one end, Telemetry (red) is in the middle, and Ground (black) is on the opposite end. This eliminates the need for soldering and ensures broad compatibility with standard 2.54mm header interfaces.

Technical Drawing:



Throttle %	Servo	Time(sec)	Voltage (V)	T-Voltage (V)	RPM	Current (A)	T-Current (A)	Power (W)	Temperature ESC(°C)	Max Temperature (°C)
0.00%	1050	0	48.02	48.12	0	0	0.68	0	31.6°C	Max temperature after turn off power supply (°C) ESC-54.4°C
5.60%	1100	5	48.02	47.89	720	0.26	0.6	12.7	31.7°C	
11.10%	1150	10	48	47.88	1029	0.58	0.84	28	31.7°C	
16.70%	1200	15	47.96	47.79	1334	1.06	1.56	51.3	32.°C	
22.20%	1250	20	47.95	47.83	1646	1.79	2	85.3	32.4°C	
27.80%	1300	25	47.86	47.7	1967	2.89	3.2	138.3	32.8°C	
33.30%	1350	30	47.75	47.67	2257	4.33	5.04	206	33.5°C	
38.90%	1400	35	47.66	47.4	2536	6.07	6.28	288	34.3°C	
44.40%	1450	40	47.56	47.2	2795	7.92	7.88	377	35.1°C	
50.00%	1500	45	47.4	46.98	3076	10.49	10.56	497	35.9°C	
55.60%	1550	50	47.2	46.98	3320	13.35	13.24	630	37.°C	
61.10%	1600	55	47.01	46.44	3544	16.38	16.23	770	38.7°C	
66.70%	1650	60	46.8	46.14	3747	19.65	20	920	39.9°C	
72.20%	1700	65	46.57	45.84	3952	22.89	22.64	1062	41.2°C	
77.80%	1750	70	46.35	45.59	4144	26.76	26.8	1240	42.1°C	
83.30%	1800	75	46.09	45.18	4325	30.77	30.76	1417	43.8°C	
88.90%	1850	80	45.73	45.22	4508	35.64	35.08	1630	43.3°C	
94.40%	1900	85	45.38	44.36	4668	40.44	40.04	1835	47.2°C	
100.00%	1950	90	44.83	44	4916	49.17	48.82	2205	49.7°C	

Common Faults and Alert Tones Description

Fault Phenomena	Alarm	Possible Cause	Solution
After powering on, the motor fails to start	"Beep, beep, beep..." (with a 2-second interval between each beep)	The receiver's throttle channel is not outputting a throttle signal	• Check if the radio and receiver are paired correctly. • Check if the throttle channel wiring is connected properly. • Verify the ESC communication priority (factory default is PWM).