REFLEX®
DRIVE

MADE IN INDIA

INTEGRATED PROPULSION UNIT

R6 IPU

FOC
Field Oriented Control

JSS 55555 Certified

REFLEX® DRIVE

Note: Reflex Drive is a brand owned by Sunmint Energy Private Limited
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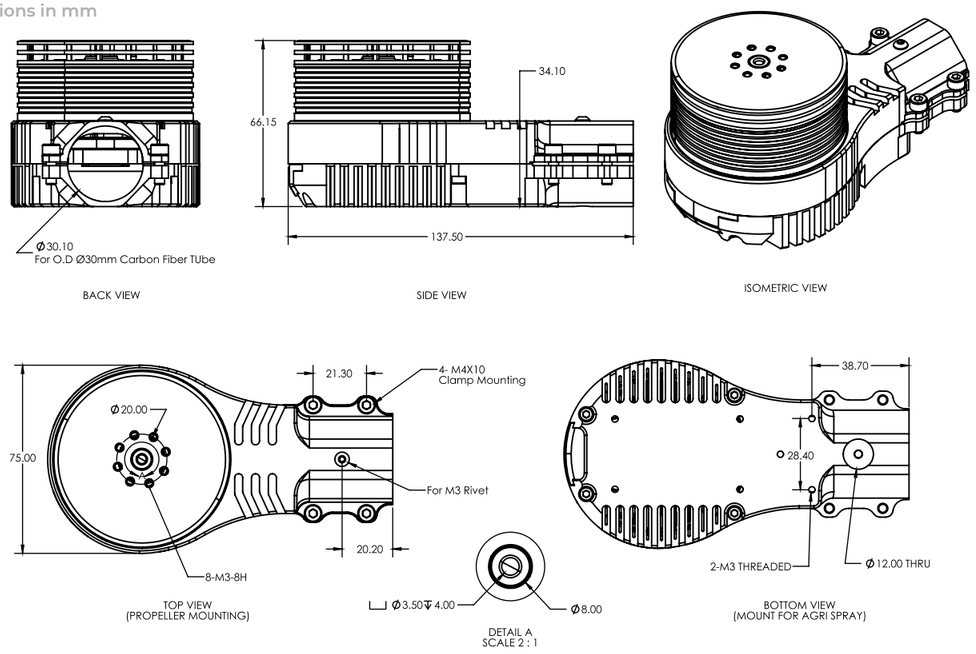
R6 IPU(14S)

INTEGRATED PROPULSION UNIT

- R6 IPU is a high-performance Integrated Propulsion Unit (IPU) specifically designed for drone applications.
- This all-in-one solution features a fully enclosed Electronic Speed Controller (ESC), ensuring optimal protection and reliability in demanding environments.
- The R6 IPU combines advanced propulsion technology with robust design, making it ideal for precision surveillance, payload, agriculture, crop monitoring, and spraying tasks.

PRODUCT DRAWING

Note: All dimensions in mm



BASIC PARAMETER

Product Name	R6 IPU
Country of Origin	India
Compliant	IPC Class 2
Certification	**JSS 55555**
	. Mechanical Shock Test
	. Random Vibration Test
	. Resonance Search Test
	. Sinusoidal Vibration Test
Throttle signal frequency	50-450Hz
Weight (without propeller)	800gm
Total weight (incl.propeller)	910gm
Arm tube dia (OD)	30mm
Maximum Thrust	11kg
Recommended take-off weight	3.5-5.5kg/rotor (48V sea level)
Max. Power	2400W
operating Temperature	-20~50°C
ESC	
Voltage Range	6S-14S (24V-58V) LiPo
Max. Input Current	80A (180 sec) with airflow
PWM Range	1050-1950us (fixed or can't be programmed)
BEC	No
PWM Inout Signal	3.3V-5V
Communication Protocol	PWM, CAN
Telemetry (over CAN)	Voltage, Current, Temperature, RPM, Fault status

ESC	
Power Leads (AWG & Length)	12AWG, 200°C & 1 mtr.
ESC Signal Control lead	22 AWG, 2-wire JR (W-B)
ESC Telemetry lead	22 AWG, 2-wire JR (R-B)
Protection/Warning	Over Current Protection
	Over temperature Indication
	Low Voltage Protection
	Throttle Loss Protrction
	Stall Protection
MOTOR	
Motor KV Rating	160KV
Stator Poles / Magnet Poles	24/28
Motor Dimension	Φ70mm x 38.85mm
Recommended Propeller	RD 2480 (Foldable)

Safe Operating Notes	
1.	Ensure adequate air flow for ESC and motor cooling during continuous high-load operation.
2.	Actual Performance may vary depending on altitude, ambient temperature , air density, propeller type, air flow conditions, and installation configuration.
3.	Do not exceed rated voltage, current, and throttle limits. Exceeding limits may cause overheating or permanent damage.
4.	It is recommended to maintain a 20-30% safety margin below maximum tested values for reliable long term operation.
5.	Ensure all electrical connections (battery, motor, and signal wires) are properly secured and insulated. Loose or poor connections may cause voltage fluctuations, overheating, or malfunction of the ESC.

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TEST DATA

Propeller	Power Source	KV	Throttle % (800-2200)	Servo	Power (W)	Current (A)	RPM	Thrust (g)	Efficiency (g/w)
RD 2480	48V-DC Supply	160KV	33	1260	48	1	1398	785	16.4
			37	1320	96	2	1891	1495	15.6
			40	1360	154	3.2	2173	1957	12.7
			42	1390	206	4.3	2407	2399	11.6
			44	1420	250	5.2	2562	2715	10.9
			46	1440	293	6.1	2711	3042	10.4
			47	1460	360	7.5	2914	3545	9.8
			48	1470	384	8	2981	3729	9.7
			51	1510	494	10.3	3256	4418	8.9
			53	1540	610	12.7	3465	4985	8.2
			54	1560	682	14.2	3596	5409	7.9
			56	1590	792	16.5	3776	5962	7.5
			58	1610	878	18.3	3894	6378	7.3
			59	1630	974	20.3	4035	6744	6.9
			61	1660	1080	22.5	4150	7198	6.7
			63	1680	1166	24.3	4258	7517	6.4
			64	1700	1286	26.8	4386	8028	6.2
			66	1720	1368	28.5	4476	8344	6.1
			67	1740	1488	31	4593	8770	5.9
			69	1760	1608	33.5	4689	9147	5.7
			70	1780	1728	36	4766	9493	5.5
			71	1800	1867	38.9	4874	9771	5.2
			73	1820	1978	41.2	4953	10167	5.1
			74	1840	2112	44	5047	10596	5
			76	1860	2270	47.3	5117	10816	4.8
			77	1880	2371	49.4	5172	11005	4.6
			79	1900	2496	52	5239	11268	4.5

The above test has been performed at an altitude of 123 m above from sea level. The ambient temperature was 35°C

DESCRIPTION OF WARNING TONE

Trouble	Warning Tone	Possible cause	Solution
ESC can not start the motor	" Beep-beep-beep....." (rapid beeping)	The throtlle stick is not at the lowest position or the throttle range setting is too small.	Move the throttle stick to the lowest position or recalibrate the throttle range.
ESC can not start the motor	" Beep....Beep.....Beep....." (2-second interval)	No output signal from the throttle channel of the reciever.	Check whether the transmitter and reciever are properly bound. Also check the throttle wire is correctly connected to the reciever channel.

DESCRIPTION OF LIGHT COLOR STATUS

Flashing of LED	Indication	Recommended Action
1 short flash	Over-Voltage detected	• Change the battery (Ensure voltage is below 63V).
2 short flash	Under-Voltage detected	• Replace or change the battery (Ensure voltage is above 18V).
1 long flash	Throttle signal lost	• Verify signal wire connection to the flight controller. • Ensure remote controller and flight controller are powered on. • Check the resistance of the black and white wires, if short circuit is found, contact the after-sales support.
1 long flash + 1 short flash	Throttle not at to zero position	• Occurs during motor rotation. • Inspect aircraft batteryand wiring. • Check for any short circuit in the system.
1 long flash + 2 short flash	Mosfet temperature is too high (above 110°C).	• Allow the power system cool completely, then restart.
2 long flash + 1 short flash	ESC short-circuit	• Inspect motor condition caeefully. contact after sales service if issue continuous.
1 long flash + 4 short flash	Stall protection activated	•Check motor for foreign objects and remove them before operation.

NOTE: LED color is configurable through CAN as per given list.

Green Red Blue White Yellow Purple Cyan OFF LED OFF

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