AIRPLANE-32 SERIES ESC MANUAL

INTRODUCTION:

Thank you for purchasing Airplane-32 Series ESC product!
Brushless power systems can be very dangerous. Any improper use may cause personal injury and damage to the product andrelated devices. We strongly recommend reading through this user manual before use.
Because we have no control over the use, installation, or maintenance of this product, no liability may be assumed for any damage or losses resulting from the use of the product. We do not assume responsibility for anylosses caused by unauthorized modifications to our product.For the latest specifications, please visit the company website: www.vgoodrc.com

PRODUCT FEATURES:

1. 32 bit ARM MCU, small size, light weight and rapid running speed.
2. High resolution, smooth and responsive throttle linear. Throttle signal loss protect implemented.
3. Synchronous rectification, regenerative braking, more energy-efficient compared with the other regular ESCs.
4. Automatically detect input signal. Throttle is available for setting to compatible with different controllers.
5. Good compatibility to motors, it can work well for most motors in the market.
6. Easy to program with prog-card, specially designed for fixed wing, complete independent intellectual property rights with software and can keep on upgrading.

SPECIFICATION:

1. Support 6A-150A, 2- 8S (Please check ESC sticker to verify the specified cells and power, more high voltage items to be added)
2. PWM output frequency range is 8-24KHz. Different PWM frequency can be set by programming card.
3. Regular throttle range is: 900us~2400us
4. Max RPM: 300,000 rolls (2poles), 100,000 rolls (6poles), 500,000 rolls (12poles).
5. Customized settings can be done with prog-card and controller (Brake/Non Brake).
6. It supports setting motor forward/Backward by prog-card.

CONNECTION DIAGRAM:
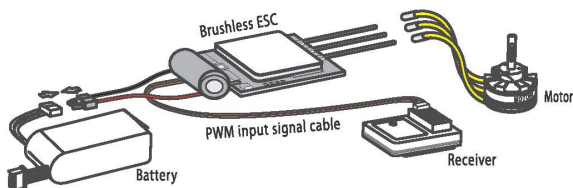
OPERATION:

1. Throttle Calibration:

Please set throttle when the first time to use the ESC.
Step: 1-Startup controller and push stick at highest throttle position.
Step: 2-Power on ESC, motor beeps "♪♪", means high throttle set ok;
Step: 3-Push stick to the lowest position, motor beeps "♪♪" means low throttle is detected, then another "♪♪" as confirmation that throttle is set ok and ready, you can push stick to go.

2. Setting (Brake ON/Brake OFF) by controller

Put the stick at middle-> Power on ESC->A sequence beeps and then follow with single and repeat "♪"- "♪"- "♪"……, means now it's in controller brake setting procedure, -> push stick to Max throttle(means Brake ON) or push stick to min throttle(means Brake OFF)->a sequence beeps means setting ok and followed 2 beeps "♪♪" means ESC is ready.

3. Normal start procedure:

Startup controller and push stick to Min throttle (if higher than1800us, it will get into throttle calibration).
Connect ESC as connection diagram, power on ESC, ESC will detect battery cells and motor beeps "♪♪♪…". For example 4 cells batter, beeps will be: "♪♪♪♪". Then 2 beeps "♪♪" means ESC is ready.

DETAILS SETTINGS WITH PROGRAMMING CARD:

CUTOFF MODE / BATT.TYPE	Off	Slow down	Cut off	LiHv	LiPo	NiMh	
CUTOFF VOLTAGE	2.9	3.0	3.1	3.2	3.3	3.4	3.5
LITHIUM CELLS	2	3	4	5	6	7	8
LITHIUM CELLS	9	10	11	12	13	14	Auto
PROTECT TEMPERATURE	Off	90℃	100℃	110℃	120℃	130℃	140℃
ADVANCED TIMING	0°	6°	12°	18°	24°	30°	Auto
BRAKE STRENGTH / MOTO DIRECTION	Off	25%	50%	75%	100%	Normal	Reversed
STARTUP POWER	10%	20%	25%	30%	35%	40%	45%
AUTO ROTATION RESTART TIME	Off	10S	15S	20S	30S	40S	60S

Safety points:

Due to brushless power system is powerful, improper using may cause the personal injury and device damage. Please strictly follow the instructions to operate.
1. Please don't operate long time with the battery under-voltage. It will reduce the battery usage life and ESC working efficiency.
2. Please don't operate long time when the ESC is over temperature, otherwise it will damage the MOS FET easily.
3. Please don't let ESC overvoltage for a long time, otherwise it will short the usage life of ESC.
4. Always keep all the things away from propeller when working on a power system with the battery connected
5. Please pay attention to the motor. Don't operate continually when the motor was blocked. Otherwise, it will reduce the usage life of motor and ESC.
6. Always use ESC in safe situation.
7. Broken ESC can't be used.

ATTENTIONS:

If motor rotation direction is wrong, you can exchange any two of the three motor cables to correct.
Pay attention to the polarity, wrong polarity connection will cause ESC and motor damage!
If a noise occurred during accelerating, please increase timing angle. If no work until increase timing angle to 30, means the motor is overloaded, please change to use a smaller propeller or lower the voltage or change a better motor.
If motor stop rotating and you heard twice beeps, voltage is under the set

value. Please tune each battery voltage to 29V or 30V. If no working, maybe battery is over discharged or the motor wires is too thin, too long or connector is out of order.
Please leave some space between brake point and start up point for stick to move.
Timing setting ref.:
Inner rotor: 0 ~12°
Outer rotor: 18 ~30°
It is better to set the timing as motor manufacturer recommend.The timing is bigger, the RPM is bigger, the power is stronger.

FAULT ANALYSIS BEEPS:

Motor will beep accordingly when ESC happen with below conditions, warning beeps will be cleared after restarting ESC.
1. 1 beep repeat: Under-voltage identification.
2. 2 beeps repeat: Temperature rise warning.
3. 3 beeps repeat: Receiver signals failed
4. 4 beeps repeat: means startup failed.