WBP Atlas Sink 16S120A G1 ESC(AM32) Manual

Specs:



- Model: Atlas Sink 16S120A G1
- SKU: WBP-AT-SK-16-120-G1-AM32
- Firmware: AM32_WBP_AT16120G1_F421_2.19
- Voltage: 5S~16S Lipo
- Peak Current: 200A(3s);
- Continuous Current: 120A(45s); 60 A(3 mins, under good heat dissipation condition)
- BEC: No
- Programming Tool: ESC Config Tool
- Programming Link: https://am32.ca/
- Import Source Support: PWM/ Dshot300/ Dshot600
- Data Transmission: TX Port
- Startup: OPEN/ Sinusoidal Startup(sensorless)
- Size: L74*W36.4*H22.7mm(with pad); L60.4*W36.4*H22.7mm(without pad)
- Weight: 84g

Feature:

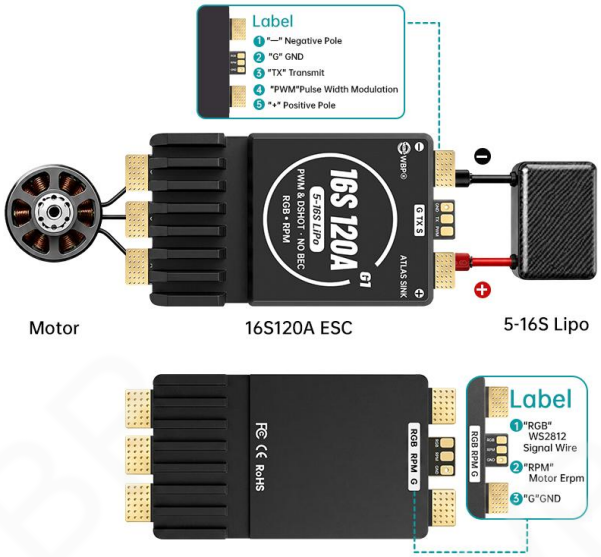
- High-performance CPU: core MCU: AT32F421K8U7, with high efficiency of 120MHZ.
- Adapt optimized AM32 with fast response and excellent performance.
- PCB structuring design: well-organized wiring and component layout, effectively separating the power terminals and signal terminals, enhancing the stability and utility of the ESC.Using a 6-layer design with a 3OZ thick copper layer as well as large-diameter copper strips on the main power lines, greatly increasing the current-carrying and heat dissipation capability.
- Wide voltage input: support 5~16S Li-po input, suitable for 10-20 inches medium and high-voltage drones with X-Class structure.
- Support multiple input source: once ESC was powered on, it will auto detect the throttle signal. Support Servo PWM, one-way and both-way Dshot(300,600).
- Variable PWM: switching PWM frequency according different rpm, highly improving motor working efficiency.
- Support sinusoidal sensorless startup: in some cases, this mode enables the motor to smoothly transit to the reverse electrical mode with heavy load.
- Support upgrade/parameters setup via ESC Config Tool/web.
- Compact layout with light weight, suitable for UAV with limited arm space.
- Support RPM square wave signal output, making it easier for customers to measure the motor rpm.
- Support WS2812 RGB light signal control, enabling customers to identify the working status of the motor controller easily.
- Built-in precise current and temperature sensor. Support trans back ESC working data via pin of TX port, monitoring core data such as temperature, voltage, current, and rpm.

- Adapt silicone twisted pair as signal wires, effectively reducing the signal interference during copper wire transmission process, enhancing the flight stability.
- Equipped with an aluminum alloy radiator, efficiently dissipating heat and improving working stability in a long term.

Wiring Diagram:

- **To prevent short circuits or electric leakage, please ensure that the connection well insulated.**

V+: Positive Pole GND: Ground
V-: Negative Pole TX: Transmit
S:Throttle Signal
RGB: WS2812
RPM: Motor Erpm Signal Wire



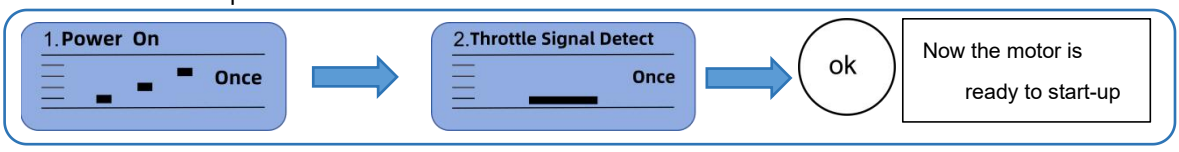
Programmable Parameters

- **Reverse Rotation:** Change the default motor rotate direction.
- **Complementary PWM:** Once turn on, the ESC will reduce the motor speed when the throttle decreases, which can greatly improve response speed.
- **Variable PWM:** Once turn on, ESC will adjust PWM frequency according to real-time motor rpm. It can work smoothly at low speed and improve efficiency at high speed.
- **Bi-directional (fwd/rev):** Enable motor rotate forward/reverse. Motor will stop when the throttle is in middle position, push the throttle to make it go forward, pull the throttle to make it go backward. Suitable for 3D aircraft, RC cars or drones with the "turning turtle" (reverse and flip) function.
- **Stuck Rotor Protection:** When detecting the motor is stuck, ESC will cut off the current automatically to prevent burning motor/ESC board.
- **Brake On Stop:** When the throttle decreases to 0, it will apply force to brake and stop immediately, usually used in gliders with folding propellers to prevent the blades from continuing to rotate during gliding, thus avoiding producing resistance.
- **Stall Protection:** When the equipment is under heavy load which makes the ESC and motor asynchronous, it will activate the protection system to restore/shut down.
- **Sinusoidal Startup:** Using sinusoidal algorithm when start up can make it smoother, reducing abnormal sound and shakes.
- **30 ms Telemetry：** Sending ESC status data(rpm, current, voltage,temperature, etc.) to FC every 30ms via telemetering port.

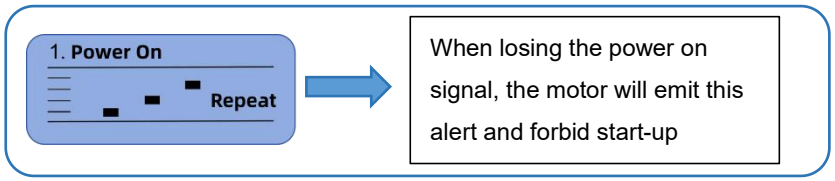
- **Use Hall Sensors:** If you use sensor brushless motor with HALL, click here to gain precise low speed control capacity(mainly used in RC crawler).
- **Timing Advance:** The motor advance angle can be set to automatic/1-31°. A medium advance angle is typically suitable for most motors, but if the motor does not run smoothly, try to adjust the angle. For some high sensitivity motors, the commutation demagnetization time is relatively long, especially at low speed. In such cases, the motor may stall or run unevenly when throttle is increased rapidly. Increasing the advance angle can help solve this problem.
- **Motor KV:** KV value represents the increased rpm of the motor under no-load condition for every 1V increase. It can achieve the ideal condition when it is set to be close to the motor's labeled value.
- **Motor Poles:** Refers to the number of magnetic poles (magnets) inside the motor rotor. ESC must know the correct poles number to calculate the actual rotational speed of the motor. Incorrect settings will result in abnormal display of the measured rotational speed.
- **Startup Power:** Used to set the initial torque when motor starts up. If set too low, the motor might fail to start up or shake abnormally. If it is set too high will lead to violent start-up, even burn the components or crack the propellers.
- **PWM Frequency:** The higher the frequency, the less noise the motor generates and the smoother it will be, while ESC is more prone to overheating (no need to adjust this parameter generally).
- **Beep Volume:** The volume of the alert emitted when the ESC powers on or triggers an alarm. Note: ESC does not have a horn itself; the sound is produced by inducing micro-vibrations in the motor coils via high-frequency current (no need to adjust this parameter).
- **Sine Startup Range:** Determines the speed range within which Sinusoidal Startup is active after start; once this range is exceeded, the system will switch back to conventional square wave/trapezoidal wave drive.
- **Sine Mode Power:** The amount of power supplied to the motor during the Sinusoidal Startup phase.
- **Running Brake Level:** The amount of braking force applied by the ESC when the throttle is reduced (but not fully released to 0) during flight/driving.

Working Alert Sound:

- Normal Self-inspection Sound of Motor



- Abnormal Signal Warning



Safety Caution:

- **Battery Management:** Avoid single cell over-voltage and over-discharge. Keep balance of the battery.
- **Polarities must not be Reversed:** The positive and negative terminals of the battery and the FC signal wires signal wires must be connected in the correct polarity. Double-check the connections every time you wire or replace the battery. Reversing the polarity will cause the ESC's MOSFETs to short-circuit, resulting in permanent damage to the equipment.
- **Correct Power Up Sequence:** First connect the flight controller and ESC, then the battery. This prevents the motor from losing control due to abnormal throttle signals when power up. Correct the positive and negative polarity throughout the process, and double check everything before powering on.
- **Wait for the Self-test Completion:** After powering on, wait for the ESC to complete the throttle signal detection and initialization self-test (indicated by a normal beep). Only can you unlock the FC after confirming that the self-test was successful. DO NOT unlock immediately once powering on.
- **Troubleshooting Abnormal Power-off:** If, after powering on, the ESC emits frequent abnormal error beeps or the motor does not respond, immediately cut off the power and troubleshoot the issue. DO NOT power on under such condition.
- **Firmware Flashing Warning:** DO NOT flash firmwares not compatible with this ESC, as this may cause permanent damage to the ESC.
- **D-Shot Wiring Guidelines:** When using the D-Shot signal protocol, retain the GND from the ESC's original twisted-pair signal cable to ensure the GND well connected and maintain the stability.
- **Advance Angle Parameter Adjustment:** If the motor experiences abnormal conditions such as rough startup, or if you need to increase the motor's max speed, try to adjust the ESC's advance angle parameter to improve performance.
- **Operating Limits:** DO NOT exceed the ESC's rated operating current/voltage ranges and avoid equipment damage caused by overloading;
- **Safety Guidelines:** Before performing any operations, such as plugging/unplugging cables or wiring, make sure the system power is completely turned off.

Contact

- **Technical Support:** Please contact WBP after-sales/technical team to gain more information or technical support.
- **Information Consultant Service:** info@wbptech.com
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