VL Series ESC

Quick Start Guide

High Performance Programmable Controller for Brushless Motors

✳Note: Information in this document is subject to change without notice and should not be construed as a commitment.

CAUTION

Before using the ESCs，Please read through this manual and related documents. Keep the propeller away from your body and others at all times.

- USE the parameter provided by the manufacturer or advise the power combination in advance. ESCs with advanced FOC motor control algorithms require precise matching of motor parameters.
- DON'T replacing paddles for pre-configured power combinations. Incorrect pairing may trigger ESC protection or result in poor power performance.
- Make sure that all wires should be reliably soldered or connected and have good insulation. Failure to do so may result in damage to the ESCs.
- We suggest that you remove the propeller when programming Parameters.
- Always ensure sufficient cooling in order to prevent overheating of the ESCs.
- Before flight, ensure that all ESCs are operating on the same settings and firmware.
- CAN ID cannot be repeated on the same drone. Before using it, you need to configure the ID.

Product Features

FOC	Advanced non-inductive FOC algorithms, High efficiency, high speed, high reliability, low noise, smooth starting and running.
	Fixed paddle function, can specify paddle angle at stop. *✳Requires position feedback module and encoder motor.*
	Built-in status monitoring and logging.
	Energy recovery function, longer flight time.
	PWM/CAN dual control mode, SYNC/PWM first/CAN first. Telemetry via CAN.
LED	Adjustable LED output.
	Small size, light weight, easy to install.
	Programming Parameters
CAN	DRONECAN / CUBECAN® protocols. CUBECAN is an easy-to-use protocol designed by TMOTOR.

Protection Function

Voltage Protection	Real time detection of supply voltage and warning if outside normal operating range (user configurable). Motor cannot start (Don't stop when rotating).
Overcurrent Protection	The ESC phase/bus current will not exceed the maximum set value.
Overheat Protection	Three protection temperatures are 105°C, 110°C and 115°C. When the temperature exceeds the value as above, with the upper limit of its phase current reduced to 80%, 50% and 30% of the rated value respectively. Users can turn off this feature.
Throttle Detection	If the throttle signal pulse width exceeds the normal range (600~2500us) or is not detected, the ESC will stop and emit an audible alarm.
Blockage Protection	The motor's blockage can be detected in real-time. if the start/run stall lasts for 5 seconds, the engine will stop and display an abnormality; after 5 seconds, the engine will automatically recover and restart.
Phase loss protection	ESC automatically detects the phase connect when power on. When Failure occurs, make alarm and stop operation.
BEEP code	
"Di——"	Self-inspection passed
"Di、Di、Di"	Start no throttle signal, PWM throttle lost
"Di-Di——"	Start throttle PWM non-zero

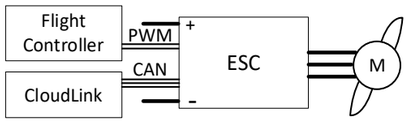
Connection Diagram

⚠ ***Power supply must be connected correctly.***

1、 Nomal Applications

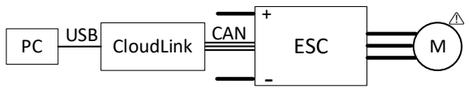
✳In this application, When telemetry is required, CAN must be connected.

2、 CloudLink Application on UAV



✳In this application, the CloudLinK is used as a data logger.

3、 ESC Programming

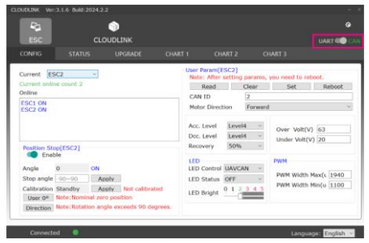


⚠ *When Programming , the paddles should be removed or keeped away from bodys.*

Signal line description:			
PWM	In/-/Gnd	Transparent / - / Black	■□■
CAN	H/L/Gnd	Yellow / Green / Grey	■■■

Programming Parameters

1、Programming Parameters using CloudLink. Parameters include CAN ID, motor direction, acc. OR dec. capabilities, voltage alarm limits, recovery capabilities, LED status, throttle pulse width range, etc. Please refer to the CloudLink User Manual for detail.



2、DRONECAN / CUBECAN® protocols is supported. It can be switched through the cloud box client. CUBECAN is an easy-to-use protocol designed by TMOTOR. Please refer to TMOTOR ESCs CAN Communication Manual for detail.

✳You can download "CloudLink User Manual" and "TMOTOR ESCs CAN Communication Manual" from the official website or by contacting our sales and technical support.

STATEMENT

●This is a high-power, electromechanical device with the potential to be very dangerous – always handle with caution and be aware of proper operation. The operator should have professional knowledge and skills and have received relevant professional training.

●Before using this product, read the product manual and understand the safety precautions. Failure to observe the safety precautions may result in death, personal injury or equipment damage.

●The "DANGER", "WARNING" and "CAUTION" notices in this manual do not represent all safety matters to be observed, but are supplementary to all safety precautions.

●This product should be used in an environment that complies with the design specifications, otherwise it may cause malfunction. Abnormal functioning or damage to parts, etc. caused by failure to comply with the relevant regulations are not covered by the product quality warranty.

●We accept no legal responsibility for accidents to persons or damage to property caused by failure to comply with the contents of this manual or by improper operation of the product.

⚠ *Indicates death or serious bodily injury if not operated as prescribed*

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